Bayswater Power Station Upgrade Project

State Significant Development Assessment

SSD-9697

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Cover image: View of Bayswater Ash Dam in middle ground and Bayswater Power Station in background – site photo March 2021

Executive Summary

Background

Bayswater Power Station (Bayswater) is located around 10 kilometres (km) south east of Muswellbrook in the Muswellbrook and Singleton local government areas. Bayswater was commissioned in 1985 and has a current operational life up to 2035. The power station is owned and operated by AGL Macquarie who acquired it from the NSW Government in 2014.

Project

AGL is seeking approval for the Bayswater Power Station Upgrade Project (the project) to ensure ongoing operation of the facility for its remaining operational life and improve environmental outcomes. The project includes the following components:

- augmentation of the existing ash dam;
- construction of a salt cake landfill facility;
- upgrades to increase ash recycling;
- construction of borrow pits;
- water infrastructure upgrades; and
- ancillary works.

The project would not change the operating life or approved power generation of Bayswater.

AGL also propose to consolidate and surrender a number of its existing consents.

The project is State Significant Development under the *Environmental Planning and Assessment Act 1979* (EP&A Act) and the Minister for Planning is the consent authority.

The project is a controlled action under Section 75 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) because it is likely to have a potential significant impact on threatened species and communities (sections 18 and 18A of the EPBC Act).

Engagement

The Department exhibited the application and the Environmental Impact Statement (EIS) for the project from 1 July to 30 July 2020 and consulted with key government agencies and Singleton and Muswellbrook Shire Council.

The Department received 21 public submissions during exhibition of the EIS, 8 from special interest groups and 13 from individuals. Of these, 16 of the public submissions objected to the project. The key issues raised in public submissions related to potential water contamination impacts (including increased seepage from the ash dam augmentation and salt cake landfill) and biodiversity impacts from clearing of native vegetation for the project. Submissions also identified legacy issues related to the broader operation of the power station.

The Department also received advice from 16 government agencies and Singleton and Muswellbrook Shire Council. None of the government agencies or either council objected to the project. However, they provided comments on key aspects of the project and recommended conditions, if the project were approved.

Assessment

The Department carried out a comprehensive assessment of the merits of the project in accordance with the objects of the EP&A Act and applicable Commonwealth and NSW Government policies and guidelines. The Department carefully considered the issues raised in submissions, agency advice and AGL's response to issues raised.

The Department considers the key assessment issues for the project are the potential impact to surface and groundwater quality from the ash dam augmentation and potential impacts to biodiversity required for the ash dam augmentation, salt cake landfill and the borrow pits.

Ash dam augmentation

The ash dam augmentation has the potential to increase seepage to surface and groundwater and increase discharges via the existing ash dam spillway.

The EPA and the Department are not satisfied that the assessment of these matters provide sufficient certainty about impacts and proposed mitigation to manage residual impacts.

The Department considers that additional assessment is required to understand the potential surface and groundwater quality impacts associated with the ash dam augmentation. The Department and the EPA also consider that the proposed seepage collection infrastructure upgrades should not be carried out until the potential impacts of the augmentation are better understood. AGL acknowledged that further assessment of these matters is required to address the concerns raised by the EPA.

However, given other elements of the project are time-critical (primarily the replacement of the Ravensworth ash pipeline and water pipeline upgrades) and would improve environmental performance, AGL requested that the Department consider a partial-approval pathway for the project. This would involve the balance of the project being determined excluding the ash dam augmentation and seepage upgrades at this time, until further assessment has been completed.

Water Resources

In addition to the ash dam augmentation, potential impacts on water quality are primarily associated with seepage from the salt cake landfill and erosion and sediment impacts during construction. The operation of the salt cake landfill poses potential risks to water quality due to high salinity.

AGL advises that the landfill would be designed in accordance with the *EPA Environmental Guidelines for Solid Waste Landfills*. This would include a liner and leachate barrier system to prevent the migration of saline water into the receiving environment. The EPA advised that the design of the landfill conceptually meets the requirements of the guideline, subject to detailed design and review of detailed technical drawings and liner specifications.

The Department considers the project would result in benefits to surface and groundwater quality by addressing existing water pollution issues associated with the Ravensworth ash pipeline and coal handling plant area. The Department also considers that the salt cake landfill would provide a suitable purpose-built facility for the storage of salt cake compared to the existing arrangement of storing brine in a decant basin and discharging salt from the site under the Hunter River Salinity Trading Scheme.

The Department and EPA considers that residual impacts associated with the construction and operation of the project can be appropriately managed in accordance with the recommended conditions of consent outlined above, including the requirement to prepare a Water Management Plan and a Salt Cake Landfill Environmental Management Plan.

The Department notes that discharges from Bayswater would continue to be regulated by the EPA under an environment protection licence (EPL 779).

Biodiversity

The project would result in removal of up to 265 hectares (ha) of native vegetation and associated fauna habitat.

The Department and its Biodiversity Conservation and Science Directorate (BCS) consider that the project has been designed to avoid, mitigate and manage biodiversity impacts where practicable. However, the project would result in a range of residual impacts on biodiversity, including Endangered Ecological Communities, Critically Endangered Ecological Communities and threatened fauna species listed under the *Biodiversity Conservation Act 2016* (BC Act) and EPBC Act.

To offset the residual biodiversity impacts of the project, AGL proposes to implement a Biodiversity Offset Strategy, including the staged retirement of 5,118 ecosystem credits for the clearing of native vegetation and associated habitat for threatened fauna habitat, and 3,683 species credits for impacts on Squirrel Glider, Southern Myotis and Striped Legless Lizard habitat, in accordance with the requirements of the BC Act and EPBC Act.

The Department has carefully considered these impacts on biodiversity values, and accepts that they would be suitably managed, mitigated and/or offset under the recommended conditions of consent The Department considers that the retirement of ecosystem and species credits would sufficiently compensate for residual biodiversity impacts, in accordance with the BC Act.

Evaluation

The Department considers that a partial approval should be granted approving the balance of the project to proceed, excluding the ash dam augmentation and seepage collection infrastructure upgrades at this time, given the uncertainties associated with this component of the project.

The Department has carefully considered the residual potential impacts of the development on the environment, in consultation with key government agencies including EPA and BCS. The key government agencies supported the Department's recommended conditions and did not raise any residual concerns. The Department has concluded that the residual impacts can be adequately minimised, managed, or offset, to an acceptable standard, subject to a comprehensive framework of recommended conditions of approval.

Based on the recommendation of a partial approval, the Department considers the project would improve the environmental performance of the power station by supporting pollution reduction requirements required by the EPA as set out in the EPL, and would increase ash recycling, reducing the amount of ash required to be deposited in the ash dam.

The Department considers the project is consistent with the relevant NSW and Commonwealth strategic policy framework regarding energy security and the management of coal ash. The project would increase ash recycling rates consistent with the recommendations of Parliament of NSW Public Works Committee inquiry into the costs for remediation of sites containing coal ash repositories in NSW.

The Department considers the ongoing operation of Bayswater until its planned closure would contribute to ongoing stable and reliable electricity supply given the upcoming retirement of other coal-fired power stations, including Liddell by 2022/23, and to complement the transition to renewable energy sources.

The project would also streamline the regulation of a number of key infrastructure elements at the site under a new contemporary development consent that includes stringent environmental performance, compliance and reporting conditions.

The project would deliver economic benefits to NSW and the region through attracting up to $35.9 million of capital investment and creating up to 60 construction jobs and up to 20 operational jobs.

Based on its evaluation, the Department has carefully weighed up the impacts of the project against the benefits. On balance, the Department considers that the benefits of the Bayswater Power Station Upgrade outweigh its costs, and the project is in the public interest and approvable, subject to strict conditions.

Contents

1 Introduction

1.1 Background

AGL Macquarie (AGL), a subsidiary of AGL Energy Limited, owns and operates the Bayswater Power Station (Bayswater). Bayswater is located around 10 kilometres (km) south east of Muswellbrook in the Muswellbrook and Singleton Local Government Areas (LGAs) (see **Figure 1** and **Figure 2**).

Bayswater was commissioned in 1985 and has a current operational life up to 2035. AGL acquired Bayswater from the NSW Government in 2014 along with other key assets in the Hunter Valley including the Liddell Power Station (Liddell) and Hunter Valley Gas Turbines.

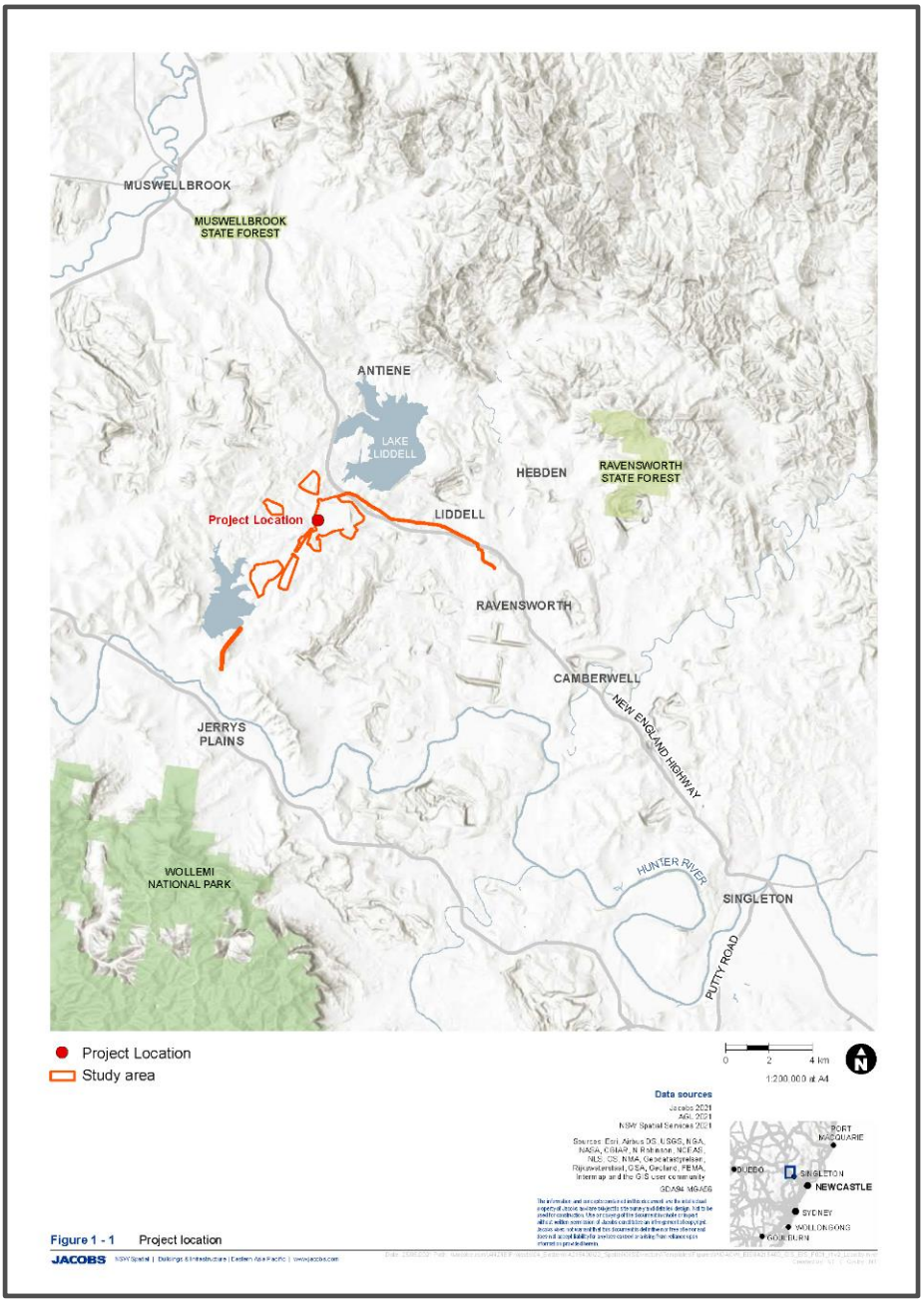

Figure 1 | Regional Context (Source: AGL)

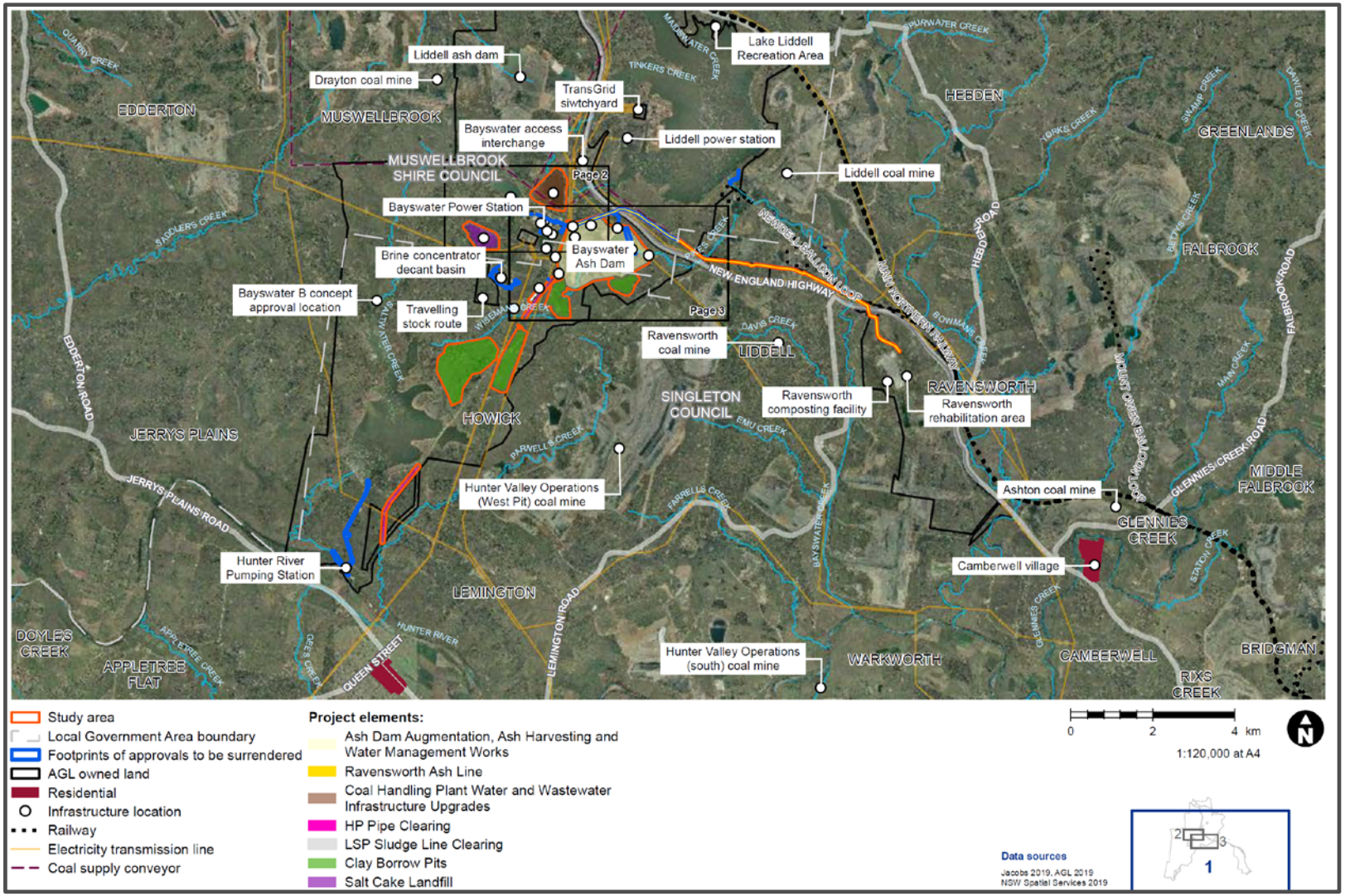

Figure 2 | Project Land Use Context (Source: EIS)

1.2 Existing Regulatory Framework

Bayswater was commissioned in 1985 and operates primarily under Development Consent (DA 47209), which was granted by Muswellbrook Shire Council in 1980. AGL negotiated rehabilitation and remediation requirements for Bayswater with the NSW Government as part of the sale of the facility in 2014.

Several other development consents for the facility remain in effect relating to water, wastewater and ash management, including consents issued by Muswellbrook Shire Council and the Minister for Planning. These consents are summarised in **Table 1**. AGL has requested to surrender a number of these consents if the project is approved.

Table 2 | Consents applicable to Bayswater and proposed for surrender

Consent	Consent Authority	Scope	Proposed Approach
138/1993	Muswellbrook Shire Council	Construction and operation of the Ravensworth ash pipeline to transfer fly ash to the Ravensworth Mine. Upgrade and maintain return water system at the Ravensworth Mine.	To be surrendered
12/2017	Muswellbrook Shire Council	Replacement of a section of asbestos cement pipeline on the Bayswater Ash Dam Return Water Line.	To be surrendered and relevant conditions consolidated into the project
89/2017	Muswellbrook Shire Council	Construction and operation of a new effluent sump	To be surrendered and relevant conditions consolidated into the project
12/2018	Muswellbrook Shire Council	Construction and operation of a pipeline to enable the transfer of water from the Bayswater ash dam to the Ravensworth Mine Void 4.	Construction not yet commenced – to be surrendered and relevant conditions consolidated into the project
06_0047 (transitioned to SSD)	Minister for Planning	Operation of the Bayswater Water Treatment Plant and associated upgrades	To be surrendered and relevant conditions consolidated into the project
06_0259 (transitioned to SSD)	Minister for Planning	Upgrades to the Bayswater water pumping station to increase water extraction capacity	To be surrendered
37/2019	Muswellbrook Shire Council	Construction and operation of two pumping stations for seepage capture and return transfer at Lake Liddell	Construction not yet commenced – not to be surrendered at the request of Council

2 Project

2.1 Project Overview

AGL is seeking approval for the Bayswater Power Station Upgrade Project (the project) to ensure the ongoing operation of the facility for its remaining operational life and improve environmental outcomes. The project includes the following components:

- **Ash dam augmentation**: to increase the capacity of the ash dam to facilitate the ongoing disposal of ash from the power station over its operational life.
- **Salt cake landfill facility**: to dispose of salt cake by-product that is proposed to be produced from the approved salt caking plant to be constructed at the existing Bayswater Water Treatment Plant.
- **Ash recycling upgrades**: to increase coal ash recycling activities to produce up to 1 million tonnes per annum (Mtpa) of ash derived product material and reuse of coal ash.
- **Borrow pits**: including excavation of four pits to provide material for use in the construction of the project including the ash dam augmentation, future capping of the ash dam and rehabilitation at Bayswater and Liddell power stations.
- **Water infrastructure upgrades**: required to meet requirements of the Environment Protection Authority (EPA) under Environment Protection Licence (EPL) 779 to address legacy water pollution issues and replace ageing infrastructure including:
    - measures to investigate and reduce seepage from the ash dam;
    - replacement of the existing Ravensworth ash pipeline; and
    - upgrades to coal handling plant area water infrastructure.
- **Ancillary works**: including the maintenance and upgrade of a critical water supply pipeline.

AGL also propose to consolidate and surrender a number of its existing consents.

The project would not change the operating life or approved power generation of Bayswater.

The major components of the project are summarised in **Table 2**, shown in **Figure 3** and described in detail in the Environment Impact Statement (EIS) and Submissions Report for the project (see **Appendix A1** and **Appendix A3**).

2.2 Amended Project

AGL submitted a request to the Department in June 2021, seeking amendments to the project to include Lot 15 DP 247945 in the schedule of land subject to the application. This section of land would be required for the new coal ash pipeline to Ravensworth Void No. 3 and had not been included in the original application.

The Department accepted AGL's request to amend the project in accordance with clause 192(2) of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation). AGL provided an Amendment Report noting additional environmental assessment was not required given the minor nature of the amendment.

Table 1 | Main Components of the Project

Aspect	Description
Ravensworth ash line	• Construction and operation of a new replacement coal ash pipeline adjacent to the existing ash line to facilitate the ongoing transfer of fly ash from Bayswater to the Ravensworth Void No. 3 for emplacement
Coal handling plant (CHP) upgrades	• Automation of components of the CHP to reduce the amount of water used in the plant, which would reduce the amount of water required to be stored in the sediment basin • Reconfiguration of the existing sediment basin to provide a larger volume of water to be stored and provide increased detention times prior to discharge to Tinkers Creek • Construction of clean water diversions to reduce overall stormwater inflows into the sediment basin • Re-use of water within the coal plant, where possible
Salt cake landfill	• 10 individual cells with a capacity of approximately 150,000 tonnes • Compacted clay liner and leachate barrier system • Stormwater diversion

Ash dam augmentation	• Expansion of dam to provide an additional 12.5 million m^3 of ash storage capacity including:
	  • Increase of the surface area of the dam from around 151 ha to 178 ha (around a 17% increase)
	  • Increase of the total storage capacity from around 25 million m^3 to 37.5 million m^3 (around a 50% increase)
	• Increased height of the northern saddle dam embankment by 9.5 m
	• Increased height of the main embankment by 1.5 m
	• Construction of a 11.5 m embankment on the western dam boundary
	• Increased height of spillway by approximately 2 m
	• Construction of two southern saddle dams
	• Works to improve ash deposition within the ash dam, including extension of ash dispersion system, ash dam divider walls and upgrades to ancillary infrastructure.

Ash dam seepage collection infrastructure	• Installation of new seepage capture and return infrastructure • Increase to the size of the existing seepage collection ponds • Installation of larger capacity pumps and increase to the duration of pumping to the ash dam • Installation of clean water diversions to minimise non-seepage water entering the seepage collection system
Ash recycling upgrades	• Increased coal ash recycling activities to produce up to 1,000,000 tonnes per annum of ash derived product material • Upgrades to existing fly ash harvesting infrastructure including the installation of weighbridges, construction of a new 240 tonne silo, tanker wash facility and additional truck parking
Borrow pits	• Excavation of clay from four borrow pits for use in on site construction • Pits accessed consecutively as required • Pit areas between 18 ha and 135 ha.
Works at the existing high pressure water (HP	• Clearing of vegetation along the pipelines and other areas to provide ongoing access for maintenance

Aspect	Description
Pipeline) and sludge (LSP Sludge Line)	• Reposition and upgrading of the pipelines
Consolidation of existing development consents	• These approvals are summarised in **Table 1**.
Access	• No change to existing site access road which connects to the New England Highway • Access to the new Ravensworth ash line via Pikes Gully Road and Hebden Road
Construction ancillary facilities	• Infrastructure including internal access roads, water supply and power services, laydown areas, temporary sheds incorporating offices and associated amenities would either be located within the maximum disturbance footprint or be part of the existing facilities at Bayswater
Construction hours	• Standard construction hours (Mon-Fri 7am to 6pm, Sat 8am to 1pm, no work on Sunday or public holidays) • Some out-of-hours works primarily to coincide with station outages
Construction workforce	• Up to 90 staff
Construction traffic movements (peak)	• 180 heavy vehicle movements • 50 light vehicle movements • Up to 8 oversized vehicle movements in total
Project life	• No change to power station closure in 2035 • Activities associated with the decommissioning and rehabilitation works for the project would extend beyond the closure of Bayswater for approximately five years or until rehabilitation and closure activities have been adequately completed
Operational workforce	• Up to full time equivalent (FTE) 25 staff
Operational traffic movements	• 360 heavy vehicle movements • 50 light vehicle movements
Capital investment value	• Approximately $52 million
Timing	• Staged construction of project elements commencing from early 2022

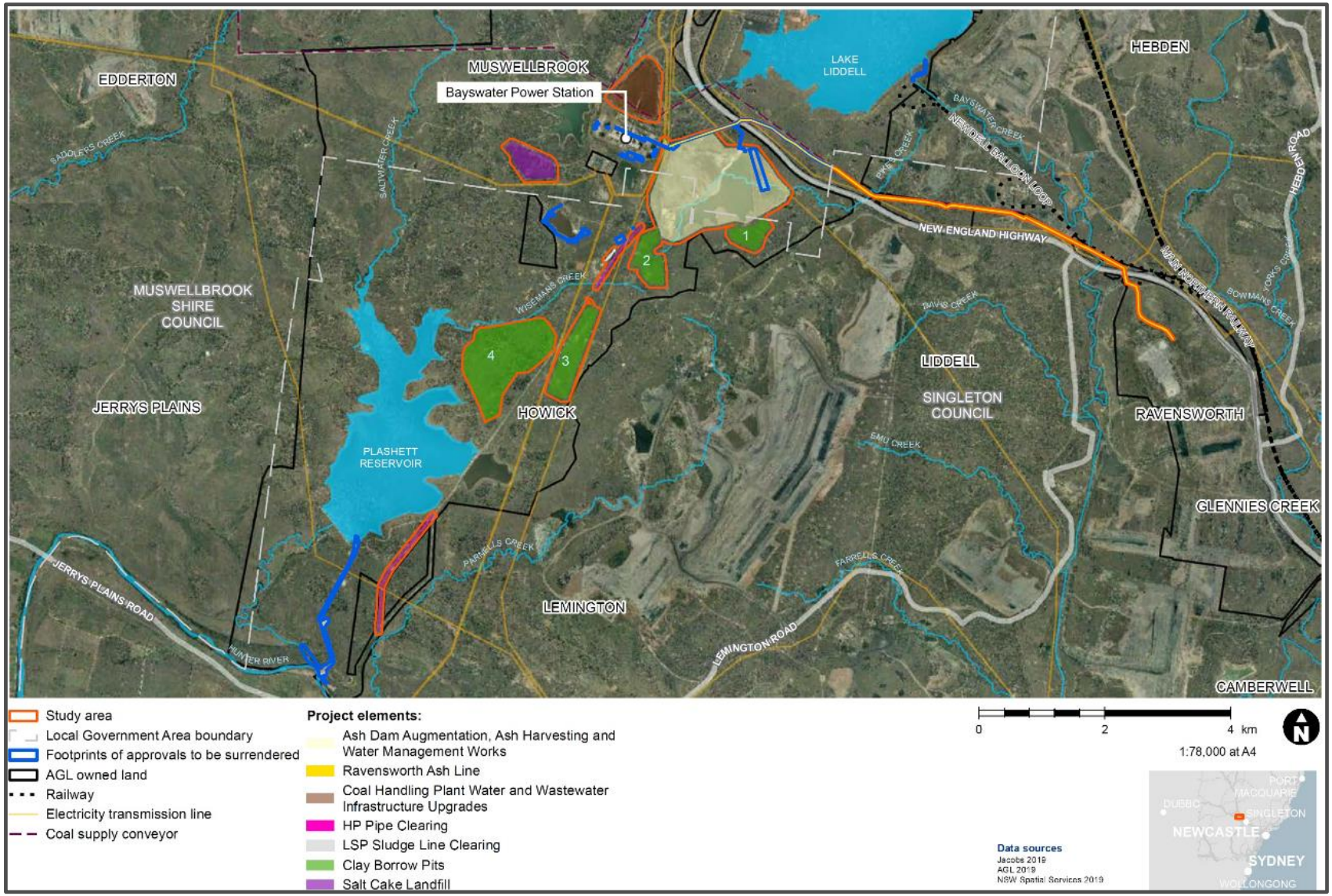

Figure 3 | Project Overview (Source: EIS)

3 Strategic Context

3.1 Environmental Constraints

There are legacy water pollution and ash disposal capacity issues at Bayswater. These primarily relate to offsite water quality impacts associated with seepage from the ash dam, discharges due to failure of the aged Ravensworth ash pipeline, and discharges from the Coal Handling Plant area to Tinkers Creek and into Lake Liddell. Bayswater is regulated by the Environment Protection Authority (EPA) under Environment Protection Licence (EPL) 779, which includes requirements for pollution studies and reduction programs and the replacement of ageing infrastructure to address these existing impacts.

The Bayswater ash dam is currently anticipated to reach capacity between 2025 and 2028 and the disposal of ash into the dam is required for the ongoing operation of the power station. The Bayswater Power Station Upgrade Project (the project) seeks to address these issues to ensure the power station can reach the end of its operational life while minimising environmental impacts.

3.2 Energy Context

Bayswater has a current generation capacity of 2,640 megawatts and approval for efficiency upgrades that would increase capacity to 2,740 MW. The station produces around 15,000 gigawatt hours (GWh) of electricity per year, which is enough to power two million homes. The Australian Energy Market Operator's (AEMO) 2021 *Electricity Statement of Opportunity* identifies Bayswater as committed dispatchable power supply until its planned closure in 2035.

Greenhouse Gas and Climate Change

The strategic policy context for the national and NSW state response to addressing climate change is captured in the Paris Agreement, *Australia's Long-Term Emissions Reduction Plan* (Australian Government, 2021) and Net Zero Plan Stage 1 2020-2030 (NSW Government, 2020). Australia is one of 187 countries that have committed to keeping global temperature rises to well below 2°C under the Paris Agreement. AGL has also developed its own Greenhouse Gas Policy in response to Australian and state government commitments related to reducing emissions.

The NSW Government's objective is to achieve net zero emissions by 2050, consistent with the Australian Government target. The *Net Zero Plan Stage 1: 2020–2030* (2020) sets out how the NSW Government will deliver on this objective over the next decade. In the *Net Zero: Stage 1: 2020-2030 Implementation Update (2021)* the NSW Government committed to halving emissions by 2030 compared to 2005 levels.

The *NSW Electricity Infrastructure Roadmap* provides an outline of how the State's electricity infrastructure will transition to cleaner, cheaper and more reliable energy sources. The road map identifies the progressive retirement of coal-fired power stations alongside investment in renewable energy zones, battery storage and firming technology over the next 15 years.

The project would not change the operating life, approved power generation capacity or approved greenhouse gas emissions (other than minor emissions during construction) of Bayswater but seeks to enable the efficient operation of the existing power station to contribute to electricity reliability for the National Energy Market during this transitional period.

3.3 Coal Ash Inquiry

There is an ongoing Parliament of NSW Public Works Committee inquiry into the costs for remediation of sites containing coal ash repositories in NSW (the inquiry). The inquiry is considering government liability for the remediation of contamination of a number of sites, economic and employment opportunities, the adequacy of the existing regulatory regime for remediation and risks associated with inadequate rehabilitation.

The Bayswater ash dam is a coal ash repository considered in this inquiry and this was noted in public submissions during the exhibition of the project application (see **Section 5.3**). The project aims to address existing contamination issues associated with the Bayswater ash dam and the project would not preclude the implementation of other recommendations from the inquiry subject to endorsement and implementation by the NSW Government.

While the inquiry is separate to the Department's assessment, there are a number of recommendations from the inquiry relevant to community issues raised regarding legacy issues at the power station including:

- Recommendation 3: *That the NSW Environment Protection Authority conduct and publish a study of surface and groundwater around all coal fired power stations and associated coal ash dams, and their potential impacts on the surrounding environment, by the end of 2022;*
- Recommendation 7: *That the NSW Environment Protection Authority commission a comprehensive and independent assessment of the environmental impacts of coal ash dams to provide a better understanding of the issues and to inform best practice remediation;* and
- Recommendation 16: *That NSW Treasury immediately publish on their website the baseline environmental studies conducted for each operating power station to improve transparency in terms of the NSW Government's liabilities for remediation at these sites* (NSW Legislative Council, 2021).

The EPA has commenced investigations in line with Recommendation 3 of the inquiry.

The inquiry has also made a number of recommendations regarding promoting ash recycling, including achieving at least an 80% reuse of coal ash in NSW and review NSW Government procurement practices to mandate the use of recycled coal ash in government funded infrastructure projects where feasible.

3.4 Site and Surrounds

Land use around Bayswater consists of industrial land uses associated with the operation of Bayswater and Liddell and surrounding open cut mining activities (see **Figure 2**). AGL owns around 10,000 hectares (ha) of land around Bayswater which includes Liddell, the Ravensworth rehabilitation area, Lake Liddell and surrounding buffer lands.

4 Statutory Context

4.1 State Significance

Under the *State Environmental Planning Policy (State and Regional Development) 2011* (SEPP SRD), the project is classified as State Significant Development (SSD), as it constitutes development for the purpose of electricity generating works with a capital investment value of more than $30 million.

The Minister for Planning is the consent authority for the application, however under the Minister's delegation of 26 April 2021, the Executive Director - Energy, Resources and Industry Assessments may determine the project because there were more than 15 unique submissions by way of objection, Singleton and Muswellbrook Councils did not object to the proposal and AGL did not make any political donations.

4.2 Permissibility

The project is located on land within the Muswellbrook and Singleton LGAs and is subject to the respective local environmental planning instruments.

Under the *Muswellbrook Local Environmental Plan 2009* (Muswellbrook LEP), the project is located on land zoned SP2 – Infrastructure Power Station, and is permissible with consent.

The ash pipeline upgrade component of the project is located on land zoned RU1 – Primary Production under the *Singleton Local Environmental Plan 2013* (Singleton LEP) and is not permissible. However, under clause 34 of *State Environmental Planning Policy (Infrastructure) 2007* ensures permissibility of the project by permitting development for the purposes of electricity generating works in rural land use zones.

4.3 Integrated and Other Approvals

Under Section 4.41 of the EP&A Act, several approvals are integrated into the SSD approval process and consequently are not required to be separately obtained for the proposal. These include:

- approvals relating to heritage required under the *National Parks and Wildlife Act 1974* and the *Heritage Act 1977*; and
- certain water approvals under the *Water Management Act 2000* (WM Act).

Under Section 4.42 of the EP&A Act, several other approvals are required but must be substantially consistent with any consent granted for the project. These include:

- an EPL under the *Protection of the Environment Operations Act 1997*;
- consents under the *Roads Act 1993*; and
- water access licences under the *Water Act 1912* and/or the WM Act.

AGL currently holds relevant leases and licences under these Acts and can obtain any other licences required for the project where required. The Department has consulted with the relevant government authorities responsible for these other approvals (see **Section 5**), and considered the relevant issues relating to these approvals in its assessment of the development (see **Section 6**).

4.4 Mandatory Matters for Consideration

The Department's assessment of the project has given careful consideration to all necessary statutory requirements. These include the:

- objects of the EP&A Act, set out in section 1.3 of the Act; and
- matters listed under section 4.15(1) of the EP&A Act, including applicable Environmental Planning Instruments (EPIs) and regulations.

Apart from considering the statutory requirements in their own right, the Department has considered Section 3 of the EIS, where AGL has considered applicable legislation and environmental planning instruments in detail.

The Department has considered all statutory requirements in its assessment of the project and has provided a summary of this consideration in respect of the objects of the EP&A Act and a general overview of the applicable EPIs below. Further consideration of particular provisions of applicable EPIs can be found in **Appendix E**.

Objects of the Act

The objects of the EP&A Act are the underpinning principles for all decision making under the Act. They must be considered by the consent authority when determining a development application under the Act. The Department has assessed the project against the objects found in section 1.3 of the EP&A Act. **Appendix E** provides a summary of how these objects have been considered.

Environmental Planning Instruments

The consent authority must take into consideration the provisions of EPIs (including draft instruments) when determining a development application. A number of EPIs apply to the project, including the:

- *State Environmental Planning Policy No 33 - Hazardous and Offensive Development* (SEPP 33): the project is a potentially hazardous industry. AGL has prepared a Preliminary Hazard Analysis (PHA) in accordance with Clause 12 of the SEPP.
- *State Environmental Planning Policy No 55 - Remediation of Land* (SEPP 55): AGL has provided details of the contamination assessments undertaken for the project. The Department is satisfied that the affected areas would be suitable for the intended uses.
- *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP): The Infrastructure SEPP requires the consent authority to notify relevant public authorities about the development that may affect public infrastructure or land. In accordance with the Infrastructure SEPP, the Department confirms that it notified all relevant public infrastructure providers about the project and has carefully considered the advice from these authorities in its assessment of this application.

The Department has considered the project against the relevant provisions of these instruments (see **Appendix E**). Based on this assessment, the Department considers that the project can be carried out in a manner that is consistent with the aims, objectives and provisions of these instruments.

4.5 Biodiversity Assessment

Section 7.9(2) of the *Biodiversity Conservation Act 2016* (BC Act) requires all applications for SSI and SSD to be accompanied by a Biodiversity Development Assessment Report (BDAR). Section 6.12 of the BC Act also requires that the BDAR be completed in accordance with the biodiversity assessment method and specify the class of biodiversity credits required to offset the residual impacts on biodiversity values.

A BDAR was provided in the EIS and subsequently updated as part of the Submissions Report to address comments from the Department's Biodiversity, Conservation and Science Directorate (BCS). These matters are discussed in **Sections 5.3** and **6.1**.

4.6 Commonwealth matters

On 20 April 2020, a delegate of the Commonwealth Minister for the Department of the Agriculture, Water and Environment (Commonwealth Minister) determined that the project was a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) due to its potential significant impacts on threatened species and communities (sections 18 and 18A of the EPBC Act).

Consequently, the project requires the approval of the Commonwealth Minister for the Environment in addition to any State approvals before the project may proceed. The Commonwealth has accredited the NSW assessment process under EP&A Act to enable an integrated assessment of the project.

The Commonwealth Minister will consider the Department's assessment report, conditions imposed by the NSW Government (should the project be approved) and any other relevant information before making a final decision on the project under the EPBC Act.

5 Engagement

5.1 Department's Engagement

The Department publicly exhibited the EIS from 1 July to 30 July 2020, advertised the exhibition in the *Sydney Morning Herald*, *Daily Telegraph* and *Singleton Argus*, and notified landowners adjacent to the project area.

The Department consulted with Singleton and Muswellbrook Shire Council and relevant government agencies throughout its assessment.

The Department visited the site on 10 March 2021.

5.2 AGL's Engagement

AGL carried out engagement with the local community as detailed in the EIS, including:

- consultation with the community via AGL's Community Dialogue Group, which includes representatives from community interest groups;
- meeting with the Hunter Business Chamber;
- writing to adjoining landowners; and
- meeting with Singleton and Muswellbrook Shire Council.

AGL also undertook consultation with the Department and relevant government agencies during the assessment process.

5.3 Submissions and Submissions Report

During the exhibition period, the Department received a total of 21 submissions from the community, and advice from 18 government agencies and public authorities (including Transgrid and both Councils), 8 from special interest groups and 13 from members of the public. Of these, 16 submissions objected to the project (see **Table 3**).

Copies of all submissions are available on the Department's website (see **Appendix A2**), and the key issues raised are summarised below.

Table 2 | Summary of Submissions/ Advice

Group	Submissions/ Advice	Support	Object	Comment
Public Authorities	**18**	-	-	18
Special Interest Groups	**8**	2	6	
General Public	**13**	-	10	3
Total	**39**	**2**	**16**	**21**

Following the exhibition of the EIS, the Department requested AGL provide a response to the issues raised in submissions. In December 2020, AGL provided a Submissions Report to the Department (see **Appendix A3**). The Submissions Report included revised or additional assessment of environmental aspects in response to submissions and agency advice.

The Department made the Submissions Report publicly available on its website and referred it to relevant government agencies.

Key issues – Community and Special Interest Groups

Key issues raised in public submissions and submissions from special interest groups related to potential water contamination impacts (including increased seepage from the ash dam and salt cake landfill) and biodiversity impacts.

A summary of issues raised are provided in **Table 5** and a summary of how these issues have been addressed is in **Appendix B**.

Table 3 | Summary of Key Community and Special Interest Group Submissions

Group	Position	Key Issues
- Environmental Justice Australia - Hunter Community Environment Centre - Correct Planning & Consultation for Mayfield Group - Hunter Environment Lobby inc - Nature Conservation Council of NSW - Coal-ash Community Alliance Inc.	Object (6)	• Inadequate information provided in EIS in respect of coal ash; contamination of ground and surface water; effectiveness of proposed clay lining in ash dam; hydrogeology of the area; changes in greenhouse gas emissions before and after upgrade • Impact of coal ash and salt cake landfill on ground and surface water quality • Concerns raised as to how recycled coal ash will be used if the market utilising recycled coal ash is smaller than anticipated • Concerns regarding the storage of coal ash in unlined ash dam and the potential for seepage • Concerns regarding rehabilitation of the ash dam • Concern regarding ongoing greenhouse gas emissions of the power station and air quality impacts to human health and the environment (including climate change) • Clearing of critically endangered vegetation.
- General Public	Object (10)	
- General Public	Comment (3)	
- The Wilco Group - Vecor Australia Pty Limited	Support (2)	• Support for the project

Some submissions also identified issues related to the broader operation of the power station, including coal ash generation and reuse, the disposal of ash in the Ravensworth void, and the design of the existing ash dam. The Department acknowledges these concerns, however these aspects relate to the approved components of the facility and fall outside the scope of the project.

Key issues – Agency

None of the government agencies objected to the project. However, they provided comments on various aspects of the project and recommended conditions of consent. A summary of the key matters raised in the government agency submissions is provided in **Table 5**.

The Department's considerations of the matters raised is provided in **Section 6** of this report.

Table 4 | Summary of Government Agency Advice

Government Agency	Key Issues
Muswellbrook Shire Council	• Raised concerns regarding potential impacts of the project including on biodiversity, water quality and visual amenity • Requested development contributions for the project • Noted support for proposed coal ash recycling activities and consolidation of existing water and wastewater development approvals into a single, contemporary approval. • Requested development consent 2019/37 not be surrendered as part of the project given the consent includes conditions relevant to Liddell Power Station
Singleton Council	• Raised concerns regarding potential impacts on surface and groundwater from the salt cake landfill.
NSW EPA	• Raised concerns regarding the adequacy of surface and groundwater assessments prepared for the project, primarily in relation to the proposed ash dam augmentation • Requested further information be provided to characterise the existing surface and groundwater environment including the existing impact of the ash dam on receiving waters, the potential impacts of the project from potential increased seepage associated with the augmentation and the effectiveness of proposed mitigation measures • Requested further detail regarding the design and potential impacts of other elements of the project including the salt cake landfill and CHP area upgrades • Revision of the air quality impact assessment consistent with relevant guidelines
BCS	• Raised concern regarding the methodology in the Biodiversity Development Assessment Report (BDAR)
Department of Regional NSW - Mining, Exploration & Geoscience (MEG)	• Noted that land-based biodiversity offsets would likely be required and requested that details be provided once available on the required offsets and locations.
Water Group	• Recommended AGL provide further detail on the risks of leakage of the underground sections of the new Ravensworth ash pipeline(s) and prepare a water monitoring plan and Trigger Action Response Plan (TARP) for the salt cake landfill.
Dams Safety NSW	• Requested notification regarding any future modification to the ash dam.
Heritage NSW	• Recommended the preparation of an Aboriginal Cultural Heritage Management Plan in consultation with registered Aboriginal parties.
Transport for NSW	• Requested an assessment of potential flooding impacts on the New England Highway in the event of dam fail
Department of Primary Industries – Fisheries	• No issues raised and/or provided no comments.

Government Agency	Key Issues
Department of Primary Industries – Agriculture **Heritage Council of NSW** **Crown Lands Group**	
Transgrid	• Advised the project would not impact TransGrid infrastructure.

5.4 Residual Issues – Government Agencies

Following review of AGL's Submissions Report, the EPA advised it still had significant residual concerns with the proposed ash dam augmentation component of the project. Specifically, EPA requested further detail regarding:

- background water quality monitoring data to characterise the existing impacts of the ash dam;
- the design of the seepage collection infrastructure upgrades and whether there would be a net increase to seepage for the project;
- measures to avoid, minimise or mitigate overflows and controlled discharges from the augmented ash dam; and
- the specific proposed changes for the CHP area to improve environmental performance; and
- erosion and sediment controls.

To address the concerns raised by the EPA, AGL provided a further response (refer **Appendix A4**) including an additional round of groundwater monitoring, a revision of water balance calculations and seepage impacts, further detail of the design of seepage collection infrastructure upgrades, and proposed sediment and erosion controls. AGL also clarified the specific works to be completed at the CHP, following the completion of an investigation required under EPL 779.

The EPA reviewed the additional information and had no further concerns regarding the proposed changes at the CHP and the proposed sediment and erosion controls. However, the EPA advised that there was not sufficient information to determine whether the proposed ash dam augmentation component of the project is consistent with the objects of the *Protection of the Environment Operations Act 1997* (POEO Act) with regard to potential seepage and potential controlled discharges. The Department's consideration of this issue is provided in **Section 6.1**.

Concerns raised by other agencies were addressed by AGL in the Submissions Report or in subsequent assessment. AGL prepared a revised BDAR and Aboriginal Cultural Heritage Assessment Report (ACHAR) to the satisfaction of BCS and Heritage NSW (refer to **Section 6.2** and **Section 6.3** for further information).

6 Assessment

The Department has assessed the merits of the project in accordance with the requirements of the EP&A Act and applicable NSW and Commonwealth Government policies and guidelines. The Department has also considered the issues raised in submissions, AGL's Submissions Report, further advice from key agencies, and AGL's response to these residual issues.

The Department considers the key assessment issues for the project relate to potential impacts on surface and groundwater resources and biodiversity. These issues are assessed in **Sections 6.1** and **6.2** below. The assessment of other relevant impacts is provided in **Section 6.3**.

6.1 Water Resources

As described in **Sections 1** and **2**, there are legacy surface and groundwater impacts at Bayswater. This primarily relates to offsite water quality impacts associated with seepage from the ash dam, spills from a failure of the Ravensworth ash pipeline, and discharges from the CHP area to Tinkers Creek. These legacy impacts are currently regulated by the EPA under EPL 779 and AGL and are subject to a number of pollution reduction programs to investigate and implement actions to reduce impacts on surface and groundwater quality.

Impacts on water quality and the management of ash were also key issues raised in community and interest groups submissions. In particular, the community was concerned regarding the existing impact of seepage from the ash dam on surrounding waterways.

To assess the potential impact of the project on water resources, the EIS included a Surface Water, Groundwater and Flooding Technical Paper and Water Balance Modelling Report (referred to herein as the Water Assessment). In response to agency submissions and additional information requests, AGL provided additional technical documents to supplement information gaps and respond to issues raised by the EPA. These documents can be found in **Appendix A4**.

As discussed in Section 5.4, the EPA identified residual issues regarding the assessment of the proposed ash dam augmentation. The Department considers these issues are significant and has therefore considered the water-related components associated with the proposed ash dam separately to the other project components.

Existing Environment

Existing water management at the facility includes a range of storage, process and waste management infrastructure. Key components of this system relevant to the project include:

- the Ravensworth ash pipeline, which transports ash in slurry form to a mine void at the Ravensworth Mine for remediation purposes;
- the CHP area sediment basin, which captures water from a number of sources including coal stockpiles, process water from the CHP, catchment runoff and discharge from treated process water;
- discharge and daily overflow from the CHP area sediment basin to Tinkers Creek;
- the Bayswater ash dam which includes a licenced discharge and monitoring point at the dam spillway;

- Bayswater ash dam seepage collection system including seepage collection ponds, pumps and pipelines;
- a water treatment plant which treats cooling water required for the operation of the power station and produces brine as a by-product, which is stored in a decant basin;
- discharge of brine into Lake Liddell and the Hunter River in accordance with the Hunter River Salinity Trading Scheme; and
- approval to construct a salt caking plant as part of the water treatment plant upgrades to convert brine into salt cake.

Bayswater is located within the catchment of the Hunter River and a number of waterways traverse the project site (see **Figure 5**). Monitoring data indicates the following regarding the existing surface water environment:

- seepage and controlled discharges from the ash dam (if discharges are required to manage water levels in the dam in accordance with Dams Safety NSW requirements) are impacting downstream water resources including Chilcotts Creek (which flows to Lake Liddell) and Pikes Creek (which flows to the Hunter River);
- seepage water has varied pH levels (6.8-8.5) and high levels of salinity (2,130 µS/cm – 11,550 µS/cm);
- seepage water contains elevated levels of heavy metals including boron molybdenum nickel, zinc, aluminium, cadmium, cobalt, boron, chromium, copper, iron and total nitrogen, which are observed to decrease with increasing distance from the ash dam;
- there are high levels of total suspended solids associated with coal fines in Tinkers Creek, due to discharges from the CHP area sediment basin; and
- water quality meets relevant discharge limits under EPL 779 downstream at the Lake Liddell discharge point to the Hunter River via Bayswater Creek.

Groundwater across the site is located within alluvial deposits, weathered rock and fractured rock aquifers. Groundwater flow generally follows the topography of the area with levels ranging between 0.4 to 11.5 m below ground level (bgl). Higher groundwater levels are generally located in low-lying areas with the project elements generally located in areas of higher elevation.

Groundwater monitoring bores around the ash dam have detected elevated levels of aluminium, boron, copper, cadmium, manganese, nickel, zinc, reactive phosphorous, total nitrogen and pH.

Investigations into groundwater conditions around the proposed location of the salt cake landfill facility have identified that groundwater is not influenced by adjacent site activities, with all parameters tested below the limits of reporting or relevant guideline criteria.

The nearest licensed production bores to the site are located around 3.6 km north of the nearest project elements.

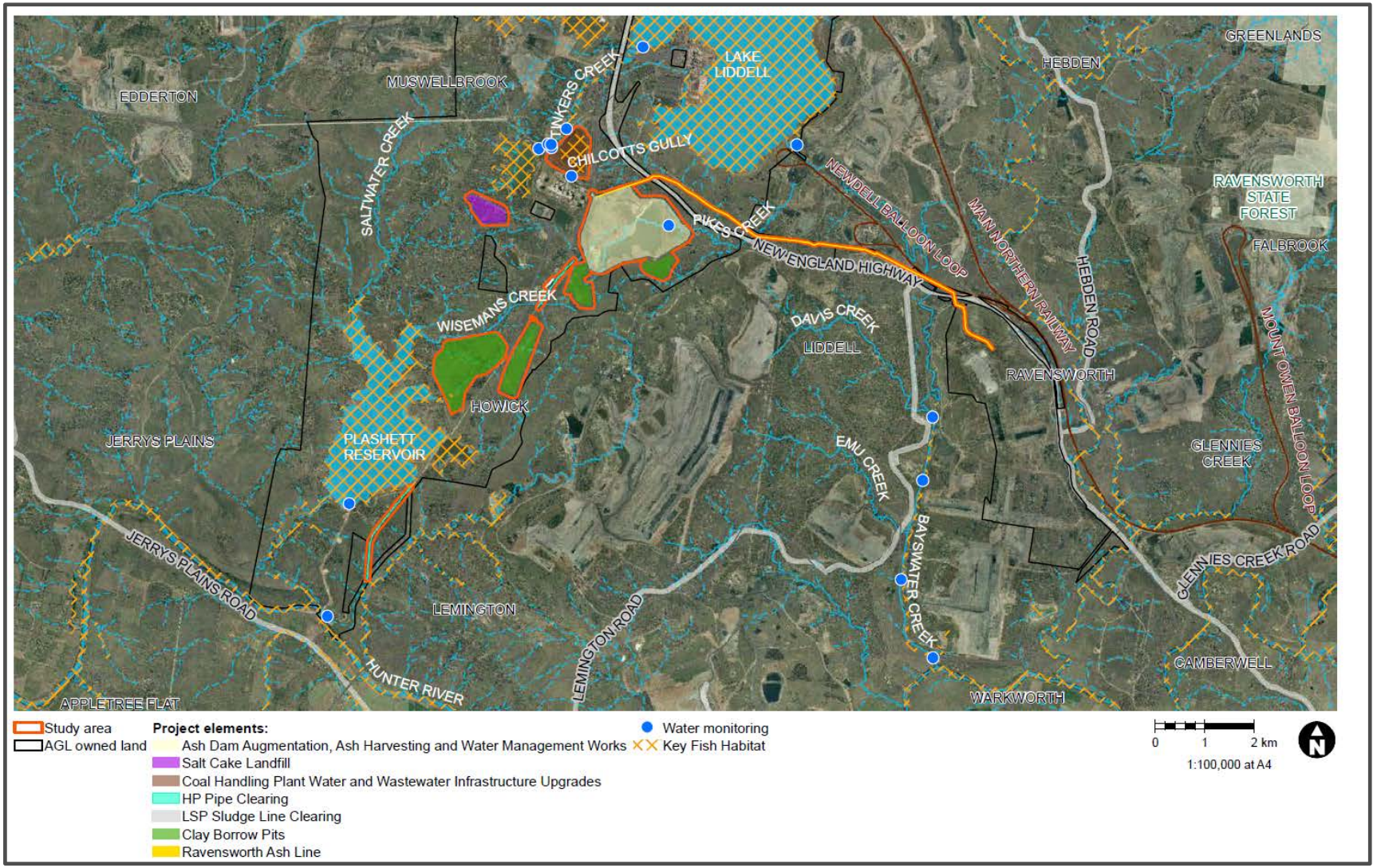

Figure 4 | Surface water features (Source: EIS)

Ash Dam Augmentation and Seepage Collection Infrastructure Upgrades

The existing ash dam was constructed in 1985 and covers approximately 151 ha. It is bounded on the east by an earthen embankment approximately 39 metres high (referred to as the main embankment) and has saddle dams forming the northern and part of the western boundaries. An emergency spillway is located at the northern saddle dam.

The dam was constructed without lining and seepage predominantly occurs via:

- the northern saddle dam into Chilcott's Creek;
- the southern extent of the ash dam into Eye Creek; and
- the base of the dam, into the groundwater system.

Seepage from the main embankment wall is captured in two seepage collection ponds and is pumped back into the dam via a return water system. However, some seepage bypasses the collection system at unknown quantities and overflow from the collection ponds occurs during high rainfall events. Seepage rates from the northern wall and southern boundary are estimated to be approximately 0.42 ML/day and 0.1 ML/day, respectively. Seepage from the base of the dam in unknown. The Water Assessment acknowledges that water balance modelling of existing and proposed seepage rates is highly uncertain.

While monitoring data indicates that seepage is influencing the receiving environment, the limited dataset prevents a full understanding of the extent and characterisation of existing impacts on the receiving surface and groundwater environment. AGL completed additional water quality monitoring in October 2021 to inform the assessment, however the EPA advised that a broader range of monitoring results under various operating and climatic conditions are required to adequately characterise the existing setting. These factors affect the Department's ability to understand and assess the potential impacts of the proposed augmentation.

The proposed augmentation works would increase the footprint of the ash dam by 27 ha and provide storage for an additional 12.5 million m^3 of fly ash and bottom ash. In the absence of effective seepage mitigation measures, the Water Assessment concluded that these works would result in increased seepage volumes due to additional water pressure (head) from increased ash and water in the dam.

AGL propose to implement a range of seepage collection improvement measures, which include:

- a capture and return system at the northern saddle dam;
- improvements to the main embankment seepage collection system, including increasing pond size and pump duration; and
- implementing clean water diversions to improve seepage collection capacity.

The Water Assessment concludes that these measures could reduce seepage loss by approximately 0.78 ML/day and would improve water quality outcomes in comparison to a 'do nothing' scenario. However, given the uncertainties regarding the existing seepage rates and extent of impact on the receiving environment, there remains uncertainty regarding the level of effectiveness of the proposed seepage collection measures. While the Department acknowledges AGL's proposed intentions to improve seepage loss from the dam, there is insufficient information to conclude that the proposed augmentation, along with improved seepage controls, would result in an overall net reduction in seepage.

Further, the proposed augmentation has the potential to increase discharges via the existing dam spillway, and without a reliable quantification of inflows and outflows the Water Assessment is unable to appropriately identify the quality, quantity, frequency, and volume of future discharge impacts.

AGL has committed to maintaining sufficient freeboard in the dam to avoid and minimise overflows by increasing evaporation from the dam through mechanical fans and removing ash water for treatment and reuse. However, detailed design of these measures has not yet been completed and their effectiveness remains unclear as a result of unreliable site water balance assumptions.

On this basis, the Water Assessment does not meet the requirements of the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZG, 2018) and the EPA has advised that it is unclear whether the impacts would be consistent with the objects of the POEO Act.

Recommendation

The Department recognises that the proposed ash dam augmentation and seepage collection improvement measures could improve environmental outcomes associated with legacy seepage from the ash dam, and that these works are critical for ash storage capacity for the remaining life of the power station. However, additional assessment is required to better understand the potential surface and groundwater quality impacts. The Department therefore considers that both of these works should not be approved at this time.

The Department consulted with AGL who acknowledged this position. However, given other elements of the project are time-critical and would improve environmental performance, AGL requested that the Department consider a partial-consent pathway for the project. This would involve all other components of the project being determined and a subsequent assessment and approval process for the ash dam augmentation and collection infrastructure works, to be established under conditions of consent.

AGL has identified interim measures to provide some additional capacity in the ash dam which can be undertaken under existing consents. These interim measures involve the deposition of ash in cells within the dam. AGL anticipates that the interim measures would delay the requirement for the augmentation until between 2025 and 2028, depending on electricity generation and ash recycling rates. There is the potential that the augmentation may not be required in the future if AGL achieve consistent high ash recycling rates and power generation (and therefore ash generation) from the station is reduced associated with increased power generation from renewable sources in the National Energy Market (NEM).

Overall, the Department considers the proposed partial consent pathway to be a suitable mechanism to facilitate improved and effective water quality outcomes for the facility. This approach would allow AGL sufficient time to undertake comprehensive monitoring to obtain a reliable understanding of the existing setting to inform a more reliable impact assessment. Further, this approach would allow AGL to implement other proposed improvement measures, which without could compromise the long-term life of the facility.

The Department has recommended a condition requiring AGL to prepare an updated surface and groundwater assessment, for subsequent consideration by the consent authority. This assessment must:

- be prepared in consultation with the EPA;
- characterise the current condition of the receiving waterways in the context of the existing ash dam and be informed by at least 12 months of additional water quality monitoring;

- include updated water balance modelling;
- provide detail regarding the mitigation measures that would be implemented to manage potential pollution impacts, including measures to avoid, minimise or mitigate overflows from the ash dam; and
- identify the residual impacts of the ash dam augmentation and seepage collection infrastructure upgrade on receiving waters.

The Department's assessment of impacts to water resources associated with other components of the project is provided below.

The Department has included consideration of the ash dam augmentation and seepage collection infrastructure upgrades in its assessment of other environmental aspects in **Section 6.2** and **Section 6.3**. The Department is satisfied that the further assessment required of these works is limited to the surface and groundwater assessment described above.

Other Potential impacts

Water quality

In addition to the ash dam augmentation, potential impacts on water quality are primarily associated with seepage from the salt cake landfill and from sediment discharges during construction.

The operation of the salt cake landfill poses potential risks to water quality due to high salinity. Concerns were raised in submissions about the potential for leachate from the landfill into the receiving environment. Leachate would have the potential to impact down-gradient ephemeral drainage lines and creeks, groundwater and vegetation.

AGL advise that the landfill would be designed in accordance with the *EPA Environmental Guidelines for Solid Waste Landfills* (Second Edition, 2016). This would include a liner and leachate barrier system to prevent the migration of saline water into the receiving environment. The EPA advised that the design of the landfill conceptually meets the requirements of the guideline, subject to detailed design and review of detailed technical drawings and liner specifications.

However, EPA raised concern that liner failure would result in the migration of saline water which could lower the beneficial use category of the groundwater source. AGL has committed to investigate the feasibility of additional liner properties during the detailed design of the facility and the EPA advised it was satisfied with this approach.

Other potential water quality impacts relate to the management of erosion and sediment during project activities including the removal of vegetation, construction, stockpiling and earthworks. The excavation of material from the borrow pits has the potential to result in the ponding of water, scouring and bank erosion which could result in downstream impacts to water quality. Additionally, there is potential for stormwater to transport sediment and contaminants to downstream waterways prior to the capping of each salt cake landfill cell.

AGL have committed to a range of measures to mitigate these potential impacts, including:

- constructing clean stormwater diversions around each cell in the salt cake landfill and borrow pits so water would only enter via direct rainfall;
- designing the salt cake landfill in accordance with the *EPA Environmental Guidelines for solid waste landfills;*

- designing and operating the borrow pits in accordance with *Managing Urban Stormwater: Soils and construction - Volume 1* (the Blue Book) (Landcom, 2004) (ie the Blue Book);
- implementing water quality monitoring programs throughout construction and operational stages of the project; and
- progressive rehabilitation of borrow pits and progressive capping and rehabilitation of completed landfill cells

The project would also result in a number of improvements to water quality. Specifically,

- the replacement of the Ravensworth ash pipeline would reduce the risk of the uncontrolled discharge of ash to receiving waterways;
- the use of the salt cake landfill would avoid the discharge of brine to the Hunter River;
- the CHP area upgrades would reduce the volume of water in the system and increase settlement times in the sediment basin to improve water quality and reduce flows to Tinkers Creek; and
- increased ash recycling activities would reduce the volume of ash required to be stored in the existing ash dam.

Groundwater

Potential impacts on groundwater for the Project are anticipated to be negligible given earthworks for the project are generally shallow and above the groundwater table. There would be no long-term drawdown of the groundwater table or reduction to groundwater pressure head. Water Group raised concern regarding potential leakage of underground sections of the new Ravensworth pipeline. The Department have recommended conditions to manage potential groundwater impacts:

- install a pipeline leak detection monitoring and response system to minimise potential risks associated with leaks; and
- ensure excavations for the borrow pits do not intercept the water table.

Flooding

The project is located within the Lake Liddell & Lake Plashett catchments and is generally not located on flood prone land.

AGL indicated that the salt cake landfill facility may be located within the 1% Annual Exceedance Probability (AEP) flood event subject to detailed design and impact flooding at this location.

The augmentation of the ash dam would increase the flood inundation area of the dam in the event of a failure. AGL committed to conducting a flood study to address the request from TfNSW regarding the potential impact of flooding on the New England Highway in the event of a failure of the ash dam. Risks related to the failure of the ash dam are regulated by Dams Safety NSW.

Potential flooding impacts are considered to be unlikely and the Department has recommended conditions to manage potential impacts associated with the salt cake landfill facility and the ash dam including:

- Design the salt cake landfill to ensure no adverse impacts on flood behaviour up to and including the 1% (AEP) event.
- Design, construct and operate the ash dam in accordance with the requirements of the *Dams Safety Act 2015* and *Dams Safety Regulation 2019*

Monitoring and Management

The Department has recommended conditions to mitigate and manage potential residual impacts on water resources, including:

- preparation of a Salt Cake Landfill Environmental Management Plan in consultation with EPA that demonstrates how the landfill would be designed, constructed, operated and decommissioned in accordance with the requirements of the EPA's *Environmental Guidelines for solid waste landfills*, including a detailed quality assurance/quality control and monitoring program that would be applied for each stage of the landfill;
- preparation of a Water Management Plan (including surface water and groundwater management plana), in consultation with the EPA and NRAR including requirements for baseline and ongoing water quality monitoring;
- establishment of erosion and sediment controls in accordance with *Managing Urban Stormwater: Soils and construction - Volume 1* (the Blue Book) (Landcom, 2004);
- performance measures to formalise the objectives of the CHP area upgrades including to reduce stormwater inflows to the sediment basin, minimise water use in the CHP and carry out a program to monitor the effectiveness of the upgrades; and
- design, install and operate a pipeline leak detection monitoring and response system to minimise potential risks associated with leaks for the new Ravensworth ash pipeline.

Summary

The Department considers the project would result in benefits to surface and groundwater quality by addressing existing water pollution issues associated with the Ravensworth ash pipeline and CHP area. The Department also considers that the salt cake landfill would provide a suitable purpose-built facility for the storage of salt cake compared to the existing arrangement of storing brine in a decant basin and discharging salt from the site under the Hunter River Salinity Trading Scheme.

However, the Department has recommended that the ash dam augmentation and seepage collection upgrades not be determined at this stage subject to additional investigation and collection of baseline monitoring data and updated assessment of seepage impacts and identification of proposed mitigation works to ensure there is a net reduction in seepage from the ash dam.

The Department and EPA considers that residual impacts associated with the construction and operation of the project can be appropriately managed in accordance with the recommended conditions of consent outlined above. The Department notes that discharges from Bayswater would continue to be regulated by the EPA under EPL 779.

6.2 Biodiversity

Biodiversity assessments

The EIS included a Biodiversity Development Assessment Report (BDAR), prepared by Kleinfelder Australia Pty Ltd (Kleinfelder), to assess the biodiversity impacts and offsetting requirements of the project. The BDAR was prepared in accordance with the Biodiversity Assessment Method (BAM) under the provisions of the *Biodiversity Conservation Act 2016* (BC Act).

The BDAR was subsequently updated and revised to address issues raised by both councils and BCS (refer to **Section 5**). Additional information requested by BCS in relation to survey justification for a flora

species and the assessment and offsetting of paddock trees, was provided by AGL (refer to **Appendix A4**). BCS has confirmed that it is satisfied with the BDAR and additional information responses.

As discussed in **Section 6.1**, the proposed ash dam augmentation works are subject to further assessment and approval by the consent authority. However, the Department's assessment of biodiversity impacts includes consideration of areas proposed to be disturbed by the ash dam augmentation works, noting that these works could be approved under the recommended conditions in the future and that credit retirement can be staged to reflect specific areas of disturbance.

Matters of National Environmental Significance

The project has been declared a 'controlled action' under the EPBC Act due to potential significant impacts on three listed threatened species and one ecological community, including the Regent Honeyeater, Swift Parrot and Striped Legless Lizard and the Central Hunter Valley Eucalypt Forest Woodland. The DAWE also considered that the project may impact an additional eight species and one ecological community.

The project is being assessed under the Bilateral Agreement (Amending Agreement No.1, 2020) between the Commonwealth and NSW Governments. Accordingly, the BCS and Department have assessed the project's impacts on potentially impacted EPBC Act-listed species and communities (see below). Additional consideration of all MNES is provided in **Appendix D**.

Biodiversity Setting

The project area is situated in the vicinity of infrastructure associated with Bayswater, interspersed with land leased for grazing purposes. Land surrounding the site contains a mixture of infrastructure, mining lands, cleared lands, cropping areas, rehabilitation and plantation lands, and intact vegetation. Areas of intact vegetation occurs in the western portions of the site where it connects to patchy vegetation in the broader landscape.

The project covers an area of approximately 576 ha. As shown in **Figure 6**, three Plant Community Types (PCTs) were identified in the area, including:

- PCT 1691: Narrow-leaved Ironbark – Grey Box grassy woodland of the central and upper Hunter (200.6 ha);
- PCT 1692: Bull Oak grassy woodland of the central Hunter Valley (61.7 ha); and
- PCT 1731: Swamp Oak - Weeping Grass grassy riparian forest of the Hunter Valley (2.41 ha).

The remaining areas contain areas of non-native vegetation, including exotic grasslands, dams and cleared lands (tracks, roads and infrastructure).

There are no important wetlands, areas of geological significance or areas of outstanding biodiversity values within the project area.

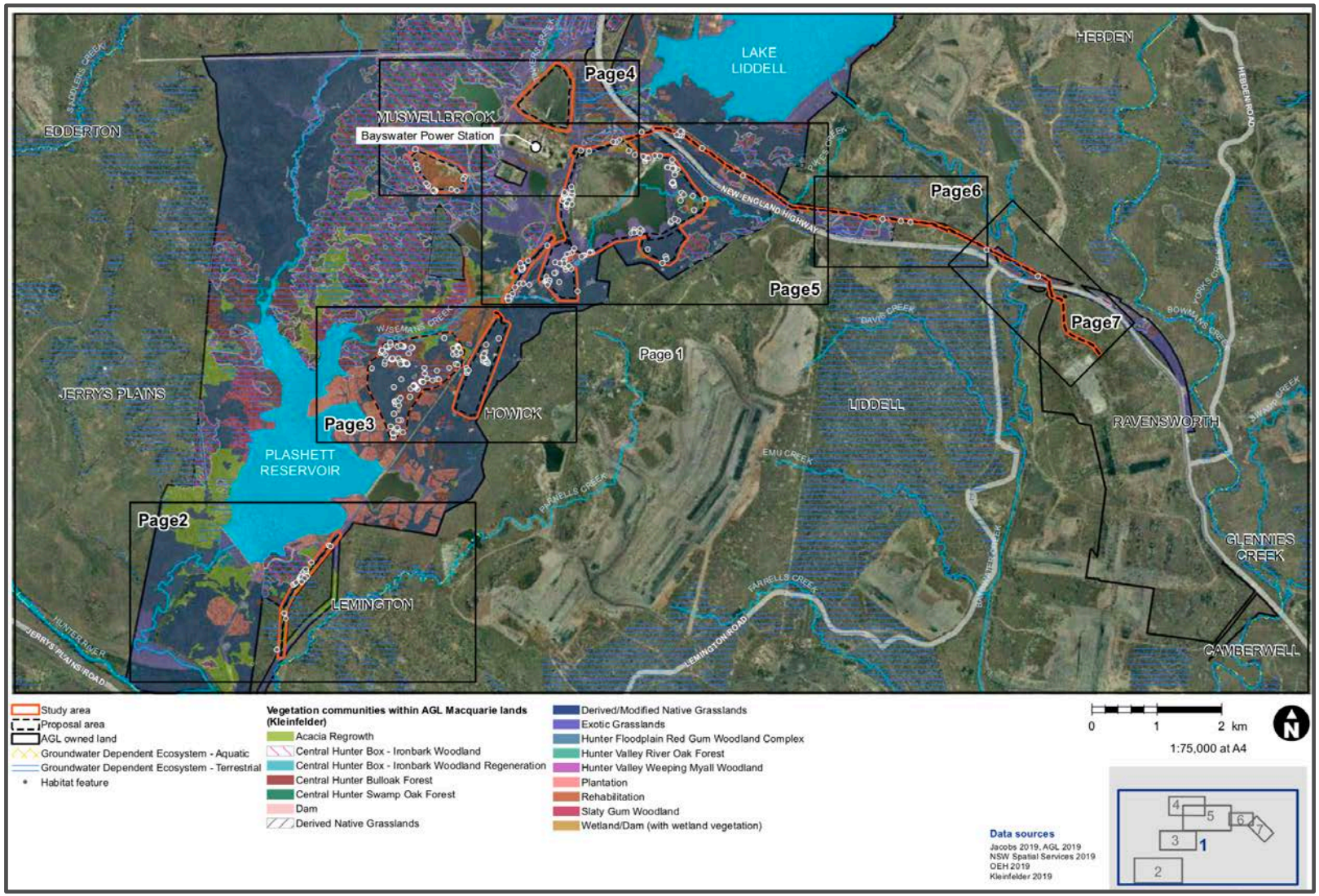

Figure 5 | Plant Community Types (PCTs) (Source: EIS)

Predicted Impacts

Direct impacts of the project would occur during the construction phase as part of clearing works. This would result in removal of 265 ha of native vegetation and associated fauna habitat within the project area. The majority of the native vegetation removal would occur from within Borrow Pit 3 (42 ha), Borrow Pit 4 (135 ha) and the Salt Cake Landfill (20 ha).

Kleinfelder confirmed that the project also has the potential to cause indirect and prescribed (ie. additional) impacts to biodiversity. Potential indirect impacts are associated with increased levels of dust and noise, erosion and sedimentation, and the transfer of weeds and pathogens. Potential prescribed impacts include limited loss of connectivity of vegetation around Borrow Pit 4 and surrounds, and changes to downstream hydrology, primarily associated with increasing the size of the Ash Dam and construction of the borrow pits in the vicinity of Pikes and Wisemans Creeks.

Vegetation Communities

Kleinfelder identified three areas within the project area which constituted Threatened Ecological Communities (TECs) under the BC Act and/or the EPBC Act. As indicated in Table 6, a total of 14.64 ha of the *Central Hunter Grey Box – Ironbark Woodland in the New South Wales North Coast and Sydney Basin Bioregions* Endangered Ecological Community (EEC) listed under the BC Act, and a total of 13.72 ha of the *Central Hunter Valley Eucalypt Forest and Woodland* Critically Endangered Ecological Community (CEEC) listed under the EPBC Act is located within the site and is proposed to be cleared as part of the project.

Table 5 | Threatened ecological communities predicted to be impacted

PCT	Area (ha)	Legal Status	
		BC Act	EPBC Act
1691: Narrow-leaved Ironbark – Grey Box grassy woodland of the central and upper Hunter	8.19	Central Hunter Grey Box – Ironbark Woodland in the New South Wales North Coast and Sydney Basin Bioregions EEC	Central Hunter Valley Eucalypt Forest and Woodland CEEC
	6.45		-
1692: Bull Oak grassy woodland of the central Hunter Valley	5.53	-	Central Hunter Valley Eucalypt Forest and Woodland CEEC

Paddock Trees

Kleinfelder identified four species of paddock trees within the project area, including *Acacia salicina* (Native Willow), *Brachychiton populneus* (Kurrajong), *Eucalyptus crebra* (Narrow-leaved Ironbark) and *Eucalyptus moluccana* (Grey Box). A total of 42 paddock trees were identified within the proposed clearing areas, all within PCT 1691. Of these, 14 trees contained hollows which are considered to potentially be used for fauna habitat.

Threatened Flora

A total of 14 threatened flora species listed under the BC Act and/or the EPBC Act were considered by Kleinfelder to have either a low likelihood of presence (12) or a moderate likelihood of presence (2) in the project area.

Kleinfelder conducted targeted surveys of these candidate threatened flora species. No threatened flora species were identified on-site during the surveys.

Due to sub-optimal conditions for the flowering season of *Diuris tricolor* (Pine Donkey Orchid - listed under the BC Act) and *Prasophyllum* sp. Wybong (Wybong Leek Orchid - listed under both the BC Act and EPBC Act), and the lack of flowering of these two species at a local reference population, an expert report was prepared by Dr Stephen Bell to assess the habitat suitability of the project area for these species. The expert report determined that approximately 166 ha (30%) of the proposed disturbance area may provide habitat for these species. However, as no individuals of either species were detected during further targeted surveys, Dr Bell concluded that it is unlikely that the site supports large populations of Pine Donkey Orchid and probably no Wybong Leek Orchid. Impacts to these species were therefore considered unlikely to be significant.

In its advice on the Submissions Report, BCS requested further justification for conducting surveys for *Thesium austral* (Austral Toadflax) outside of recommended months. In its response, Kleinfelder indicated that the BAM Calculator did not predict this species as requiring further assessment (targeted survey) as the species was not associated with any of the PCTs occurring within the project area. Further, Kleinfelder determined that the species has a low likelihood of occurrence due to the predominance of exotic grasslands, scarcity of damp areas and lack of host flora for parasitisation, and indicated that the species has not been detected within the locality (within 10 kilometres of the study area). As such, no further assessment was considered necessary for this species. BCS accepted this justification.

Threatened Fauna

A total of 64 species of fauna were detected within the project area during field surveys. Of these, 8 are threatened fauna species (3 mammals, 4 birds and 1 reptile) listed as 'vulnerable' under the BC Act, including:

- Large Bent-winged Bat (*Miniopterus orianae oceanensis*);
- Southern Myotis (*Myotis macropus*);
- Squirrel Glider (*Petaurus norfolcensis*);
- Little Lorikeet (*Glossopsitta pusilla*);
- Hooded Robin (*Melanodryas cucullata*);
- Grey-crowned Babbler (*Pomatostomus temporalis*);
- Speckled Warbler (*Chthonicola sagittata*); and
- Striped Legless Lizard (*Delma impar*).

Kleinfelder confirmed that listed habitat constraints for the Large Bentwing-bat (ie. caves, tunnels, culverts or other structure know to be used for breeding) are not present within 100 m of the project area, and as such this species was not considered a candidate species. The Little Lorikeet, Hooded Robin, Grey-crowned Babbler and Speckled Warbler are all Ecosystem Credit Species which were confirmed as predicted species and therefore required no further assessment. The Southern Myotis,

Squirrel Glider and Striped Legless Lizard are all Species Credit Species and, in accordance with the BAM, were further assessed by Kleinfelder.

The Squirrel Glider was recorded in the vicinity of Borrow Pit 4 and habitat for this species has been assessed as occurring within PCT 1691. The total area of suitable foraging and breeding habitat within the proposed disturbance areas associated with the project is 55.08 ha.

The Southern Myotis was recorded at the western aspect of the ash dam and habitat for this species has been assessed as occurring in both PCT 1691 and PCT 1962. The total area of suitable foraging habitat within the proposed disturbance areas associated with the project is 8.11 ha.

The Striped Legless Lizard was recorded in the vicinity of Borrow Pit 4 and habitat for this species has been assessed as occurring within both PCT 1691 and PCT 1962, except in the grassland areas where the habitat for this species is not present and/or is disturbed due to grazing. The total area of suitable foraging habitat within the proposed disturbance areas associated with the project is 116.74 ha.

There is uncertainty regarding the extent of the population of the Striped Legless Lizard, given the project area is located at the northern extent of the known distribution of the species however surveys did not identify a large population of the species (only two captures of the species from the same location). The population within the project area therefore may not be extensive and occupying all potential habitat.

Aquatic Ecology

Kleinfelder indicated that the aquatic ecosystems in the vicinity of the project area are highly modified, with natural drainage lines being interrupted by constructed dams and/or drainage infrastructure. The aquatic ecosystems contain minimal fringing aquatic vegetation and fauna habitat.

No threatened aquatic ecology species listed under either the *Fisheries Management Act 1994,* BC Act or the EPBC Act were recorded during the surveys of the aquatic ecosystems in the project area.

The project area contains 8 constructed dams (4.99 ha), 5 of which occur within the proposed impact area (total of 0.74 ha). Kleinfelder confirmed that several of the dams contain permanent water and suitable abiotic features, however many contained Mosquito Fish (*Gambusia holbrooki*) which reduces the potential for presence of native species such as the Green and Golden Bell Frogs (*Litoria aurea*) (GGBFs). Kleinfelder confirmed that, although GGBFs have been previously identified within the Sewage Treatment Ponds at the site, no populations of this species were detected during targeted field surveys and the proposed Project is considered unlikely to lead to a significant impact to this species.

Kleinfelder identified that the proposed construction works in the vicinity of waterways (including Wisemans Creek, Pikes Creek, Saltwater Creek, Bayswater Creek and Chilcotts Creek) could impact water quality through increased turbidity, suspended solids, nutrients and contaminants from mobilisation of soils. This could result in increased weed growth and algal blooms and reduced health of aquatic organisms. However, Kleinfelder considered that with the implementation of management and mitigation measures in the proposed Water Management Plan (refer to **Section 6.1**), impacts to water quality would not significantly impact aquatic ecology.

DPI Fisheries has confirmed that there are no works proposed in waterways considered as Key Fish Habitat and there are no significant changes that should affect receiving waters. DPI Fisheries therefore raised no concerns about the project.

Relevant Matters of National Environmental Significance (MNES)

Given the project is being assessed under the Bilateral Agreement, Kleinfelder completed a supplementary assessment to consider the requirements provided by DAWE (refer to Appendix 9 of **Appendix A2**). Potential impacts of the project to threatened species and communities for which DAWE considered that there is likely or may be a significant impact were addressed in accordance with the *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance* (DoE, 2013). Additionally, assessments of significance were undertaken for EPBC Act listed species which had a moderate or higher likelihood of occurrence.

BCS completed an assessment of the adequacy of Kleinfelder's assessment of EPBC Act-listed threatened species and communities and confirmed that it has been conducted correctly in accordance with the BAM. BCS indicated that it supported the conclusions of the assessment.

Kleinfelder concluded that for the majority of the threatened species, ecological communities and migratory species, the project is unlikely to have a significant impact due to lack of habitat and/or habitat constraints being present; geographic restrictions; species mobility; and/or habitat degradation. The only exceptions were for the Striped Legless Lizard and the Wybong Leek Orchid, for which impacts were considered unknown.

As discussed above, an expert report was prepared for the Wybong Leek Orchid which concluded that, as no individuals were detected during targeted surveys, impacts to these species are unlikely to be significant. Given the uncertainties regarding the extent of the Striped Legless Lizard population within the project area, a precautionary approach was taken, and it was considered that the project has the potential to significantly impact this species.

The Department notes that, although Kleinfelder considered that the clearing of 13.72 ha of the Central Hunter Valley Eucalypt Forest and Woodland CEEC is unlikely to cause a significant impact to this ecosystem, primarily since it is well represented in the locality and the clearing would not cause significant fragmentation of the community, direct impacts to the CEEC would be offset in accordance with the BAM (refer to PCT 1691 and 1692 offsets below).

SEPP (Koala Habitat Protection) 2019

Kleinfelder indicated that two tree species listed under SEPP (Koala Habitat Protection) 2019, *Eucalyptus tereticornis* and *Eucalyptus punctata*, occur within the project area, however they only constitute a small percentage (<15%) of the canopy cover within small portions of the site. No evidence of Koala activity was identified during surveys of the project area. Due to the limited extent of habitat and the patchy occurrence of feed trees within the project area, Kleinfelder considered it unlikely that the area represents Core Koala Habitat. As such, no further assessment under the Koala SEPP was considered necessary.

Bushfire Impacts

Kleinfelder confirmed that the project area and adjacent areas were not directly impacted by the 2019/20 bushfires. The nearest bushfires were approximately 40 km to the northwest, 23 km to the south and 65 km to the west. It was concluded that due to the distance of the bushfires from the project area, it is likely that the 2019/20 bushfires have had a negligible impact on the biodiversity values within the project area or the locality (10 km radius).

In response to a request from DAWE, AGL engaged Kleinfelder to further address bushfire impacts to MNES, including determining the percentage and total area of habitat lost within a 50 km radius of the project area for specific EPBC Act listed species, and updated assessments of significance which considered this information. The additional bushfire assessment was included in the Additional Information Response dated 16 April 2021 (**Appendix A4**).

The assessment determined that within a 50 km radius of the site, bushfires had the greatest impact on the habitat of the Swift Parrot (31% habitat loss), Spotted-tailed Quoll (26% habitat loss), Large-eared Pied Bat (33% habitat loss), Corben's Long-eared Bat (53% habitat loss), Grey-headed Flying Fox (31% habitat loss) and the Brush-tailed Rock Wallaby (34% habitat loss).

However, Kleinfelder noted that none of these species were detected within the project area and the habitat present within the site were not considered to be important to the long-term survival of any of these species in the locality. The only EPBC Act listed species which was detected in the project area was the Striped Legless Lizard, with only 2% of the habitat for this species impacted by the 2019/20 bushfires. Kleinfelder concluded that it is unlikely that populations of this species would have been affected by the fires in the locality.

Serious and Irreversible Impacts

Kleinfelder confirmed that no threatened flora, fauna or communities were considered at risk of Serious and Irreversible Impacts (SAIIs) due to the project.

Avoidance and Mitigation

The BDAR is based on a suite of avoidance and mitigation measures that AGL would implement to reduce direct, indirect and prescribed impacts on the biodiversity values of the site. The borrow pits comprise the largest amount of clearing for the project. Measures to avoid or mitigate vegetation clearing for the borrow pits include:

- the selection of borrow pit locations avoids vegetated areas to the extent possible while targeting areas with favourable clay material properties;
- Borrow Pits 1, 2 and 3 largely contain grassland areas, with only scattered remnant patches of vegetation, avoiding higher quality larger patches of remnant vegetation. Around half of Borrow Pit 4 contains areas of woody native vegetation;
- where possible during detailed design, AGL propose to modify the final construction footprint to further minimise and avoid impacts to biodiversity. AGL anticipates not all areas of the Borrow Pits may be required depending on clay material quality and quantities; and
- the borrow pits would be progressively rehabilitated to minimise long-term impacts of the Project. AGL would prepare a rehabilitation plan for each borrow pit and only locally endemic species will be used for rehabilitation, using locally sourced seeds/plants.

Other avoidance and mitigation measures include:

- positioning the project infrastructure and ancillary works to minimise disturbance areas and avoid areas of remnant native vegetation and fauna habitat, where possible;
- undertaking pre-clearing surveys and progressively clearing;
- salvaging topsoil and habitat features such as hollow bearing logs;
- avoiding clearing during breeding periods, where practicable;
- preparing and implementing Erosion and Sediment Control Plans for each project stage;

- undertaking weed, pathogen and feral animal controls;
- managing noise, vibration, waste, and air pollution adjacent to sensitive habitat areas;
- restricting public access and controlling traffic movements on site; and
- preparing and implementing Rehabilitation Plans and progressive rehabilitation of sites.

The Department and BCS are satisfied with the avoidance and mitigation measures proposed by AGL to minimise impacts on the biodiversity values of the site.

Biodiversity Offset Strategy

To offset the residual biodiversity impacts of the project, AGL propose to implement a Biodiversity Offset Strategy, including the retirement of 5,118 ecosystem credits for the clearing of native vegetation and associated habitat for threatened fauna habitat, and 3,683 species credits for impacts on Squirrel Glider, Southern Myotis and Striped Legless Lizard habitat, in accordance with the requirements of the BC Act and EPBC Act.

AGL propose to stage the retirement of credits over the life of the project. The proposed offset stages would correspond to the key construction stages involving clearing, and correlate to the biodiversity impacts of each stage. **Table 7** identifies the required number of credits associated with each PCT, species and offset stage. The Department accepts this approach and has recommended a condition allowing the staged retirement of biodiversity credits prior to commencing vegetation clearing in those stages.

As indicated above, where possible during detailed design, AGL also propose to modify the final construction footprint to further minimise and avoid impacts to biodiversity. The Department supports and encourages this approach, and acknowledges that it may result in reduced credit and offset liability. Consequently, the Department has recommended a condition allowing AGL to review and update the ecosystem and credit requirements in **Table 7** to reflect the final construction footprint and resulting extent and type of plant community types to be cleared. Amendments to the ecosystem and species credit requirements must be undertaken in consultation with BCS and DAWE and approved by the Planning Secretary prior to the commencement of construction of the relevant offset stage.

AGL advise that credit retirement would most likely be achieved by a combination of options for each stage of the project, including via payment into the Biodiversity Conservation Fund (BCF), purchase of credits from the open market (with consideration of applying the 'Like for Like' Variation Rules where required) and/or establishing Biodiversity Stewardship Site(s).

Table 6 | Proposed biodiversity offset strategy

Credit Type	Area (ha)	Offset Liability (BAM Credits)					
		Stage 1	Stage 2	Stage 3	Stage 4	*Stage 5*	Credits Required
	Ecosystem Credits						
PCT 1691: Narrow-leaved Ironbark – Grey Box grassy woodland of the central and upper Hunter	200.64	55	52	21	3,102	*550*	3,780

Credit Type	Area (ha)	Offset Liability (BAM Credits) Stage 1	Stage 2	Stage 3	Stage 4	*Stage 5*	Credits Required
PCT 1692: Bull Oak grassy woodland of the central Hunter Valley	61.66	2	-	-	1,266	*8*	1,276
PCT 1731: Swamp Oak - Weeping Grass grassy riparian forest of the Hunter Valley.	2.41	3	-	-	12	*15*	30
Paddock Trees (PCT 1691)	-	-	-	-	27	*4*	31
TOTAL							**5,117**
	Species Credits						
Squirrel Glider	55.08	38	51	21	1,006	*229*	1,346
Southern Myotis	8.11	9	8	-	96	*120*	233
Striped Legless Lizard	116.74	31	38	15	1,838	*180*	2,102
TOTAL							**3,681**

Table note: Offset staging corresponds to the following works

- *Stage 1 – Ravensworth ash pipeline*
- *Stage 2 - HP Pipeline and LSP Sludge Line works*
- *Stage 3 – Coal handling plant area upgrades*
- *Stage 4 – Borrow pits and salt cake landfill*
- *Stage 5 – Ash dam augmentation and seepage collection upgrades which would be subject to further approval from the Minister.*

For some fauna species, vegetation clearing would remove potential foraging or dispersal habitat but not remove mapped breeding or important foraging habitat for the species. Species credits are therefore not required to be calculated for these impacts, however impacts to this habitat would be offset through corresponding ecosystem credit requirements as outlined in **Table 8**.

Table 7 | Offset of impacts to potential foraging or dispersal habitat

Species	Impact to potential foraging or dispersal habitat (ha)	Corresponding ecosystem offset in Table 7
Regent Honeyeater	14.64	PCT 1691
Large-eared Pied Bat	82.13	PCT 1691, PCT 1692, PCT 1731
Spotted-tailed Quoll	82.13	PCT 1691, PCT 1692, PCT 1731
Swift Parrot	14.64	PCT 1691
Corben's Long-eared Bat	82.13	PCT 1691, PCT 1692, PCT 1731

Monitoring and Management

The Department has recommended conditions to mitigate and manage potential residual impacts on biodiversity, including:

- requiring AGL to prepare and implement a Biodiversity Management Plan that incorporates proposed avoidance and mitigation measures, as well as other contemporary biodiversity management practices; and
- staged offsetting prior to impacts on biodiversity, including requiring ongoing optimisation during detailed design to further avoid impacts and therefore reduction in offsetting liability
- requirement for progressive rehabilitation that is, as soon as reasonably practicable following disturbance; and
- requirement for the progressive rehabilitation of borrow pits to restore native vegetation using locally endemic species from locally sourced seeds/plants.

Summary

The Department considers that the project has been designed to avoid, mitigate and manage biodiversity impacts where practicable. However, the project would result in a range of residual impacts on biodiversity, including EEC/CEECs and threatened fauna species listed under the BC Act and EPBC Act.

The Department has carefully considered these impacts on biodiversity values, and accepts that they would be suitably managed, mitigated and/or offset under the recommended conditions of consent. The Department considers that the retirement of ecosystem and species credits would sufficiently compensate for these residual biodiversity impacts, in accordance with the BC Act. Overall, the Department considers the impacts of the project on biodiversity, including MNES, are acceptable.

As described in **Section 6.1**, the Department has recommended that a partial approval should be granted approving the balance of the project but excluding the approval of the ash dam augmentation and seepage collection infrastructure upgrades at this time. However, the impacts associated with these works have been considered in the Department's assessment of biodiversity and MNES and a credit liability has been nominated for these works in the event that additional approval is obtained for the ash dam augmentation.

6.3 Other Issues

Table 8 | Assessment of Other Issues

Issue	Findings	Recommendations
Energy Security and Reliability	• Bayswater is an important contributor of power to the NEM, with a current generation capacity of 2640 MW • AEMO's 2021 Electricity Statement of Opportunity identifies Bayswater as committed dispatchable power supply until its planned closure in 2035 • The Department considers the ongoing operation of Bayswater until its planned closure would contribute to ongoing stable and reliable electricity supply given the upcoming retirement of other coal-fired power stations, including Liddell by 2022/23, and to complement the transition to renewable energy sources. • The Department considers that the project would address operational constraints and facilitate the continued operation of the station until its planned closure to realise these electricity reliability benefits.	• None required
Waste	• Construction would generate waste from vegetation clearing, stripping of topsoil, demolition works and earthworks. AGL would manage waste in accordance with a Waste Management Plan. • Operational waste streams relevant to the project include salt cake and ash. The project would not increase the quantity of these waste streams. Potential impacts associated with the salt cake landfill are addressed in **Section 6.1**. • The community raised concern that AGL's estimates for ash recycling projections would not be achievable and that ash was not suitable for reuse. • The Department requested further information regarding ash recycling from AGL. The Submissions Report provided an assessment of market demand and noted AGL has entered five-year contracts with two companies for the supply of fly ash and that there are a range of planned road projects in the Hunter Region. • Following the identification of non-compliance with the Coal Ash Order 2014 in January 2019, AGL have implemented measures to confirm that fly ash now complies with the Coal Ash Order and Exemptions under the POEO Act. AGL has suspended the sale of bottom ash pending a specific exemption by the NSW EPA.	• Prepare and implement an ash recycling strategy to promote and report on ash recycling. • Classify waste in accordance with the EPA's Waste Classification Guidelines. • Include measures to manage waste in the CEMP.

Issue	Findings	Recommendations
	• The Department considers that the ash recycling estimates are subject to the market and that the ash is suitable for recycling purposes, subject to the requirements under the POEO Act. The Department considers that increased recycling of ash is an important benefit of the project which will avoid ash disposal from the ash dam, potentially reducing the extent of the overall augmentation works required.	
Rehabilitation	• AGL acquired Bayswater from the NSW Government in 2014. Agreements at the time of the sale have established the respective responsibilities regarding the remediation and decommissioning of Bayswater. • In 2017, AGL prepared a Rehabilitation Report for the site setting out its proposed strategy for rehabilitating Bayswater. This strategy involves consulting with Muswellbrook Shire Council and other key stakeholders over the next few years to develop a detailed rehabilitation plan for the site that would be implemented following the closure of the power station. • The closure, decommissioning and rehabilitation of Bayswater would continue to be subject to a separate approval. The Department considers this to be the best approach to ensure the site is appropriately rehabilitated. • Rehabilitation would be required to be carried out for the infrastructure specific to the project, including the rehabilitation of the ash dam given ash harvesting works would be carried out for the project. • Borrow pits would be progressively rehabilitated to restore native vegetation using locally endemic species from locally sourced seeds/plants • Final capping of each salt cake landfill cell would be in accordance with the *Environmental Guidelines for solid waste landfills* and would comprise of a compacted clay layer (or other suitable material) at least 600 millimetres thick, and then a one metre thick revegetation layer comprising of clean soils, top soil and vegetation. • The project includes measures to increase in the scale of ash recycling and harvesting activities which would reduce ash emplacement and the scale of potential future augmentation works required to the dam which would in turn reduce the scale of the final landform required to be rehabilitated.	• Carry out rehabilitation consistent with project rehabilitation objectives • Prepare and implement a Rehabilitation Strategy for the Ash Dam in consultation with DPIE Water, EPA and Singleton and Muswellbrook Council

Issue	Findings	Recommendations
Traffic	• Access to and from the site is via a dedicated interchange on the New England Highway. Average weekday traffic on the New England Highway is around 9,400 vehicles per day. At peak operations, Bayswater contributes around 2,200 movements through the interchange. • Construction of the project is anticipated to result in an additional 180 light vehicle movements and 50 heavy vehicle movements per day. • The operation of the project is anticipated to result in an additional 50 light vehicle movement and 360 heavy vehicle movements per day, primarily from ash recycling activities. • SIDRA modelling was carried out which identified the interchange has sufficient capacity to cater for the additional movements. • The project would represent a minor increase to overall traffic volumes through the interchange and on the New England Highway. • Cumulative traffic generation is not anticipated to increase the frequency of crashes near the site. • TfNSW recommended that the conditions of consent require appropriate traffic measures to be in place during the construction phase of the project to minimise the impacts of construction vehicles on traffic efficiency and road safety within the vicinity of the site.	• Include measures to manage potential construction traffic impacts in the CEMP.
Noise and vibration	• The nearest noise sensitive receivers to the project are located around two kilometres away. • Noise would be generated from construction activities and during operation from ash recycling activities. • An assessment of noise and vibration impacts was carried out in accordance with the Interim Construction Noise Guideline (DECC, 2009), and Noise Policy for Industry (EPA, 2017). The assessment included consideration of construction and operational road traffic noise. • Projected noise and vibration levels from the construction and operation of the project are estimated to be within the identified noise management levels and project noise trigger levels for the project and other relevant criteria. The Department has recommended conditions to minimise noise from the project.	• Include measures to manage potential construction noise impacts in the CEMP.
Heritage	• AGL completed an Aboriginal Cultural Heritage Assessment Report (ACHAR) consistent with relevant guidelines which included archaeological survey and consultation with Registered Aboriginal Parties (RAPs). A revised ACHAR was included in the Submissions Report which included findings from test excavations.	• Prepare and implement an Aboriginal Cultural Heritage Management Plan in consultation with RAPs and Heritage NSW.

Issue	Findings	Recommendations
	• The assessment identified the project would directly impact up to 24 Aboriginal archaeological sites including 23 open artefact sites and one subsurface artefact site. The assessment also assumed any items outside of the project disturbance footprint would be subject to potential indirect impacts. • Consultation with RAPs identified that the Project sits within a broader cultural landscape that has cultural significance for Aboriginal people, including important landscape features, such as watercourses and high points in the landscape, as well as the Aboriginal objects (i.e., stone artefacts) identified during the archaeological survey and test excavations. • All sites within the project disturbance footprint were assessed as of low scientific significance. AGL has committed to further avoiding impacts where possible during the detailed design phase. Collection and salvage of all surface sites would be undertaken prior to construction. The final location of collected artefacts would be decided in consultation with RAPs. • There is the potential for unexpected finds during construction. No operational impacts are anticipated. • Heritage NSW recommended that a Cultural Heritage Management Plan be included in any conditions of consent. • There are no listed Historic heritage features identified within or adjacent to the project area. • A decommissioned Trigonometry Station was identified at the proposed Borrow Pit 2. The assessment of significance identified the site as having low historical and aesthetic significance and negligible research potential.	• Prepare and implement an unexpected finds protocol.
Visual	• AGL carried out a landscape and visual impact assessment which included a viewshed analysis. • Sensitive receivers to visual impacts at Bayswater are limited to users of the New England Highway. There are no stopping points on the highway with views to Bayswater and views are partially screened by vegetation and the surrounding landform. • The increased height of the main embankment wall for augmentation of the ash dam would be the only visible element of the project. This would be viewed in the context of the existing industrial and agricultural landscape. The change is unlikely to be noticeable by road users. • To minimise visual impacts, AGL propose to retain as much of the existing landscape features and vegetation as possible.	• Minimise the off-site visual impacts of the development, including the potential for any glare or reflection. • Blend visual appearance of infrastructure with surrounding landscape as reasonably and feasibly as possible.

Issue	Findings	Recommendations
	• The Department considers that the overall visual impacts would be minor.	
Air quality	• The project has the potential to impact air quality from the generation of dust from construction and operational activities. Key components of the project with the potential to generate dust include ash recycling activities, earthworks for the augmentation of the ash dam and the construction and operation of borrow pits. • AGL carried out a quantitative air quality assessment in accordance with the EPA's Approved Methods, which included air quality modelling. • The nearest sensitive receiver is located around two kilometres from the project area. The surrounding environment is affected by industrial and mining activities, with background dust levels occasionally exceeding air quality criteria. • The project is not predicted to result in exceedances of relevant criteria for Total Suspended Particulates (TSP) or PM2.5 from the project. • The project is predicted to contribute to exceedances of relevant criteria for PM10 and deposited dust. However, the project would contribute less than 1% of the exceedance experienced at any receiver and would not change the total number of exceedances per year, compared to background conditions. • The Department considers the potential air quality impacts of the project would be negligible and NSW EPA did not raise any concern regarding the air quality assessment. Potential impacts can be managed through the mitigation measures identified in the EIS and the recommended conditions of consent.	• Carry out all activities in a manner that will minimise dust generation. • Include measures to manage dust in the CEMP.
Greenhouse Gas Emissions	• As the project is linked to the operation of a coal-fired power station, the impacts of climate change due to greenhouse gas emissions was an issue raised in several community and special interest group submissions. • The project would not involve any increase in the production of electricity at the power station or extend the operational life of the power station beyond 2035. The project would therefore would not result in the generation of additional greenhouse gas emissions from the station (refer to Section 3.1 for further detail). Minor quantities of greenhouse gases would be generated during construction from the operation of construction equipment.	• None required.

Issue	Findings	Recommendations
Hazards	• The project would not change the existing risk profile of Bayswater. There are appropriate buffer areas and hazard controls implemented at the site. • Works would be carried out near bushfire prone land however the project would not introduce new bushfire risks. • AGL have committed to updating the existing Bushfire Management Plan to include proposed works and activities to manage those works. AGL would also update other relevant plans including the Pollution Incident Response Management Plan and Emergency Response Plan to incorporate the project.	• Include measures to manage hazards and risk in the CEMP.
Socio-economic	• Potential social impacts identified for the project include: o short term use of local amenities during construction (accommodation and recreational facilities); o impacts to human health including air and noise emissions, road traffic, safety and visual amenity; and o increased employment opportunities. • AGL has proposed open and clear consultation with local businesses, services and the community to minimise impacts to goods and services in the region and construction traffic impacts. The site is located in close proximity to Muswellbrook and Singleton and although there may be an increase in temporary demand for visitor or rental accommodation due to the additional approximate 90 personnel construction workforce, it is expected that these impacts would be moderate to low. The Department notes that the additional operational workforce of up to 25 employees is minor and would not impact on regional services. • The project has a CIV of $51.9 million and would contribute to the local and regional economy through spending at businesses to source materials required for the project. • The potential for amenity or health impacts to nearby receivers is considered to be low (refer to noise, visual and air quality assessments above). • The project would provide benefits to NSW in contributing to an ongoing stable and reliable electricity supply as described above.	• See recommended conditions above for managing amenity (noise, air and visual impacts), and off-site hazards and risks.

Issue	Findings	Recommendations
Surrender and consolidation of development consents	• As per Muswellbrook Council's request the Department has not included 2019/37 (Muswellbrook Shire Council) as a consent to be surrendered and consolidated into this approval.	• Relevant conditions from consents proposed to be surrendered incorporated into recommended consent as a separate schedule.
Contributions	• Muswellbrook Council requested development contributions for the project. • AGL and Muswellbrook Shire Council subsequently entered into negotiations and have entered into a Memorandum of Understanding regarding funding arrangements for this Project and other AGL projects at Liddell and Bayswater, separate to this project approval.	• None required

7 Evaluation

AGL seeks approval to undertake a range of upgrade works to ensure the ongoing operation of the facility for its remaining operational life and improve environmental outcomes. The project has been classified as SSD under the EP&A Act and the Minister for Planning is the consent authority.

The Department considers that the project has been designed in a way to avoid and minimise social and environmental impacts as far as practicable. The Department has carefully considered the residual potential impacts of the development on the environment, in consultation with key government agencies including EPA and BCS.

The Department considers the key assessment issues for the project are the potential impacts to biodiversity and to surface and groundwater quality from the ash dam augmentation

Biodiversity

The project would result in removal of up to 265 ha of native vegetation and associated fauna habitat and result in a range of residual impacts on biodiversity, including Endangered Ecological Communities, Critically Endangered Ecological Communities and threatened fauna species listed under the BC Act and EPBC Act.

AGL propose a suite of avoidance and mitigation measures to reduce direct, indirect and prescribed impacts on the biodiversity values of the site. The borrow pits comprise the largest amount of clearing for the project and AGL have committed to avoidance of higher quality woodland vegetation during detailed design for each project component.

To offset the residual biodiversity impacts of the project, AGL propose to implement a Biodiversity Offset Strategy, including the staged retirement of 5,118 ecosystem credits for the clearing of native vegetation and associated habitat for threatened fauna habitat, and 3,683 species credits for impacts on Squirrel Glider, Southern Myotis and Striped Legless Lizard habitat, in accordance with the requirements of the BC Act and EPBC Act.

The Department has carefully considered these impacts on biodiversity values, and accepts that they would be suitably managed, mitigated and/or offset under the recommended conditions of consent. The Department considers that the retirement of ecosystem and species credits would sufficiently compensate for residual biodiversity impacts, in accordance with the BC Act.

Water resources

The ash dam augmentation has the potential to increase seepage to surface and groundwater and increase discharges via the existing ash dam spillway.

The Department worked closely with the EPA throughout the assessment process. The EPA raised several concerns regarding the assessment of potential water quality impacts associated with the ash dam augmentation and requested further baseline data, detail regarding mitigation measures and detail regarding potential water pollution risks.

AGL completed additional assessment of surface and groundwater impacts to respond to the EPA's concerns. Despite the additional assessment, the EPA and the Department are not satisfied that the assessment of these matters provide sufficient certainty about impacts and proposed mitigation to manage residual impacts.

The Department considers that additional assessment is required to understand the potential surface and groundwater quality impacts associated with the ash dam augmentation. The Department and the EPA also considers that the proposed seepage collection infrastructure upgrades should not be carried out until the potential impacts of the augmentation are better understood. AGL acknowledged that further assessment of these matters is required to address the concerns raised by the Department and the EPA.

Conclusion

In considering the costs and benefits of the project, the Department considers that there are significant uncertainties and potential impacts to surface and groundwater associated with the ash dam augmentation. The Department considers that additional assessment is required to inform its evaluation of the ash dam augmentation and associated seepage collection infrastructure upgrades.

The Department has considered the other impacts of the ash dam augmentation including to biodiversity and the other environmental aspects considered in **Section 6.3** as part of its assessment of the project. The Department considers for these other impacts, the augmentation would not result in any significant impacts on the environment or surrounding land uses and any residual impacts can be managed and mitigated to an acceptable level.

The Department considers that with the exception of the ash dam augmentation, the project would improve the environmental performance of the power station by supporting the pollution reduction requirements set out in the EPL and would increase ash recycling, reducing the amount of ash required to be deposited in the ash dam.

The Department considers the ongoing operation of Bayswater until its planned closure would contribute to ongoing stable and reliable electricity supply given the upcoming retirement of other coal-fired power stations, including Liddell by 2022/23, and to complement the transition to renewable energy sources.

The project is consistent with the relevant NSW and Commonwealth strategic policy framework regarding climate change, energy security and the management of coal ash. The project would increase ash recycling rates consistent with the recommendations of Parliament of NSW Public Works Committee inquiry into the costs for remediation of sites containing coal ash repositories in NSW.

The project, excluding the ash dam augmentation component of the project, would also deliver economic benefits to NSW and the region through attracting up to $35.9 million of capital investment and creating up to 60 construction jobs and up to 20 operational jobs.

Based on its evaluation, the Department has carefully weighed up the impacts of the project against the benefits. The Department does not consider that the uncertainties and potential costs associated with the ash dam augmentation outweigh the benefits associated with this component of the project.

However, given the other elements of the project are critical to the ongoing operation of the power station, would improve environmental performance at the site and are consistent with the strategic policy framework, the Department considers that a partial approval should be granted approving the balance of the project but excluding the approval of the ash dam augmentation and seepage collection infrastructure upgrades at this time.

On balance, the Department considers that the benefits of the Bayswater Power Station Upgrade outweigh its costs, and the project is in the public interest and approvable, subject to strict conditions.

8 Recommendation

It is recommended that the Executive Director – Energy, Resources and Industry Assessments, as delegate of the Minister for Planning:

- **considers** the findings and recommendations of this report;
- **accepts and adopts** all of the findings and recommendations in this report as the reasons for making the decision to grant approval to the application;
- **grants partial approval** for the application in respect of SSD 9697 as amended, subject to the conditions in the attached development consent; and
- **signs** the attached development consent and recommended conditions of consent (see **Appendix F**).

Prepared by:

Jack Turner
Senior Environmental Assessment Officer
Resource Assessments

Recommended by:

10/02/2022

Gen Lucas
Team Leader
Resource Assessments

10/02/2022

Steve O'Donoghue
Director
Resource Assessments

9 Determination

The recommendation is **Adopted / Not adopted** by:

Clay Preshaw
Executive Director
Energy, Resources and Industry Assessments
as delegate of the Minister for Planning

Appendices

Appendix A – List of key documents

A1 – Environmental Impact Statement (EIS): Refer to folder "EIS" on the Department's website at:

https://www.planningportal.nsw.gov.au/major-projects/project/9791

A2 – Submissions and Agency Advice: Refer to folder "Submissions" on the Department's website at:

https://www.planningportal.nsw.gov.au/major-projects/project/9791

A3 – Submissions Report: Refer to folder "Response to Submission" on the Department's website at:

https://www.planningportal.nsw.gov.au/major-projects/project/9791

A4 – Additional Information: Refer to folder "Additional Information" on the Department's website at:

https://www.planningportal.nsw.gov.au/major-projects/project/9791

A5 – Amendment Report: Refer to folder "Amendments"

Appendix B – Community Views

Table B | Community Views

Issue	Consideration
Water • Impact of ash dam augmentation and salt cake landfill on ground and surface water quality.	**Ash Dam Augmentation** • Based on advice received from the EPA regarding the proposed ash dam augmentation, the Department considers that consent for the augmentation cannot be recommended at this time given the assessment of surface and groundwater quality impacts of this component of the project is inadequate. *Conditions* • The ash dam augmentation be excluded from the approval of the application • The augmentation can be the subject of a future determination, provided that AGL prepares an updated surface and groundwater assessment, in consultation with the EPA. **Salt Cake Landfill** • The landfill would be required to be designed, constructed, operated and decommissioned in accordance with the EPA guidelines. *Conditions* • Prepare a Salt Cake Landfill Management Plan in consultation with the EPA demonstrating how the Salt Cake Landfill would be designed, constructed, operated and decommissioned in accordance with the relevant EPA guidelines and include a detailed Groundwater Monitoring Plan

Issue	Consideration
Legacy pollution issues including storage of ash	• The existing design of the ash dam is a legacy issue outside of the scope of the project. • The legacy impacts are regulated by the EPA under EPL 779 and the Department has engaged extensively with the EPA through the assessment process. The EPA has required that AGL complete a number of pollution investigation and reduction programs at Bayswater, which are ongoing. Legacy issues associated with the ash and ash disposal are subject to an ongoing parliamentary inquiry.
Power Station Technology • Upgrade and continued operation of an outdated power source • CO_2 emissions and impact on the environment (including climate change) and human health	• Coal-fired power stations like Bayswater are an important contributor to the National Electricity Market (NEM). • The upgrade works proposed address existing pollution issues, principally water pollution issues, associated with the ageing ancillary infrastructure currently in use. • The upgrade works would allow the project to continue generating the approved power generation capacity, contributing to electricity reliability whilst renewable energy infrastructure is developed separately. • The project would not involve any increase in the production of electricity at the power station or the generation of additional greenhouse gas emissions, other than minor emissions during construction activities.
Biodiversity • Clearing of critically endangered vegetation • Proposed use of biodiversity credits	• The project would require the removal of 265 hectares (ha) of vegetation. Although some clearing would be required, the project has been designed to utilise existing previously cleared corridors as much as practicable. • AGL have committed implementing mitigation measures to reduce direct and indirect impacts to biodiversity including reducing vegetation clearing, implementation of plans, and management of key risks to threatened species. *Conditions* • Offset the biodiversity impacts of native vegetation clearing in accordance with the Biodiversity Assessment Method under the *Biodiversity Conservation Act 2016*. • Review and update the ecosystem and credit requirements to reflect the final construction footprint a in consultation with BCS and DAWE. • Biodiversity credits must be offset in accordance with the Biodiversity Credit Requirements. • Prepare and implement mitigation measures and offset requirements in accordance with a Biodiversity Management Plan prior to commencement of construction and to the satisfaction of the Secretary.
Safety and hazards • Disposal of coal ash into Ravensworth mine void 3 • Utilisation of recycled coal ash should the	• Disposal of ash in the Ravensworth void is an approved activity. • The project is predicted to increase coal ash recycling to 1 million tonnes. • Water management processes would be upgraded as part of the project. • The Department consulted extensively with the EPA about the ash dam augmentation and salt cake landfill and developed conditions. • The project would facilitate the capping and rehabilitation of the ash dam in consultation with the relevant government authorities.

Issue	Consideration
market be smaller than anticipated • Proposed cap and monitor approach of remediating sites used for disposal of coal ash	*Conditions* • Implement an ash recycling strategy to promote ash reuse, investigate alternative ash management measures and report on annual ash reuse quantities • Regular compliance and audit reporting. • Handle all chemicals, fuels and oils in accordance with Australian Standards and NSW EPA guidelines.

Appendix C – BCS Advice on Commonwealth Matters

Refer to folder "Additional Information" on the Department's website at:

https://www.planningportal.nsw.gov.au/major-projects/project/9791

Appendix D – Consideration of MNES

The Bayswater Power Station Upgrade Project (the project) was declared to be a 'controlled action' under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 20 April 2020, due to its potential impacts on listed threatened species and communities. In making this determination, the delegate for the Commonwealth Minister for the Environment accredited the State's environmental assessment processes under the *Environmental Planning and Assessment Act 1979* (EP&A) Act. Consequently, the potential impacts on controlling provisions under the EPBC Act have been assessed under Part 4 of the EP&A Act.

The Department provides the following additional information for the Commonwealth Minister to take into account when deciding whether or not to approve the project under the EPBC Act.

The Department's assessment has been prepared based on the information contained in:

- the Environmental Impact Statement (EIS) for the Project, particularly Appendix C;
- the Applicant's Submissions Report, in particular the revised Biodiversity Development Assessment Report (BDAR) dated 9 December 2020 prepared by Kleinfelder Australia Pty Ltd (Kleinfelder);
- advice provided by the Commonwealth Department of Agriculture, Water and the Environment (DAWE) (see **Appendix A**);
- advice provided by the Biodiversity, Conservation and Science Directorate (BCS) within the Department, in particular its assessment of impacts on EPBC Act listed threatened species and communities (see **Appendix C**); and
- supplementary information provided by the Applicant during the assessment process, including an additional bushfire impact assessment for MNES (see **Appendix A**).

This Appendix is supplementary to, and should be read in conjunction with, the main volume of the Department's Assessment Report which includes the Department's consideration of impacts to EPBC Act listed threatened species and communities in **Section 6.2**.

D1 – Potential Impacts to EPBC Act listed Threatened Species and Communities

In its referral decision the Commonwealth determined that the project is a controlled action in that the proposed action is likely to have a significant impact on three EPBC Act listed threatened fauna species (Regent Honeyeater, Swift Parrot and Striped Legless Lizard) and one critically endangered ecological community (CEEC) (Central Hunter Valley Eucalypt Forest and Woodland). In addition, the Commonwealth considered that there may be some risk of significant impacts to two threatened flora species (Wybong Leek Orchid and *Ozothamnus tesselatus*), six threatened fauna species (Koala, Pink-tailed Worm-lizard, Spot-tailed Quoll, Brush-tailed Rock Wallaby, Grey-headed Flying-fox and Large-eared Pied Bat) and one CEEC (White-Box Yellow-Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland).

The updated BDAR prepared by Kleinfelder included consideration of impacts of the Project on these species and communities, including completion of significant impact tests for key species and communities in accordance with the *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance* (DoE, 2013). In addition, assessments of significance were prepared for EPBC Act-listed species which were considered by Kleinfelder to have a moderate to higher likelihood of occurrence, including an additional two threatened fauna species (Green and Golden Bell Frog and Corben's Long-eared Bat) and one migratory species (White-throated Needletail).

The Department's consideration of impacts to these EPBC Act listed threatened species and communities is summarised below. The Department has taken into account the advice provided by BCS, which indicated that Kleinfelder's assessment of EPBC Act listed threatened species and communities has been conducted correctly in accordance with the Biodiversity Assessment Method (BAM) under the provisions of the *Biodiversity Conservation Act 2016* (BC Act). It should be noted that BCS concluded that it supported the outcomes of the revised BDAR.

Critically Endangered Ecological Communities (CEEC): *Central Hunter Valley Eucalypt Forest and Woodland and White Box-Yellow Box-Blakeley's Red Gum Grassy Woodland and Derived Native Grassland*

Central Hunter Valley Eucalypt Forest and Woodland: Vegetation survey effort undertaken by Kleinfelder confirmed that a total of 32.39 ha of EPBC Act listed Central Hunter Valley Eucalypt Forest and Woodland occurs within the Project area, of which 13.72 ha would be cleared as part of the Project. It is noted that this community is represented by two plant community types (PCT): (i) PCT 1691 – 'Narrow-leaved Ironbark – Grey Box grassy woodland of the central and upper Hunter' (8.19 hectares) and (ii) PCT 1692 – 'Bull Oak grassy woodland of the central Hunter Valley' (5.53 hectares). Only the high quality intact areas of these two PCTs were considered to match the CEEC listing criteria. The remaining areas of the two PCTs were assessed of lower quality and contain large patches of derived grasslands, regrowth and poor condition vegetation which do not meet the listing requirements for this CEEC.

Kleinfelder confirmed that clearing of 13.72 ha of this CEEC equates to a total removal of 42% of this CEEC from the Project area, but only 1.9% within the broader Bayswater Site to the west of the Project area. As such, Kleinfelder considered that while the proposal would reduce the extent of the CEEC within the Project area, it was considered unlikely to significantly impact on the occurrence of the CEEC in the locality due to the relatively small area of impact.

Within the Project Area, the majority of the CEEC occurs around the Salt Cake Landfill, within Borrow Pit 4 and along the Northern HP area. This vegetation is connected to the south-east (patchy) and to

the north and north-west (more continuous patches) of the Borrow Pit. Kleinfelder indicated that the removal of the vegetation within Borrow Pit 4 would increase fragmentation of areas of the CEEC occurring to the north-west and south-east of the Borrow Pit. However, the vegetation occurring to the south-east is already highly fragmented (consists of scattered patches of the CEEC).

Kleinfelder considered that edge effects associated with the project are likely to be similar to current edge effects, and therefore the species composition of retained areas is likely to be similar. AGL has committed to implement stringent management measures to prevent construction activities from introducing or spreading new or existing environmental and noxious weeds or plant and animal pathogens. As such, it is unlikely that the Project would result in invasive species becoming established in the habitat for the CEEC.

The bushfire assessment determined that the 2019/2020 bushfires resulted in a very small area of the CEEC being adversely affected by the fires (i.e. approximately 1% within a 50km radius of the Development Site).

Kleinfelder concluded that removal of 13.72 ha of this CEEC is unlikely to cause a significant impact to this CEEC, particularly given that:

- the CEEC is well represented in the locality in a similar state to that represented in the Project area;
- clearing would not cause significant fragmentation of the CEEC given that it already exists in the project area in a highly fragmented state;
- no indirect impacts have been identified that are likely to have a significant impact on the area of the CEEC that would be retained within the Project area and the adjacent areas;
- the existing weed and feral animal threat levels are unlikely to change significantly following completion of the Project; and
- the CEEC was not significantly directly impacted by the 2019/20 bushfires.

BCS advised that the BDAR adequately addressed impacts on this CEEC in accordance with the BAM. However, BCS advised that the direct clearing of 13.72 ha of this CEEC was considered a significant impact (i.e. reduced extent and some fragmentation) that required offsetting. BCS accepted AGL's commitment to retire 276 ecosystem credits matching PCT 1691 and 100 ecosystem credits matching PCT 1692 (see below).

The Department agrees with the findings of the BCS. The Department has recommended a condition requiring the retirement of the ecosystem credits prior to the commencement vegetation clearing in each project stage. On this basis, the Department considers the project's impacts on this CEEC are acceptable.

White-Box Yellow-Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland: Despite extensive survey effort, Kleinfelder confirmed that no areas of White-Box Yellow-Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland were identified within the Study Area. As such, the Project is not considered likely to reduce the extent of the CEEC and it is therefore unlikely to significantly impact on the occurrence of the CEEC in the locality.

Kleinfelder indicated that areas of this CEEC outside of the Project area would not be subject to burning, flora or fauna harvesting, or other activities which are likely to result in the decline or loss of a functionally

important species within the CEEC. It is also not anticipated that any novel activities involving the use of fertilisers, herbicides or other chemicals will be introduced to the subject site that would pose a threat to the CEEC in the locality.

Kleinfelder concluded that the project is unlikely to cause a significant impact to this CEEC. BCS reviewed the plant community type present within the project area and concluded that the CEEC is unlikely to be present.

The Department agrees that the project would not result in unacceptable impacts on the White-Box Yellow-Box Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC, particularly given that:

- no areas of CEEC were mapped within the Project area (no direct impacts);
- the project would not cause significant fragmentation of the CEEC;
- no indirect impacts of the project have been identified that are likely to have a significant impact area of the CEEC that will be retained in adjacent areas; and
- the existing weed and feral animal threat levels are unlikely to change significantly following completion of the Project.

Threatened Fauna: *Regent Honeyeater, Swift Parrot, Striped Legless Lizard, Koala, Pink-tailed Worm-lizard, Spot-tailed Quoll, Brush-tailed Rock Wallaby, Grey-headed Flying-fox, Large-eared Pied Bat, Green and Golden Bell Frog and Corben's Long-eared Bat*

Regent Honeyeater (*Anthochaera phrygia*) and Swift Parrot (*Lathamus discolor*): Kleinfelder confirmed that the project area includes 14.64 ha of potential foraging habitat for both of these species, however that no breeding has been recorded in the locality. The majority of areas of habitat within the project area comprise small, isolated patches with a low level of connectivity to surrounding habitat. Given the small area of these patches, Kleinfelder considered that the clearing associated with the project is unlikely to contribute to the reduction in the size of a population of these species.

Further, Kleinfelder indicated that much of the habitat within the project area is highly disturbed due to current and historical agricultural practices. These species are highly mobile and any local population which may be present is likely to persist, should the project proceed. As such, Kleinfelder considered it unlikely that the project would reduce the area of occupancy of these species.

Kleinfelder considered that the project site is unlikely to contain habitat critical to the survival of the Regent Honeyeater due to the relatively low density of key feed species and the fact that only one record of the species in the locality and no records of breeding in the locality. Similarly, as there are only nine records of the Swift Parrot in the locality it is considered unlikely that the project area contains habitat critical to the survival of this species. Additionally, Kleinfelder indicated that Important Habitat Mapping (BAM 2020) for each species indicates that no areas of the project site area are classified as 'Important Habitat' for either species.

AGL has committed to implement stringent management measures to prevent construction activities from introducing or spreading new or existing environmental and noxious weeds or plant and animal pathogens. As such, it is unlikely that the project would result in invasive species becoming established in the habitat for the species.

The bushfire assessment determined that the 2019/2020 bushfires resulted in moderate to large areas of habitat for the Regent Honeyeater and Swift Parrot which were adversely affected by the fires (i.e. approximately 15% of the habitat for the Regent Honeyeater and 31% of habitat for the Swift Parrot within a 50km radius of the project site). However, Kleinfelder confirmed that large areas of unaffected habitat for these species occur throughout the Hunter IBRA subregion and to the north. Given the low/moderate suitability of habitats within the project site for either species, Kleinfelder considered it is unlikely that the loss of habitat (as a result of bushfires) across the study area would increase the value of habitats within the project site.

Kleinfelder's Assessments of Significance for impacts on the Regent Honeyeater and Swift Parrot concluded that the project is unlikely to result in a significant impact to either species.

BCS advised that the BDAR adequately addressed impacts on these species in accordance with the BAM. BCS noted that the removal of potential habitat would be offset through the retirement of ecosystem credits calculated for plant community types (PCTs) associated with potential habitat for these species, namely the woodland for of PCT 1691.

The Department agrees that the project would not result in unacceptable impacts to the Regent Honeyeater or the Swift Parrot, particularly given that:

- only foraging habitat for this species would be impacted;
- the majority of areas of habitat within the project site comprise small, isolated patches with a low-level of connectivity to surrounding habitat, or small patches at the extremity of larger patches;
- habitat resources for these species would remain outside of the study within the surrounding Bayswater Power Station Site for the Regent Honeyeater and outside the study area for the Swift Parrot;.
- the species are highly mobile and any local population which may be present is likely to persist, should the project proceed;
- the project is unlikely to introduce or increase number of invasive pest species or a disease that may cause the species to decline;
- the project would not interfere substantially with the recovery of these species; and
- the removal of potential habitat for these species would be offset through the retirement of ecosystem credits calculated for PCTs associated with potential habitat for these species.

Striped Legless Lizard (*Delma Impar*): Kleinfelder confirmed that this species was detected within the project area during the assessment at Borrow Pit 4, where a large patch of woodland vegetation occurs. In addition, the species was recorded approximately 5 km to the west of the site in 2018, as part of surveys for the Maxwell Coal Project.

All areas of vegetation, with the exception of the grasslands, were assessed as suitable habitat for the species. Grassland areas were excluded due to the lack of grass cover, and/or other refugia (i.e. logs, fence posts, rocky area) within these areas. Kleinfelder indicated that of the 184.43 ha of available habitat that occurs in the project area, approximately 116.74 ha would be removed.

While there is a large area of surrounding potentially suitable habitat in the area, the project has the potential to reduce the area of occupancy of the population of Striped Legless Lizard. Kleinfelder also indicated that the presence of breeding habitat cannot be ruled out. Of the individuals identified within the disturbance area, one was identified as being approximately 50 – 60 mm in length (snout to vent length) and may have been a juvenile lizard.

Kleinfelder indicated that due to the uncertainty around the status of the population within the project area (size, importance, breeding potential), the potential for the proposal to have a significant impact on the species is uncertain. As such, Kleinfelder concluded that the proposal has the potential to significantly impact on the species in the locality.

BSC confirmed that the BDAR adequately addressed impacts on this species in accordance with the BAM. BSC agreed that the project would likely have a significant impact on the Striped Legless Lizard in the short to medium-term, given the project may provide a physical barrier to movement and it may reduce the area of occupancy of a population that may represent an 'important population' according to the DotE (2013) given the population is near the limit of the species range.

The Department agrees with these findings. As discussed below, in accordance with the BAM, the clearing of 122.97 ha of Striped Legless Lizard habitat is required to be offset via the retirement of 2,103 species credits. The Department has recommended a condition requiring the retirement of the ecosystem credits prior to the commencement vegetation clearing in each project stage. On this basis, the Department considers the project's impacts on this species are acceptable.

Koala (*Phascolarctos cinereus)*: Kleinfelder indicated that no koala species were detected within the project area during the assessment and no evidence of Koala activity was identified. Based on the availability of habitat and the occurrence of local species records, this species was considered to have a low likelihood of occurrence within the project area.

However, Kleinfelder confirmed that two tree species listed under SEPP for Koala Habitat Protection (2019) occur within the Study Area: *Eucalyptus tereticornis* and *Eucalyptus punctata*. Within the Study Area, these two tree species only constitute >15% of the canopy cover within small portions of the site (within PCT 1691: Moderate-Good-CEEC, and PCT 1691: Plantation). However, the majority of the habitat onsite comprises small, isolated patches with a low-level of connectivity to surrounding habitat, or patches that are at the extremities of larger patches.

Due to the limited extent of habitat and the patchy occurrence of feed trees within the project area, Kleinfelder concluded that it is unlikely that the project area represents Core Koala Habitat. Further, due to a lack of Core Koala Habitat or evidence of a resident population of Koalas, Kleinfelder concluded that it is unlikely that the project would lead to the long-term decrease of any potentially occurring local population of the species and that a significant impact is unlikely.

BCS advised that the BDAR adequately addressed impacts on the Koala in accordance with the BAM. BCS accepted the conclusion that the project is unlikely to result in a significant impact to this species.

The Department agrees that the project would not result in unacceptable impacts to the Koala, particularly given that:

- the species was assessed as having a low likelihood of occurrence within the project area;
- targeted surveys for this species did not identify the species;

- the project are was assessed as providing mainly dispersal habitat of the Koala, however it was not assessed as providing breeding habitat for the species;
- there is a large amount of higher quality habitat within the surrounding areas of the Bayswater Power Station Site.

Pink-tailed Worm-lizard (*Aprasia parapulchella*): Despite extensive survey effort, Kleinfelder confirmed that this species was not detected within the project area during the assessment and there are no records of the species within the locality. Very few areas occur within the project area that support rocky outcrops or scattered, partially buried rocks which are identified as important habitat for this species. Due to a lack of evidence of occurrence of resident population and the unsuitability of the habitat, Kleinfelder concluded impacts on the species are unlikely to be significant.

Given no records of the Pink-tailed Worm-lizard occur within the locality and that targeted surveys for this species identified no individuals, the Department accepts that the project is unlikely to significantly impact the species in the locality.

Spot-tailed Quoll (*Dasyurus maculatus)*: Despite extensive targeted survey effort, including using remote sensor cameras, no individuals were detected within the project area. Kleinfelder also confirmed that the project does not contain large areas of suitable denning habitat. Although hollow bearing trees are present within the project area, patches of vegetation are typically small. The largest patch of vegetation, within Borrow Pit 4 primarily consists of Bull Oak Woodland which does not contain a high density of hollows or hollows large enough for the species. A large amount of surrounding, higher quality, habitat for this species exists within the Bayswater Power Station Site. As such, Kleinfelder indicated that it is unlikely that the project area forms part of the breeding habitat/range for a local population of the species.

However, Kleinfelder noted that the project area could still provide foraging habitat and/or dispersal habitat for the species. Suitable habitat for the species was assessed as occurring within the majority of the vegetation types, with the exception of the Grasslands and Acacia Regrowth, due to the lack of woodland habitat features. The species may still disperse and move through the open areas of the site. Approximately 82.13 ha of habitat for this species was estimated to occur within the impact area.

While the project would impact on habitat for the Spot-tailed Quoll, due to the large amount of surrounding, higher quality, habitat within the Bayswater Power Station Site, Kleinfelder concluded that it is unlikely that the project would lead to the long-term decrease of any potentially occurring local population of the species and unlikely that the project would have a significant impact on the species.

BSC supported this conclusion. BSC agreed that potential habitat for the Spot-tailed Quoll is widespread, and that since there are extensive areas of similar habitat in the vicinity of the site, impacts of the project on the species are not likely to be significant. Further, BSC indicated that no offset is required for this species based on the above. However, this species is classified as an 'Ecosystem Credit Species' in the Threatened Biodiversity Data Collection (OEH 2019a) and as such would be offset through the project's PCT ecosystem credit requirements.

The Department agrees that the project would not result in unacceptable impacts to the Spot-tailed Quoll, particularly given that:

- targeted surveys for this species did not identify the species;

- the project area was assessed as providing potential foraging and dispersal habitat of the Spotted-tailed Quoll; however, it was not assessed as providing breeding habitat for the species;
- existing habitat within the disturbance areas of the project comprises small, isolated patches with a low-level of connectivity to surrounding habitat;
- there is a large amount of higher quality habitat within the surrounding areas of the Bayswater Power Station Site;
- the removal of the habitat within the Impact Area is unlikely to have a significant impact on any potentially occurring local population of the species; and
- the Spot-tailed Quoll is 'Ecosystem Credit Species' and impacts would be offset.

Brush-tailed Rock Wallaby (*Petrogale penicillata*): Kleinfelder confirmed that this species was not detected within the project area and that the area does not contain rocky escarpments, outcrops, cliffs or other habitat features consistent with the preferred habitat of this species. There is a lack of evidence of a known resident population of this species. Kleinfelder therefore concluded it is unlikely that the project will lead to the long-term decrease of any potentially occurring local population of the species.

BCS advised that the BDAR adequately addressed impacts on the Brush-tailed Rock Wallaby in accordance with the BAM. BCS accepted the conclusion that the project is unlikely to result in a significant impact to this species.

The Department agrees that the project would not result in unacceptable impacts to the Brush-tailed Rock Wallaby, particularly given that:

- targeted surveys for this species did not identify the species;
- the project area does not include any preferred habitat for this species; and
- there is a lack of evidence of a known resident population of this species.

Grey-headed Flying-fox (*Pteropus poliocephalus*): Kleinfelder indicated that this species was not detected within the project area, however the project would remove up to 18.06 ha of foraging habitat for this species. The habitat to be removed is not considered to represent breeding habitat (no camps identified) for the species and therefore any individuals utilising this habitat are not considered to represent an important population. Additionally, the area of potential foraging habitat to be removed would constitute a very small proportion of the available habitat within the locality. The project would not isolate any areas of habitat or cause significant habitat fragmentation that would affect the breeding, foraging or dispersive movements of this highly mobile species.

Kleinfelder concluded that the project is unlikely to have a significant impact on Grey-headed Flying Fox due to the lack of a breeding camp and that there are numerous areas of suitable foraging habitat within the surrounds.

BSC supported this conclusion and noted that this species is classified as a dual credit species, 'species credit' for breeding (e.g. a camp) and 'ecosystem credit' for foraging habitat in the Threatened Biodiversity Data Collection (OEH 2019a). Given that there is no important breeding habitat (i.e. camps), BSC confirmed no species credit offset is required for this species.

The Department agrees that the project would not result in unacceptable impacts to the Grey-headed Flying Fox, particularly given:

- the lack of breeding habitat for this species within the Study Area;
- evidence of this species within the locality indicates this species has the potential to occur in the adjacent habitat;
- the habitat onsite comprises small, isolated patches with a low-level of connectivity to surrounding habitat, or patches at the extremities of larger patches;
- the project is unlikely to introduce or increase number of invasive pest species or a disease that may cause the species to decline; and
- the project would not interfere substantially with the recovery of this species.

Large-eared Pied Bat (*Chalinolobus dwyeri*) and Corben's Long-eared Bat (*Nyctophilus corbeni*): Kleinfelder confirmed that no suitable roosting or breeding habitat for the Long-eared Pied Bat occurs within the project area (foraging habitat only) although there are 18 records of this species in the locality. However, the project area is considered to represent potential roosting and foraging habitat for the Corben's Long-eared Bat. Only one record of this species has been recorded in the locality, with its main area of occurrence being further to the west.

Kleinfelder indicated that suitable foraging habitat for both these species within the project site consists of Central Hunter Box – Ironbark Woodland, Rehabilitation, Plantation, Central Hunter Bull Oak Forest, Swamp Oak Forest. A total of 82.13 ha of this habitat would be cleared as part of the project.

The habitat onsite comprises small, isolated patches with a low-level of connectivity to surrounding habitat, or patches at the extremities of larger patches. Therefore, the loss of any potential habitat for these species within the project area is considered unlikely to fragment an existing population into two or more populations. Further, Kleinfelder confirmed that no habitat critical to the survival of either species, including sandstone cliffs (Large-eared Pied Bat) or old-growth forest (Corben's Long-eared Bat), have been observed within the project area or within its close proximity.

The bushfire assessment determined that the 2019/2020 bushfires resulted in moderate to large areas of habitat for the Large-eared Pied Bat and Corben's Long-eared Bat being adversely affected by the fires (i.e. approximately 33% of the habitat for the Large-eared Pied Bat and 53% of habitat for the Corben's long-eared bat within a 50km radius of the project site). However, Kleinfelder confirmed that large areas of unaffected habitat for these species occur throughout the Hunter IBRA subregion. Kleinfelder considered it is unlikely that the loss of habitat (as a result of bushfires) across the study area would increase the value of habitats within the project site.

Kleinfelder concluded that the project is unlikely to have a significant impact on either the Large-eared Pied Bat or the Corben's Long-eared Bat, primarily due to the poor quality of habitat available in comparison to the surrounds which has higher quality (not being impacted upon).

Although BSC agreed with this conclusion, it was noted that some minimal roosting habitat may be on site (i.e. tree hollows), however, similar habitat will likely be offset via retirement of PCT ecosystem credits. BSC indicated that no species credit offset is required for these species based on the above.

The Department agrees that the project would not result in unacceptable impacts to either the Large-eared Pied Bat or the Corben's Long-eared Bat, particularly given:

- the lack of breeding habitat for the Large-eared Pied Bat within the project area;
- evidence of both bat species within the locality indicates the species have the potential to occur in the adjacent habitat;
- no habitat critical to the survival of either species occurs within the project area;
- the habitat onsite comprises small, isolated patches with a low-level of connectivity to surrounding habitat, or patches at the extremities of larger patches;
- the project is unlikely to introduce or increase number of invasive pest species or a disease that may cause the species to decline; and
- the project would not interfere substantially with the recovery of either species.
- large areas of habitat unaffected by the 2019/20 bushfires occur throughout the Hunter IBRA subregion.

Green and Golden Bell Frog (*Litoria aurea*): Despite targeted surveys completed across 8 different water bodies within the project site, this species was not detected within the project area. However, Kleinfelder confirmed that the species has previously been identified within the Sewage Treatment Plant Polishing Ponds within the Bayswater Site (last recorded in early 2000's) and Lake Liddell (last confirmed in late 1970's) (DECC, 2007).

Kleinfelder concluded that as the species was not detected during field surveys, it is unlikely that the project would reduce the area of occupancy of an important population, fragment an existing important population or disrupt the breeding cycle of an important population.

The assessment of potential impacts of the 2019/2020 bushfires determined that a very small area of habitat for the species was adversely affected by the fires (i.e. approximately 3% of the habitat within a 50km radius of the project site).

BCS advised that the BDAR adequately addressed impacts on the Green and Golden Bell Frog in accordance with the BAM. BCS accepted the conclusion that the project is unlikely to result in a significant impact to this species.

The Department agrees that the project would not result in unacceptable impacts to Green and Golden Bell Frog, particularly given:

- surveys conducted within the project area did not identify the species;
- no location population of the species is known in recent years; and
- large areas of habitat for the species were unaffected by the 2019/20 bushfires within the Hunter IBRA subregion.

Summary of ecosystem credit requirements for clearing of potential foraging or dispersal habitat

For some fauna species, vegetation clearing would remove potential foraging or dispersal habitat but not remove mapped breeding or important foraging habitat for the species. Species credits are therefore not required to be calculated for these impacts, however impacts to this habitat would be offset through corresponding ecosystem credit requirements as outlined in **Table D1**.

Table D1 | Offset of impacts to potential foraging or dispersal habitat

Species	Impact to potential foraging or dispersal habitat (ha)	Corresponding ecosystem offset in Table D2
Regent Honeyeater	14.64	PCT 1691
Large-eared Pied Bat	82.13	PCT 1691, PCT 1692, PCT 1731
Spotted-tailed Quoll	82.13	PCT 1691, PCT 1692, PCT 1731
Swift Parrot	14.64	PCT 1691
Corben's Long-eared Bat	82.13	PCT 1691, PCT 1692, PCT 1731

Threatened Flora: *Wybong Leek Orchid and Ozothamnus tesselatus*

Wybong Leek Orchid (*Prasophyllum* sp. Wybong): Kleinfelder indicated that targeted surveys were undertaken within the project area for this species, however no individuals were detected. Due to sub-optimal conditions for the flowering season of the Wybong Leek Orchid, and the lack of flowering of the species at a local reference population, an expert report was prepared by Dr Stephen Bell to assess the habitat suitability of the project area for this species. The expert report determined that approximately 166 ha (30%) of the proposed disturbance area may provide habitat for these species. However, as no individuals of either species were detected during further targeted surveys, Dr Bell concluded that it is unlikely that the site supports any populations of of Wybong Leek Orchid. Impacts to this species were therefore considered unlikely to be significant. Further, Dr Bell indicated that relative to other Hunter populations of this species, the floristic composition of grasslands within the project area are very different and occur on different soil landscapes supporting richer soils.

The assessment of potential impacts of the 2019/2020 bushfires determined that a very small area of habitat for the species was adversely affected by the fires (i.e. approximately 1% of the habitat within a 50km radius of the project site).

BCS supported the findings of the expert report and noted that the targeted surveys were undertaken in accordance with BCS guidelines for surveying threatened plants. Furthermore, BCS indicted that surveys were conducted at an optimal time when the species should have been flowering. BCS acknowledged that multiple survey periods may be more effective in detecting more plants, but this is not a requirement of BCS's survey guidelines. BCS confirmed that, given the surveys failed to find any orchids, the BAM correctly assumed the species is not present and did not generate a credit liability for this species.

The Department agrees that the project is unlikely to constitute a significant impact on Wybong Leek Orchid, particularly given that targeted surveys of the area indicated that a population of the species does not occur.

Ozothamnus tesselatus: Kleinfelder indicated that this species was not detected within the project area during the assessment and was determined to have a low likelihood of occurrence. Further, there is only one historical record of the species in the locality.

As such, Kleinfelder concluded that the project is unlikely to lead to a long-term decrease in the size of an important population of the species, reduce the area of occupancy of an important population, fragment an existing important population, or disrupt the breeding cycle of an important population. Kleinfelder confirmed that better-quality woodland habitat occurs for this species in adjacent areas outside the project site.

The assessment of potential impacts of the 2019/2020 bushfires determined that a very small area of habitat for the species was adversely affected by the fires (i.e. approximately 1% of the habitat within a 50km radius of the project site).

BCS advised that the BDAR adequately addressed impacts on the *Ozothamnus tesselatus* in accordance with the BAM. BCS accepted the conclusion that the project is unlikely to result in a significant impact to this species.

The Department agrees that the project is unlikely to constitute a significant impact on *Ozothamnus tesselatus*, particularly given that targeted surveys of the area indicated that a population of the species does not occur.

Migratory Species: White-throated Needletail

White-throated Needletail (*Hirundapus caudacutus)*: Kleinfelder indicated that this species was not identified during the assessment, however based on habitat availability, the species was considered to have a moderate to low likelihood of occurrence in aerial habitat within the project area. Kleinfelder confirmed that terrestrial habitat would be disturbed for the project, however the White-throated Needletail is almost exclusively aerial when foraging and is unlikely to utilise the terrestrial vegetation within the project are. Habitat for this migratory species would not be destroyed or isolated by the project, and the species is highly mobile and can readily move between habitats. Kleinfelder concluded that the project is therefore unlikely to disrupt or interfere with the natural behaviour of this species.

The Department agrees that the project is unlikely to constitute a significant impact on the White-throated Needletail, particularly given:

- the lack of breeding habitat for this species within the project area;
- this species is almost exclusively aerial and unlikely to utilise the terrestrial habitat present onsite;
- this species is highly transitory and able to move between different habitats easily;
- the project is unlikely to introduce or increase number of invasive pest species or a disease that may cause the species to decline; and
- large areas of habitat unaffected by the 2019/20 bushfires occur throughout the Hunter IBRA subregion.

D2 – Demonstration of 'Avoid, Mitigate, Offset' for MNES

Avoidance and Mitigation Measures

The BDAR is based on a suite of avoidance and mitigation measures that AGL would implement to reduce direct, indirect and prescribed impacts on the biodiversity values of the site. In summary, the measures include:

- locating the project infrastructure and ancillary works to minimise disturbance areas and avoid areas of remnant native vegetation and fauna habitat, where possible;
- considering opportunities for further minimisation and avoidance during detailed design of the project;
- undertaking pre-clearing surveys and progressively clearing;
- salvaging topsoil and habitat features such as hollow bearing logs;
- avoiding clearing during breeding periods, where practicable;
- preparing and implementing Erosion and Sediment Control Plans for each project stage;
- undertaking weed, pathogen and feral animal controls;
- managing noise, vibration, waste, and air pollution adjacent to sensitive habitat areas;
- restricting public access and controlling traffic movements on site; and
- preparing and implementing Rehabilitation Plans and progressive rehabilitation of sites.

The Department and BCS are satisfied with the avoidance and mitigation measures proposed by AGL to minimise impacts on the biodiversity values of the site on the EPBC Act listed species and communities. The Department has recommended a condition requiring AGL to prepare and implement a Biodiversity Management Plan that incorporates these avoidance and mitigation measures, as well as other contemporary biodiversity management practices.

Biodiversity Offsets

The Department's recommended conditions require AGL to develop a biodiversity offset strategy (BOS) which accounts for the residual impacts of the project which cannot be addressed through the proposed avoidance and mitigation measures. A summary of the biodiversity offset credit requirement for MNES is outlined in **Table D2**.

BCD has advised that it was satisfied with the calculated offset liability for MNES.

Where possible during detailed design, AGL also propose to modify the final construction footprint to further minimise and avoid impacts to biodiversity. The Department supports and encourages this approach, and acknowledges that it may result in reduced credit and offset liability. Consequently, the Department has recommended a condition allowing AGL to review and update the ecosystem and credit requirements in **Table D2** to reflect the final construction footprint and resulting extent and type of plant community types to be cleared. Amendments to the ecosystem and species credit requirements must be undertaken in consultation with BCS and DAWE and approved by the Planning Secretary prior to the commencement of construction of the relevant offset stage.

AGL advise that credit retirement would most likely be achieved by a combination of options for each stage of the project, including via payment into the Biodiversity Conservation Fund (BCF), purchase of credits from the open market (with consideration of applying the 'Like for Like' Variation Rules for MNES) and/or establishing Biodiversity Stewardship Site(s).

Table D2 | Summary of biodiversity credit requirements for MNES

Credit Type	Corresponding MNES	Area (ha)	Offset Liability (BAM Credits)					
			Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Credits Required
Ecosystem Credits								
PCT 1691: Narrow-leaved Ironbark – Grey Box grassy woodland of the central and upper Hunter (CEEC)	Central Hunter Valley eucalypt forest and woodland CEEC	8.19	4	21	-	208	*43*	276
PCT 1692: Bull Oak grassy woodland of the central Hunter Valley (CEEC)		5.53	-	-	-	100	-	100
TOTAL								**376**
Species Credits								
Striped Legless Lizard	Striped Legless Lizard	116.74	31	38	15	1,838	180	2,102
TOTAL								**2,102**

Table note: Offset staging corresponds to the following works

- Stage 1 – Ravensworth ash pipeline
- Stage 2 - HP Pipeline and LSP Sludge Line works
- Stage 3 – Coal handling plant area upgrades
- Stage 4 – Borrow pits and salt cake landfill
- Stage 5 – Ash dam augmentation and seepage collection upgrades which would be subject to further approval from the Minister.

D3 – Requirements for Decisions About Threatened Species and Endangered Ecological Communities

In accordance with section 139 of the EPBC Act, in deciding whether or not to approve, for the purposes of a subsection of either section 18 or section 18A of the EPBC Act, the taking of an action and what conditions to attach to such an approval, the Commonwealth Minister must not act inconsistently with certain international environmental obligations, Recovery Plans or Threat Abatement Plans. The Commonwealth Minister must also have regard to relevant approved Conservation Advice.

D.3.1 Australia's International Obligations

Australia's obligations under the *Convention on Biological Diversity* (Biodiversity Convention) include the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding.

The recommendations of this Assessment Report are not inconsistent with the Biodiversity Convention, which promotes environmental impact assessment (as has been undertaken for this proposal) to avoid and minimise adverse impacts on biological diversity. The Department's recommended conditions require avoidance, mitigation and management measures for listed threatened species and communities and all information related to the proposed action is required to be publicly available to ensure equitable sharing of information and improved knowledge relating to biodiversity.

Australia's obligations under the *Convention on Conservation of Nature in the South Pacific* (Apia Convention) include encouraging the creation of protected areas which together with existing protected areas will safeguard representative samples of the natural ecosystems occurring therein (particular attention being given to endangered species), as well as superlative scenery, striking geological formations and regions. Additional obligations include using best endeavours to protect fauna and flora (special attention being given to migratory species) so as to safeguard them from unwise exploitation and other threats that may lead to their extinction. The Apia Convention was suspended on 13 September 2006. Nonetheless, Australia's obligations under the Convention have been taken into consideration. The recommended approvals are not inconsistent with the Convention which generally aims to promote the conservation of biodiversity.

The *Convention on International Trade in Endangered Species of Wild Flora and Fauna* (CITES) is an international agreement between governments which seeks to ensure that international trade in specimens of wild animals and plants does not threaten their survival. The recommended approvals are not inconsistent with CITES as the proposed action does not involve international trade in specimens of wild animals and plants.

D.3.2 Recovery Plans and Approved Conservation Advices

The Department has undertaken a detailed and comprehensive assessment of the potential impacts of the project on listed threatened species and communities under the NSW *Biodiversity Conservation Act 2016* (BC Act) and the EPBC Act. The Department has taken into consideration approved Conservation Advice and Recovery Plans for the species and communities which may be impacted by the project, including the:

- *National Recovery Plan for White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland*;
- *National Recovery Plan for the Swift Parrot* (Lathamus discolour);
- *National Recovery Plan for the Regent Honeyeater* (Anthochaera Phrygia);
- *National Recovery Plan for the Spotted- tailed Quoll* (Dasyurus maculatus);
- *National Recovery Plan for the Large-eared Pied Bat* (Chalinolobus dwyeri);
- *National Recovery Plan for the Grey-headed Flying- fox*;
- *National Recovery Plan for the Brush-tailed Rock-wallaby* (Petrogale penicillate);
- *Conservation Advice Anthochaera phrygia* (Regent Honeyeater);
- *Conservation Advice for the* Central Hunter Valley eucalypt forest and woodland ecological community;

- *Conservation Advice Striped Legless Lizard* (Delma impar); and
- *Conservation Advice for Phascolarctos cinereus* (Koala).

As discussed above, the project is not predicted to significantly impact any of these threatened species or communities, with the exception of the *Central Hunter Valley eucalypt forest and woodland* CEEC and the Striped Legless Lizard.

The *Conservation Advice for the* Central Hunter Valley eucalypt forest and woodland CEEC was adopted in April 2015. The Advice identifies key threats to the CEEC as vegetation clearing and landscape fragmentation; invasive flora species; removal of fallen timber and trees; detrimental grazing, mowing and slashing regimes; altered fire regimes; introduced animals and aggressive native species; and climate change.

The Advice also identified a number of high priority recovery and threat abatement actions for the CEEC, including avoiding further clearance and fragmentation of the CEEC; minimising unavoidable impacts from adjacent developments; implementing regeneration, revegetation and rehabilitation of the CEEC; and implementing effective control and management techniques for invasive species, fire and grazing.

The project would result in clearing of 13.72 ha of this CEEC, which would be required to be offset via the retirement of 376 ecosystem credits in accordance with the BAM (see above). In addition, the Department has recommended that mitigation and recovery measures are implemented via a Biodiversity Management Plan, including measures to further minimise the amount of clearing of CEECs; manage invasive species, indirect and prescribed impacts; and contribute to conservation strategies for this community. The Department has also recommended a condition requiring bushfire management and rehabilitation of the site. On this basis, the Department considers the project would not be inconsistent with the approved Conservation Advice for this CEEC.

Approved *Conservation Advice Striped Legless Lizard* (Delma impar) was adopted in December 2016. The Advice identifies that ongoing loss, modification, degradation and fragmentation of striped legless lizard habitat are the major obstacle to its survival and conservation. The key conservation objective of the Advice is to protect and manage the striped legless lizard's habitat to maintain the potential for its evolution in the wild across its natural geographical range.

The Advice also identified a number of conservation actions for the species, including protecting and preventing impacts to habitat critical to the survival of the species in the planning, construction and post construction phases of developments; identifying, controlling and reducing the spread of invasive grasses; and managing fire regimes.

As discussed above, the project would result in the removal of approximately 122.97 ha of potential habitat for the Striped Legless Lizard. In accordance with the BAM, the clearing of habitat of Striped Legless Lizard habitat would be offset via the retirement of 2,103 species credits. In addition, the Department has recommended that mitigation and recovery measures are implemented via a Biodiversity Management Plan, including measures to manage invasive species and pests, and indirect and prescribed impacts. The Department has also recommended a condition requiring bushfire management on the site. On this basis, the Department considers the project would not be inconsistent with the approved Conservation Advice for this species.

D.3.3 Threat Abatement Plans (TAPs)

The Department has considered the Threat Abatement Plans (TAPs) relevant to the project under the EPBC Act. These TAPs are available at http://www.environment.gov.au/biodiversity/threatened/threat-abatement-plans/approved. The TAPs which are considered relevant to the project include:

- *Threat abatement plan for competition and land degradation by unmanaged goats*

  This TAP is relevant to the Brush-tailed rock-wallaby.

- *Threat Abatement Plan for competition and land degradation by rabbits*

  This TAP is relevant to the Regent Honeyeater, Striped Legless Lizard, Pink-tailed Worm-lizard and Brush-tailed Rock Wallaby.

- *Threat abatement plan for disease in natural ecosystems caused by Phytophthora cinnamomi*

  This TAP is relevant to *White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland* CEEC.

- *Threat abatement plan for predation, habitat degradation, competition and disease transmission by feral pigs*

  This TAP is relevant to *White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland* CEEC.

- *Threat abatement plan for predation by feral cats*

  This TAP is relevant to the Spot-tailed Quoll, Brush-tailed Rock Wallaby, Swift Parrot, Striped Legless Lizard

The project has the potential to:

- facilitate the spread, or lead to a higher abundance of goats, feral pigs, rabbits and cats (and other unmanaged or feral fauna) through the clearance and modification of habitat; and
- increase the risk of infection of native plants by the pathogen *Phytophthora cinnamomi* through human activities such as transportation and land disturbance.

The Department has included measures for the control of feral animals and disease spread under the recommended Biodiversity Management Plan for the project, including specific requirements for the Applicant to consider the actions identified in relevant TAPs. With these measures in place, the Department considers that the action can be carried out in a manner which is compatible with the relevant TAPs.

D4 – Additional EPBC Act Considerations

Table D3 contains the additional mandatory considerations, factors to be taken into account and factors to have regard to under the EPBC Act, additional to those already discussed, which the Commonwealth Minister must consider in determining the proposed action.

Table D3 | Additional Considerations for the Commonwealth Minister under the EPBC Act

EPBC Act Section	Consideration	Conclusion
Mandatory considerations		
136(1)(b)	Social and economic matters are discussed in the EIS (refer **Appendix A**) and **Section 6.3** of this Report.	The Department considers that the proposed development would result in a range of benefits for the local and regional economies, primarily associated with direct and indirect employment opportunities and benefits for local businesses during construction works.
Factors to be taken into account		
136(2)(a)	Principles of ecologically sustainable development (ESD), including the precautionary principle, have been taken into account, in particular in: • long and short-term economic, environmental, social and equity considerations relevant to this decision; • conditions that restrict environmental impacts, impose monitoring and adaptive management requirements and reduce uncertainty concerning the potential impacts of the project; • conditions requiring the project to be operated in a sustainable way that protects the environment for future generations and conserves MNES; • advice provided within this report which reflects the importance of conserving biological diversity and ecological integrity in relation to the controlling provisions for the project; and • mitigation measures to be implemented which reflect improved valuation, pricing and incentive mechanisms that promote a financial cost to the applicant to mitigate the environmental impacts of the project.	The Department considers that, subject to the recommended conditions of consent, the project could be undertaken in a manner that is consistent with the principles of ESD. Ultimately, the project would result in improved environmental performance of ash, salt and water management infrastructure and associated rehabilitation outcomes.
136(2)(e)	Other information on the relevant impacts of the action.	The Department considers that all information relevant to the impacts of the project has been taken into account.
Factors to have regard to		
176(5)	Bioregional plans	The project is located in the Sydney Basin Bioregion. The project would result in clearing of some vegetation in this region, however it would involve an offset that would contribute to in-perpetuity managed conservation areas in the bioregion. The project is unlikely to significantly impact the water resources in this bioregion.
Considerations on deciding conditions		

134(4)	Must consider: • information provided by the person proposing to undertake the action or by the designated applicant of the action; and • desirability of ensuring as far as practicable that the condition is a cost- effective means for the Commonwealth and the person taking the action to achieve the object of the condition.	Documents provided by the Applicant are provided at **Appendix A**. The Department considers that the recommended conditions of consent in **Appendix F** are a practicable and cost-effective means to achieve their purposes. These conditions have been prepared following careful considerations of material provided by the Applicant and following consultation with DAWE.

D5 – Conclusions on Controlling Provisions

D.5.1 Threatened Species and Communities (sections 18 and 18A of the EPBC Act)

The information provided to date identifies that the project could have the potential to result in significant impacts on the following threatened species and communities listed under the EPBC Act:

- *Central Hunter Valley Eucalypt Forest and Woodland* CEEC; and
- *Striped Legless Lizard* (Delma impar).

The Department considers that the impacts of the proposed action on this threatened species and CEEC would be acceptable, subject to the avoidance, mitigation, offsetting and management measures described in the Applicant's environmental assessment documents, and the requirements of the Department's recommended conditions of consent (see **Appendix F**).

The Applicant has committed to offset the impacts of the project on threatened species and communities, as outlined in **Table D2**, in accordance with the requirements of the NSW *Biodiversity Offsets Scheme*.

With respect to MNES matters, the proponent (as per the BDAR) has not indicated how the offset obligation for EPBC listed entities will be met. However, DAWE have agreed as part of the bilateral process, that the offset obligation of the BAM assessment and the associated BOS is sufficient in meeting the MNES requirements. Under BAM there is no longer a requirement at the EIS to define a detailed offset package.

The credit retirement for impacts to MNES would be achieved by a combination of options for each stage of the project, including via payment into the BCF, purchase of credits from the open market (with consideration of applying the 'Like for Like' Variation Rules for MNES) and/or establishing Biodiversity Stewardship Site(s).

BCD has advised that it was satisfied with the calculated offset liability for MNES. The Department considers the proposed offsetting approach to be acceptable and has recommended a condition requiring all credits to be retired prior to commencing vegetation clearing in each stage of the project.

The Department has also recommended a condition requiring the Applicant to prepare a detailed Biodiversity Management Plan. This plan would describe the measures to be implemented to:

- minimise impacts to *Central Hunter Valley Eucalypt Forest and Woodland* CEEC including potential indirect and prescribed impacts, and contribute to conservation strategies for this CEEC; and
- control feral pests and disease with consideration of actions identified in the relevant threat abatement plans.

The Department recommends that the Commonwealth Minister require the Applicant to implement the State's conditions, where they relate to the management of impacts on threatened species and communities listed under the EPBC Act.

D6 – Other Protected Matters

DAWE has determined that other matters under the EPBC Act are not controlling provisions with respect to the proposed action. These include listed World Heritage places, National Heritage places, migratory species, Ramsar wetlands, the Commonwealth marine environment, Commonwealth land, Commonwealth actions, nuclear actions, the Great Barrier Reef Marine Park and Commonwealth Heritage places located overseas.

D7 – Ash dam augmentation and seepage collection upgrades

The Department has recommended that a partial approval should be granted approving the balance of the project but excluding the approval of the ash dam augmentation and seepage collection infrastructure upgrades at this time.

Impacts to the following MNES associated with the ash dam augmentation and seepage collection infrastructure upgrades is limited to:

- clearing of habitat for the Striped Legless Lizard; and
- clearing of Central Hunter Valley Eucalypt Forest and Woodland.

These impacts have been considered in the Department's assessment of MNES and a credit liability has been nominated for these works in the event that additional approval is obtained for the augmentation.

D8 – Conclusion

The Department considers that the recommended conditions would provide suitable protection for MNES under the EPBC Act. The Department notes that, if approved, the project would be referred to the Commonwealth Minister for the Environment for determination under the EPBC Act.

Appendix E – Statutory Considerations

The Department's assessment of the project has given detailed consideration to a number of statutory requirements (see **Section 4** - Statutory Context and **Section 6** – Assessment). These include:

- the objects found in Section 1.3 of the EP&A Act; and
- the matters listed under Section 4.15(1) of the EP&A Act, including applicable environmental planning instruments and regulations.

The Department has considered all of these matters in its assessment of the project. A summary of these considerations is provided below. Reference should also be made to Section 3 of the EIS, where the Applicant has also considered applicable legislation and environmental planning instruments in detail.

E.1 Objects of the EP&A Act

A summary of the Department's assessment against the current relevant objects (found in section 1.3 of the EP&A Act) are provided in **Table E1** (below).

Table E1 | Additional Considerations for the Commonwealth Minister under the EPBC Act

Issue	Consideration
(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources; (c) to promote the orderly and economic use and development of land;	• the project involves a permissible land use on the subject land, primarily being for the purpose of energy generation; • the project would provide ongoing socio-economic benefits to the people of NSW through ongoing employment opportunities during construction and operations; • the project would mostly be located within the existing power station site and existing land uses, hence providing an efficient use of land; • consideration has also been given to local endangered species and communities with appropriate conditioning of the project to avoid, minimise and offset impacts.
(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment;	• The Department considers that the project can be carried out in a manner that is consistent with the principles of ecologically sustainable development (ESD). The Department's assessment has sought to integrate all significant environmental, social and economic considerations. Consideration of the key principles and programs of ESD is detailed below. ***Precautionary Principle*** • The Department has assessed the project's threat of serious or irreversible environmental damage and considers that there is sufficient scientific certainty regarding environmental impacts and residual risks to enable determination of the application. • The exception is the ash dam augmentation, where there is uncertainty regarding the existing and potential impacts of this component of the project. The Department considers that a partial approval should be granted approving the balance of the project but excluding the approval of the ash dam augmentation and seepage collection infrastructure upgrades at this time. • The EIS contains a number of specialist environmental impact assessments and a number of design, construction and operation measures to mitigate, remediate or offset potential impacts. • The Department has also recommended conditions of approval that further mitigate potential residual impacts of the project such as preparation of a Water Management Plan to address seepage and management and monitoring of groundwater impacts and requiring AGL to retire biodiversity offsets. • The Department considers that the recommended conditions can provide an appropriate level of protection to environmental values in the region.

Issue	Consideration
	Inter-generational equity • The Department recognises that the NSW energy market is in a state of transition from one dominated by coal-fired power stations to a renewable energy mix. Whilst this transition is being fuelled by investment in renewable energy zones and increased battery storage systems, the ongoing operation of coal-fired power stations are still required to meet the State's electricity supply demands. • The project also seeks to improve the environmental performance and address existing pollution issues at the power station. • The Department has also recommended conditions relating to rehabilitation of the project, including the landfill and ash dam. ***Conservation of biological diversity and ecological integrity*** • The project's potential impacts on biodiversity were an important consideration of the Department's assessment of the project. As described in **Section 6.1**, the Department considers that direct and indirect impacts on biodiversity and on Commonwealth MNES matters can be minimised through proposed mitigation measures and offsets. ***Improved valuation, pricing and incentive*** • This ESD principle emphasises the internalisation of environmental costs in the pricing of assets and services. • The Department's assessment has sought to apply the 'polluter pays principle', insofar as AGL would be required to offset or remediate potential environmental impacts. As such, the Department has conditioned that biodiversity impacts be offset and that the project would operate under an Environment Protection Licence issued by the EPA.
(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats;	• The Department considers that the project has been designed to minimise environmental and biodiversity impacts as much as practicable. • Detailed design of the project components would seek to further minimise impacts to the environment and biodiversity by reducing the amount of land and vegetation disturbed by the project, where possible. • The Department has recommended a condition requiring AGL to prepare and implement a Biodiversity Management Plan that incorporates these avoidance and mitigation measures, as well as other contemporary biodiversity management practices. • Although some clearing of threatened ecological communities would be required, the Department accepts the residual impacts on biodiversity values would be suitably managed, mitigated and/or offset under the recommended conditions of consent.

Issue	Consideration
	• In regard to the AGL's proposed offset strategy, the Department is confident that the required ecosystem and species credits can be obtained and that the retirement of these credits would sufficiently compensate for residual biodiversity impacts in accordance with the BC Act. The biodiversity assessment concluded that potential impacts to threatened species and habitats, including MNES, are acceptable. • Both the *precautionary principle* and the *conservation of biological diversity and ecological integrity* have been applied in the assessment to avoid serious or irreversible damage to the environment wherever possible.
(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage);	• The Department has assessed the project's impacts on built and cultural heritage (see Section 6.3) and concluded that the project would not significantly impact on either the built or cultural heritage of the site. • The proposed mitigation and management measures and recommended conditions would ensure the project would avoid impacts on Aboriginal heritage items in the event of unexpected finds during construction or maintenance operations.
(g) to promote good design and amenity of the built environment;	• The majority of the project would occur within the existing footprint of the power station. • Proposed mitigation measures and conditions would minimise off-site visual impacts.
(h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants;	• A hazard assessment was completed in accordance with the requirements of *Hazardous and Offensive Development Application Guidelines – Applying SEPP 33* and SEPP 33 and reviewed in consultation with the Department's Hazards team (see **Section 6.3**). • The project would not increase the existing risk profile of the power station due to existing controls being enforced by AGL. • The recommended conditions include proposed general operating conditions relating to operation of plant and equipment, construction and demolition conditions to ensure structural adequacy of the buildings and safe demolition at the end of project life.
(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State; and	• The Department notified and consulted with the Singleton Council, Muswellbrook Shire Council and NSW government authorities (including further discussion of key issues with the EPA and BCD) throughout the assessment of the project and carefully considered all responses in its assessment (see **Section 5**). • The Department has also consulted with the Commonwealth Department of Agriculture, Water and Environment throughout the assessment due to the assessment process under the EPBC Act.

Issue	Consideration
(j) to provide increased opportunity for community participation in environmental planning and assessment.	• The Department publicly exhibited the project application and EIS and made all relevant documents publicly available on its website (see **Section 5**). All public submissions have been considered by AGL and the Department during the assessment process.

E.2 Environmental Planning Instruments

Under Section 4.15 of the EP&A Act, the consent authority is required to consider, amongst other things, the provisions of the relevant EPIs, including any exhibited draft EPI[1]. **Section 4** of the Department's assessment report provides a summary of the Department's consideration of the relevant EPIs and notes AGL's consideration of applicable provisions of relevant EPIs in its EIS. Further consideration is provided in the Department's assessment (see **Section 6**) and below.

Applicable Local Environment Plans

The Department has considered the permissibility of the proposed development under the Muswellbrook and Singleton LEPs (see **Section 4**).

SEPP No. 33 – Hazardous and Offensive Development (SEPP 33)

The key aims of SEPP 33 are to ensure that, in considering any application to carry out potentially hazardous or offensive development, the consent authority has sufficient information to assess whether the development is hazardous or offensive and to impose conditions to reduce or minimise any adverse impacts and that any measures proposed to be employed to reduce the impact of the development are taken into account.

Clause 12 of SEPP 33 requires persons proposing to carry out development for the purposes of potentially hazardous industry to prepare a Preliminary Hazard Analysis (PHA) and to submit this with the DA. The EIS considered the potential hazards and risks associated with the project, including the storage of hazardous goods, potential for fire and/or explosion and contamination of land, water and air and contained a PHA (see Chapter 19 of the EIS).

[1] Note that due to the effect of clause 11 of the SRD SEPP, development control plans do not apply to SSD.

The Department has considered AGL's assessment of these matters and commitments to maintain appropriate setbacks between hazardous substance facilities and nearby land users. The Department considers that suitable mitigation measures could be incorporated into the design of the project to ensure that it would meet relevant standards and be compatible with the existing or likely future use of land surrounding the project. With the proposed measures in place, the PHA demonstrated that the potential hazards associated with the project can be managed.

The Department considers that the project would not increase risks to public safety and would not alter the consequences or likelihood of a hazardous event on the site or during materials transport. As such, the Department considers that the project is consistent with the provisions of SEPP 33.

SEPP No. 55 – Remediation of Land (SEPP 55)

SEPP 55 relates to the remediation of contaminated land. AGL has considered the potential land contamination matters associated with the project in its EIS. The assessment concluded that the potential contamination risk associated with the project are low and acceptable. The majority of the proposed additional disturbance area is comprised of rural land, within the broader power station site. No change of use to a more sensitive land use is proposed and therefore no remediation is required or proposed as part of the project. The Department considers that the additional areas of disturbance associated with the project would be suitable for the intended uses and that the proposal is generally consistent with the aims, objectives, and provisions of SEPP 55.

SEPP (State and Regional Development) 2011 (the SRD SEPP)

Under Section 4.36 of the EP&A Act, the project is considered a State Significant Development, because it is development for the purpose of electricity generating works with a capital investment value of more than $30 million.

In accordance with section 4.5 of the EP&A Act and clause 8(1) of the SRD SEPP, the Minister for Planning and Public Spaces is the consent authority.

State Environmental Planning Policy (Infrastructure) 2007 (ISEPP)

The Infrastructure SEPP requires the consent authority to notify relevant public authorities about the development that may affect public infrastructure or land, including electricity transmission and distribution networks, gas pipeline corridors, railways and rail corridors.

The Department notified all relevant infrastructure providers including TfNSW.

The Department has consulted with other government agencies and considered the matters raised in its assessment of the project (see **Section 6**). Where appropriate, the Department has also developed conditions of consent to address the recommendations and advice of these agencies. The Department considers that such conditions would provide appropriate protection for public infrastructure. As such, the Department considers that the requirements of the Infrastructure SEPP have been satisfied.

Appendix F – Recommended Instrument of Consent

See the Department's website at: https://www.planningportal.nsw.gov.au/major-projects/project/9791