Prepared for
AGL Barker Inlet Pty Ltd, ABN: 37 622 351 660

AECOM

BARKER INLET POWER STATION - STAGE 2 VARIATION APPLICATION

06-Jun-2025

Prepared for/by

Title	**Barker Inlet Power Station - Stage 2 Variation Application**
Client	AGL Barker Inlet Pty Ltd ABN: 37 622 351 660
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In Association with	
Reviewed by	**Brenton Burman**
Ref	
Date	06-Jun-2025
Certification	AECOM in Australia and New Zealand is certified to ISO9001, ISO14001 and ISO45001.

Revision History

Rev	Revision Date	Details	Authorised	
			Name/Position	Signature
0	06-Jun-2025	Final	Tom Hateley Associate Director	

Disclaimer

CONTENTS

Project Summary

Key Element	Details
Applicant	AGL Barker Inlet Pty Ltd
Contact Person	Tom Hateley – AECOM tom.hateley@aecom.com
Site Address	Grand Trunkway, Torrens Island
Certificates of Title	Volume 6242 Folio 10 Volume 6242 Folio 11 Volume 6211 Folio 947
Local Government Area	Unincorporated Area – Torrens Island
Relevant Authority	Minister for Planning
Zoning	Infrastructure Zone
Proposed Development	Variation to DA 010/V067/17 – Amendments to Stage 2
Development Cost	~$500 million
Assessment Pathway	Section 131 – Crown Development of the *Planning, Development and Infrastructure Act 2016*
Public Notification	Required – Project over $10 million and variation not minor (Section 131(13))

1. Introduction

AGL Barker Inlet Pty Limited (AGL), a wholly owned subsidiary of AGL Energy Limited, owns and operates the existing 210 MW Barker Inlet Power Station (referred to as BIPS 1) at Torrens Island.

The Barker Inlet Power Station was approved as public infrastructure under section 49 of the *Development Act 1993* (Development Act) by development approval DA 010/V067/17 (Development Approval) granted on 29 January 2018. The Development approval authorises the following subject to conditions:

> *Construction of a power station (2 stages) comprising a total generation capacity of 420 MW. Each Stage will comprise 12 x 18 MW reciprocating engines generating 210 MW.*

Accordingly, the Development Approval authorised both the now operational BIPS 1 and a Stage 2 power station (referred to as BIPS 2), with both stages having a total generation capacity of 420MW and each stage comprising '12 x 18 MW reciprocating engines generating 210 MW' (Approved Project). AGL is now proposing to develop BIPS 2. BIPS 2 is located on land immediately adjoining BIPS 1.

To enable the development of BIPS 2, AGL is proposing variations to the Approved Project and the conditions of the Development Approval under section 128 the Planning Development and Infrastructure Act 2016 (SA) (PDI Act).

Crown sponsorship from the Department for Energy and Mining (DEM) was provided in support of AGL's proposed variations to the Approved Project on 1 November 2024 (Appendix A). Accordingly, the proposed variation application will be assessed as a Crown development application in accordance with section 131 of the PDI Act.

This report has been prepared in support of the Crown development application for variations to the Approved Project and conditions imposed on the Development Approval to accommodate the updates proposed for BIPS 2. This report has been structured as follows:

- Project background
- Description of the subject land and locality
- Description of the proposed changes to the Approved Project
- Analysis of potential site social and environmental constraints relevant to the proposed changes
- Procedural and approval requirements for the proposed changes
- Assessment of the proposed changes against the relevant provisions of the Planning and Design Code (the Code).

In line with section 128(2)(b) of the PDI Act, this report only assesses the variations proposed to the Approved Project to accommodate the changes now proposed as part of the BIPS 2 Project and does not seek to re-assess the elements of the Approved Project which will remain unchanged.

2. Project Background

On 13 September 2017 the Department of Premier and Cabinet endorsed the two stage Barker Inlet Power Station as public infrastructure under section 49(2)(c) of the former *Development Act 1993* (Development Act).

The Development Approval (DA 010/V067/17) was subsequently granted on 29 January 2018 under section 49 of the Development Act, for the staged development of the Barker Inlet Power Station as follows:

> *Construction of a power station (2 stages) comprising a total generation capacity of 420 MW. Each Stage will comprise 12 x 18 MW reciprocating engines generating 210 MW.*

The Development Approval has been the subject of two approved variations:

1. Variation 010/V067/17/V1 dated 25 September 2019: This varied condition 2 to defer the:
    a. requirement to mothball the first two Torrens Island Power Station A (TIPSA) generating units to 31 March 2020; and
    b. cessation of fuel oil firing at Torrens Island Power Station B (TIPSB) to 31 March 2020; and
2. Variation 010/V067/17/V2 dated 24 April 2020: This further varied condition 2 to remove the requirement to mothball the first two TIPSA generating units until their scheduled closure at the end of September 2020.

The BIPS 1 project, being Stage 1, was constructed as a 210 MW reciprocating engine power station and is now fully operational.

The development of Stage 2 was deferred due to market conditions. AGL is now looking to further progress the development of BIPS 2 based on:

1. the proven performance of BIPS 1 in the market; and
2. the increased demand for additional firming generation capacity for South Australia as the energy transition continues to accelerate.

The Development Approval was originally due to expire on 29 January 2025. However, to enable AGL to further progress the BIPS 2 project, on 15 August 2024, the Minister of Planning authorised an extension to the lapsing date to 29 January 2028 in accordance with the PDI Act (Appendix B).

To enable the development of the BIPS 2 project to continue to progress, AGL is applying for a variation to the existing Development Approval under section 128 of the PDI Act to make a number of changes to the Approved Project including:

- to enable the BIPS 2 project to use either gas turbines or reciprocating engines (instead of reciprocating engines only as currently approved); and
- to increase the proposed output of BIPS 2 to up to 280 MW (instead of the currently approved 210 MW).

The changes sought in this variation application are required to reflect ongoing technology development and market conditions. They are further required to ensure that the BIPS 2 project is best placed to provide firm, flexible and dispatchable synchronous generating capacity, complementing renewable generation and supporting energy security for South Australia.

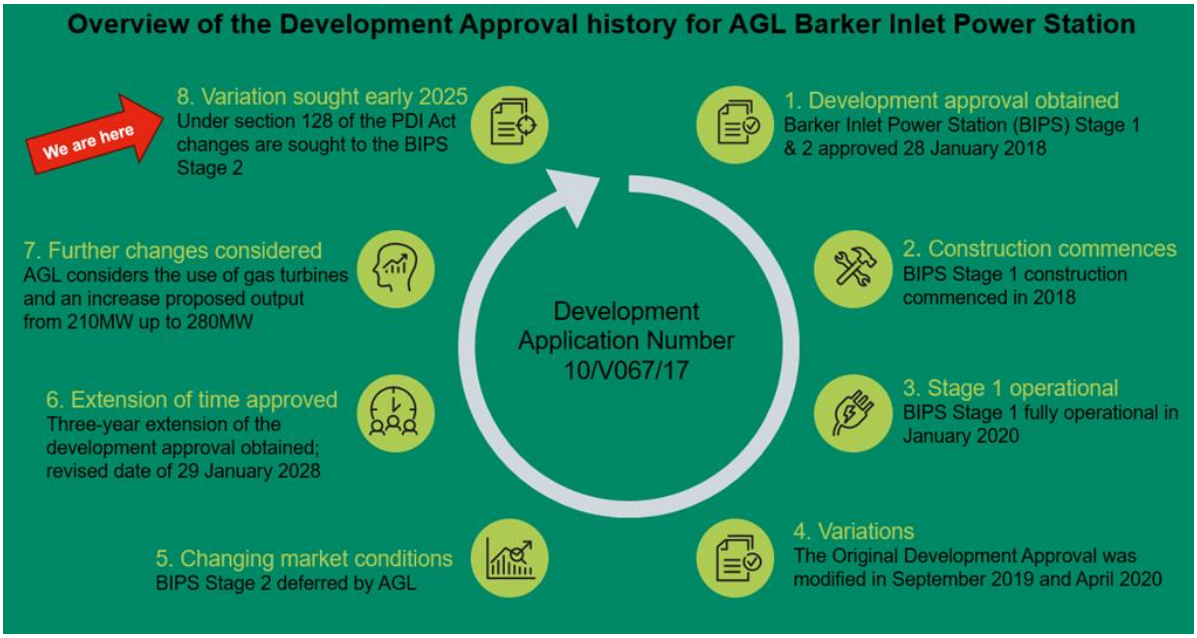
Subject to all required approvals being obtained and a final decision being made to proceed with the BIPS 2 project as proposed to be varied, AGL currently proposes that construction of BIPS 2 would commence in 2026, and the project would be operational in 2028.

It is recognised that since the Development Approval was granted for the Approved Project in 2018, the Development Act has been repealed and the PDI Act and the Planning and Design Code (the Code) have both come into operation.

Whilst changes to the legislative and planning assessment framework have occurred, the overall planning policy intent and situation within the vicinity of the proposed development site remains unchanged.

A summary of the Development Approval history for the Approved Project is provided in Figure 1.

Figure 1 BIPS Development Approval History



2.1 Project Objectives and Benefits

AGL is proposing to vary the Approved Project to increase the output of the approved generating plant for BIPS 2 from 210 MW up to 280 MW and to enable the flexibility to utilise either gas turbines or reciprocating engines, in place of the currently approved reciprocating engines only.

The revised BIPS 2 project will utilise modern, responsive technology with increased efficiency to lower the greenhouse gas emissions per MW of electricity produced.

The project capital costs for BIPS 2 are expected to be in the order of $500 million and will generate approximately 200 construction jobs over 2 years and approximately 10 new jobs during the operation phase.

The BIPS 2 project accordingly represents an investment in South Australia's energy network of approximately $500 million, with the jobs provided and energy generated directly benefitting the local and State economy.

As South Australia has a high penetration of wind and solar generation, the BIPS 2 project will provide further firm, flexible and dispatchable synchronous generating capacity, which is complementary to renewable generation, to ensure ongoing energy security and reliability of the South Australia network. AGL's Torrens Island Power Station A (TIPS A) closed at the end of its operational life in 2022, and the Torrens Island Power Station B (TIPS B) is scheduled to close on 30 June 2026, after which the Torrens Island Power Station site will be redeveloped as industrial energy hub. The BIPS 2 project will provide additional generation capacity to replace that lost by the closure of assets.

Additional capacity from the BIPS 2 project operating in the market will also help ensure energy affordability by increasing generation capacity which is likely to put downward pressure on wholesale power prices.

3. Subject Land and Locality

3.1 Subject Land

The site of the Approved Project comprises part of the following parcels of land located on Torrens Island:

- Allotment 1301 in DP 123497, contained within Certificate of Title Volume 6242 Folio 10
- Allotment 1302 in DP 123497, contained within Certificate of Title Volume 6242 Folio 11
- Allotment 301 in DP55734, contained within Certificate of Title Volume 6211 Folio 947

Figure 2 identifies the site of BIPS 2 and the surrounding area. Copies of the relevant Certificates of Title are included in Appendix C.

Allotment 1301 consists of a 2.2 hectare parcel of land which was created for the Approved Project and includes BIPS 1 within the northwestern portion.

BIPS 2 is proposed to be sited within the remaining vacant portion of Allotment 1301 adjacent to the existing and operating BIPS 1 as currently authorised by the Development Approval, subject to some changes to the footprint and layout as described and assessed in this report. The site was previously cleared and prepared for the development as part of the construction of BIPS 1 in accordance with the Development Approval (refer to

Figure 3 and Figure 4).

Allotment 1302 is a large allotment surrounding Allotment 1301 and is proposed to be used for laydown areas and potential stormwater management infrastructure associated with the construction and operations of BIPS 2. The proposed laydown areas have been previously cleared as part of the construction of BIPS 1 and the Torrens Island Battery Energy Storage System (BESS).

The BIPS 2 Project will require infrastructure connections (electricity, gas, waste, drinking water etc) over Allotment 301 to the south. Subject to the final design, water infrastructure connections may also be required along Power Station Access Road which is contained within Allotment 10 in DP 55734 and Allotment 20 in DP 55734 located to the southeast of the BIPS site. The subject land is outside of a council area within the 'Unincorporated Area – Torrens Island' and is zoned Infrastructure as outlined in the Code. No subzones apply within the project area.

In addition to the Infrastructure Zone, the following Overlays apply over the subject land:

- Adelaide Dolphin Sanctuary Overlay
- Coastal Areas Overlay
- Defence Aviation Area Overlay
- Regulated and Significant Tree Overlay
- Gas and Liquid Petroleum Pipelines Overlay
- Gas and Liquid Petroleum Pipelines (Facilities) Overlay
- Prescribed Wells Area Overlay.

Section 8 includes a detailed assessment of the Variation against the relevant provisions of the Code.

3.2 Locality

Torrens Island has a longstanding use for energy generation purposes, and more recently energy storage with the construction of the Torrens Island BESS, with the majority of development located within the southern portion of Torrens Island.

Surrounding the BIPS 2 site are the following existing energy infrastructure on Torrens Island:

- Torrens Island Power Station A (TIPSA) to the south
- Torrens Island Power Station B (TIPSB) to the south
- ElectraNet's Torrens Island Substations A & B to the southeast
- Torrens Island BESS to the west.

Land to the north is undeveloped with the Torrens Island Conservation Park covering the majority of Torrens Island to the northeast.

The key land uses surrounding Torrens Island include industrial development to the west and south. The nearest residential development is located approximately 1.5 kilometres to the west of the BIPS site, within the suburb of Taperoo (refer to Figure 5).

Figure 2: Subject Land

Figure 3 BIPS 2 site – view west to BIPS 1

Figure 4 BIPS 2 site – view south to TIPS B

Figure 5: Locality

4. Project Details

4.1 Existing Approved Project

The Development Approval authorises the following:

> *Construction of a power station (2 stages) comprising a total generation capacity of 420 MW. Each Stage will comprise 12 x 18 MW reciprocating engines generating 210 MW.*

BIPS 1 was developed under the Development Approval and commenced operation in January 2020.

The construction of BIPS 2 is yet to commence although, as noted above, the site has been cleared and prepared as part of the construction of BIPS 1 and the separately developed Torrens Island BESS.

The Approved Project, as currently approved by the Development Approval essentially includes both BIPS 1 and BIPS 2. The approved aspects relating to BIPS 2 include the following key elements:

- 12 x 18 MW reciprocating engines generating 210 MW – approximately 30 metres in height
- Associated site works
- Ancillary infrastructure connections (electricity and gas)
- Bulk liquid receiving and storage
- Water supply (domestic and fire-fighting)
- Stormwater management infrastructure.

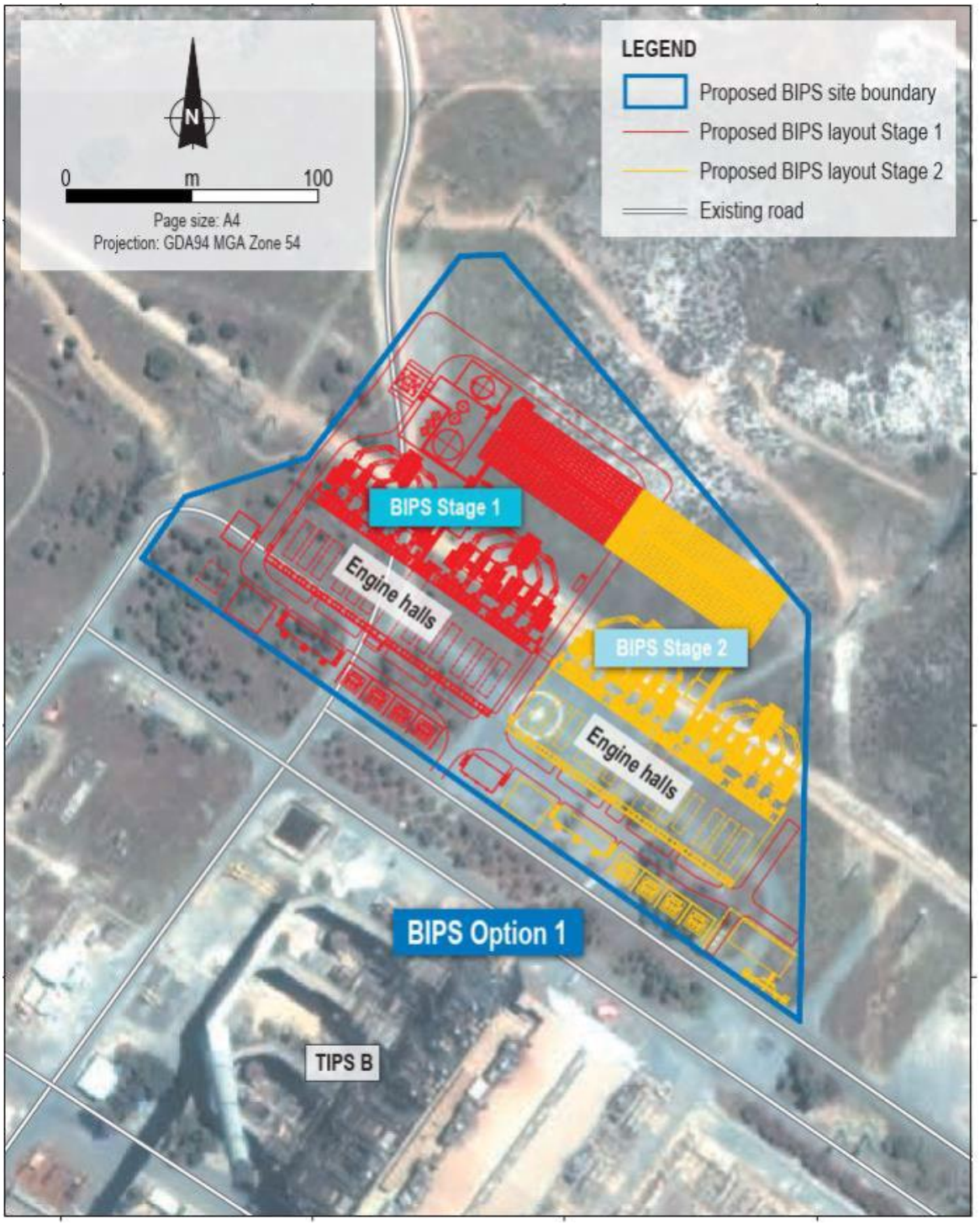
The approved concept layout plan is provided in Figure 6.

The Development Approval authorises the Approved Project subject to 24 conditions. It is acknowledged that amendments and additions to the existing approval conditions will be required in response to the proposed variations and to reflect the status of the two stages of the Project:

- BIPS 1 – Constructed and operational
- BIPS 2 – To be constructed

AGL intend to work closely with the State Commission Assessment Panel and referral agencies as part of the assessment process, to ensure that any approval conditions that may be imposed are appropriate and relevant for both stages of the Project.

Figure 6: Approved Concept Layout



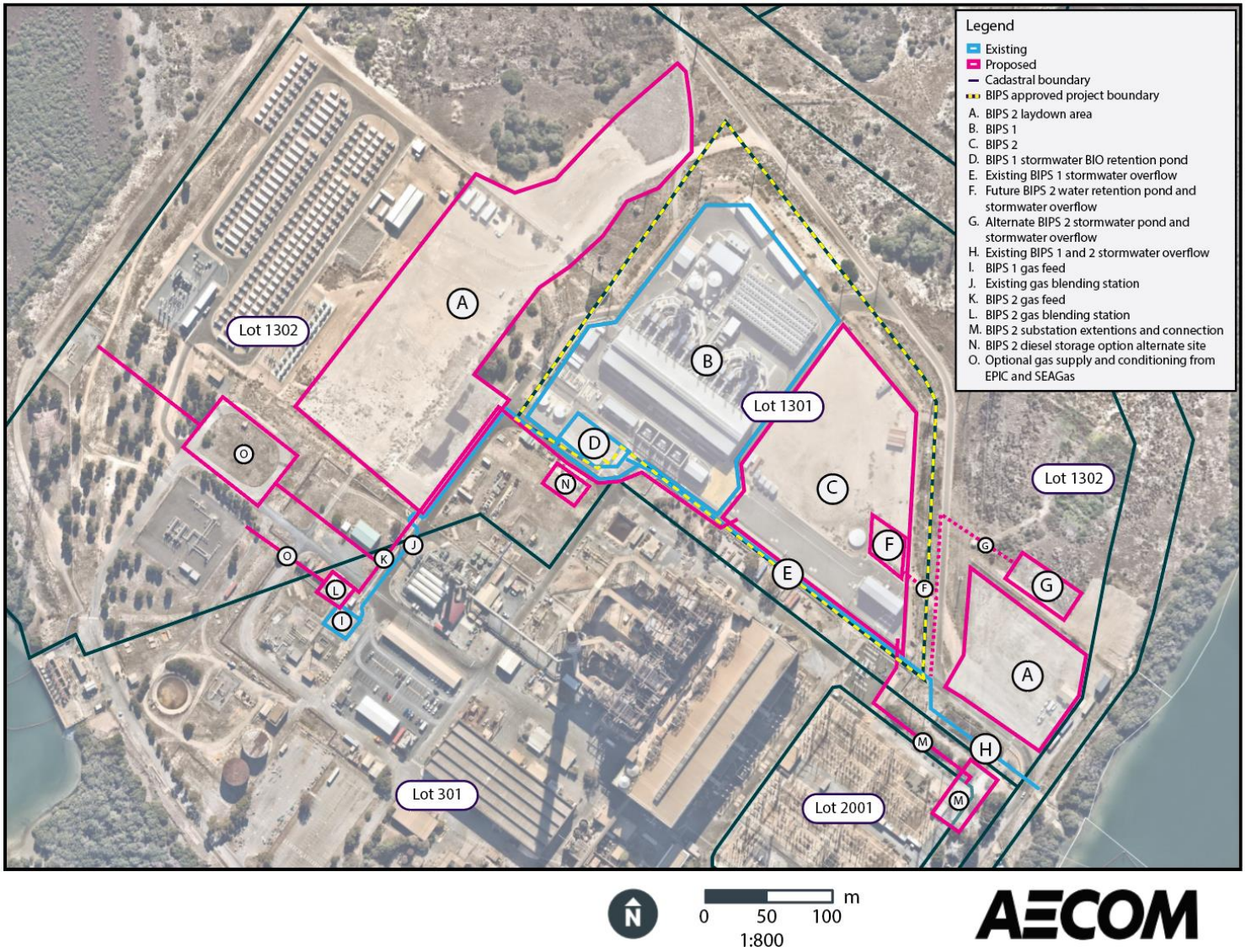
4.2 Proposed Variation

AGL is seeking approval to vary the Approved Project to include the following key amendments related to BIPS 2:

- Option to use either gas turbines or reciprocating engines for BIPS 2 (instead of reciprocating engines only)
- Increase the output of the BIPS 2 project to up to 280 MW (instead of 210 MW)
- Further detail and amendments to the currently approved layout for BIPS 2 including:
  - connection into the ElectraNet switchyard and minor expansion of the ElectraNet switchyard
  - revisions to the location of the laydown areas, site access, internal roads and car parking etc
  - increased diesel storage capacity (up to 2 million litres required)
  - Additional bio-retention basins
  - Gas blending station, compression and connections
  - Addition of a reverse osmosis plant for gas turbines
  - Tree damaging activities requiring the removal of 9 regulated trees.

The revised indicative layout is provided in Figure 7 and will be confirmed during detailed design of the BIPS 2 project.

Figure 7 Proposed BIPS 2 Development



4.2.1 Generation Options

AGL has commenced the procurement process to select the preferred technology and manufacturer for the turbines for BIPS 2. The capacity of the power station will be up to 280 MW regardless of the preferred turbine selected. However, at this stage to provide flexibility in the procurement process, it is proposed to vary the Approved Project so as to enable the use of either reciprocating engines (as currently approved) or gas turbines.

The proposed inclusion of the option of gas turbines will, if ultimately selected, result in a number of design differences which are considered to be relatively minor given the nature of the Approved Project and the site.

Indicative layout plans for the proposed options are included in Figure 8 to Figure 11 and Appendix D. These show the indicative layout which will be implemented if gas turbines are selected for BIPS 2 as well as the changes proposed to the indicative layout if reciprocating engines (as currently approved) are selected for BIPS 2. The layout for the selected option will be finalised as part of detailed design during the procurement process for BIPS 2.

Reciprocating Engines

The proposed reciprocating engine options closely align with the Approved Project.

An indicative site layout is provided in Figure 8.

Gas Turbines

If gas turbines are ultimately selected, the plant configuration could include one to six gas turbines depending on the final turbine model selected.

The height of the development across the options will range from 15 metres to 45 metres above ground level, with the tallest element being the turbine exhaust stack.

Indicative layouts for the gas turbine options are provided in Figure 9 to Figure 11.

The key changes proposed to the currently approved indicative layout if gas turbines are utilised are as follows:

- A reduced number of turbines/engines required to achieve the proposed MW capacity
- Addition of a reverse osmosis plant to service the gas turbines (refer to section 4.2.5 below)

Figure 8 Indicative Reciprocating Engines Layout

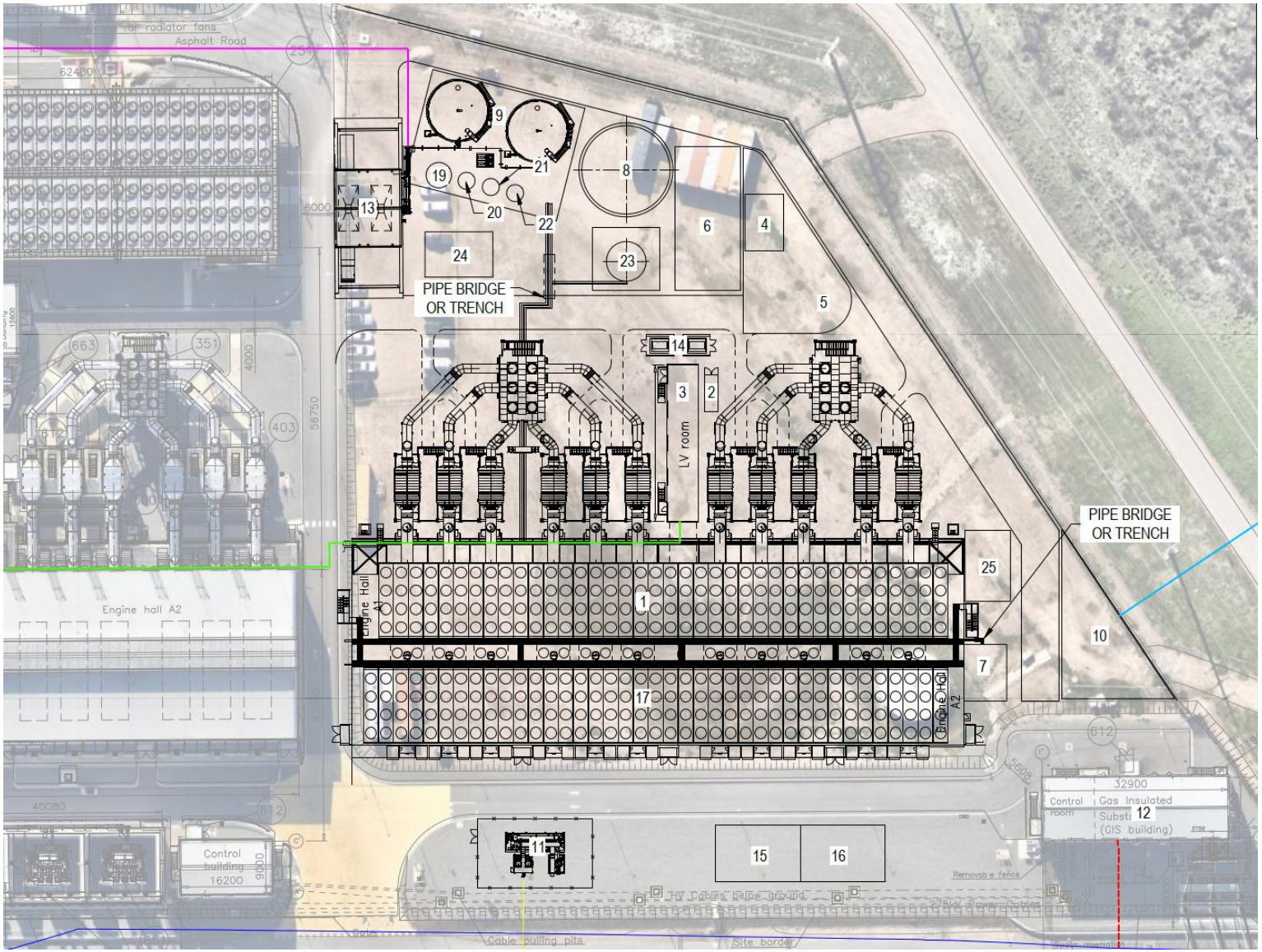


Figure 9 Indicative One Gas Turbine Site Plan

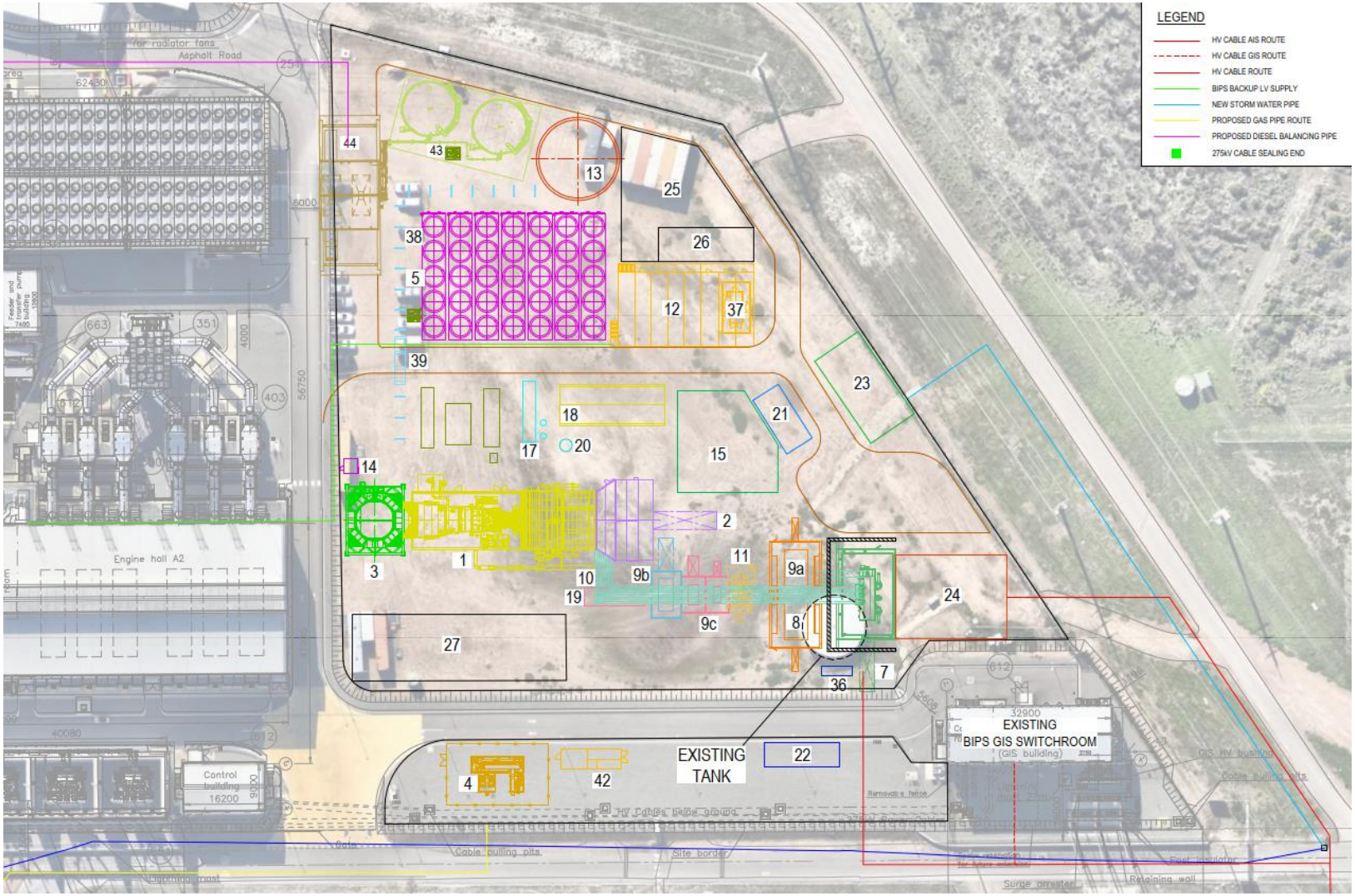


Figure 10 Indicative Two Gas Turbine Site Plan

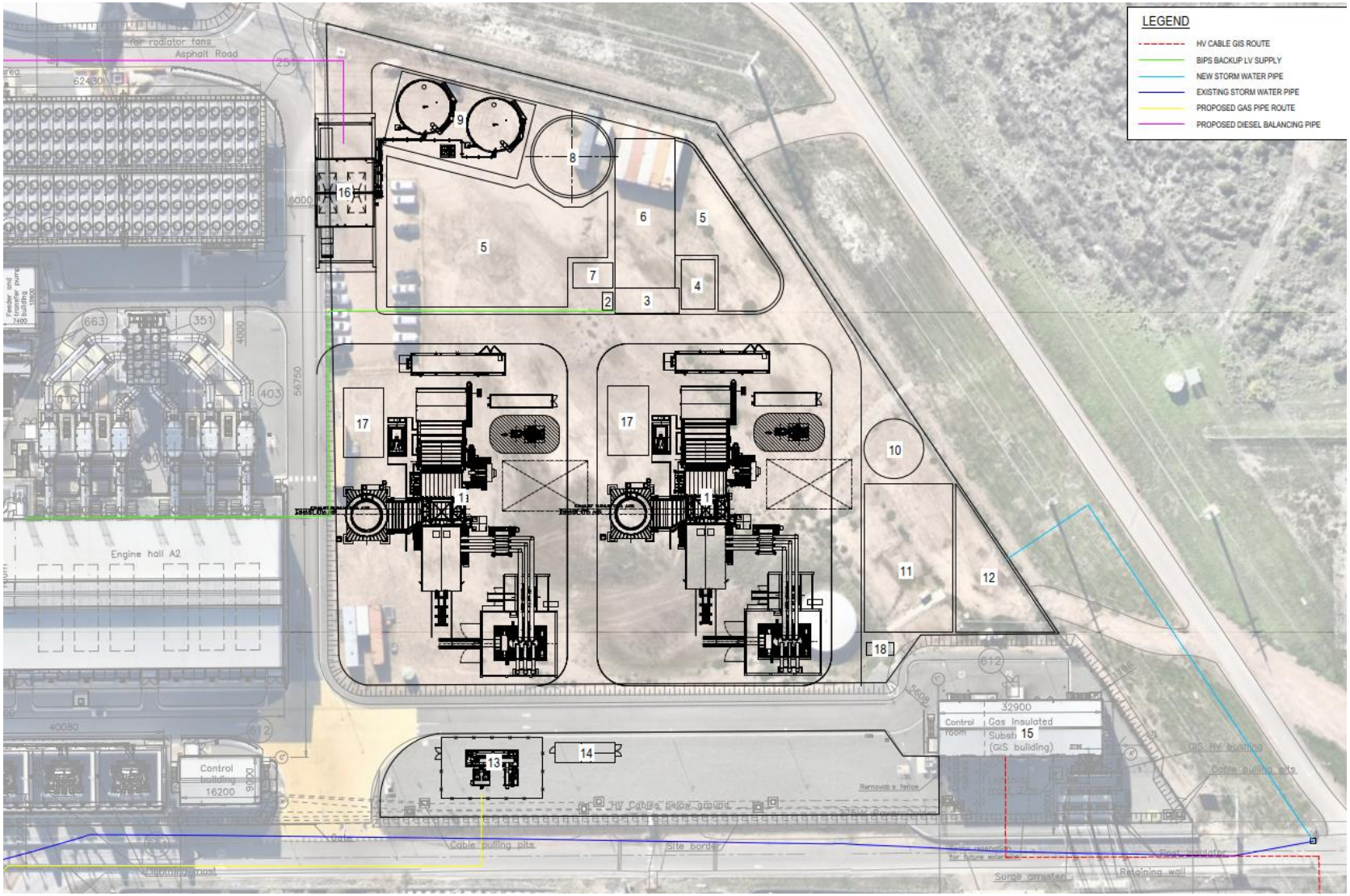


Figure 11: Indicative Six Gas Turbine Site Plan

4.2.2 Stormwater

The Approved Project includes stormwater management systems. Condition 5 of the Development Approval requires that the detailed design of the stormwater management system must include the pollution reduction outcomes modelled in the Barker Inlet Power Station Water Management Plan prepared by Tonkin Consulting dated November 2017. In addition, conditions 7, 8, 9 and 22 of the Development Approval provide further requirements for the management of stormwater on the site.

Consistent with the Approved Project, these conditions and the detailed design of the stormwater management systems installed for BIPS 1, the site drainage systems for the BIPS 2 will be segregated so that potentially contaminated surface water runoff will be kept separate from clean rainwater runoff. The detailed design of the BIPS 2 will ensure that only clean water flows into the stormwater system.

The stormwater treatment system for BIPS 2 remains subject to detailed design but is likely to consist of the following:

- Gross pollutant trap (GPT) to capture trash, course and fine sediments.
- Spill control system (including interceptor system and bunded areas) to capture hydrocarbon-based pollutants from accidental spills and other potentially contaminated water.
- A bio-retention basin (consistent with BIPS 1 – refer to Figure 12) to allow settlement and nutrient uptake of total phosphorus, total nitrogen and any remaining total suspended solids.

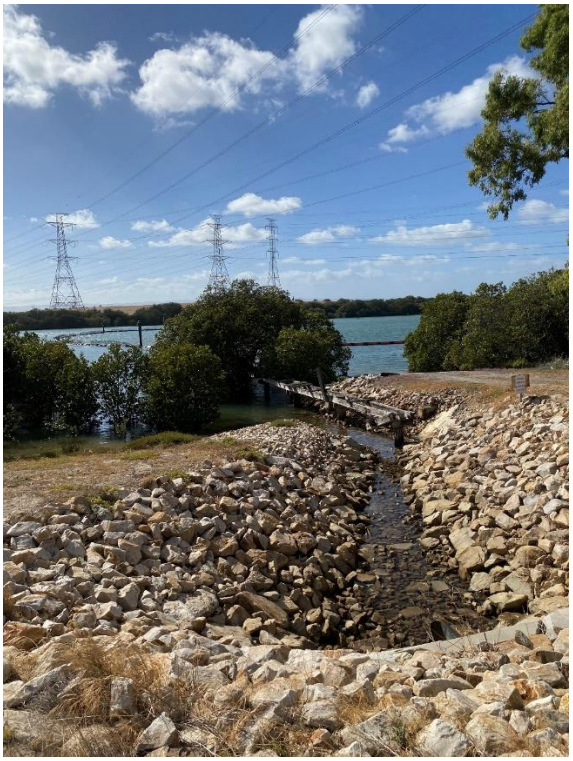
The bio-retention basin will be designed to reduce direct stormwater discharges to the Angas Inlet via the existing overflow outlet. The water from the basin will dissipate through evaporation and infiltration, thereby efficiently removing suspended solids and attached pollutants and minimising the volume of stormwater that is discharged directly to the waterway. The previous soil assessment, undertaken to support the original BIPS development application, identified that the underlying soil profile is suitable for stormwater infiltration (the soil generally consists of a fine to medium grained sand with no evidence of contamination).

The preference is for the bio-retention basin to be located within the existing approved BIPS 2 footprint. However, to provide design flexibility, an alternative stormwater basin location has also been identified to the east of the BIPS 2 site. If this option is utilised, then the basin would also connect into the existing BIPS 1 bioretention pond overflow pipe to the Angas Inlet. The alternate location is an existing cleared area, located adjacent to the south of the Torrens Island wastewater irrigation area (refer to Figure 12).

A Stormwater Management Plan will be prepared as part of the detailed design stage based on the final design which will include the appropriate assessment detail and confirmation of the overall stormwater management approach for the project.

Figure 12 Stormwater Management Infrastructure

Existing BIPS 1 Retention Basin



Existing Angas Inlet BIPS 1 Outfall

Alternate Retention Basin Site – View West

Alternate Retention Basin Site – View East

4.2.3 Bulk liquids storage

The Approved Project includes onsite storage of up to 1.5 million litres of diesel. The proposed BIPS 2 project requires a further 2 million litres of diesel.

In line with the Approved Project, the diesel will be transported to site via trucks, with an estimated one to two diesel deliveries each week on average. A diesel receiving area is proposed as part of BIPS 2, incorporating up to two truck unloading bays (consistent with BIPS 1) preferably within the BIPS 2 site. To provide design flexibility an alternatively location has been identified to the south of BIPS 1 (refer to Figure 7).

Lubricating oil and urea, which is used for controlling air emissions in the Selective Catalytic Reduction units, will also be transported and stored on site for the reciprocating engine option.

All bulk liquids storage tanks will be situated within bunded areas and will be fitted with the required fire detection and protection systems as required by condition 6 of the Development Approval.

Other smaller tanks will be provided to store and then recover lubricating oil during maintenance activities to minimise wastage and potential loss of containment. These storage tanks will also be situated within bunded areas as required by condition 6 of the Development Approval.

The location design and capacity of the liquid storage will be confirmed as part of the detailed design stage for BIPS 2.

Figure 13 BIPS 1 Liquid Storage Facilities

4.2.4 Infrastructure Connections

The Approved Project includes infrastructure connections for BIPS 2.

The location and details for proposed infrastructure connections have been identified and are further detailed below. AGL will establish easements on site for any infrastructure connections as required.

It is noted that infrastructure connections will principally be established via pipes and underground cables and, as such, these elements of the project do not require Development Approval pursuant to Schedule 13 of the *Planning, Development and Infrastructure (General) Regulations 2017* (PDI Regulations).

Electricity

Consistent with the Approved Project, BIPS 2 will connect to the ElectraNet's Torrens Island B substation located to the south of the site. Connection will be via an underground cable and will require a relatively minor expansion of the existing substation to accommodate the additional infrastructure (refer to Figure 14).

It is noted that the proposed works within the existing substation are exempt from requiring approval pursuant to Schedule 13 of the PDI Regulations.

The route of the underground cable and substation expansion is restricted by existing infrastructure, (both above and underground), and as a result a number of trees will be required to be removed from the site. An assessment of these trees was undertaken in late 2024 confirming nine (9) regulated trees will be impacted by the BIPS 2 project. Further detail regarding the updates to the Approved Project which will require the removal of these additional trees is provided in section 4.2.6.

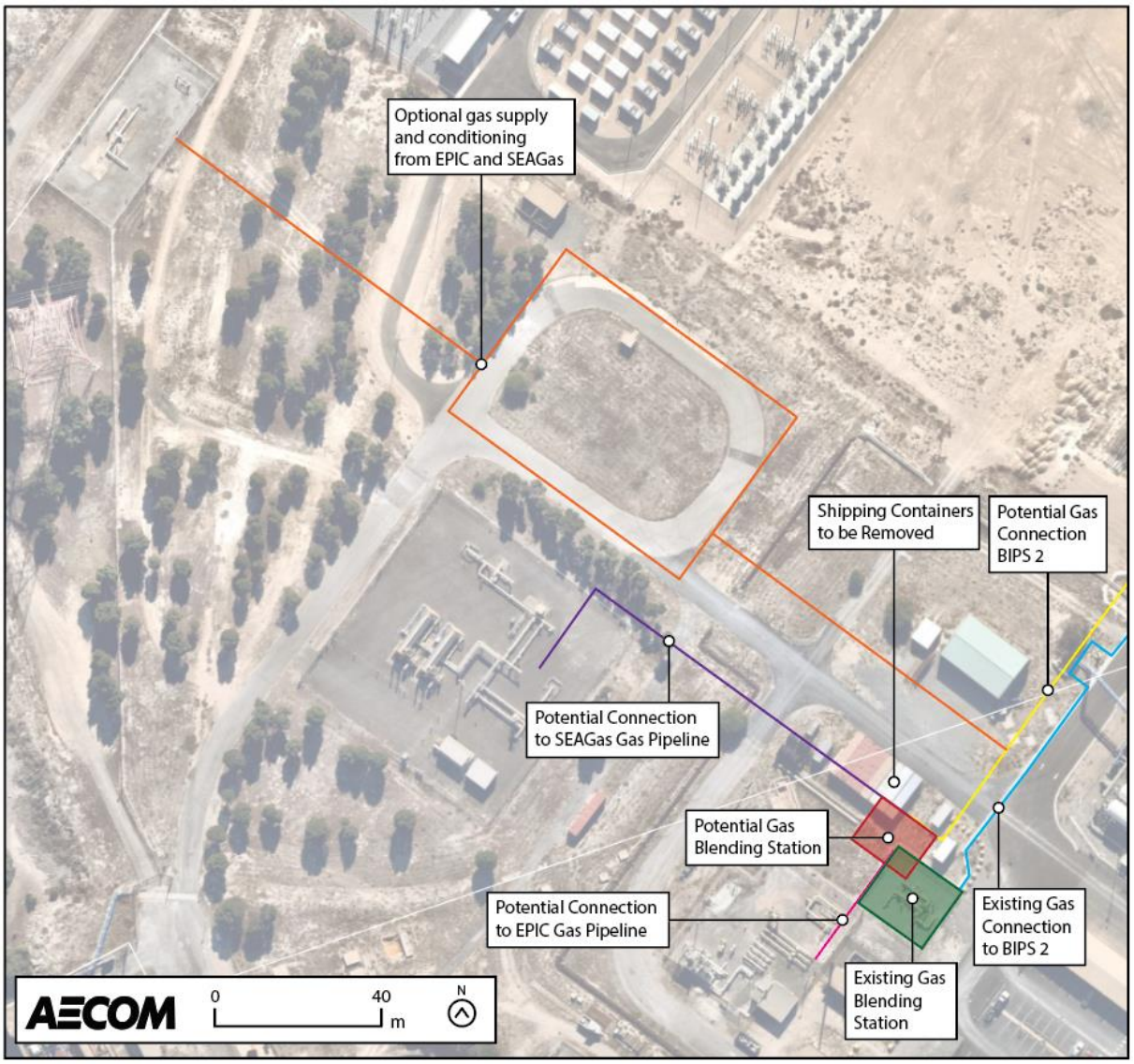
Figure 14 Proposed Substation Expansion

Gas

BIPS 1 is currently connected to the existing Torrens Island gas blending station located to the south via an underground pipe. A new/expanded gas blending and compressor station may be required to be constructed to service BIPS 2 (refer to Figure 15). Connection to BIPS 2 from the new blending station will be via an underground pipeline, as illustrated in Figure 7. The tie in point to SEAGas and EPIC may change depending on the pressure required and design considerations, this may necessitate a different location of the gas conditioning, metering and blending station depending on final design.

Further consultation with the gas pipeline operators is proposed to confirm design and connection requirements.

Figure 15 Proposed Gas Blending Station Site



Water

Water is required for the use of amenities on site and for fire protection of BIPS 1 and BIPS 2.

BIPS 1 is supplied with town water from SA Water.

Depending on the final BIPS 2 plant selected, drinking water will be supplied from the Torrens Island town water supply pump house or directly from the SA Water meters at the entrance to the Torrens Island Power Station. There are two existing town water storage tanks next to the pump house with each having a capacity of 2,250 kL and are supplied from the SA Water mains system.

Town water will also supply the proposed reverse osmosis plant which will be required if gas turbines are selected for BIPS 2 (see section 4.2.5 below).

4.2.5 Reverse Osmosis Plant

If gas turbines are ultimately selected for BIPS 2, a new reverse osmosis (RO) plant will be required to produce the higher-quality water required for gas turbine systems. The high-quality water assists in ensuring that power plant equipment operates efficiently minimising the risk of corrosion and fouling. In addition, injecting the RO water into the fuel jets of a gas turbine can assist to reduce the amount of NOx gas produced.

Potable mains water will be used to feed the RO plant, an assessment is currently being completed to understand the volume, frequency of discharge (likely to be intermittent) and quality of the wastewater that may be produced by the RO plant.

The wastewater produced by the RO plant is likely to be brackish, with a total dissolved solids in the order of 1,200 mg/L and predominantly chloride (700 mg/L) and sodium (450 mg/L). Other chemicals used in the RO plant will include:

- Citric acid / caustic chemicals for RO cleaning. The cleaning process is “acid” followed by “caustic” rinses with solutions of several percent concentration. The waste can be stored in a tank and neutralised before disposal. This clean will be done fortnightly when in use and will be recirculated through the RO membrane and back to the cleaning solution tanks for disposal offsite by truck.
- Antiscalants will likely be used to prolong run time between cleaning cycles. Low concentrations of antiscalants are accordingly likely to be present in the wastewater produced by the RO plant.
- Sodium thiosulphate will be used to remove the Chlorine from the towns water feed to protect the polymer membranes. Low concentrations of Sodium thiosulphate accordingly will be present in the wastewater produced by the RO plant.

The RO plant is likely to only operate intermittently, when firing diesel or for evaporative cooling of the inlet air, with the maximum volume of wastewater likely to be generated by the RO plant during operation in the order of 12L/sec. Three wastewater management options for the proposed RO plant are currently being considered, which include:

- Management onsite, via one or combination of the following groundwater disposal options:
  - Stormwater/retention pond (shallow aquifer).
  - Deeper aquifer injection via existing extraction bore
- Direct discharge to Angas Inlet.

Trucking/disposal of the wastewater from the RO Plant offsite is not proposed as a permanent management option, however, may be used as a temporary/emergency management option should it be required.

Disposal to sewer was initially considered but is not proposed, as:

- consultation with SA Water identified that, although the water quality is likely to be compliant with the criteria relating to sewer disposal under a single-pass RO scenario, the sewer is not able to accept the estimated maximum flow rates (12 L/sec); and
- a sewer line would need to be installed from BIPS across the North Arm bridge and down the Grand Trunkway to connect to the SA Water sewer network.

Following consultation with SA EPA, AGL has engaged Aurecon to undertake a RO reject water disposal options assessment which will be used to confirm the final preferred option for disposal in a manner which complies with *Environment Protection (Water Quality) Policy 2015* .

The RO wastewater is considered to be the only new waste stream. The waste stream from the demineralisation plant will be recycled back to the RO feed tank for blending with the incoming town water and re-treated.

4.2.6 Tree Damaging Activities

The proposed variations to the Approved Project will require the removal of nine regulated trees which are not currently authorised for removal under the Development Approval as shown on the plan in Figure 16.

Section 3F of the PDI Regulations declares certain trees to be regulated trees and significant trees and the Regulated and Significant Tree Overlay under the Planning and Design Code applies over the site. It is noted that the Native Vegetation Overlay as prescribed in the Code does not apply over Torrens Island.

An Amenity Tree Assessment has been undertaken by Eco Logical Australia dated 5 May 2025 (Appendix E).

This survey confirmed that regulated and significant trees, as defined by section 3F of the PDI Regulations, exist on the site and only the regulated trees will be impacted by the proposed variations to the Approved Project.

The site contains nine (9) regulated trees and the proposed development will require the removal of these trees to accommodate the proposed electricity connection (underground cable and substation expansion). Tree removal will be undertaken in accordance with the Project's Construction Environmental Management Plan to manage potential impacts associated with the removals.

It is noted that the survey identified a number of *Casuarina Glauca* (Swamp Oak) trees which meet the trunk circumference requirements for regulated (four) and significant (one) trees under section 3F of the PDI Regulations. However, this species is a declared plant under the *Landscape South Australia Act 2019* (SA) and therefore the trees are exempt from the definition of regulated and significant trees pursuant to section 3F(4)(c) of the PDI Regulations.

Details of the regulated trees which will be impacted by the changes proposed to the Approved Project are outlined in Table 1 and Figure 16.

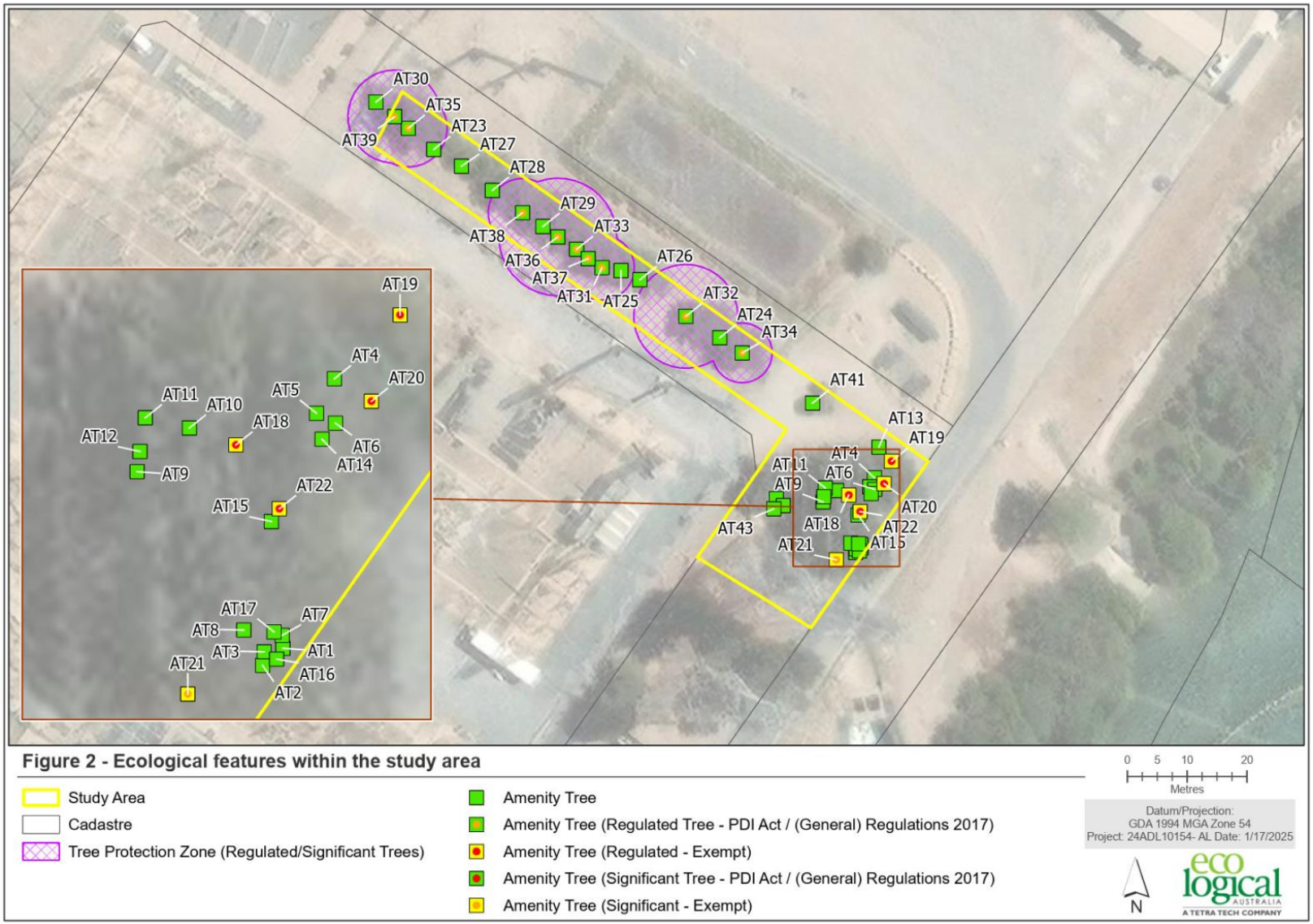
Alternative design solutions have been considered to minimise the extent of tree damaging activities including tree removal, however, these were deemed unviable, due to the route of the cable and substation expansion being restricted by existing infrastructure and a requirement to maintain separation distances.

Table 1 Regulated and Significant Trees

Tree ID#	Species	Trunk Circumference (m)	Classification	Action
AT31	*Callistemon viminalis* (Weeping Bottlebrush)	0.368 average	Regulated	Removal
AT32	*Callistemon viminalis* (Weeping Bottlebrush)	0.480 average	Regulated	Removal
AT33	*Callistemon viminalis* (Weeping Bottlebrush)	0.397 average	Regulated	Removal
AT34	*Callistemon viminalis* (Weeping Bottlebrush)	0.322 average	Regulated	Removal
AT35	*Callistemon viminalis* (Weeping Bottlebrush)	0.462 average	Regulated	Removal
AT36	*Callistemon viminalis*	0.725 average	Regulated	Removal

Tree ID#	Species	Trunk Circumference (m)	Classification	Action
	(Weeping Bottlebrush)			
AT37	*Callistemon viminalis* (Weeping Bottlebrush)	0.480 average	Regulated	Removal
AT38	*Callistemon viminalis* (Weeping Bottlebrush)	0.360 average	Regulated	Removal
AT39	*Callistemon viminalis* (Weeping Bottlebrush)	0.445 average	Regulated	Removal

Figure 16 Existing Vegetation



4.3 Construction and Operation

This section provides a summary of the updates to the construction and operation phases of the BIPS 2 project when compared to the Approved Project.

4.3.1 Construction Details

BIPS 2 will be constructed over an approximate two-year period, with construction estimated to commence in 2026. It is anticipated that the construction activities will occur in the following stages:

- Mobilisation – establishing the site with equipment and facilities necessary to execute the construction phase
- Clearing – minimal vegetation clearing will be required for the arrangement of the new infrastructure
- Laydown of construction materials – materials and equipment to be used for construction will be placed within the laydown area/s
- Civil earthworks – establishment of appropriate site level/s, surface drainage and infrastructure trenching
- Establishing and preparing foundations – footings for major plant items and buildings will be established on appropriately designed piles where necessary. The detailed design and construction of the foundations will take into account groundwater levels and any possible future subsidence
- Construction of buildings and plant – where possible, to minimise the construction time, prefabricated components will be imported to the site and erected during construction. Mobile cranes will be used to erect and complete the construction of heavy plant items
- Demobilisation – removal of all construction equipment and facilities and where required, rehabilitation, of areas impacted by construction activities
- Commissioning of plant and equipment.

Employee numbers on the site during the construction phase will vary depending on the stage of works. However, it is estimated that approximately 200 staff will be required at the peak of construction.

The majority of construction work is anticipated to occur during daylight hours.

Construction will require heavy loads of plant and equipment to be delivered to the site. The main components of the power station are expected to be assembled overseas and delivered to the site using special haulage vehicles. The remaining plant and equipment are likely to be erected on the site. The proposed changes to the Approved Project also include the use of adjacent lay down areas which are sufficiently sized and already cleared to accommodate the construction of BIPS 2.

The construction traffic associated with BIPS 2 is expected to be similar to the construction traffic that was generated for BIPS 1. The final construction traffic approach and any required mitigations for BIPS 2 will be addressed through the detailed design phase.

4.3.2 Operational Details

In line with the Approved Project, BIPS 2 will operate intermittently on a 24 hour basis, as required in response to electricity demand.

The operations phase will include maintenance, operation, monitoring and associated administrative activities. It is estimated that up to 10 employees will be required for the operation of BIPS 2 with the facility proposed to be operated remotely.

It is anticipated that general maintenance and administrative staff will primarily be at the site during daylight hours (7am-7pm), after hours work for these activities may occur intermittently when required.

Traffic generated during the operational phase will be minimal.

4.3.3 Management Plans

As previously required by condition 10 of the Development Approval, a Construction Environmental Management Plan (CEMP) will be prepared and implemented for BIPS 2 to ensure potential environmental impacts are appropriately managed during the construction phase of the development.

This plan will be prepared and finalised prior to the commencement of the construction and operation phases of the project.

The CEMP will include a range of control measures (captured in relevant sub-management plans) to manage and minimise environmental risks during the construction phase of the project. The control measures will be specific to the site and will principally relate to the following key aspects:

- Air Quality, including dust management
- Cultural Heritage
- Flora and Fauna
- Noise
- Stormwater and Water Quality
- Erosion and soil management
- Acid sulphate soli management
- Dewatering and earthworks drainage management
- Traffic management
- Waste Management
- Communication and complaint resolution.

BIPS 2 will require an EPA licence under the *Environment Protection Act 1993* (SA) (which may take the form of a variation to the existing licence 50622 held for BIPS 1) and will be operated in accordance with all licence conditions. AGL will develop a specific Operational Environmental Management Plan (OEMP) to manage all operational impacts in line with the conditions imposed on the EPA licence and to inform employees and contractors of the environmental requirements and controls. The OEMP will describe measures to prevent or minimise environmental harm and mitigate noise impacts on the community. It will incorporate procedures, controls, monitoring and reporting in accordance with the EPA licence conditions.

5. Stakeholder Engagement

AGL is committed to developing and maintaining good relationships with the local communities in which they operate.

AGL's approach to stakeholder engagement can be summarised in terms of leaving a positive legacy, by striving to make a net positive social, economic and environmental contribution to the communities in which they operate. AGL's community engagement commitments that operate under this framework Include:

- Be proactive: we will engage with communities early and often, so that we understand and respond to their interests and concerns
- Be flexible and inclusive: we will offer a range of engagement opportunities that are tailored to the variety of needs and preferences of the communities in which we operate
- Be transparent: we will act honestly and ethically in all our dealings with the communities in which we operate
- Support our employees and contractors to engage well: we will provide tools, peer support and training to enable our staff to deliver on our commitment
- Continuously improve our engagement: we will evaluate the effectiveness of our engagement and modify it as needed to ensure that our activities address community needs and expectations

Prior to lodging this Development Application, AGL held discussions with the following stakeholders on the changes proposed to the Approved Project in order to facilitate BIPS 2:

- South Australian Government Agencies:
  - Department for Energy and Mining – including the Office of the Technical Regulator
  - Department for Housing and Urban Development, Planning and Land Use Services (PLUS)
  - Environment Protection Authority
- Regulatory Infrastructure Bodies (ElectraNet & SA Water)
- Torrens Island Community Dialogue Group

The AGL Torrens Island Community Dialogue Group (CDG) was established in 2023 to create a forum for providing updates, seeking feedback and answering questions relating to issues of interest to the broader community around Torrens Island, including ongoing operations, decommissioning and demolition of retiring plant, and the development, construction and operation of new plant and projects on the site.

The CDG includes key representatives and stakeholder groups who have a demonstrable interest in or connection to AGL Torrens Island. Representatives include:

- Community
- Business/industry
- Environment
- Kaurna
- Federal, State and Local government

A summary of the consultation that has occurred is provided in Table 2 below.

In addition to the statutory notification requirements pursuant to PDI Act, AGL intends to continue to actively consult with key stakeholders during and post the development assessment process in accordance with the Project's Stakeholder Engagement Plan.

Table 2 Stakeholder Engagement Summary

Stakeholder	Meeting Date	Matters Discussed
PLUS	23/01/24	Project introduction and initial advice
	16/12/24	Project briefing and planning assessment requirements
	5/2/24	Site walkover to view Project Area
Department for Energy and Mining	Various	Crown Sponsorship for variation and OTR Certificate
EPA	04/09/24	Approach for air quality and acoustic assessment
	16/12/24	Outcomes of air quality and acoustic assessments and preliminary advice on reverse osmosis plant wastewater disposal options.
	6/3/25	RO wastewater management options
Torrens Kaurna Advisory Group / Elders	02/09/24	Project briefing and approach to Aboriginal heritage assessment
	18/12/24	Project updates & outcomes of Cultural Heritage Assessment
Torrens Kaurna Advisory Group	17/12/24 26/5/25	Project updates & outcomes of Cultural Heritage Assessment. Whole Torrens Island Power Station site Cultural Heritage Management Plan is being progressed. Ongoing engagement to ensure Project impact on cultural heritage is minimal and future employment opportunities are created.
Port Adelaide Enfield Council	20/5/25	Project Briefing
Torrens Community Dialogue Group	20/08/24 19/11/24 18/2/25 20/5/25	Project briefing and update, including response to questions raised in relation to heritage and environmental considerations.
Port Adelaide Residents Environment Protection Group (PAREPG)	18/2/25	PAREPG have been engaged through Torrens CDG.
ElectraNet	18/7/24	Network connection requirement discussion – capacity and associated infrastructure upgrades.
SA Water	12/2/25	Site walkover to discuss proposed RO plant wastewater management options.

6. Environmental and Social Analysis

Both the now operational BIPS 1 and the proposed BIPS 2 are already approved by the Development Approval. This approval, along with the historical use of the site and surrounding locality, confirms the suitability of the subject land for the development of a large-scale energy generation facility.

An Environmental and Social Assessment Report, with detailed technical studies, was prepared as part of the original development application for the Approved Project. This assessment considered both BIPS 1 and BIPS 2.

The previous investigations did not identify any elements of the Approved Project which would adversely impact on the subject land and locality. Given the limited changes to the Approved Project proposed in this development application to accommodate the updated requirements for the BIPS 2 project, the outcomes of the previous Environmental and Social Assessment Report are considered to remain valid.

However, given the proposed changes to the technology options and generation configurations now proposed for the BIPS 2 project, specific assessments relating to the air quality and noise impacts of the proposed changes have been undertaken to support the variation application. These are the key elements that have the potential to impact the surrounding area.

In addition, the impacts of the changes proposed to the Approved Project have been assessed to confirm any changes to Aboriginal heritage, ecology and traffic impacts.

A summary of the environmental and social considerations associated with the original application and their relevancy to the BIPS 2 variation is provided in Table 3 below, together with the outcomes of the additional assessments undertaken to support this variation.

As outlined above, BIPS 2 will also require an EPA licence under the *Environment Protection Act 1993* (SA) and will be operated in accordance with all licence conditions imposed by the EPA.

Table 3 Site and Project Environmental Analysis Summary

Element	Commentary
Air Quality and Greenhouse Gas	The original development application and associated air quality assessment identified that the Approved Project satisfied the relevant EPA Air Quality criteria. An EPA licence is currently held for BIPS 1 and BIPS 1 is managed and monitored in accordance with this EPA Licence. A new or amended EPA licence will also be required for BIPS 2. An updated air quality assessment has been undertaken addressing the proposed variations to the Approved Project for BIPS 2 including the additional option of gas turbines and to reflect any changes to the *Environment Protection (Air Quality) Policy 2016* since the Development Approval was granted. This assessment considered the various plant options inclusive of gas turbine and reciprocating engines. The analysis confirmed that the changes proposed to BIPS 2 would remain in compliance with the criteria applying under Environment Protection (Air Quality) Policy 2016 and that potential for the proposed changes to generate adverse air quality impacts is low and manageable through the effective operation of the proposed emission controls. Further detail regarding the air quality assessment is provided in section 6.1 and Appendix F.
Noise	The original development application and associated noise assessment identified that the Approved Project satisfied the relevant EPA noise criteria. An EPA licence is currently held for BIPS 1 and BIPS 1 is managed and monitored in accordance with this EPA Licence. A new or amended EPA licence will also be required for BIPS 2. An updated noise assessment has been undertaken, assessing the proposed variations to the Approved Project for BIPS 2 including the additional option of gas turbines and in light of the requirements of Environment Protection (Commercial and Industrial Noise) Policy 2023. The noise assessment identified that additional noise mitigation will be required in order to achieve compliance with the EPA Policy. As a result, turbine manufacturers will be required to provide the relevant bespoke mitigation measures as part of the detailed design which will ensure the relevant criteria is achieved. Further detail regarding the noise assessment is provided in section 6.2and Appendix G.
Land Use	The proposed variation seeks a number of changes to the Approved Project to accommodate the design updates for BIPS 2. The proposed variations are consistent with the existing approved uses of the site, including the operational BIPS 1, and use of the wider Torrens Island precinct for energy generation. A further land use and planning assessment of the proposed changes to the Approved Project against the relevant requirements of the Code is provided in section 8.
Geology and Soils	The previous assessment identified that potential acid sulfate soils are known to occur within sections of the Torrens Island, however, there is a low potential for acid sulphate soil generation within the BIPS project area. Conditions 11, 12 and 13 of the Development Approval require the preparation and implementation of a Soil, Erosion and Drainage Management Plan, an Acid Sulfate Management Plan and a De-watering/Earthworks Drainage Management Plan to

Element	Commentary
	management the impacts of the Approved Project on geology and soils. No changes are proposed to these conditions which will continue to be complied with in relation to BIPS 2.
Ecology	Given the proposed construction and operation of BIPS 2 is to occur within an area of previously disturbed and highly developed land, it is unlikely that any Commonwealth or State listed flora and fauna species will be impacted by either direct or indirect threats. In particular an assessment was undertaken of the impacts of the proposed changes on any matters protected by the *Environment, Protection, Biodiversity & Conservation Act 1999* (EPBC Act). This assessment confirmed that the revised BIPS 2 project is not likely to have a significant impact on any matter protected by the EPBC Act, meaning that referral under the EPBC Act is not required. It is noted that the BIPS 2 project site is located outside the *Native Vegetation Act 1991* (SA) (Native Vegetation Act) jurisdictional boundary.
Surface and Ground Wate	The Project will be constructed on an existing established hardstand/disturbed areas and no groundwater is proposed to be used to service the project. The previous investigations completed as part of the application for the Approved Project identified the requirement for the implementation of various mitigation measures to minimise potential impacts to the surface water (including receiving environments) and groundwater during the construction and operation of the facility. Such mitigations included: - Management of stormwater runoff both during the construction period and ongoing operations - Appropriate design and bunding of bulk fuel storage area and other operational areas to minimise contamination risk - Minimise interaction and extraction of groundwater through design, construction methods and management approach. The mitigation measures identified and adopted for BIPS 1 remain appropriate for BIPS 2, including as proposed to be varied, and will be further addressed in the CEMP and detailed design of the project. The RO wastewater is considered to be the only new waste stream. Further assessment of the RO reject water disposal options are current being assessed to ensure the final preferred option for disposal complies with the *Environment Protection (Water Quality) Policy 2015* .
Coastal impacts	Whilst the project area is located within the Coastal Area Overlay with the Code, no coastal impacts are expected. The project area does not contain sensitive coastal landform, and the project is of low risk of being impacted by coastal inundation, given the recent benching and earthworks for the preparation of the site for the BIPS 2 development. The project infrastructure will be designed and constructed to be above the predicted future sea levels and will utilise the same flood protection strategy in place from the current Development Approval.

Element	Commentary
Aboriginal Heritage	Torrens Island is known to have significance to the Kaurna People, the traditional custodians of the Adelaide Plains. Previous archaeological assessments were undertaken to inform the original BIPS development application. These assessments concluded there are no known Aboriginal heritage sites within the project area. Integrated Heritage Services Pty Ltd (IHS) have undertaken an Aboriginal heritage desktop study of the additional areas now proposed for disturbance as part of the updates to the Approved Project proposed for the BIPS 2 project. The report recognises that the BIPS 2 Project Area has been subject to a high level of previous ground disturbance associated with the construction and operation of the Torrens Island Power Station. Whilst the project is of low risk of impacting aboriginal heritage, the assessment identified the potential for encountering natural soil profiles under fill layers at specified depths. As such, the recommendation is that a Cultural Heritage Management Plan be prepared and implemented to ensure processes for Aboriginal heritage management into the future, including monitoring requirements and what to do in the event of any inadvertent discoveries are established. Accordingly, appropriate management actions, in consultation with Kaurna traditional owners and in accordance with legislative requirements, will be adopted throughout the preliminary site investigations and construction stages of the BIPS 2 project as proposed to be varied with respect to investigating and responding to any Aboriginal heritage related discoveries on-site.
European Heritage	There are no Commonwealth, State or Local Heritage places within or in close proximity to the project area. In addition, previous site assessments have identified that there is a low risk of works encountering any remains of early European archaeological features of heritage significance within the project area.
Traffic	The original development application included a traffic assessment informing the preparation of a Traffic Management Plan (TMP) which assessed and guided the construction phase of the BIPS 1. An updated Traffic Impact Assessment (TIA) (Appendix H) has been undertaken to assess any changes to the network that may impact or be impacted by the proposed BIPS 2 development. Assessing the estimated generated vehicle volumes in the context of the existing network traffic volumes, the TIA concluded that the changes proposed to the Approved Project will have a relatively minor impact on the daily functionality of the surrounding State-maintained roads. While the identified delivery routes are expected to accommodate the projected vehicle traffic volumes and movements, the suitability of these routes are subject to detailed turn path and road geometry assessments during the preparation of a TMP. The TIA identified that the modifications to the road network which were identified in the previous TMP and implemented to facilitate the construction of BIPS 1, may be required for BIPS 2.

Element	Commentary
	A TMP for BIPS 2 will be developed during the detailed design phase and implemented as required. This is likely to be the subject of a new condition imposed on the Variation Approval.
Landscape Visual Impact	A detailed landscape impact assessment was prepared to support the original BIPS development application (Stages 1 and 2) which identified that BIPS would have limited visual impact to the surrounding community. Given the minor nature of the variations proposed to the Approved Project in terms of visual appearance and the sites separation from sensitive land uses and public viewpoints, no material impact/change compared to the Approved Project is anticipated. The construction of BIPS 2 supports the decommissioning and potential demolition of TIPS A and TIPS B which will have significant visual impact benefits to the surrounding locality due to the visual prominence of these structures, particularly in comparison to the scale of BIPS.
Socio-economic	A detailed socio-economic assessment was undertaken to support the BIPS development application and assessed the impacts of the whole project (Stage 1 and Stage 2). The previous assessment identified that during the construction and development phase of BIPS the potential (positive and negative) socio-economic impacts included: • In-migration of workers affecting population and demographics • Direct and indirect employment opportunities for the local community • Local economy injection • Intermittent decreased availability of accommodation • Increased pressure of social and community infrastructure. It was concluded that a number of aspects of the project would have a positive impact (i.e. the injection into local and regional economy as a result of project expenditure and an increase in employment). Potential negative impacts that were deemed negligible were able to be adequately mitigated. The outcomes of the previous assessment will not be changed as a result of the changes proposed to the Approved Project. The expected $500 million BIPS 2 project will result in significant economic benefits to the State and local community. The key economic benefits associated with the development include: • Improved network security and diversified energy generation offering within South Australia • Support for increasing renewable power generation

Element	Commentary
	• Providing additional capacity and increased competition in the market putting downward pressure on wholesale electricity prices • Generation of up to 200 direct jobs during the construction phase of the project and approximately 10 jobs ongoing • Financial benefits to the local and regional community, as a result of project expenditure and investment in additional infrastructure. To maximise the positive effects from the project AGL will: • Aim to maximise employment opportunities for the local community where practicable • Source goods and services locally wherever practicable, based on local capacity, ability to supply, quality and cost competitiveness.

6.1 Air Quality Assessment

An Air Quality Assessment was prepared by ERM (Appendix F) to assess the air quality impacts of the proposed changes to the Approved Project and address any updates to *Environment Protection (Air Quality) Policy 2016*. ERM (formerly Pacific Environment) also prepared the Air Quality Assessment in support of the original Development Application.

The assessment approach in the Air Quality Assessment for this BIPS 2 variation incorporated the following:

- Alignment with the previous assessment, whilst incorporating the following updated methodologies:
  - Updated meteorological and background air quality datasets that reflect current state of practice and ambient air quality within the Adelaide airshed;
  - Assessment against updated nitrogen dioxide (NO2) and sulphur dioxide (SO2) ambient air quality standards which are specified in the *Environment Protection (Air Quality) Policy 2016* (SA, 2023); and
  - Changes to local emission sources, including the retirement of Torrens Island Power Station A (TIPS A), the reduced operation of Torrens Island Power Station B (TIPS B) and planned retirement, and the operation of BIPS 1.
- Review of manufacturer emission data for a total of six (6) plant options, inclusive of gas turbine and reciprocating engine technologies. Data compiled to provide an emission inventory for sources considered in the modification.
- Atmospheric dispersion modelling assumed continuous operation of plant under full load. Modelling was performed for the 2023 calendar year using the CALPUFF dispersion model
- Dispersion modelling assessed both natural gas and distillate fuel operation for BIPS plant across three (3) plant scenarios :
  - Plant Scenario 1 (PS1): BIPS 2 (each alternative plant option) modelled in isolation;
  - Plant Scenario 2 (PS2): BIPS 2 operating concurrently with BIPS 1; and
  - Plant Scenario 3 (PS3): BIPS 2 operating concurrently with BIPS 1 and TIPS B.

Collectively, the analysis confirmed that the updated project will remain able to comply with all relevant criteria under *Environment Protection (Air Quality) Policy 2016* (Air EPP) and that the potential for the modification to generate adverse air quality impacts is low and manageable through effective operation of the proposed emission controls.

The outcomes of the assessment with regard to the various relevant modelled parameters is summarised in Table 4 below.

An updated Air Quality Assessment will be undertaken once the final design (including the selected technology and manufacturer) is confirmed as part of the detailed design and as part of the EPA licence application for BIPS 2.

Table 4 Summary of Assessment Outcomes

Modelled Parameters	Result
1-hour average NO_2	Peak 1-hour sensitive receptor cumulative NO_2 prediction of 126 µg/m³ which equates to 76% of the 164 µg/m³ criterion.
Annual average NO_2	Low relative to criterion of 30 µg/m³, with maximum cumulative predictions less than half of the standard.
24-hour particulate matter	Peak prediction of 3 µg/m³ - When added to the corresponding background $PM_{2.5}$ concentration, the cumulative prediction is compliant, equating to approximately half of the 25 µg/m³ criterion.

Modelled Parameters	Result
Annual average $PM_{2.5}$	Low relative to criterion of 8 µg/m³. BIPS 2 plant options contributing a grid maximum of 0.1 µg/m³.
Formaldehyde	Predictions are compliant with the Air EPP 3-minute criterion of 44 µg/m³, with BIPS 2 contributing up to 52% of the criterion under natural gas operation. All other plant options are an order of magnitude lower.
Other pollutants	Low and compliant with respective criteria.
Greenhouse gas emissions	Scope 1 estimated 200–300 kt CO_2-e per annum Scope 1+3 emission intensities of 0.6 and 0.7 t/MWh (respectively). Operational emission estimates based on generation outputs of 320-520 GWh per annum (greater than the proposed 280MW capacity).

6.2 Noise Assessment

A Noise Assessment was prepared by Sonus (Appendix G) to assess the noise impacts of the proposed changes to the Approved Project and address any updates to *Environment Protection (Commercial and Industrial Noise) Policy 2023*. Sonus also prepared the Noise Assessment included in support of the original BIPS Development Application.

The assessment approach incorporated the following:

- Assessment of the following generation scenario options now proposed for BIPS 2:
  - 12x ~15-25MW reciprocating gas engine generators
  - 6x ~50-70MW aero-derivative gas turbine generators (GTGs)
  - 2x ~140-180MW GTGs
  - 1x ~250-400MW GTG.
- SoundPLAN Noise modelling software used to predict operational noise levels for the facility.
- Noise propagation was calculated based on worst-case propagation conditions to all receivers, and the following model inputs:
  - Terrain elevation data from the South Australian Government Department for Environment and Water dataset Elevation – Adelaide Metro LiDAR 2022
  - CONCAWE propagation algorithm using weather category 6 for propagation to all receivers
  - Acoustically-reflective ground within site compounds and for water bodies; soft ground for other areas
  - Shielding from existing buildings and structures in the vicinity of the BIPS2 site, including the BIPS1 site and Torrens Island BESS. Structures associated with Torrens Island Power Station excluded, to account for future demolition of this site after decommissioning
  - Inclusion of a +10 dB(A) correction to sound power levels to account for directivity of GT exhaust stacks under crossflow conditions, as per research by Cazolato Leav and Howard (2021).

The nearest sensitive receivers are located within the residential area approximately 1.6 kilometres to the west of the site as identified in Figure 17.

Figure 17 BIPS 2 Sensitive Receivers

The predicted noise levels for each generation option are as outlined in Table 5.

Table 5 Predicted Noise Levels

Predicted noise levels by generation option [$L_{eq,15min}$ dB(A)]				
Generation Option	12x 15-25MW Reciprocating Gas Engine Option	6x 50-70MW Aeroderivative GTG option	2x 140-180MW GTG option	1x 250-400MW GTG option
Highest predicted receiver noise level (dB(A)	47	58	60	58

Based on the proposed 24-hour operation and the predicted noise levels, mitigation will be required for each generation option in order to achieve the relevant 37 dB(A) night time noise criteria pursuant to the *Environment Protection (Commercial and Industrial Noise) Policy 2023*.

The assessment identified that for the generation option utilising reciprocating gas engines, the key noise source is predicted to be cooling fans array on the radiators. For gas turbines, the key noise sources are exhaust stacks, intakes, and ventilation openings.

Section 3.3. of the Noise Assessment includes potential mitigation approaches for each generation option that could be implemented to achieve the required noise reduction. Such mitigation approaches include:

- Reciprocation engines:
  - Selecting generator units which produce lower internal noise levels within the generator hall.
  - Increasing the transmission loss of the generator hall roof and walls.
  - Reducing the sound power levels of the radiator cooling fan banks
- Gas turbines:

- Use of acoustic attenuators to reduce exhaust stack noise emissions
- Using acoustic attenuators to reduce noise from other significant contributing components
- Selection of low noise fin fan coolers

A noise mitigation strategy for the project is proposed to be developed and it is anticipated that any matters identified as part of the investigations can be mitigated by the design and management of the proposed facility. Custom noise attenuation measures will need to be incorporated in the final equipment design and an updated noise assessment will be undertaken to confirm compliance with the EPA criteria once the equipment selections are finalised.

7. Procedural Matters

7.1 Crown Development

This development application seeks to vary the existing Development Approval granted for the BIPS project in accordance with section 128 of the PDI Act. Section 128 of the PDI Act relevantly provides that:

> *(1) Subject to subsection (2), a person may seek the variation of a development authorisation previously given under this Act (including by seeking the variation of a condition imposed with respect to the development authorisation).*
>
> *(2) An application to which subsection (1) applies—*
>
> *(a) may only be made if the relevant authorisation is still operative; and*
>
> *(b) will, for the purposes of this Part, but subject to any exclusion or modification prescribed by the regulations and any other provision made by the regulations, to the extent of the proposed variation (and not so as to provide for the consideration of other elements or aspects of the development or the authorisation), be treated as a new application for development authorisation; and*
>
> *(d) unless otherwise approved by the relevant authority, cannot seek to extend the period for which the relevant authorisation remains operative.*

The BIPS project is essential infrastructure within the meaning of section 3(1) of the PDI Act which defines the term 'essential infrastructure' to include:

> *"(a) infrastructure, equipment, structures, works and other facilities used in or in connection with—*
>
> *(i) the generation of electricity or other forms of energy; or*
>
> *(ii) the distribution or supply of electricity, gas or other forms of energy;…"*

The Department for Energy and Mining provided an updated formal sponsorship of AGL's proposed variations to the Approved Project on 1 November 2024 (Appendix A). Accordingly, the proposed variation application will be assessed as a Crown development application in accordance with section 131(2)(c) of the PDI Act which applies where:

> *"… a person proposes to undertake development initiated or supported by a State agency for the purposes of the provision of essential infrastructure and specifically endorsed by the State agency for the purposes of this section".*

The Minister for Planning is the relevant authority for this Crown Development application in accordance with section 131 of the PDI Act.

The site of the BIPS, including the proposed updates to the Approved Project, is located in an area described as 'Unincorporated Area – Torrens Island' within the Code. Therefore, no referral is required to a Local Government Authority.

7.1.1 Public Notification

As the development cost for the proposed changes to the Approved Project exceeds $10 million, the application will be subject to public notification, with a consultation period of at least 15 business days pursuant to section 131(13) of the PDI Act.

7.2 Nature of Development

The proposed development requires development approval under the PDI Act. This development application seeks a formal variation to the BIPS Stage 2 component of DA 010/V067/17 consisting of:

- Option to use either gas turbines or reciprocating engines (instead of reciprocating engines only)
- Increase output of the BIPS 2 project to up to 280 MW (instead of 210 MW)
- Further detail and amendments to the approved layout including:
  - connection into the ElectraNet switchyard and minor expansion of the ElectraNet switchyard boundary
  - revisions to the location of the laydown areas, site access, internal roads and car parking
  - increased diesel storage capacity (up to 2 million required)
  - Additional stormwater retention basin/s
  - Gas blending station, compression and connections
  - Addition of a reverse osmosis plant for the gas turbines
  - Tree damaging activities requiring the removal of nine (9) regulated trees.

7.3 Agency Referrals

In accordance with Schedule 9 of the PDI Regulations, the relevant Overlay procedural matter requirements and Part 9 of the Code, the following agency referrals are required:

- Environment Protection Authority
- Coast Protection Board

In addition, PLUS may seek comments from other Government agencies on the Crown development application.

7.3.1 Environment Protection Authority

Energy generation is identified as an activity of environmental significance within Part 9.1 of the Code. An activity of environmental significance requires a referral to the EPA pursuant to Schedule 9 clause 3 item 9 of the PDI Regulations. The prescribed referral period is 30 business days during which time the proposal will be considered against the criteria set out in the *Environment Protection Act 1993.*

As outlined above, BIPS 2 will require an EPA licence under the *Environment Protection Act 1993* (SA) (which may take the form of a variation to the existing licence 50622 held for BIPS 1) and will be operated in accordance with all licence conditions.

7.3.2 Coast Protection Board

The procedural matters section of the Coastal Areas Overlay identifies that development in the Coastal Areas Overlay may be subject to a referral to the Coast Protection Board pursuant to Schedule 9 clause 3 item 3 of the PDI Regulations.

The BIPS 2 variation application involves buildings with a floor area greater than 60 square meters which is one of the triggers for a referral. The referral period is 30 business days during which time expert assessment and direction to the relevant authority will be provided on:

- The risk to development from current and future coastal hazards (including sea-level rise, coastal flooding, erosion, dune drift and acid sulphate soils)
- Coast protection works
- Potential impacts from development on public access and the coastal environment (including important coastal features).

7.4 Office of the Technical Regulator Technical Conditions

Pursuant to Regulation 107(2)(c) of the PDI Regulations, a certificate from the Technical Regulator certifying that the proposed development complies with the requirements of the Technical Regulator in relation to the security and stability of the State's power system is required to be obtained and submitted as part of the development application.

AGL has liaised with the OTR and has obtained a Certificate confirming the proposal meets the technical requirements for power generation projects. A copy of the Certificate is included in Appendix I.

7.5 Additional Approvals

A number of additional approvals and licences will be required to be obtained under South Australian laws prior to BIPS 2 commencing construction and operation. These include:

- Building Certification pursuant to 131(21) of the PDI Act
- Electricity Approvals and Licenses, including:
  - A South Australian generation licence (issued by ESCOSA)
  - Registration with the Australian Energy Market Operator
- EPA Licence pursuant to the *Environment Protection Act 1993*
- Construction Approvals (i.e. heavy vehicles permits).

These additional approvals were identified as part of the original development application and remain applicable to this variation application.

8. Development Assessment

The original development application was lodged under the Development Act and therefore the assessment of that application had regard to the relevant provisions of the *Land Not Within A Council Area (Metropolitan) Development Plan* (consolidated 5 May 2016).

It is recognised that since the BIPS development approval was granted in 2017, the Development Act has been repealed and the PDI Act and the Code has come into operation.

Pursuant to the Code, the entirety of the subject land is located within the Infrastructure Zone. No subzones apply within the project area.

In addition to the Infrastructure Zone, the following Overlays apply over the subject land:

- Adelaide Dolphin Sanctuary Overlay
- Coastal Areas Overlay
- Defence Aviation Area Overlay
- Regulated and Significant Tree Overlay
- Gas and Liquid Petroleum Pipelines Overlay
- Gas and Liquid Petroleum Pipelines (Facilities) Overlay
- Prescribed Wells Area Overlay

An assessment of the proposed variations to the Approved Project against the relevant Zone, Overlay and General Development Policies is provided below.

8.1 Infrastructure Zone

The Desired Outcomes (DO) of the Infrastructure Zone in the Code include:

> ***DO 1*** *The protection, provision, maintenance and expansion of infrastructure services and facilities that support orderly development and vehicular movements.*
>
> ***DO 2*** *Infrastructure services and facilities manage environmental impacts.*

The Infrastructure Zone reflects the longstanding and existing use of Torrens Island for energy generation and supply. The Infrastructure Zone seeks to support the provision and expansion of infrastructure services and facilities that effectively manage environmental impacts.

The Infrastructure Zone contains supportive planning policies (Performance Outcomes - PO) in relation to utility and infrastructure facilities as follows:

> ***PO 1.1*** *Utility and infrastructure facilities and other services support the orderly development of land and assist in managing the impacts on the environment and community.*
>
> ***PO 1.2*** *Development does not hinder the ongoing operation of existing utility and other infrastructure services or jeopardise the expansion of those services to support economic activity and manage impacts on the environment and community.*
>
> ***PO2.1*** *Fencing exceeding 2.1m in height is integrated and designed to complement the appearance of land and buildings and does not form a dominant visual feature from adjacent roads, and thoroughfares.*

The Development Approval established a new use on the subject land. This proposed variation application maintains the currently approved use authorised by the Development Approval but proposes a number of changes to accommodate the updated design of BIPS 2.

It is noted that the current Infrastructure Zone is consistent with the previous zoning of the land under the *Land Not Within A Council Area (Metropolitan) Development Plan* which was Public Purpose (Power Station).

The existing Development Approval authorises an energy generation facility, generally consistent with the past use of the wider locality on Torrens Island and confirms that this is an appropriate form of development on the subject land. Whilst this variation application is seeking approval to vary the Approved Project to increase the capacity of BIPS 2 and to include the option for newer generation technology, the planning impact of the proposed changes to the Approved Project are minor given the context, scale and form of the Approved Project.

The proposed changes to the Approved Project are considered to be an appropriate form of development that meets the relevant requirements of the Infrastructure Zone, given:

- The subject site is a suitable and appropriate location for the proposed development, considering its location within an Infrastructure Zone and on Torrens Island and the existing Development Approval.
- The proposed development is to be located generally within the existing approved footprint of an approved energy generation facility and is relatively consistent in form and scale to the Approved Project
- The proposed development has been designed to mitigate against any adverse interface issues with surrounding land uses
- The project will result in significant positive economic benefits to the region, providing employment both during construction and operation; and
- Will contribute to the security and reliability of the South Australian electricity network and support the development of renewable energy generation.

8.2 Overlays

Several Overlays apply over the subject land. An assessment of the relevant policies applicable to the proposed development is provided in Table 6.

Table 6 Overlay Assessment

Overlay	Desired Outcome / Performance Outcome	Commentary
Adelaide Dolphin Sanctuary	DO 1 Protection of the Adelaide Dolphin Sanctuary dolphin population and their habitat. PO 1.3 Stormwater runoff is disposed of in a manner that avoids pollution or other detrimental impacts to the Adelaide Dolphin Sanctuary	Stormwater will be appropriately designed and managed to ensure disposal occurs in a manner that minimises impact to the adjoining waters (as per the existing development). Additional assessments will occur to ensure that the RO wastewater is managed in an appropriate manner to avoid any detrimental impacts to receiving waters.
Coastal Areas	DO 1 The natural coastal environment (including environmentally important features such as mangroves, wetlands, saltmarsh, sand dunes, cliff tops, native vegetation, wildlife habitat, shore and estuarine areas) is conserved and enhanced. DO 2 Provision is made for natural coastal processes; and recognition is given to current and future coastal hazards including sea level rise, flooding, erosion and dune drift to avoid the need, now and in the future, for public expenditure on protection of the environment and development.	The project area does not contain sensitive coastal landforms, and the Project is of low risk of being impacted by coastal inundation, given the recent benching and earthworks for the preparation of the site for the Stage 2 development. The project infrastructure will be designed and constructed to be above the predicted future sea levels with the Project adopting site levels to account for sea-level rise (3.4m AHD).
Defence Aviation Area Overlay (all structures over 90m)	DO 1 Management of potential impacts of buildings on the operational and safety requirements of Defence Aviation Areas. PO 1.2 Exhaust stacks are designed and sited to minimise plume impacts on aircraft movements associated with Defence Aviation Areas.	Based on the design options being considered the highest element of the Project will be approximately 45 metres, well under the 90 metres height restriction. The proposed development represents a 16% increase in MW compared to the currently operating and approved Stage 2. This increase will result in marginal changes to the existing Approved Project with regard to plume generation, as such, no aviation impacts are anticipated. It is noted that a CASA referral, as part of the previous Development Application, raised no concerns with the current approved project.
Gas and Liquid Petroleum Pipelines	DO 1 Management of risk to public safety, the environment and security of energy supply from the	As per the existing operational and approved stages of BIPS, BIPS 2 is to be supplied by gas. To service the Project an extension of the existing

Overlay	Desired Outcome / Performance Outcome	Commentary
	encroachment of development on strategic gas and liquid petroleum pipelines.	gas blending station together with appropriate connections will be required. Any such works will be undertaken in consultation and under the approval of the relevant gas pipeline operator.
Gas and Liquid Petroleum Pipelines (facilities)	DO 1 Management of risk to public safety, the environment and security of energy supply from the encroachment of development on gas and liquid petroleum pipeline facilities.	Refer to the above.
Prescribed Wells Area	DO 1 Sustainable water use in prescribed wells areas.	The Project does not propose to use groundwater and will be serviced by mains water.
Regulated and Significant Tree	DO 1 Conservation of regulated and significant trees to provide aesthetic and environmental benefits and mitigate tree loss. PO 1.1 Regulated trees are retained where they: a) make an important visual contribution to local character and amenity b) are indigenous to the local area and listed under the National Parks and Wildlife Act 1972 as a rare or endangered native species and / or c) provide an important habitat for native fauna. PO 1.4 A tree-damaging activity in connection with other development satisfies all the following: a) it accommodates the reasonable development of land in accordance with the relevant zone or subzone where such development might not otherwise be possible	The proposed development includes tree damaging activities that comprise the removal of 9 regulated trees on the subject land. The DO for the Overlay aims to conserve regulated and significant trees, to provide aesthetic and environmental benefit and mitigate tree loss. Noting the requirements of PO 1.1 the trees to be removed are a common Bottle Brush species and provide limited visual and habitat value given the trees are screened from external views by existing development and other vegetation and are isolated from any notable stands of vegetation. With regard to PO 1.4, it is noted that the proposed tree-damaging activities are necessary to facilitate the development of this infrastructure project, which is to be appropriately located on Torrens Island Alternative design solutions have been considered to minimise the extent of tree damaging activities (tree removal); however, these were not viable due to the location of existing infrastructure and required clearance requirements. On this basis, the proposed tree damaging activities are required to accommodate the reasonable development of the land in accordance with PO 1.1 and PO 1.4.

Overlay	Desired Outcome / Performance Outcome	Commentary
		Replacement trees are proposed to be provided on Torrens Island at a rate (2 to 1) in accordance with 18(1b) of the PDI Regulations.

8.3 General Development Policies

An assessment of the relevant general development provisions applicable to the proposed development is provided below.

8.3.1 Infrastructure and Renewable Energy Facilities

PO 1.1 addresses minimisation of hazards and nuisance to adjacent development and land uses. The proposed variations to the Approved Project are considered to have a similar impact to the current Approved Project.

The BIPS is located in an industrial area where the surrounding land uses are akin to and compatible with the already approved land use. Additionally, the subject land is located approximately 1.5 km from the nearest residential area across the Port River at Taperoo. Hence, the proposed variation conforms with PO 1.1.

Both PO 2.1 and PO 5.1 address visual amenity. The views of the site are already dominated by the vertical infrastructure of Torrens Island Power Station and overhead transmission lines in the locality. The change to the landscape is, in part, very similar to the existing features with a small increase in the number of structures.

The visual impact of the changes proposed to the Approved Project are expected to be similar to the current Approved Project. Particularly given that the works are contained to predominantly the same footprint and the design changes are relatively minimal.

Further, the construction of the updated BIPS 2 will support the decommissioning and demolition of TIPS A and TIPS B which will have significant visual impact benefits to the surrounding locality due to the visual prominence of these structures, particularly in comparison to the scale of BIPS.

8.3.2 Interface between Land Uses

The Desired Outcomes for the Interface between Land Use provision seek to ensure that development is located and designed to mitigate adverse effects on or from neighbouring and proximate land uses. The policies focus predominantly on the impact of development on ‘sensitive receivers.’ As previously mentioned, the subject land is not located within close proximity of sensitive receivers such as residential development. Nevertheless, the policies specific to this application relate to activities generating noise and air quality, being the key elements of the Project that have the potential to materially impact the surrounding area.

The air quality assessment identifies that the Project complies with the relevant Air EPP criteria. The potential for any project variations to generate adverse air quality impacts is low and manageable through effective operation of the proposed emission controls.

In regard to the predicted noise levels, based on the proposed 24-hour operation (on an intermittent basis as required to meet energy demand), mitigation will be required for each generation option in order to achieve the relevant night time noise criteria.

It is anticipated that appropriate mitigation can be provided via bespoke attenuation measures.

Once the manufacturer has been nominated and the layout finalised, the noise and air quality assessments will be updated to confirm that the final design adheres to the relevant noise and air quality policies and that it achieves the relevant requirements under the *Environment Protection Act 1993* (SA) and EPA licence conditions.

8.3.3 Transport, Access and Parking

The Desired Outcome of the Transport, Access and Parking provisions is for a comprehensive, integrated and connected transport system that is safe, sustainable, efficient, convenient and accessible to all users.

Noting that Stage 1 of the development is already operational, an increase in the number of commercial vehicles can be reasonably anticipated during the construction phase of BIPS 2 within the project area. The revised proposal will generate a similar level of traffic and traffic movements and is consistent with the previously Approved Project. The connection to key routes and site access remains the same.

The Traffic Impact Assessment (Appendix H) prepared in support of the application has not identified any key constraints for the proposed variations to the Approved Project, and it is anticipated that any impacts can be managed via a Traffic Management Plan as previously required under condition 23 of the Development Approval.

Given the scale of the proposed laydown areas, sufficient onsite parking to accommodate the peak construction workforce can be provided.

9. Summary

To enable the development of BIPS 2, AGL is proposing variations to the currently Approved Project (as per DA 010/V067/17).

The proposed variations are required to reflect ongoing technology development and market conditions and to ensure that the BIPS 2 project is best placed to provide firm, flexible and dispatchable synchronous generating capacity, which complements renewable generation and supports energy security for South Australia.

Whilst this application is seeking approval to enable the project to use either gas turbines or reciprocating engines (instead of reciprocating engines only as currently approved); and increase the proposed output of BIPS 2 to up to 280 MW (instead of the currently approved 210 MW), the proposal is relatively minor in regard to its local environment impact, particularly in the context of the scale of the existing approved BIPS, including the operating BIPS 1.

The proposed variation to the Approved Project is considered to be an appropriate form of development that meets the relevant policies of the Code, given:

- The subject site is a suitable and appropriate location for the proposed development, considering its location within an Infrastructure Zone which includes other utility and infrastructure facilities as a desired form of development
- The Development Approval already established a new use on the land which this variation application maintains principally within the same footprint
- The proposed variations will be designed to mitigate against any adverse interface issues with surrounding land uses, in particular in relation to noise and air quality impacts. Such matters will be further assessed and confirmed at the detailed design stage and prior to construction.
- The project will result in significant positive economic benefits to the region providing employment both during construction and operation
- The proposed additional firming generation will contribute to the security and reliability of the South Australian electricity network and support the development of renewable energy generation in the State.

It is respectfully considered that the proposed variation to the Approved Project should be supported by the State Commission Assessment Panel and the Development Approval varied by the Minister for Planning so as to authorise the proposed variation.