

Planning and Assessment Report

BROMELTON ENERGY AND RESOURCE CENTRE

For: Cleanaway Operations Pty Ltd

Date: July 2026



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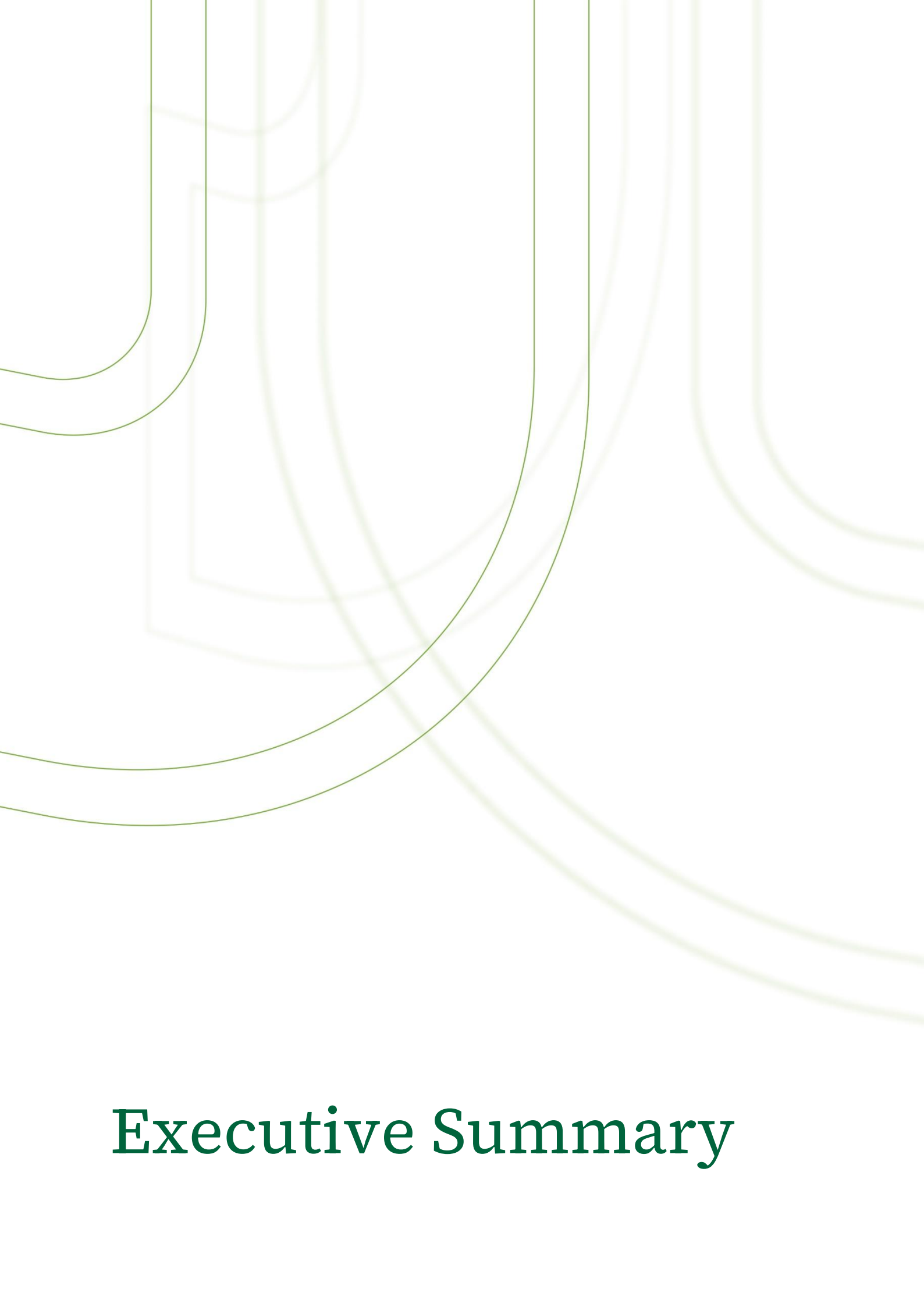
APPENDICES

Document Title	Prepared By	Date
Appendix A - Architecture and Landscape Design Strategy Report	Arup	27.07.2026
Appendix B1 - Architectural and Landscape Drawings	Arup	19.12.2025
Appendix B2 - Civil Engineering Drawings	Arup	27.07.2026
Appendix C - Engineering (Infrastructure) Report	Arup	21.07.2026
Appendix D - Landscape Character and Visual Impact Assessment	Arup	09.01.2026
Appendix E - Technical Process Description	Arup	27.07.2026
Appendix F1- Preliminary Site Investigation for Contamination	Douglas Partners	19.12.2025
Appendix F2 - Report on Additional Contamination Investigation	Douglas Partners	08.03.2024
Appendix G - Biodiversity Technical Report	Arup	08.12.2025
Appendix H - Bushfire Hazard Assessment	Arup	19.12.2025
Appendix I - Hazard and Risk Assessment	Arup	022.07.2026
Appendix J - Aboriginal Cultural Heritage Assessment	Everick Heritage	17.12.2025
Appendix K - Energy from Waste Policy Report	Arup	19.12.2025
Appendix L - Waste Feedstock Report	Arup	27.07.2026
Appendix M - Resource and Waste Management Technical Report	Arup	19.12.2025
Appendix N - Climate and Climate Change Assessment	Katestone Environmental	08.12.2025
Appendix O - Greenhouse Gas Assessment	Katestone Environmental	29.07.2026
Appendix P - Sustainability Management Plan	Arup	16.01.2026
Appendix Q - Traffic Impact Assessment	Arup	27.07.2026
Appendix R - Stormwater Management Plan and Flood Risk Assessment	Arup	04.02.2026
Appendix S - Air Quality Technical Report	Katestone Environmental	22.06.2026
Appendix T - Noise and Vibration Technical Report	Arup	19.12.2025
Appendix U - Human Health Risk Assessment	Environmental Risk Sciences	15.07.2026
Appendix V - Socioeconomic Impact Assessment	Arup	20.07.2026
Appendix W - Community and Stakeholder Engagement Report	Arup	18.12.2025
Appendix X - Environmental Risk Assessment	Arup	04.03.2026
Appendix Y - Code Compliance Statements	Therefor Group	04.03.2026
Appendix Z - Site Searches	Therefor Group	04.03.2026

ABBREVIATIONS

Abbreviation	Definition
ACCS	Automatic Combustion Control System
AEMO	Australian Energy Market Operator
AHD	Australian Height Datum
APCr	Air Pollution Control Residue
BAL	Bushfire Attack Levels
BAT	Best Available Techniques
BATC	Best Available Techniques Conclusions
BCMF	Bromelton Compost Manufacturing Facility
BERC	Bromelton Energy and Resource Centre
Bromelton SDA Development Scheme	Bromelton State Development Area Development Scheme
BoM	Bureau of Meteorology
BREF	Best Available Techniques Reference Document
CEMP	Construction Environmental Management Plan
CHMP	Cultural Heritage Management Plan
Cleanaway	Cleanaway Operations Pty Ltd
CMS	Control and Monitoring System
CNVMP	Construction Noise and Vibration Management Plan
CoPC	Contaminants of Potential Concern
CTMP	Construction Traffic Management Plan
CWMP	Construction Waste Management Plan
DAMS	Development Assessment Mapping System
DETSI	Department of Environment, Tourism, Science and Innovation
DRDMW	Department of Regional Development, Manufacturing and Water
DPI	Department of Primary Industries
DSDIP	Department of State Development, Infrastructure and Planning
DTMR	Department of Transport and Main Roads
DWATSIPM	Department of Women, Aboriginal and Torres Strait Islander Partnerships and Multiculturalism
EA	Environmental Authority
EfW	Energy from Waste
EIS	Environmental Impact Statement
EOW	End of waste
EP Act	Environment Protection Act 1994 (Qld)
EP Regulation	Environmental Protection Regulation 2019
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
EPP Air	Environment Protection (Air) Policy 2019
EPP Noise	Environmental Protection (Noise) Policy 2019
EPP Water and Wetland Biodiversity	Environmental Protection (Water and Wetland Biodiversity) Policy 2019
ERA	Environmentally Relevant Activity
ESCP	Erosion and Sediment Control Plan
GHG	Greenhouse Gas
GSUT	Generator Step-Up Transformer
GTIA	Guide to Traffic Impact Assessment

GTP	Gross Pollutant Trap
HCF	Hazardous Chemical Facility
HHRA	Human Health Risk Assessment
HV	High Voltage
IBA	Incinerator Bottom Ash
IBAA	Incinerator Bottom Ash Aggregate
IED	Industrial Emissions Directive
kg	Kilogram
kV	Kilovolts
LCA	Landscape Character Areas
LGA	Local Government Area
LV	Low Voltage
m	Metres
m/s	Metres per second
m ²	Meters squared
m ³	Meters cubed
MCU	Material Change of Use
MNES	Matters of National Environmental Significance
MSW	Municipal Solid Waste
mtpa	Million tonnes per annum
MVA	Mega Volt Amps
MW	Mega-Watt
MWh	Mega-Watt hours
NGER	National Greenhouse and Energy Reporting
NHVR	National Heavy Vehicle Regulator
NJKHT	Non-Juvenile Koala Habitat Trees
NC Act	Nature Conservation Act 1992
OCG	Office of the Coordinator-General
OWMP	Operational Waste Management Plan
PAD	Potential Archaeological Deposit
PFAS	Per- and polyfluoroalkyl substances
Planning Act	Planning Act 2016
QSNTS	Queensland South Native Title Services
RQ	Risk Quotient
RCP	Representative Concentration Pathway
RSO	Registered Suitable Operator
The Regulation	Planning Regulation 2017
PSI	Preliminary Site Investigation
SDA	State Development Area
SDAP	State Development Assessment Provisions
SDPWO Act	State Development and Public Works Organisation Act 1971 (Qld)
SEQ	South East Queensland
SRG	Stakeholder Reference Group
SRRC	Scenic Rim Regional Council
SIA	Social Impact Assessment
SIMP	Social Impact Management Plan
SNCR	Selective Non-Catalytic Reduction
SPP	State Planning Policy
TEEP	Technically, Environmentally or Economically Practicable
tpa	Tonnes per annum
tph	Tonnes per hour
UU	Urban Utilities
VHC	Vegetated Hazard Class



Executive Summary

Executive Summary

Proposal

This Planning Report has been prepared on behalf of the applicant, Cleanaway Operations Pty Ltd (**Cleanaway**) to accompany a State Development Area (**SDA**) development application for a Material Change of Use (**MCU**) in accordance with the *State Development and Public Works Organisation Act 1971* (**SDPWO Act**) and an application for an Environmental Authority in accordance with the *Environmental Protection Regulation 2019* (**EP Regulation**).

Cleanaway is an Australian waste management, recycling, and industrial services company. Cleanaway is seeking the establishment of an energy from waste (**EfW**) facility in Queensland within the Special Industry Precinct of the Bromelton SDA. The EfW facility will be known as the Bromelton Energy and Resource Centre (**BERC / the Project**) and is situated at Lot 1 Beaudesert Boonah Road, Bromelton (formally described as Lot 1 on RP45234).

The Project has been designed to thermally treat a design capacity of 760,000 tonnes per annum (**tpa**) of waste feedstock, consisting of residual Municipal Solid Waste (**MSW**) and residual Commercial and Industrial (**C&I**) waste. Residual waste is waste that is not technically, environmentally and economically practical (**TEEP**) to reuse or recycle, which would otherwise be sent to landfill for disposal. The EfW process would generate approximately 84.6MW gross of electricity, 11.3MW of which would be used to power the facility itself and the associated onsite by-product and residue handling processes, with 73.2 MW exported to the grid as base load electricity. In addition to supplying electricity to the grid, there is also potential to supply energy in the form of heat and/or process steam to local industrial users.

The Project involves the building of all onsite infrastructure required to support the EfW facility, including site utilities, internal roads, weighbridges, parking and hardstand areas, stormwater infrastructure, fencing and landscaping. This includes the construction and operation of an incinerator bottom ash (**IBA**) maturation and processing facility and a stabilisation facility for air pollution control residue (**APCr**).

The Project is inclusive of a visitor and education centre to inform and educate the community on circular economy principles, the waste hierarchy, including waste avoidance, recycling, resource recovery, the benefits of landfill diversion and the EfW process.

The facility has been designed to meet best practice emission standards, using best available techniques (**BAT**) in the engineering design, operation, maintenance and monitoring activities. It aligns with the framework and expectations outlined in the current Queensland EfW policy, to transition Queensland to a circular economy.

This report and the accompanying application material collectively demonstrate the proposed development complies with the applicable assessment requirements for both the SDA application and the Environmental Authority (**EA**) application. This report recommends that the relevant authorities approve the proposed development applications.

Queensland's Waste Challenge

Queensland generated approximately 10.25 million tonnes of waste in the 2024–25 financial year, a 4.5% increase on the previous year — significantly outpacing the state's 2.3% population growth over the same period. While just over half of all waste is being recovered and diverted from landfill, this figure is skewed by strong performance in industrial and construction sectors.

Recovery rates for household municipal solid waste remain low, with less than one-third (about 28.2%) of household rubbish diverted from landfill. This rate that has remained below 30% for several years. Targets set in 2019 in the Queensland Government to recover more than 55% of municipal waste and 65% of commercial and industrial waste by 2025 have not been met. With Queensland's waste volumes continuing to grow, landfills under pressure, and recycling rates plateauing, Queensland faces a sustainability and infrastructure challenge.

The Waste Hierarchy

The Queensland Waste Management and Resource Recovery Strategy is guided by the waste hierarchy shown in **Figure 1**. This hierarchy recognises that while avoidance, reuse and recycling deliver the greatest environmental benefits, there will always be a residual waste stream — material that is not technically, environmentally and economically practical to reuse or recycle.

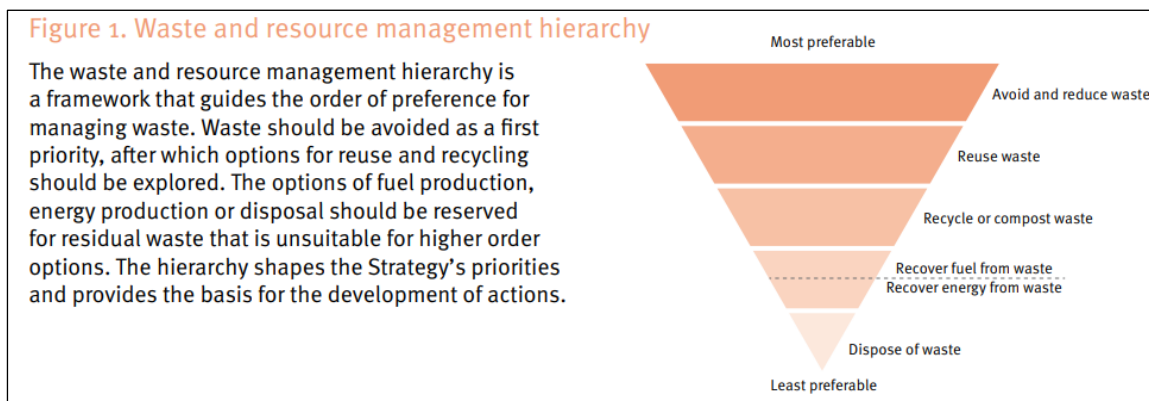


Figure 1: Waste and resource management hierarchy (Queensland WMRR Strategy)

Why Energy from Waste is Needed

Even with increased recycling infrastructure and programs, a significant portion of waste is not technically or economically recyclable. This is where Energy from Waste (EfW) plays an important role to:

- Reduce the volume of waste sent to landfill by up to 90%. If IBA is processed for reuse as an alternative construction product to replace virgin materials, this percentage increases further to approximately 95% reduction in volume and mass of waste that would otherwise go to landfill.
- Provide a reliable, baseload source of energy to support grid stability and network resilience. Support circular economy outcomes by recovering metals and other materials from bottom ash.
- Provide a feasible alternative for residual waste that would otherwise be sent to landfill, which is neither sustainable nor a long-term solution
- Reduce methane emissions compared with landfill.

When appropriately regulated, EfW does not compete with recycling. Instead, it complements higher-order waste management practices by managing residual waste in a way that extracts value and reduces environmental harm.

As Queensland continues to grow in population and economic activity, an integrated waste management system — one that prioritises avoidance and recycling while responsibly managing residual waste — is essential. Energy from Waste forms a necessary component of a balanced, modern waste strategy.

Proposal Rationale and Benefits

The BERCC project provides an important contribution to delivery of key policy and strategies in the waste management, resource recovery and energy sectors. The proposed rationale of the Project and associated benefits are outlined below.

Strategic Location

- Highly accessible location with direct access to State transport road infrastructure, being Beaudesert Boonah Road.
- Accessible to other major road transport infrastructure, providing connections to various Local Government Areas (LGA).
- The Special Industry precinct of the Bromelton SDA anticipates for 'difficult to locate' land uses.

Introduction Delivers Waste Management and Resource Recovery Policy Outcomes

- The Project aligns with the waste management and EfW policies across National, State, Regional and Local levels of governance. These policies include *The National Waste Policy 2018* and *National Waste Policy Action Plan 2019*; *Queensland Waste Management and Resource Recovery Strategy*; *Energy from Waste Policy Queensland*; *SEQ Waste Management Plan*; and *Scenic Rim Regional Council Waste Management and Resource Recovery Strategy*.
- EfW has been identified as a necessary end of life solution, presenting the opportunity to recover energy from waste that cannot be avoided, reused or recycled.
- The Project assists Queensland to transition to a circulate economy and aligns with the objective to become a 'zero waste' society.

Actively Diverts Waste from Landfill

- The SEQ Waste Management Plan has identified that six at-scale (300ktpa) facilities by 2050 are required to meet the State targets for diversion of MSW and C&I waste. In addition, EfW will be required to divert 200ktpa by 2030 and 590ktpa by 2050 to meet the State targets for MSW.
- The Project contributes to the Queensland Government's target for resource recovery and diversion of waste from landfill.
- Cleanaway actively operates and contributes to important outcomes across all levels of the waste hierarchy, and this includes its commitment to EfW outcomes. The proposed BERC strongly aligns with current waste management and resource recovery policy expressed across all levels of governance, and there is a demonstrated need for the facility.

Supports Future Energy Needs and Resilience

- The Project supports the capacity and resilience of Queensland energy networks by creating additional energy supply to support the projected SEQ population growth from 3.8 million (current) to 6 million by 2046.
- The Project contributes to a greater diversity of energy generation facilities which underpins continuity of energy supply and overall network resilience.
- The Project introduces opportunities for innovation and potential local business synergies within the Bromelton SDA through creation of electricity supply and steam offtake, which may support other industrial operations.
- The Project contributes to grid stability by generating synchronous base load electricity, a portion of which will be classified as renewable energy (electricity) generation.

Provides Significant Benefits Comparative to Landfill

- The Project requires a smaller land footprint in comparison to a landfill and its function to accept waste is not a function of land size, therefore making the Project more resilience and sustainable use of valuable land resources.
- The Project enables recovery of materials which have the capacity to make a productive contribution to the circulate economy objectives.
- Avoidance of fugitive landfill gas emissions which occur during landfill operation and continue long after the landfill has closed. Notably, it avoids the release of the methane component.
- Preventing the spread of viruses and pathogens which may be present in the waste streams by using high temperatures to sanitise the waste.
- Reduced general amenity impacts such as odour, vermin and pest issues. The Project involves the unloading of waste within a fully enclosed building area maintained under negative air pressure.
- Promotion of the proximity principle by treating waste close to the source of waste generation, reducing transport and subsequent carbon footprint impacts.
- The Project can be decommissioned and removed from the site, within a significantly shorter timeframe and at a significantly lower cost than to restore and rehabilitate land associated with an end-of-life landfill.

Facilitates Economic Development in the Bromelton SDA

- The Project is located in the Special Industry precinct which supports high impact and difficult to locate activities.
- The Project contributes to the delivery or upgrading of key infrastructure necessary to facilitate the operation of the facility, supporting further economic development in the Bromelton SDA.
- The project involves the upgrade to the existing State controlled road network through establishment of a signalised intersection and associated road design improvements, which support safe access to the site and surrounding landholdings.
- Improvements to water infrastructure through extension of the reticulated supply network to the site which may potentially support future connections to surrounding properties.
- Enhancement of the electricity supply grid, which potentially directly or indirectly supports other properties and development projects.
- The Project will facilitate new business synergies within the Bromelton SDA.

Generates Jobs and Local Business Opportunities

- The Project is anticipated to create up to 800 jobs during construction, and approximately 50-60 ongoing full time equivalent employment positions.
- Local employment for young people with opportunities for career development.
- Improve livelihoods due to employment, training and upskilling opportunities for the local community.
- Increased community and facility infrastructure resilience and development.
- Diversified local economy.
- Establishment of a quota of local and First Nations business procurement.

Provides Community Benefit

- The Project includes a Visitor and Education Centre to provide information to the wider community.
- The Project promotes Indigenous narratives as they relate to Country and educate visitors about Aboriginal ecological stewardship.
- The project promotes waste management and recycling programs (including circular economy, recycling, resource recover, benefits of landfill diversion and EfW).
- Opportunities to co-design training pathways and delivery for First Nations people.
- Implement cultural awareness training for project personnel facilitated by local First Nations representatives.
- Establishes a Community Benefit Fund and local community administration to deliver benefits where they are needed.
- Creates a keeping place for Aboriginal artefacts on site.

Community Engagement and Social Licence

Community and stakeholder engagement activities have been undertaken to support the Project to raise awareness and facilitate meaningful engagement prior to lodgement of the formal SDA development application. Multiple opportunities have been offered to stakeholders and the broader community during 2023 and 2025 via stakeholder meetings, project website, direct contact points, fact sheets and display posters, newsletters, social media advertising, newspaper advertising, media releases, online survey, community information sessions, First Nations engagement, Stakeholder Reference Group (**SRG**) and local business events. The engagement approach for the Project accords with the International Association of Public Participation (IAP2) Quality Assurance Standard and other industry standards to ensure best practice stakeholder and community engagement and consultation.

The key issues and opportunities raised during engagement have informed the facility design and will continue to guide impact mitigation, future communication and realise local opportunities and benefits. Feedback received has been incorporated into the technical assessments included as part of the SDA development application.

Encouraging social licence and stakeholder support for the Project is an important objective for this Project. The engagement approach is informed by the *Social Licence to Operate in the Waste and Resource Recovery Sector Toolkit* prepared for Waste Management and Resource Recovery Association of Australia and published on 27 June 2022. It is also aligned with the guidance provided by the Queensland Department of Environment and Science in the *Energy from Waste Guideline 2021*, pertaining to how undertake appropriate community engagement about a EfW proposal.

There will be opportunity for further stakeholder and community feedback through the statutory public notification period.

Site and Planning Framework

Table A below provides a summary of the key site details and relevant planning framework information.

Table A: Site and Planning Framework Information

Site Details	
Address	Lot 1 Beaudesert Boonah Road, Bromelton QLD 4285 
Property Description	Lot 1 on RP45234
Area	63.308 hectares
Registered Owner	Queensland Energy and Resource Centre Pty A.C.N. 661 737 999 (Trustee under Instrument 722194302).
Traditional Owners	Danggan Balun
Government and Regulatory Matters	
State Government	Queensland
State Development Area	Bromelton State Development Area
State Development Area Precinct	Special Industry Precinct
SDA Development Scheme	Bromelton State Development Area Development Scheme (December 2017)
Local Government	Scenic Rim Regional Council
Planning Scheme	Scenic Rim Regional Council Planning Scheme 2020
Council Overlays	▪ Bushfire Hazard Area ▫ Very High ▫ High ▫ Potential Impact Buffer ▪ Environmental Significance – Biodiversity – Matters of State Environmental Significance ▫ Regulated vegetation (as defined in the SPP) ▪ Landslide Hazard Steep Slope – Steep Slope ▫ Slope Hazard 15.1% - 20% ▫ Slope Hazard 20.1% - 25% ▫ Slope Hazard over 25% ▪ Regional Infrastructure – Major Electricity Roads and Rail Infrastructure – Rail Network ▫ Rail Buffer Area ▪ Water Resource Catchments – Streams and Dams ▫ Stream Order 1 to 3 ▪ Transport Noise Corridor – Mandatory Area

	▫ Category 1 to 3 ▫ Higher Order Roads ▪ Road Hierarchy ▫ State Controlled Roads
State Interests (DAMS Mapping)	▪ SEQ Regional Plan Triggers ▫ SEQ major enterprise and industrial area (MEIA) ▫ Urban Footprint ▪ Fish Habitat Areas ▫ Queensland waterways for waterway barrier works - Low ▪ Water Resources ▫ Water resource planning area boundaries ▪ Native Vegetation Clearing ▫ Regulated vegetation management map (Other vegetation categories) – Category X on the regulated vegetation management map ▫ Essential Habitat ▪ Koala Habitat Area ▫ Core koala habitat area ▪ State Transport corridor ▫ State-controlled road ▫ Railway corridor ▪ Areas within 25m of a State Transport Corridor ▫ Area within 25m of a State-controlled road ▫ Area within 25m of a railway corridor
State Interests (SPP Mapping)	▪ Agriculture ▫ Agriculture land classification – Class A and B ▫ Important agricultural areas ▪ Development and Construction ▫ State development area ▪ Biodiversity ▫ MSES - Regulated vegetation (intersecting a watercourse) ▫ MSES - Regulated vegetation (essential habitat) ▫ MSES - Regulated vegetation (category C) ▫ MSES - Wildlife habitat (koala habitat areas - core) ▪ Water Quality ▫ Water supply buffer area ▫ Water resource catchments ▪ Natural Hazards Risk and Resilience ▫ Flood hazard area - local government flood mapping area ▫ Bushfire prone area ▫ Flood hazard area - Level 1 - Queensland floodplain assessment overlay ▪ Transport Infrastructure ▫ Railway corridor ▫ State-controlled road

Application Detail

Table B below provides a summary of the application and applicant details.

Table B: Application Overview

SDA Application Details		
Approval Sought	SDA Approval	
Type of Development	Material Change of Use	
Proposed Use	Special Industry	
Category of Assessment	SDA Assessable Development (Table 3)	
Public Notification	Applies – Timeframe to be determined by OCG	
Referral Entities (Anticipated)	▪ Scenic Rim Regional Council (SRRC) ▪ Department of Environment, Tourism, Science and Innovation (DETSI) ▪ Department of Transport and Main Roads (DTMR) ▪ Department of Primary Industries (DPI) ▪ Offices of Industrial Relations (OIR) ▪ Queensland Health ▪ Seqwater ▪ Urban Utilities ▪ Seqwater ▪ Queensland Energy	
Environmental Authority Application Details		
Approval Sought	Environmental Authority	
Application Type	Site Specific Application	
ERA category	Prescribed ERA Project	
Prescribed ERAs	ERA14 Electricity generation ▪ 14(3)2(a) Generating electricity by using a fuel, other than gas, at a rated capacity of 10MW electrical to 150MW electrical. ERA54 Mechanical waste reprocessing ▪ 54(3)2(c) Operating a facility for receiving and mechanically reprocessing, in a year, the following quantity of general waste -more than 10,000t. ERA61 Thermal waste processing and treatment ▪ 61(3)1(c) Thermally reprocessing or treating, in a year, the following quantity of general waste - more than 10,000t.	
Registered Suitable Operator	Cleanaway Operations Pty Ltd (RSO Number 401336)	
Applicant Details		
Applicant	Cleanaway Operations Pty Ltd (ABN 40 010 745 383) Level 4, 441 St Kilda Road, Melbourne VIC 3004	
Contact	Preet Brar – Executive General Manager, Energy from Waste, Major Projects & Corporate Affairs P: 0498 977 663 E: preet.brar@cleanaway.com.au	
Applicant Representative	Therefor Group	Arup
Contact	Andrew Crawford – Executive Director P: (07) 3666 5200 0438 772 838 E: acrawford@thereforgroup.com.au	Anna Stewart – Associate – Energy P: (07) 3023 6267 E: anna.stewart@arup.com

About Cleanaway

Cleanaway is Australia's leading waste management and resource company that has been in operation for more than 70 years. It supports waste management across various sectors to convert waste into valuable resources.



Cleanaway has partnered with customers across all industries to reduce environmental impact and work toward the creation of a circular economy. They deliver reliable, safe and sustainable solutions for a range of waste streams and continuously invest in innovation and new technologies. In particular, Cleanaway deliver essential at-scale waste and energy resource recovery solutions that provide opportunities for waste to be recovered, reused and reimaged for the benefit of people and the environment. This purpose and mission are supported by Cleanaway's commitment in practical guidance and education to stakeholders and community groups.

In 2022, Cleanaway developed and launched a *Blueprint 2030: Our Strategy in Action* which provides a roadmap to delivering high-circularity, low carbon solutions. In conjunction with their Sustainability Framework, Cleanaway delivers expert and compliant services and strategies to reduce waste, improve recycling and support their sustainability targets.

The solid waste collection business is supported by an extensive post-collection facilities network across the country, investing in world class recycling and resource recovery infrastructure to improve landfill diversion and recycling rates. Cleanaway's investments in innovation and infrastructure reflect the Federal and State Government's domestic circular legislation and incentives.

Energy from Waste is recognised by Cleanaway as an important part of the future waste management framework, enabling recovery of energy and other resources from residual waste that cannot otherwise be recycled.

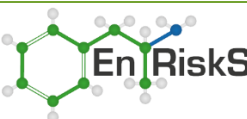
Cleanaway Operations Pty Ltd is the project proponent, and a Registered Suitable Operator in the State of Queensland under the *Environmental Protection Act 1994*.

About the Project Team

Cleanaway, as the Proponent, has a dedicated team of highly experienced in-house professionals supported by a carefully procured team of project advisory, design and technical specialists. The international design team has significant experience in the design and environmental assessment of EfW facilities overseas and in Australia.

The Project Team includes the following technical specialists.

Table C: Project Team

Organisation	Project Role
	Project Lead, Design Lead and Approvals Consultant
	Technical Advisor to Cleanaway and EfW Process Engineering Lead Consultant
	Air quality, greenhouse gas and climate change specialist
	Land and Groundwater specialist
	Planning specialist
	Human Health specialist
	Cultural Heritage specialist

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PART A

Project and Site Overview

1.0 Introduction

1.1 Purpose of Report

On behalf of Cleanaway Operations Pty Ltd (**Cleanaway**), Therefor Group, in conjunction with Arup, has been engaged to prepare this Planning Report to accompany a State Development Area (**SDA**) development application for a proposed Energy from Waste (**EfW**) facility, known as Bromelton Energy and Resource Centre (**BERC**), and herein referred to as the **Project**. The Project is located within the Special Industry Precinct of the Bromelton SDA at Lot 1 Beaudesert Boonah Road, Bromelton QLD 4285 (**site**).

This report and the accompanying application material support applications made for the following:

SDA Application

- SDA development application under the Bromelton SDA Development Scheme, for a Material Change of Use for Special Industry. This application is administered and assessed by the Department of State Development, Infrastructure and Planning (**DSDIP**), specifically the Office of the Coordinator-General (**OCG**).

EA Application

- Application for Environmental Authority to carry out the following environmentally relevant activities (**ERAs**):
 - ERA 14 Electricity generation
 - 14(3)2(a) Generating electricity by using a fuel, other than gas, at a rated capacity of 10MW electrical to 150MW electrical.
 - ERA 54 Mechanical waste reprocessing
 - 54(3)2(c) Operating a facility for receiving and mechanically reprocessing, in a year, the following quantity of general waste - more than 10,000t.
 - ERA 61 Thermal waste processing and treatment
 - 61(3)1(c) Thermally reprocessing or treating, in a year, the following quantity of general waste - more than 10,000t.
- This application is administered and assessed by the Department of the Environment, Tourism, Science and Innovation (Environmental Services and Regulation).

The purpose of this Planning Report is to provide a consolidated reference for the relevant assessment authorities, stakeholders and community to be informed regarding the site and the Project. In addition, this report documents how the proposed EfW facility has been designed to comply with the relevant planning provisions and manages potential risk to human health and the environment.

1.2 Structure of Report

In addition to this introductory chapter, this report is structured to address the following matters:

Part A – Project and Site Overview

- **Section 2** describes the subject site including site details, context and infrastructure.
- **Section 3** provides details about the proposed EfW facility. It describes the EfW facility and how it operates, including the selected technology. This Section also documents other relevant aspects of the Project.
- **Section 4** provides an overview of the Project rationale and benefits.
- **Section 5** documents community and stakeholder engagement undertaken to date and sets out future statutory public notification and consultation processes.
- **Section 6** provides an overview of the applicable regulatory and policy framework and sets out the application and assessment requirements for the Project.
- **Section 7** provides a detailed summary of the technical and specialist reports which are referenced and relied upon in demonstrating compliance with the relevant assessment benchmarks for the submitted applications.

Part B – SDA Application Overview and Assessment

- **Section 8** provides an overview of the SDA Application.
- **Section 9** provides an assessment of the Project against the relevant criteria for the SDA application, including any relevant referral entity assessment benchmarks.

Part C – EA Application and Assessment

- **Section 10** provides an overview of the EA application.
- **Section 11** provides an assessment of the Project against the relevant criteria for the EA application.

Part D – Assessment Outcomes and Conclusion

- **Section 12** concludes the report and summarises the reasons for approval.

1.3 Application and Assessment Strategy

1.3.1 Integrated Assessment

Section 79A of *State Development and Public Works Organisation Act 1971* (**SDPWO Act**), states an SDA Development Scheme may regulate development in all or part of the SDA. In this regard, the Bromelton SDA Development Scheme regulates development for a Material Change of Use in the SDA. In accordance with section 84 of the SDPWO Act, this development is not regulated under the *Planning Act 2016* (**Planning Act**) or the *Scenic Rim Regional Council Planning Scheme 2020*. An SDA development application has been made to OCG.

The Project involves the carrying out of multiple ERAs, which are activities with the potential to release contaminants into the environment that may cause environmental harm. In accordance with Chapter 5 of the *Environmental Protection Act 1994* (**EP Act**), a proponent must obtain approval for an EA, which is a licence to operate an ERA. An EA application has been made to DETSI. Pursuant to section 120(3) of the EP Act, the EA application cannot be made unless the applicant has applied for the associated SDA application.

In Queensland, integrated assessment of development applications is a fundamental and well-established principle enshrined in the Planning Act (and originally through the Integrated Planning Act 1997). The benefits of an integrated development assessment system are well understood, and this is achieved through, inter alia, an agency referral assessment process. The SDA development application process applies a similar referral entity assessment process, which will include referral of the SDA application to DETSI for assessment and response to OCG.

Whilst in this instance, the planning and environmental approvals processes are progressed through two separate applications, the intent is to ensure a coordinated and integrated assessment process is adopted. This will be achieved through the following, which is consistent with how similar SDA applications throughout the State are being progressed:

- Consolidated set of application material addressing all planning and environmental assessment matters supported by technical and specialist reports.
- Lodgement of SDA application in the first instance.
- Lodgement of the EA application to follow the SDA application.
- Integrated assessment of applications utilising the SDA referral assessment process to support coordination.
- Approval of the SDA application to be issued by OCG in the first instance including conditions recommended by DETSI to reflect its assessment outcomes and requirements.
- Subsequent issue of the EA approval consistent with SDA development approval.

Further detail is set out in **Section 8** of this report which summarises the review of the relevant regulatory framework.

1.3.2 Application Material

As noted above, the application material comprises a single lead Planning Report (i.e this document) supported by multiple technical reports which address all matters of assessment for both the SDA application and EA application. As previously noted, there is considerable crossover in the assessment requirements for these applications, and the technical reports therefore mostly address both applications.

2.0 Site Details

2.1 Overview

The site is located within the Bromelton SDA and Scenic Rim Regional Council (**SRRC**) local government area at Lot 1 Beaudesert Boonah Road, Bromelton Qld 4285, and formally described as Lot 1 on RP45234 (Refer **Figure 2**). The site is comprised of 63.308 hectares and is irregular in shape. The site has approximately 510m sole frontage to Beaudesert Boonah Road (State-controlled Road) and adjoins a railway corridor (Brisbane – Sydney Line) along the eastern boundary (965m). The southern property boundary (880m) and western property boundary (1,060m) interfaces with private land.

Further detail is provided at **Section 2.3** below and the **Site Searches (Appendix Z)**.



Figure 2: Aerial Image – Site Defined by Red Boundary (Source: Nearmap)

2.2 Surrounding Context

The site is situated approximately 8km (by road) directly west of the nearest large settlement of Beaudesert. The locality is well serviced by transport infrastructure including Beaudesert Boonah Road, which is a State-controlled Road that links the settlements of Beaudesert and Boonah. This road also provides a direct link to the Mount Lindesay Highway, a State-controlled Road, that connects to the major settlements of Logan, Brisbane and the Gold Coast. The locality is also serviced by the Sydney-Brisbane rail line, an interstate freight rail corridor.

The broader locality comprises primarily rural and agricultural land uses. Established and emerging industrial land uses are located within the SDA. The State Government website for the SDA identifies the following key uses:

- SOILCO – Vacant land at Lot 4 on RP85497 with SDA development approval for Compost Manufacturing facility granted on 14 November 2025 (Reference: SPC2024/011).
- SCT Logistics – a \$30 million intermodal rail freight facility and warehouses on land situated adjacent to the Sydney-Brisbane rail line.
- GELITA Australia Pty Ltd - The Australian plant of the GELITA Group manufactures gelatine which is sold as edible gelatine for food industry uses.
- A.J. Bush and Son's (Manufactures) Pty Ltd - Established in 1993, A.J. Bush & Sons are recognised internationally as a leading rendering industry producing protein meal and tallow. The company utilises on-site clean energy practices by recycling methane content biogas captured from covered anaerobic lagoons to generate electricity for power and recycles wastewater for irrigation on their substantial landholdings.
- Beaudesert Central Waste Management Facility - a waste transfer station operated by the SRRC.

- Bromelton Quarry - a hard rock quarry established in 2000 which supplies blue rock to the regional area.
- The Neilsen Group quarry - supplying general quarry and gravel products to the regional area.
- Quickcell Technology Products Pty Ltd - concrete manufacturers established in 1993 producing prestressed and precast concrete products.

The Energex Beaudesert Bulk Supply Substation is located approximately 6.5km to the east of the site at Beaudesert, identified on Lot 183 on SP184476.

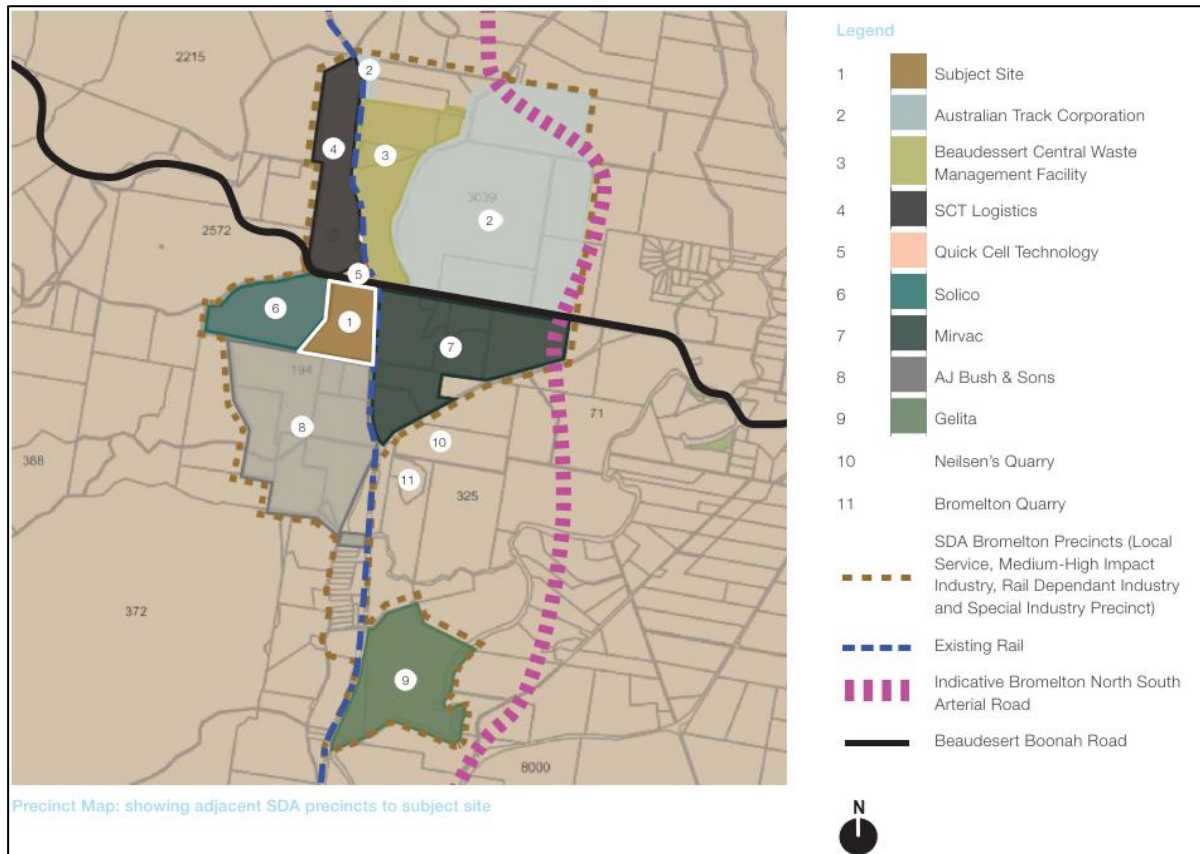


Figure 3: Site and Surrounds

2.3 Site Characteristics

2.3.1 History and Improvements

Historical photography indicates that during the past 100 years, the site has primarily been used for grazing and agricultural purposes. A review of SRRC's online system was undertaken, and advice was also sought from OCG regarding development application activity. These sources establish there is no development application or approval activity applicable to the site. As shown at **Figure 2** above and the photographs below (**Figure 4**), the site is vacant and contains sparse vegetation. There is a waterbody at the centre of the site.

2.3.2 Cultural Heritage

An **Aboriginal Cultural Heritage Assessment** has been prepared by Everick Heritage at **Appendix J.**



Figure 4: Landscape Views

Table D below details the site characteristics. This section is to be read in conjunction with the **Site Searches** at **Appendix Z**.

Table D: Site Characteristics

Site Characteristics	
Existing Structures	The site does not contain any existing buildings.
	The site does contain an existing spray race.
Easements	The site is not subject to any easements as identified on the Site Searches (Appendix Z) .
Site Access	Existing site access is obtained via Beaudesert Boonah Road (State-controlled Road).
Topography	The contour mapping indicates that the site has several distinct ridgelines and low points. The survey information notes the following:
	- In the northern portion of the site, the highest point is RL 98.9m Australian Height Datum (AHD). - Northwest corner of the site sits at RL 81.75mAHD. - Northeast corner of the site sits at RL 79.09mAHD. - Land directly adjacent to the culvert crossing under the railway line is at RL 70.54mAHD.

Site Characteristics

- Ridgeline at southwest corner of the site is at RL 119mAHD.
- Southeast corner of the site sits at RL 66.5mAHD.
- Aside from the upper portion of the ridge, falls typically exceed 5% with the southern portion of the site containing steeply sloping terrain which exceeds 10% gradient in many places.

Vegetation

The site contains sparse vegetation.

Waterway / Waterbodies

The site contains farm dams at the centre of the site.

Contaminated Land & Environmental Land Register

The site is not listed on the Contaminated Land Registered (**CLR**) or the Environmental Management Register (**EMR**). Please refer to the **Site Searches (Appendix Z)** for further detail.

It is noted that a Notifiable Activity Notification Form was submitted to DETSI on 15 December 2025 providing evidence of the historical presence of the spray race on the site.

Site Services

Water Supply

There is an existing pipeline of potable water which terminates east of the site at Waste Facility Road. There is no municipal water supply available to the site.

Sewer

There is no formal sewage infrastructure within the broader Bromelton SDA.

Preliminary discussions with Queensland Urban Utilities (**UU**) indicate that there are no immediate plans to construct a trunk sewer along Beaudesert Boonah Road.

UU's wastewater master plan assumes development in this area would not occur until post-2031, with a new treatment facility proposed for the Bromelton area to service future growth. The site is included in the ultimate service catchment, and connection to the future network is expected when available and feasible.

Stormwater

The site is pastoral and contains no piped stormwater infrastructure. There are no formal stormwater quality improvement devices on the site, however there are existing farm dams that provide a level of stormwater attenuation and sediment removal.

Electricity, Gas & Telecommunications

The site does not contain electricity, gas or telecommunications infrastructure.

3.0 Project Details

3.1 Overview

The Project has been designed to thermally treat approximately 760,000 tonnes per annum (tpa) of waste feedstock, consisting of residual Municipal Solid Waste (MSW) and residual Commercial and Industrial (C&I) waste. Residual waste is waste that is not technically, environmentally, and economically practical (**TEEP**) to reuse or recycle, which would otherwise be sent to landfill for disposal. The facility's actual annual throughput will vary depending on the calorific value of the feedstock and plant availability. To account for variability in feedstock energy content, the facility will be designed for a maximum processing capacity of up to 10% above the nominal figure (i.e. up to 836,000 tpa). The EfW process is summarised in **Figure 5** and further detail is provided at **Section 3.6** of this Planning Report.

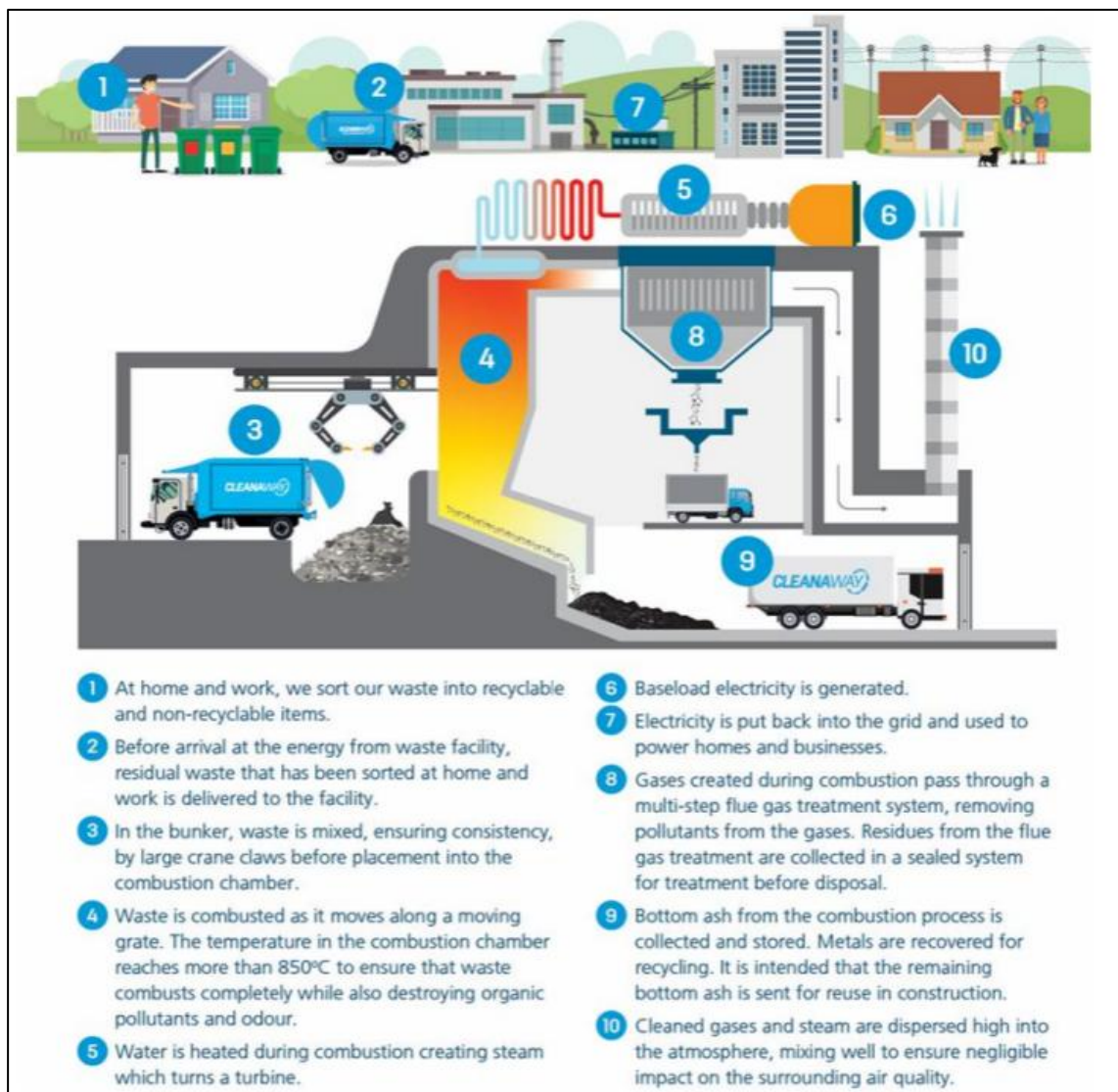


Figure 5: Energy from Waste Process

3.2 Key Components

The key components of the Project are summarised in **Table E**.

Table E: Summary of Key Components of the Project

Project Component	Detail
Summary of proposed works	▪ The Project includes the construction of a main EfW facility for waste processing, incinerator bottom ash (IBA) maturation and processing facility and an air pollution control residue (APCr) facility ▪ It also includes all onsite infrastructure needed for the EfW facility, such as site utilities, internal roads, weighbridges, parking and hardstand areas, stormwater infrastructure, fencing and landscaping ▪ The Project will include a visitor centre to help educate and inform the community on circular economy principles, the waste hierarchy, including waste avoidance, recycling, resource recovery, the benefits of landfill diversion and the EfW process. The intent behind this education is to drive a shift in community awareness and attitudes toward waste management and resource recovery
Technology Used	▪ The proposed EfW technology is moving grate combustion technology. This has been used globally for over 100 years and is common in many of the 500 similar operational examples across Europe. The biogenic (non-fossil derived) portion of the feedstock will allow Cleanaway to apply for accreditation as an eligible large-scale renewable energy power station under the <i>Renewable Energy (Electricity) Act 2000</i>
Facility Outputs	▪ Approximately 73.2 MW (577,600 MWh/year, corrected for ambient temperature) will be exported to the grid as baseload electricity ▪ Potential to supply energy in the form of heat and/or process steam to local industrial users ▪ Residual materials include IBA and APCr ▪ It is intended that the IBA will be mechanically processed on site to create incinerator bottom ash aggregate (IBAA). During this process, both ferrous and non-ferrous metals are recovered for recycling and sale. It is intended that the remaining material is repurposed for commercial use as an aggregate in construction ▪ The Project includes a facility to stabilise APCr before removal and disposal at a licensed landfill
Key infrastructure	▪ EfW facility including administration and a visitor centre ▪ IBA maturation and processing facility (2 x pads and 2 x sheds) ▪ APCr facility (1 x pad, 1 x shed) ▪ Transformer yard and switchyard ▪ De-coupling area for trucks ▪ Weighbridges ▪ Internal road network and carparking ▪ 2 x combined storm water treatment and detention basin ▪ 1 x lined retention basin ▪ Access from Beaudesert Boonah Road via a signalised intersection with Recycling Street
Hours of Operation	▪ 24 hours per day, seven days per week (365 days per year) ▪ Deliveries anticipated to predominantly occur between 6am and 6pm per day

Project Component	Detail
Operational Staff	Approximately 50-60 staff

3.3 Energy from Waste Policy Alignment

The Queensland EfW Policy (2021) aims to guide EfW activities in Queensland in a manner that safeguards human and environmental health, whilst recognising the role of EfW in diverting waste from landfills, helping Queensland transition to a circular economy. The Policy has been developed to support implementation of Queensland's Waste Management and Resource Recovery Strategy (the Waste Strategy), by providing a high-level outline of stakeholder engagement expectations, Environmental Authority (EA) application requirements and environmental regulation of EfW facilities.

The BERC aligns with the Queensland EfW Policy and the Queensland EfW Guideline (2021) by diverting residual waste from landfill and delivering economic and social benefits through employment and local business opportunities in South East Queensland.

In accordance with Policy outcome 7 of the Queensland EfW Policy, the BERC will be designed to meet the best practice emission standards and requirements of the European Industrial Emissions Directive (IED) (2010) and the associated Best Available Techniques Reference (BREF) Document for Waste Incineration (2019), which sets the European Union environmental standards for waste incineration.

The Project also supports the Queensland Waste Strategy contributing to its 2050 targets to recycle 75% of all waste and divert 90% from landfill. In doing so, the BERC will play a key role in advancing Queensland's transition to a circular economy and reducing long-term reliance on landfill.

As outlined in the **Energy from Waste Policy Report (Appendix K)** prepared by Arup, the Project complies with the seven (7) policy outcomes stated in the Queensland EfW Policy, and by extension, international best practice requirements.

3.4 Key Aspects of Development

3.4.1 Site Layout

A Site Plan has been prepared that considers various elements that influence the layout, function and built-design outcomes of the Project. The site layout has been developed based on a design hierarchy and overall philosophy as detailed below.

1. Provision of safe access from Beaudesert Boonah Road and separation of heavy and light vehicle traffic onsite, where possible.
1. Meeting the required operational functions of the site.
2. An east-west orientation to minimise visual impact from key viewing angles, maximising use of the flattest areas on the site and the best geotechnical conditions for the main EfW building.
3. Maximising the use of geotechnical and topographical conditions to minimise overall cut-fill balance and provide a pragmatic and practical flow for vehicles.
4. Minimising excessive road network within the site.
5. Consolidation of buildings and structures to minimise adverse impacts to existing waterways and environmental constraints.
6. Providing areas for natural landscaping required to soften visual bulk.
7. Separation of dangerous goods storage from the railway corridor and sensitive land uses.
8. Positioning of stormwater basins at the lower areas of the site to collect hardstand runoff for treatment.
9. Retention of cultural heritage aspects.

Based on the above, the development footprint is predominantly located in the northern portion of the site as this was identified as the least constrained area. The development footprint is comprised of a total area of approximately 22.618ha and is shown at **Figure 6**.

The Project involves the building of all onsite infrastructure required to support the EfW facility and is separated into three precincts as specified below. Further detail is outlined in **Section 3.4.2** of this Report.

- Main Waste Processing Buildings.
- Incinerator Bottom Ash Process Area.
- Broader Area.

The main site access point is located at the north-western corner of the site adjoining Beaudesert Boonah Road. Upon entry onto the site, the internal road network provides direct connections to the visitor and staff carpark and the operational areas of the facility (limited access). The site arrangement establishes a ring-road layout that facilitates the desired sequencing of on-site operational arrangements. This arrangement promotes the safe and efficient movement of vehicles from the main entry and through the site. Additionally, the site arrangement reduces conflict points between service/waste trucks, employees, visitors and pedestrians.

Please refer to the **Architectural and Landscape Concept Report (Appendix A)** for further information. It is acknowledged that variations of the site design may occur as a result of findings at the detail design phase.



Figure 6: Site Layout

3.4.2 Built Form

The site is comprised of a variety of fully enclosed and open buildings and structures that support the operation of the EfW facility (refer **Figure 7**). A summary of the Key Development Parameters is outlined at **Table F** below and is detailed in the **Architecture and Landscape Design Strategy Report (Appendix A)**. Please note, the information provided is preliminary and is subject to confirmation during detailed design.

Table F: Key Development Parameters

Component	Proposed Development Detail
Development Footprint	226,180m ² (22.618ha)
Gross Floor Area (GFA)	- Main Waste Processing Building & Admin Centre: 16,200m² - IBA Sorting Process: 4,170m² - IBA Maturation Building: 10,080m² - APCr Storage: 1,000m² - Gate House: 70m² - Bus shelter: 40m² Total: 31,560m²
Impervious Area	119,480m ²
Landscaping	- Landscaped Ground Treatment: 99,687m² - Eastern Detention Basin: 4,460m² - Western Detention Basin: 2,553m² Total: 106,700m²
Car Parking	- Main Staff & Visitor Carpark: 60 spaces - Admin Carpark: 8 spaces - Substation: 4 spaces - IBA Sorting Process: 7 spaces - APCr: 5 spaces - Decoupling Area: 10 spaces Total: 94 spaces

The Project is inclusive of the following operational precincts and infrastructure.

Main Waste Processing Buildings

This precinct is the main EfW functions and processes. It is located adjacent to Beaudesert Boonah Road and has a maximum building height of 55.4m. The stack has a maximum height of 95m to achieve compliance with applicable ground level air quality criteria under the *Environmental Protection (Air) Policy 2019 (EPP Air)*. A Visitor and Education Centre are integrated within the administration building. Key aspects of the Main Waste Processing Buildings include:

- **Main Waste Processing Building** – This building comprises the primary EfW process.
- **Administration Building and Carparking** – The Main Waste Processing Building incorporates admin facilities such as a control room, office space and lunchrooms. A small-scale car parking area and bus drop-off area is located directly north of the facilities.
- **Visitor and Education Centre** – This component of development is located within the administration building. It provides a space for education and community engagement.
- **Air Cooled Condenser (ACC)** – The Air Cooled Condenser, located adjacent to the Main Waste Processing Building, is part of the water stream cycle (power generation) operation. This forms part of the process plant and equipment.

- **Reception (Tipping) Hall** – The tipping hall forms part of the Main Waste Processing Building and provides an indoor space for unloading waste trucks into the waste bunker.
- **Waste Bunker** – A purpose-designed waste holding area that temporarily stores incoming waste, providing buffer capacity and facilitating mixing and homogenisation of the waste before it is fed into the combustion system.
- **APCr Stabilisation and Storage Area** – There are two areas located on site for the management of APCr. The APCr Stabilisation Area is to be located inside the Main Waste Processing Building, while the APCr Storage Area is adjacent to the Main Waste Processing Building.
- **Stack** – A stack is located to the east of the Main Waste Processing Building and is comprised of two flues.
- **Transformer Yard** – The transformer yard, which is located adjacent to the Main Waste Processing Building, will house the main Generator Step-Up Transformer (**GSUT**), where electricity for export is stepped up to the required export voltage (110kV) or stepped down for on-site distribution, if the steam turbine generator is offline and it is necessary to import electricity from the grid.

Incinerator Bottom Ash Process Area

This precinct manages the by-products of the EfW process for suitable treatment and management. Key aspects include:

- **IBA Conveyor** – The IBA conveyor supports the transport of IBA from the Main Processing Building to the IBA maturation area.
- **IBA Maturation Building** – This building is intended for the maturation of IBA, where it is stored undercover in window stockpiles to stabilise before being mechanically processed into an aggregate for commercial reuse in construction.
- **IBA Retention Pond** – Run-off water collection from the IBAA stockpiles will be contained within a dedicated lined retention pond for reuse for dust suppression and moisture management within the IBA process area.
- **IBA Sorting Process** – This building located adjacent to Beaudesert Boonah Road, will house mechanical separation equipment used to recover recyclable metals and process IBA into IBAA. The sorting process occurs within a building to control noise, water and dust emissions.

Broader Area

The site layout is also comprised of the following components to support the Project.

- **Staff and Visitor Car Park** – Provides 60 car parking spaces for both staff and visitors. It enables the separation of heavy and light vehicle traffic on the internal road network.
 - **Gate House and Weighbridges** – The gate house and weighbridges are located along the internal road network servicing the site processing areas. The gate house provides on-site traffic management and security prior to trucks progressing across the weighbridge. The weighbridges provide a record of arriving and departing truck weights for data collection and billing purposes. Waste delivery trucks can either be directed to the tipping bays to unload the waste or to the pre-inspection bays. Consumable delivery vehicles will be directed to the various consumable storage areas, while IBAA, recyclable metals and stabilised APCr dispatch vehicles will be directed to the respective storage areas for loading.
 - **Truck Decoupling Area** – The truck decoupling area is located between the internal road and processing areas, enabling sufficient space for specific types of twin-trailer waste delivery trucks to decouple before progressing to the tipping hall.
 - **Pre-inspection Area** – The pre-inspection area, located to one side of the decoupling area is for random visual inspections of the waste delivery vehicles prior to entering the tipping hall.
 - **Substation** – A substation is located at the site frontage, with access from the internal road layout, supporting the necessary export of energy produced by the facility to the grid.
 - **Stormwater Combined Treatment and Detention Basin** – The site supports two stormwater basins, located in the north-west and the south-east of the development footprint. These basins respond to the natural topography, and provide on-site management of stormwater.
- Lined Detention Basin** – A controlled, lined basin linked to the IBA process, ensuring the water from the IBAA storage area is kept separate from surface water on the rest of the site and does not infiltrate into the surrounding environment.

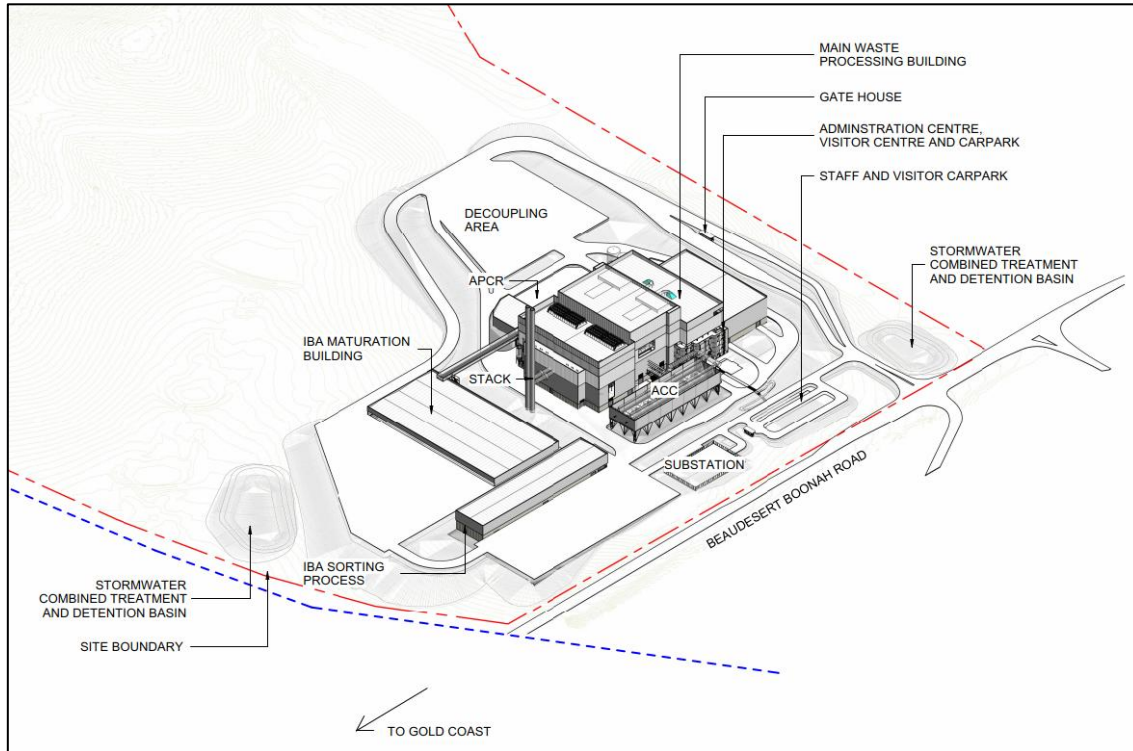


Figure 7: 3D View

3.4.3 Architectural Design and Rationale

Project Objectives for Architecture and Landscape

Project objectives for architecture and landscaping have been developed and embedded in the Project to establish clear drivers for design. As identified in the **Architecture and Landscape Design Strategy Report (Appendix A)**, these objectives are:

A Proud Place

- Ensure the facility is a proud place for both people who work and visit.
- Provide an excellent visitor experience that is honest and transparent about the purpose of the facility which aims to educate and inspire.
- Provide a safe and excellent working environment for employees with a focus on staff wellness.

Do More with Less

- Ensure the design reduces the overall number of buildings and their footprints.
- Use materials efficiently.
- Ensure functional requirements are legible through the exterior finishes.
- Minimise building costs where possible.

Respect Community

- Consideration and engagement with key stakeholders and traditional owners to gather key inputs and impacts.
- Respond to areas adjoining the site.
- Carefully consider the building's appearance and from key public viewing corridors.

Extend Sustainable Agenda

- Embed landscape and sustainable features within the design.
- Promote a circular economy.
- Protect waterways and habitat which invigorate the wider ecosystem.
- Incorporate water sensitive design principles.
- Maintain existing landscape and habitat where possible.

In addition to the above Project objectives, a series of drivers have also been established for both the architectural and landscape design, identified as Functional, Simple, Efficient and Enduring (Refer **Figure 8** below). These drivers are incorporated into the built form design and are consistent with Cleanaway’s purpose and sustainability framework. A summary of the drivers is outlined below, however further detail can be found at the **Architecture and Landscape Design Strategy Report (Appendix A)**.

- Functional design outcomes to meet the facility’s operational needs.
- Consideration to the site context and characteristics.
- Optimise and simplify the architectural and landscape, where possible.
- Use of landscape elements to add visual amenity for the users of the Project.
- Sustainable and efficient material selection.
- Circular and regenerative principles to ensure the buildings and landscape elements consume less resources.
- High quality built form outcomes to ensure longevity of the facility whilst providing an inclusive and encouraging facility.



Figure 8: Architectural Drivers

Architectural Moves

In response to the design drivers, a series of Architectural Moves are made to build on the broad site-wide design principles to contextually ground the project; establish its form in the landscape; mitigate the visual bulk; identify opportunities to benefit the local ecosystem; and connect people to the building. The Architectural Plans are outlined below, and further information is provided at the **Architecture and Landscape Design Strategy Report (Appendix A)**.

Respect And Work with Functional Massing

- Built form represents the most efficient footprint and compact form to accommodate the functional requirements of the facility.
- The building facades of the EfW facility reflect the industrial context of the site and the function of the facility.
- The administration building provides a point of difference by responding to the natural environment context.
- Enclose of operational equipment (where possible) to control visual perception and acoustics.

Introduce Horizontal ‘Banding’ to Break up the Volume

- Use simplified material palette and expression in the building envelope.
- Use horizontal divisions to break up the bulk and mass of the building.
- Concrete to be used along the lowest façade band around the main building.
- Provide visual interest to the large facades using lightweight cladding that changes in the vertical panel sizes across the height of the facades.
- Create a contextual point of difference in the façade of the administration building to focus on human scale experience.

Introduce Transparent Windows into Facility to allow Natural Light and Expose the Internal Functions

- Allow visitors to view pockets of the internal function.
- Create 'transparency' and promote public awareness of the site operations through the use of semi-transparent materials in selected areas.

Allow for Community Interactions

- Showcase operations through visitor experience and promote education.
- Provide a desirable workplace for employees.
- Provide an identifiable 'front door' at the administration building and visitor centre.

Rainwater Capture from Building Envelopes

- Collect rainwater from the roof for use in the EfW process.
- Positively impact the local micro-climate through new planting.
- Selection of materials to mitigate heat sink.
- Improve resilience to weather extremes and promote reuse of water through provision of new stormwater basins.

3.4.4 Materials

A **Landscape Character and Visual Impact Assessment (Appendix D)** identifies that the site is located in the Hinterland Landscape Character Area. In alignment with the project objectives, design drivers and architectural moves, the proposed materiality is specifically selected to embed the Project within its landscape setting. Consideration has also been given to the surrounding area and industrial context, particularly with the notion of receding and layered forms using textures, materiality and colour.

The below sections identify the key materials used across the Project as outlined in the **Architecture and Landscape Concept Report (Appendix A)**. Materials have been selected with consideration of sustainable procurement practices as well as demonstrate exemplar sustainability credentials, including the consideration of the materials' source, manufacturing processes, embodied carbon, life cycle and end of life strategy.

Main Waste Processing Building and Auxiliary Buildings

- Light-weight metal cladding in silver colour with horizontal banding.
- Expose precast concrete for the base of the main facility for durability against frequent trucks / vehicles within the tipping hall.
- Use of textural variation to add visual interest.
- Semi-transparent areas in the main waste processing facility to showcase internal operations.

Administration and Visitor Centre

- Curtain wall glazing system to optimise internal light and visual amenity for both employees and visitors.
- Perforated metal louvred shading screen to shade internal areas and whilst framing views to the landscape.

Stack

- Light-coloured concrete with minimal texture as a low-maintenance treatment.

As shown at **Figure 9** below, the cumulative design outcome between the Main Waste Processing Building and Administration and Visitor Centre provides visual interest to the large façades, creates texture along the height of the building, and mimics the layered and receding landscape.

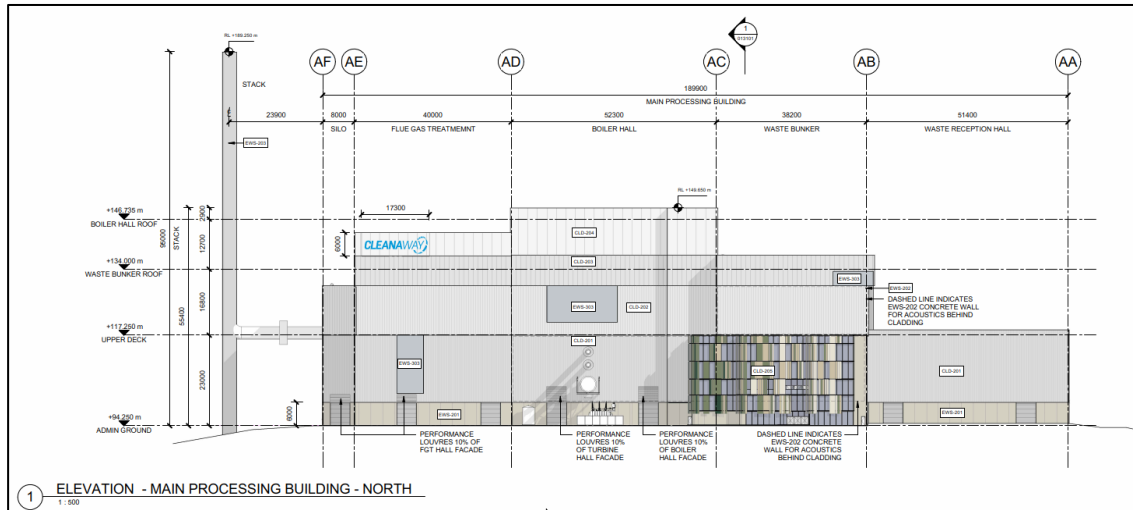


Figure 9: Main Waste Processing Building – Front Elevation

3.4.5 Landscaping

A Landscape Site Plan has been prepared by Arup and is provided within the **Architecture and Landscape Design Strategy Report (Appendix D)** and is shown at **Figure 10**. The landscaping outcome is intended to create an inviting setting that recognises the local context and the environmental significance of the site. The landscaping design aims to soften the built form intensity of the development and gives consideration the practical requirements of the site layout through planting style and purpose.

The Project has included the following key aspects of design into the landscaping outcome:

- Retain existing trees where possible to maintain the existing landscape character.
- Enhance biodiversity within the site through the introduction of a diverse plant species palette common to the region.
- Provide accent planting at the administration building providing an experience from the arrival point.
- Incorporate Water Sensitive Urban Design (WSUD) elements such as vegetated attenuation basins as a stormwater management measures.
- The landscape design aims to blend the Project to the site topography and landscape character.
- Incorporate built elements such as gates and fences as part of the landscape treatment and features for an integrated approach to design.
- Positively impact the local micro-climate within the site to mitigate the urban heat island effect through minimising extents of hard paved areas, providing planting areas and shade trees where possible and material selection.
- Landscape treatment predominantly provided to areas affected by the construction activities. Proposed landscaped areas outside this footprint will be for screening and visual impact mitigation.
- Planting maintains vehicular sightlines through the site and at the intersection of Beaudesert Boonah Road.

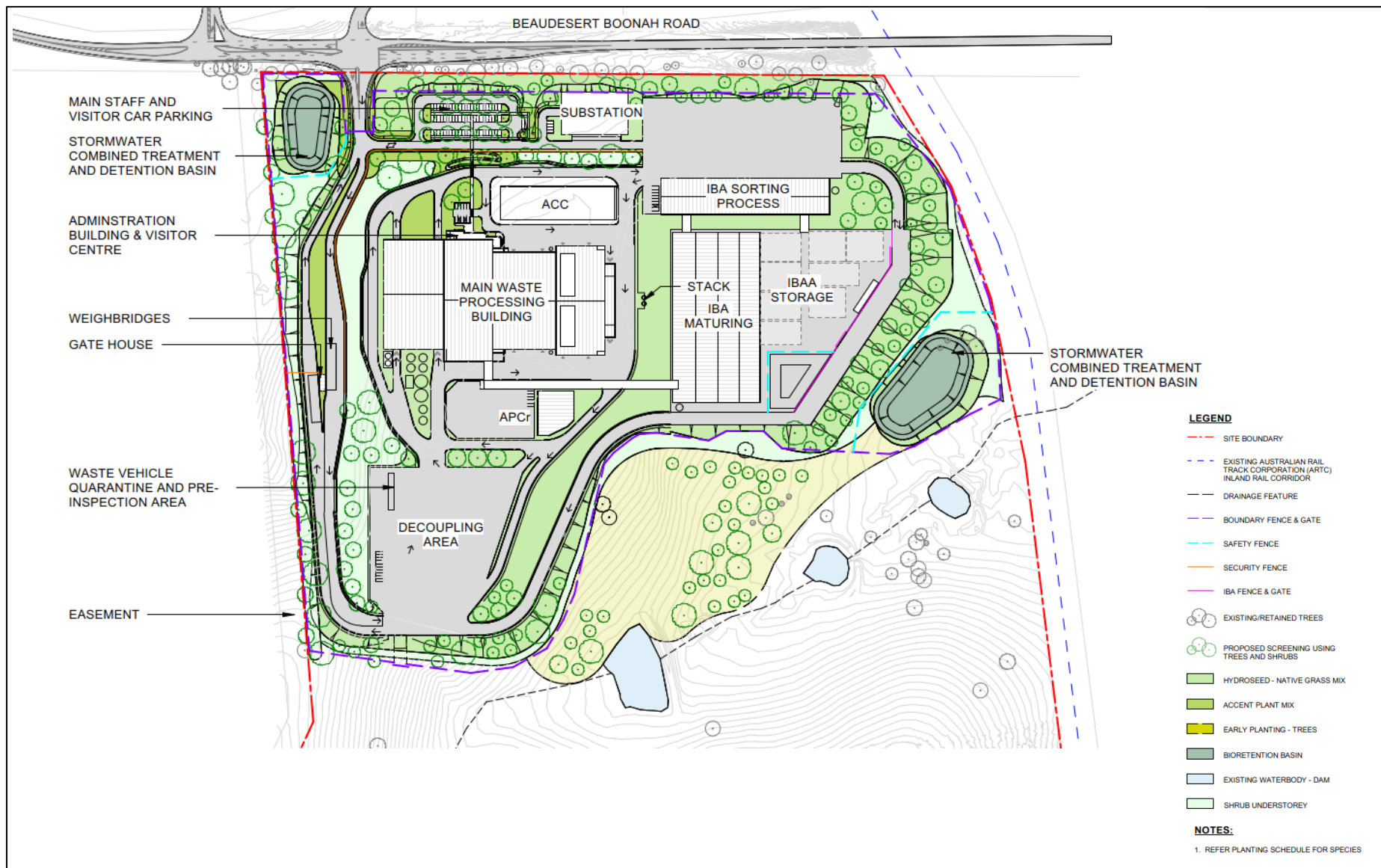


Figure 10: Landscape Concept Plan

3.4.6 Site Access

The Project has sole frontage to Beaudesert Boonah Road (State-controlled road). A new signalised intersection is proposed at Beaudesert Boonah Road and Recycling Street (refer **Figure 11**). Access is obtained via the north-western corner of the site to facilitate safe vehicle movements to the site and the broader SDA. The establishment of the intersection will ultimately reduce the speed limit along the fronting section of Beaudesert Boonah Road to 70km/h.

The location and design of the proposed signalised access arrangement is in alignment with the preliminary engagement with DTMR. It is considered the most suitable solution due to the sufficient provision of sight distance and turning lane requirements, and the allowance for potential future widening of Beaudesert Boonah Road. Importantly, the provision of the signalised intersection allows for future consolidation of access points along Beaudesert Boonah Road, providing a benefit to the SDA precinct. Please refer to the **Traffic Impact Assessment (Appendix Q)** prepared by Arup for further information.

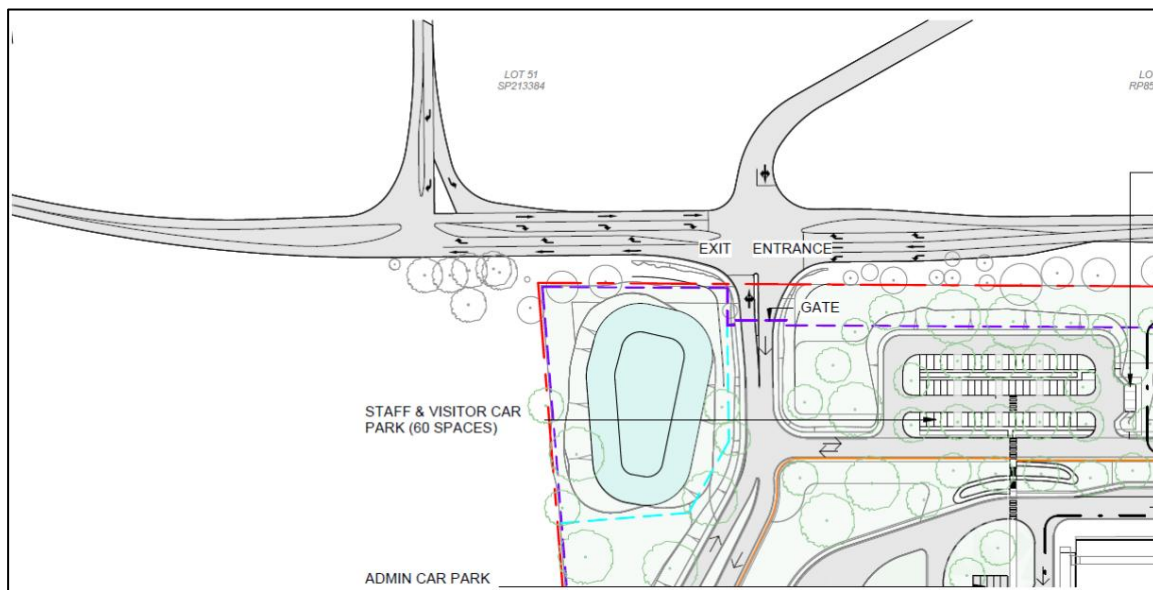


Figure 11: Site Access Layout

3.4.7 Car Parking

The Project provides a total of 94 parking spaces across the development site. The main staff and visitor car parking is contained to the northern part of the site, adjacent to Beaudesert Boonah Road. The design ensures minimal conflict between heavy vehicles and passenger vehicles.

It is noted that the SDA Development Scheme does not prescribe a specific car parking rate. The Project provides sufficient car parking for the on-site operations and activities. An assessment against the SDA Development Scheme is provided at **Section 8** of this Report.

A bus shelter is also provided within the car parking area to facilitate visitor tours.

3.4.8 Internal Heavy Vehicle Circulation

An internal circulation road is proposed for the safe manoeuvring of heavy vehicles and passenger vehicles. The Project has been designed to receive waste from a number of waste delivery vehicle types, being:

- Type 1A: A-double trucks.
- Type 1B: B-double trucks.
- Type 2: Semi-trailer trucks.
- Type 3: Compactor trucks.

A-double trucks are not currently permitted to use Beaudesert–Boonah Road. The facility has been designed to accommodate A-double vehicles in the future, and Cleanaway will work with the National Heavy Vehicle Regulator to explore the potential for future access.

The technical assessments consider B-double trucks as the base case, as they represent the scenario with the most significant traffic impact (i.e. a greater number of B-doubles are required to carry the same volume of waste). For assessments where A-doubles could influence outcomes—such as the Greenhouse Gas Assessment and Noise and Vibration—B-doubles have been used as the primary reference, with A-doubles also considered to ensure compliance with relevant criteria.

From an operational perspective, the circulation of waste trucks within the site is outlined below.

1. **Weighbridge** – As a waste vehicle arrives to the site, they are weighted on a weighbridge. The entry to the weighbridge is arranged to accommodate queuing within the site. Only pre-registered waste vehicles which comply with the site Waste Acceptance Protocol will be allowed to unload on-site. Such waste vehicles will be allocated a tipping bay and directed to the waste reception hall to unload the waste or will be directed to the pre-inspection bay.
2. **Decoupling Area** – Twin trailer, rear-eject waste vehicles such as Type 1A A-double trucks will be required to decouple prior to unloading in the waste reception hall.
3. **Waste Inspection in Pre-Inspection Bay** – After the waste vehicle is weighed, and if directed to the pre-inspection bay (located in the decoupling area) the vehicle would be subject to random visual inspections of the waste prior to entering the tipping hall.
4. **Waste Reception Hall (or Tipping Hall)** – The waste vehicle will enter into the waste reception hall (inside the Main Waste Processing Building) and tip into the allocated tipping bay.
5. **Waste Inspection / Rejection in Tipping Hall** – The waste inspection area is an allocated area within the waste reception hall where a waste delivery vehicle may be directed to unload on to the waste reception hall floor for random visual inspection of the waste.
6. **Exit** – The waste vehicle will exit the facility via the internal road network. The vehicle will enter an outgoing weighbridge for weighing. After weighing, the vehicle will exit the site.

3.4.9 Waste Management Storage

All waste received on-site will be stored in the waste bunker inside the Main Waste Processing Building. No other waste storage is proposed on-site, with the exception of a short-term waste inspection area adjacent to the waste bunker and tipping hall. The waste streams delivered to the site (primarily residual MSW and C&I waste) do not require segregation and will be delivered to the same waste bunker.

The EfW facility will not accept hazardous waste streams, however, if a load of waste including hazardous material does arrive at site, the facility includes a quarantine area where such material can be quarantined before being disposed off-site at an appropriate, licensed facility. If unacceptable waste bypasses these controls, it can be identified by the crane operator within the bunker and removed for appropriate disposal offsite.

Please refer to **Technical Process Description (Appendix E)** and resource and **Resource and Waste Management Technical Report (Appendix M)** for further details relating to on-site waste management and control measures.

3.4.10 Hours of Operation

The Project will be operational 24 hours per day, seven days a week (365 days per year).

Truck deliveries will occur 24 hours per day, seven days a week. The majority of deliveries are expected to occur between 6am and 6pm each day.

3.5 Engineering Servicing

An **Engineering (Infrastructure) Report** has been prepared by Arup and is provided at **Appendix C**. A summary of the key infrastructure services are identified below.

3.5.1 Earthworks

Bulk earthworks are proposed to achieve the proposed finished surface levels and ensure appropriate grading for future development. A balanced cut-to-fill strategy has been adopted to minimise the need for import or export of material, with the objective of reducing construction costs, environmental impact and haulage requirement on the surrounding road network. An area in the southern portion of the site has been identified as a potential location for the placement of surplus fill material, if required.

Preliminary Bulk Earthworks plan contained in the **Architectural and Civil Engineering Drawings (Appendix B)** indicates the following volumes of bulk earthworks are required:

- Total Cut: -233,730m³
- Total Fill: 205,990m³
- Total Balance (excess of cut): -27,740 m³

It is further noted that batters and retaining walls are required to manage the level differences across the site. Please refer to Section 2.2.2 and Section 2.2.3 of the **Engineering (Infrastructure) Report (Appendix C)** for further information.

3.5.2 Water Infrastructure

The site is not serviced by a trunk water main. An existing DN375 ductile iron water main runs along the alignment of Beaudesert Boonah Road, terminating east of the site at Waste Facility Road. The main was constructed in 2018 in anticipation of future industrial connections within the Bromelton area. However, no active customer connections have been established to date and UU has since disconnected the main near Helen Street, limiting its current functionality.

Preliminary engagement with UU has outlined the proposed water connection strategy as follows:

- UU has conducted hydraulic modelling and confirmed that there is sufficient capacity within the existing DN375 main on Beaudesert Boonah Road to accommodate the full operational water demand from the site.
- The existing main extends approximately 500m east of the site but is currently capped and non-operational. The connection strategy involves extending this main along Beaudesert Boonah Road to the site boundary to establish the site connection.
- The main is currently planned to be operational by 2031 as part of the trunk infrastructure outlined in the NetServ Plan.
- Given the main's period of inactivity, it is anticipated that quality assurance testing, including bacterial sampling, will be necessary during commissioning to ensure water quality compliance.
- The use of recycled water has been explored with UU. At present there is no water of sufficient quality in the vicinity. Cleanaway has submitted an Expression of Interest to UU to formally note its interest in accessing recycled water should it become available in the future.

Please refer to Section 3.1 of the **Engineering (Infrastructure) Report (Appendix C)** for further information.

3.5.3 Sewer Infrastructure

The site is not serviced by reticulated sewer infrastructure. Preliminary engagement with UU has confirmed there are no immediate plans to construct a trunk sewer along Beaudesert Boonah Road. UU's wastewater master plan assumes development in this area would not occur until post-2031, with a new treatment facility proposed for the Bromelton area to service future growth. This facility is intended to support both residential and industrial expansion and would be delivered once capacity at the existing Beaudesert plant is exhausted. The site is included in the ultimate service catchment, and connection to the future network is expected when available, where feasible to do so.

The Project has been designed to be serviced by an onsite sewer holding tank system to cater for sewerage wastewater (kitchen, toilets) for each of the buildings which will house staff. These retention systems will be fully contained, sized for seven days capacity, with no overflow to landscaped areas. Effluent will be transported off-site as required when these sewer holding tanks approach capacity.

Please refer to Section 3.2 of the **Engineering (Infrastructure) Report (Appendix C)** for further information.

3.5.4 Stormwater

To manage the stormwater flows, a total of two stormwater basins is proposed with one in the north-western corner of the site and one in the south-eastern corner of the development footprint. The outfalls from each basin will be piped to existing overland flow paths and channels. Flows are intended to exit the development area and discharge to existing drainage features:

- The northern stormwater basin, serving catchment 1, will discharge into an existing swale within the western portion of the site. The swale conveys flows into an existing channel within the road corridor passing under Beaudesert Boonah Road via the box culvers.
- The eastern basin, serving catchment 2, will discharge into the existing overland flow path downstream of the farm dam and passes under the rail corridor via the 1.85m high culvert.

Please refer to the **Stormwater Management Plan and Flood Risk Assessment (Appendix R)** and **Section 7** of this **Planning Report** for further information.

3.5.5 Electricity, gas & telecommunications

Electricity

The site is currently not connected to electricity infrastructure. The Project will generate electricity as part of its operations and requires connection to the electricity network to enable export of power to the grid. The site will include an onsite substation near the northern boundary of the site to facilitate the necessary on site HV switchgear and protection systems.

Energex has undertaken a Site Specific Connection Assessment and confirmed that a viable grid connection can be achieved via a 110 kV connection to the Beaudesert Bulk Supply Substation. This involves the construction of a new 110 kV feeder from the Beaudesert Substation to the proposed site, over an approximate distance of 7–8 km. Works would include upgrades within the substation, installation of connection and isolation equipment, and associated protection, communications, and system management infrastructure to ensure safe and reliable operation.

Gas

No gas service is required for the construction or operation of the proposed facility. Back-up services will be diesel powered with proposed diesel tanks.

Please refer to Section 3.5 of the **Engineering (Infrastructure) Report (Appendix C)** for further information.

Telecommunications

There is no existing telecommunication infrastructure to the site, however an NBN connection is available to the site. The final communication strategy will be confirmed during the detailed design phase.

Please refer to Section 3.4 of the **Engineering (Infrastructure) Report (Appendix C)** for further information.

3.6 EfW Process and Technology Selection

3.6.1 EfW Process

The Project has been designed to thermally treat approximately 760,000tpa of waste feedstock, consisting of residual MSW and C&I waste. Residual waste is waste that is not TEEP to reuse or recycle, which would otherwise be sent to landfill for disposal. The Project operates an EfW technology that extracts energy (in the form of heat), and other useful resources from the residual waste feedstock. Energy and resource extraction from the residual waste is achieved through a combustion process.

The facility's actual annual throughput will vary depending on the calorific value of the feedstock and plant availability. To account for variability in feedstock energy content, the facility will be designed for a maximum processing capacity of up to 10% above the nominal figure (i.e. up to 836,000 tpa). Waste feedstock processed by the BERC will be subject to a

Waste Acceptance Protocol to determine eligibility and suitability for acceptance and processing both prior to and upon arrival onsite.

A process schematic of the EfW facility is provided at **Figure 12** and further detail is provided in the **Technical Process Description (Appendix E)** prepared by Arup. A high-level overview of the EfW process is provided below and is to be read in conjunction with the process schematic.

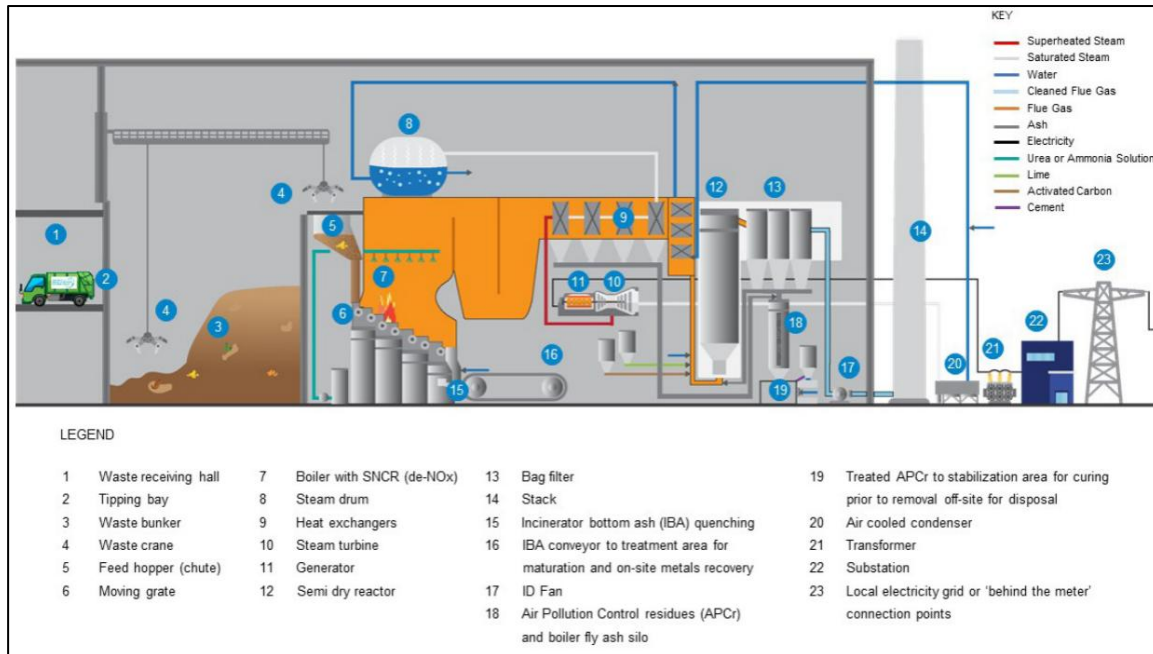


Figure 12: Process Schematic with Key Features

Waste Receiving Hall

The pre-registered waste vehicles will arrive on-site and proceed to a weighbridge where each waste load is subjected to a radiation inspection, weighed and delivery detailed recorded. Once the waste vehicle is cleared by the radiation check and the waste is acceptable, the vehicle proceeds to the decoupling area (for twin tailer A-Double type waste transfer station trucks), or directly to the waste receiving hall (or tipping hall) which is located within the Main Waste Processing Building (1).

Tipping Bay

The waste vehicle will approach the tipping bay (2) and unload the waste into the waste bunker (3). The waste bunker has a storage capacity equivalent of up to five days of operation, and up to seven days of operation with closed bays. Combustion air intakes from the furnace combustion system are located above the waste bunker area, creating negative air pressure within the waste receiving hall and waste bunker. This process and design are a primary odour control feature.

Waste Bunker Process

A waste grab crane (4) continuously mixes the waste in the waste bunker, to homogenise the waste prior to loading some of the waste into the boiler feed hopper (5).

Combustion, Heat Recovery and Air Pollution Control Process

An automated ram-feeder pushes the waste from the feed hopper onto the inclined moving grate combustor (6), where it dries, gasifies and then combusts to produce flue gas, ash and heat. An Automatic Combustion Control System (**ACCS**) that is part of the plant Control and Monitoring System (**CMS**) controls the waste feed rate, the grate speed and carefully controls the injection of both primary combustion aid (introduced below the grate) and secondary combustion air (blown into the furnace above the grate).

A reducing agent, such as aqueous urea or aqueous ammonia solution, is sprayed into the furnace (7) where the flue gas is still at high temperature, to remove oxides of nitrogen that are produced during the combustion process. The furnace is designed to ensure the flue gases are held at a temperature not less than 850 degrees-Celsius for at least two seconds after the final injection of combustion air. Diesel fuel fired auxiliary burners are provided to facilitate safe start-up (warm-up) and shutdown of each grate-boiler line. The auxiliary burners are also used if the flue gas temperature approaches the minimum allowable temperature while waste is being combusted on the grate. If the system is unable to achieve the minimum high temperature or a component failure means that the continued operation would likely breach daily average emission limits, the impacted line will shutdown.

An integrated heat recovery steam boiler system recovers the heat from the hot flue gases by boiling water to produce steam in the steam drum (8). The flue gases are cooled further by superheating the steam in tube banks in a horizontal convective section of the boiler (9), and then by preheating boiler feedwater in the final boiler economiser section. The high pressure superheated steam expands through a steam turbine (10) to generate mechanical energy by turning a shaft to which an electrical generator (11) is connected. The low pressure exhaust steam at the outlet of the steam turbine is condensed in an Air Cooled Condenser (**ACC**) (20), to allow the condensate to be pumped back to the boiler, thus creating a closed-loop water-steam power cycle.

A steam turbine bypass system facilitates start-up of the steam turbine and allows the EfW plant to continue to operate even if the steam turbine generator is shut down for maintenance. In the event of a failure of the external electricity grid, the bypass system also facilitates Power Island Mode. In this mode the steam turbine generator operates at minimum load to supply the parasitic (own consumption) needs of the BERC in the event that the external electricity grid is unavailable or unable to accept generation capacity from the BERC. An emergency diesel generator (**EDG**) and a dedicated uninterruptible power system (**UPS**) will be provided to ensure that the BERC can shutdown safely in the event of a major power system failure.

The cooled flue gases leaving the boiler economiser go through a 'cleaning process' (12, 13, 17). Flue gases are discharged into the air via the 95m flue gas stack, with a separate flue for each boiler line (14). Each boiler line has a multi-component continuous emissions monitoring system to continuously examine a range of potential pollutants and other parameters (i.e. flow rate, temperature, moisture, oxygen, content) for emissions reporting purposes as well as providing input to the various air pollution control systems.

Residues

The residues produced during the EfW process include incinerator bottom ash (**IBA**), boiler ash and flue gas treatment residue. The IBA is conveyed (16) to an on-site maturation and treatment area, where the IBA can age in a 3-sided building to allow the minerals constituents to stabilise through natural carbonation reactions. The IBA is sorted and processed to recover recyclable ferrous and non-ferrous metals and to produce IBA Aggregate (**IBAA**) suitable for use in civil construction projects.

The boiler ash and flue gas treatment residue are typically combined and together are referred to as Air Pollution Control residue (**APCr**) and are temporarily stored in the APCr silos (18). The Project includes a stabilisation process (19) to allow the APCr to be sent to an appropriately licensed landfill for disposal.

Overall, the EfW process typically leads to about 90% reduction in the volume, or 80% reduction in mass (tonnes), of waste that would otherwise go to landfill. If IBA is reused as an alternative construction product to virgin materials, this percentage increases further to approximately 95% reduction in volume and mass of waste that would otherwise go to landfill. The final volume of waste diverted from landfill is dependent on the classification and market for the residues and by-products generated by the EfW facility.

Electricity Generation

The electricity generated stream turbine generator is distributed to internal users. Electricity generated in excess of the internal electricity consumption requirements is stepped up in voltage to 110 kV by a transformer. The EfW process would generate approximately 84.6 MW gross of electricity, 11.3 MW of which would be used to power the facility itself and the associated onsite by-product and residue handling processes, with 73.2 MW exported into the grid via the Beaudesert Bulk Supply Substation. In addition to supplying electricity to the grid, there is also potential to supply energy in the form of heat and/or process steam to local industrial users or other future on-site waste processing infrastructure.

3.7 Technology Selection

Moving grate combustion type EfW technology is well-established internationally, with various facilities operating successfully across Europe for decades. EfW guidelines and policy have instructed the Project design, in addition to considerations and parameters associated with planning and development regulation, and the immediate and broader site context. Moreover, in establishing alignment with the Queensland Energy from Waste Policy, reference facilities have been identified in relation to the BERC and are used to demonstrate the operational performance of the Project.

The Project will use best available techniques in the engineering design, operation, maintenance and monitoring activities. Moving grate technology has been chosen as the means to thermally treat incoming waste to recover energy and other resources. The technology has been used globally for over 100 years, and in that time the technology has been subject to continual improvement responding to regulatory, industry and public demands. It has been proven to be robust and reliable, suitable for combustion of mixed waste streams, which is essential for the safety and systems assurance of processing mixed waste streams.

The moving grate combustion system is a common form of thermal EfW technology in which the waste is fed through the combustion chamber on a travelling grate. The primary function of the moving grate is to control the transport of the waste through the chamber for efficient and complete combustion of the waste. There are approximately 500 similar operational examples across Europe and the UK alone, the majority of which use the moving grate-type technology being proposed for the BERC. Current international best-practice techniques, including automated combustion controls and advanced flue gas treatment technology will be applied so that air emissions meet stringent emission standards.

The Project will also consider the role of emerging technology to advance the process and/or environmental performance over time and as these become technically and commercially available. As such the design has been developed with spatial provisions for future technologies including other advanced flue gas treatment technologies and Climate Change.

4.0 Project Rationale & Benefits

4.1 Strategic Location

The site is located within the Special Industry precinct of the Bromelton SDA which anticipates for ‘difficult to locate’ land uses. As described in **Section 2** of this Planning Report, the surrounding context is inclusive of a mix of established industrial activities. The site is appropriately separated approximately 3.5km from the nearest residential zone and is highly accessible to State transport road infrastructure, being Beaudesert Boonah Road.

4.2 Introduction Delivers Waste Management and Resource Recovery Policy Outcomes

The Project rationale for the BERC is underpinned through its strong alignment with cascading waste management and EfW policy across National, State, Regional and Local levels of governance. This is comprehensively addressed in the **Energy from Waste Policy Report (Appendix K)** and summarised here.

The key relevant policy documents include, but are not limited to:

- The National Waste Policy 2018 and National Waste Policy Action Plan in 2019 (**National Waste Policy**).
- Queensland Waste Management and Resource Recovery Strategy (**WMRR Strategy**).
- Energy from Waste Policy Queensland (**EfW Policy**).
- SEQ Waste Management Plan (**SEQWMP**).
- Scenic Rim Regional Council Waste Management and Resource Recovery Strategy (**SRRC Waste Strategy**).

The National Waste Policy outlines the importance for Australia to transition to a circular economy, improving waste management, creating jobs, and protecting the environment. The policy reinforces the need for priority actions across the waste hierarchy and acknowledges the value of embodied energy in waste. Strategy 7 of the policy (below) concerns increasing industrial capacity, through inter alia, energy recovery:

“Identify and address opportunities across municipal solid waste, commercial and industrial waste, and construction and demolition waste streams for improved collection, recycling and energy recovery, to deliver ongoing improvements in diversion from landfill, improved quality of recycled content and use of the waste hierarchy.”

The Queensland Government released the WMRR Strategy on 1 July 2019. The WMRR Strategy provides a strategic framework specific to Queensland, in alignment with the National Waste Policy, and incorporating a key goal to become a “zero-waste” society through the principles of circular economy. The Strategy references the waste and resource management hierarchy, enshrined in the *Waste Reduction and Recycling Act 2011*, which provides an enduring framework which sets out guidance for managing waste (refer **Figure 13** below). Within this hierarchy, EfW has been identified as a necessary end of product life solution, presenting the opportunity to recover energy from the waste that cannot be avoided, reused, or recycled (i.e. residual waste).

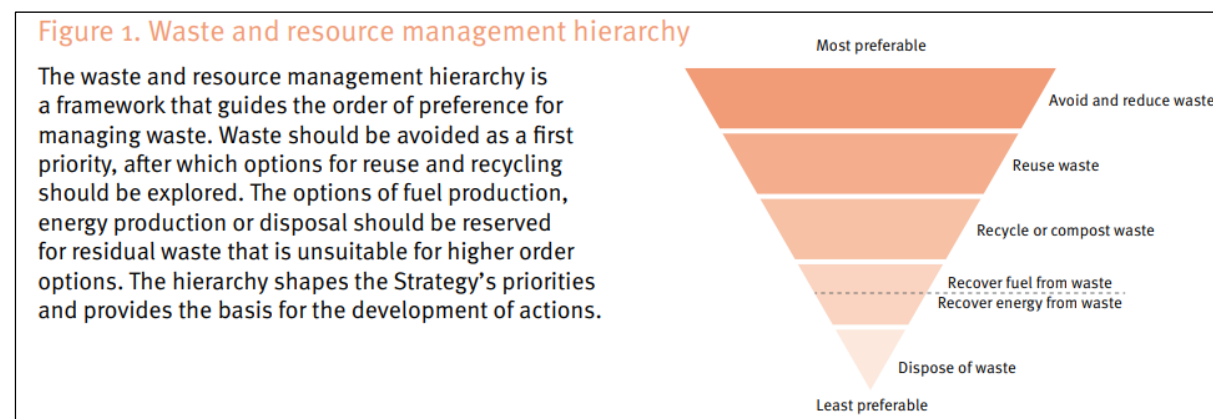


Figure 13: Waste and resource management hierarchy (Queensland WMRR Strategy)

The EfW Policy and associated EfW Guideline have been developed as an outcome of the WMRR Strategy. These documents provide more detailed policy direction and guidance on the role and delivery of EfW within the broader waste and resource management hierarchy. The EfW Policy provides a high-level outline of the expectations and requirements related to the following matters:

- The expectations for proponents to undertake appropriate stakeholder engagement in the EfW sector.
- The information required to support an EA application for an EfW facility.
- The environmental regulation of EfW facilities.

Finally, the Recycling Enterprise Precinct Location Strategy (2022), developed by the Department of State Development, Infrastructure, Local Government and Planning, identifies potential locations for the establishment of a network of Recycling Enterprise Precincts across Queensland. The strategy identifies Bromelton as a Transform Precinct accommodating a range of transformation activities, but also as one of only two precincts (the other being Townsville) considered suitable for EfW uses.

4.3 Actively Diverts Waste from Landfill

The SEQWMP, released on 12 November 2021 is a response by the SEQ Council of Mayors to the above referenced Queensland policy framework. This document sets out a directional path forward for action and collaboration across SEQ Councils as they address the challenges and opportunities associated with municipal solid waste management across the region, in the context of a rapidly shifting set of sector dynamics. It documents the key role that EfW plays in achieving State targets for resource recovery and diversion of waste from landfill. The SEQWMP outlines actions and recommendations for optimizing the treatment of residual municipal solid waste.

Key conclusions applicable to the BERC include:

- Thermal EfW (incineration) is the most suitable processing technology for residual MSW.
- To meet state targets for diversion of MSW alone, it is estimated that EfW will be required to divert ~200ktpa by 2030, assuming all of the State's non-binding targets relating to per capita waste reduction and waste diversion are achieved in full, and ~590ktpa by 2050 (SEQWMP, Exhibit 2).
- To meet state targets for diversion of MSW and Commercial and Industrial (C&I) waste would require up to six at-scale (300ktpa) facilities by 2050 (SEQWMP, Exhibit 25).
- Recommendation for development of 2-6 thermal EfW facilities by 2050 with a scale >200ktpa for processing MSW and C&I waste (Recommendation #6, pg 59).

The above referenced policy framework reinforces the existing waste and resource management hierarchy, as fundamental to the transition to a zero-waste society in accordance with circular economy principles. In particular, the policy framework acknowledges the reality that State Government waste diversion targets cannot be achieved through established reuse, recycle and recovery processes. Further, the policy framework emphasises the necessary role of EfW in recovering embodied energy from residual waste to divert waste from landfill. Put simply, EfW is a critical and necessary component of the policy framework to achieve waste diversion targets.

Cleanaway actively operates and contributes to important outcomes across all levels of the waste hierarchy, and this includes its commitment to EfW outcomes. The proposed BERC strongly aligns with current waste management and resource recovery policy expressed across all levels of governance, and there is a demonstrated need for the facility.

Shaping SEQ (2023) projects regional population growth of over 2.1 million people between 2021 (estimated 3.8 million) to 2046 (projected 6 million). This presents major challenges in planning for the associated growing energy needs of the SEQ region.

Energy supply systems will need to be flexible, reliable and secure. The Queensland Energy and Jobs Plan (2022) endorse diversifying the energy mix to underpin resilience and support transition to renewables. EfW plays a key role in diversifying the energy mix and supporting the transition to renewables and carbon reduction.

The BERC supports the capacity and resilience of Queensland energy networks in the following ways:

- It contributes to much needed creation of additional energy supply connected to the grid, which supports a projected SEQ population growth of 3.8 million (current) to 6 million by 2046 (Shaping SEQ 2023).

- It contributes to a greater diversity of energy generation facilities which underpins continuity of energy supply and overall network resilience.
- It introduces opportunities for innovation and potential local business synergies within the Bromelton SDA through creation of electricity supply and steam offtake, which may support other industrial operations.
- It contributes to grid stability by generating synchronous base load electricity, a portion of which will be classified as renewable energy (electricity) generation.

4.4 Provides Significant Benefits Comparative to Landfill

The Project facilitates diversion of general waste to landfill and is a proven and widely used approach to treat residual waste. There is a strong correlation between usage of EfW facilities and a high landfill diversion rate, with many countries in Europe achieving as low as 1% landfill rate (99% diversion).

Compared to landfill facilities, the BERC requires a smaller land footprint. Its capacity to continue to accept waste is not a function of land size, thereby making the Project a more resilient and sustainable use of valuable land resources. It enables recovery of materials which have the capacity to make a productive contribution to the goal of a circular economy.

The BERC presents numerous environmental benefits, comparative to landfill including:

- Risks of soil, groundwater and surface water contamination are reduced as there will be no leachate contamination. The BERC will be designed with zero process wastewater discharge during normal operation.
- Avoidance of fugitive landfill gas emissions which occur during landfill operation and continue long after the landfill has closed. Notably, it avoids the release of the methane component.
- Preventing the spread of viruses and pathogens which may be present in the waste streams by using high temperatures to sanitise the waste.
- Reduced general amenity impacts such as odour, vermin and pest issues. At the BERC, waste will only be unloaded within the waste reception hall into a waste bunker with impermeable concrete walls and base, within a fully enclosed building area maintained under negative air pressure.
- Promotion of the proximity principle by treating waste close to the source of waste generation, reducing transport and subsequent carbon footprint impacts.
- The BERC can be decommissioned and removed from the Site, within a significantly shorter timeframe and at a significantly lower cost than to restore and rehabilitate land associated with an end-of-life landfill.

4.5 Facilitates Economic Development in the Bromelton SDA

The Bromelton SDA seeks to promote economic development by providing for the growing demand for greenfield land in South East Queensland which is suitable for medium to large scale industrial activities of regional, State and national significance. The SDA is identified as a key location to support high impact, difficult to locate and rail dependent industries. The Project therefore directly contributes to the delivery of economic development outcomes at Bromelton SDA through the establishment of a purpose-built facility which aligns with the intent of the precinct.

The BERC is anticipated to contribute to the delivery or upgrading of key infrastructure necessary to facilitate operation of the facility, which in turn, can promote further economic development in the Bromelton SDA, by providing infrastructure to support other unserved or under-served sites. This includes:

- Upgrade to the existing State controlled road network through establishment of a signalised intersection and associated road design improvements, which support safe access to the site and surrounding landholdings.
- Improvements to water infrastructure through extension of the reticulated supply network to the site which may potentially support future connections to surrounding properties.
- Enhancement of the electricity supply grid, which potentially directly or indirectly supports other properties and development projects.

The BERC is well placed to facilitate new business synergies within the Bromelton SDA, most immediately through the generation of energy via steam and electricity which could support and service established or proposed industries in the surrounding locality.

4.6 Generates Jobs & Local Business Opportunities

The Project promotes economic prosperity by providing innovation within the waste economy sector, as follows:

- Creation of up to 800 jobs during construction, and approximately 50-60 ongoing full time equivalent employment positions.
- Improve livelihoods due to employment, training and upskilling opportunities for the local community.
- Increased community and facility infrastructure resilience and development.
- Increased planning and development opportunities.
- Diversified local economy.
- Indirect local business benefits and synergies.
- Establishment of a quota of First Nations business procurement.

4.7 Provides Community Benefit

The Project will include a visitor and education centre to provide information to the wider community on the following:

- Promote Indigenous narratives as they relate to Country and educate visitors about Aboriginal ecological stewardship.
- Promote waste management and recycling programs (including circular economy, recycling, resource recover, benefits of landfill diversion and EfW).
- Improve general project knowledge and build a greater social licence to support further change and improvement in the sector.
- Opportunities to co-design training pathways and delivery for First Nations people.
- Implement cultural awareness training for project personnel facilitated by local First Nations representatives.
- Establishes a Community Benefit Fund and local community administration to deliver benefits where they are needed.
- Creates a keeping place for Aboriginal artefacts on site.

Please refer to the **Socioeconomic Impact Assessment (Appendix V)** and **Community and Stakeholder Engagement Report (Appendix W)** for further information.

5.0 Community & Stakeholder Engagement

5.1 Introduction

The purpose of this section is to provide an overview of the community and stakeholder engagement activities undertaken to support the Project. It outlines the key engagement principles, key stakeholders identified for the Project, engagement approach, engagement outcomes and response to key concerns. This includes:

- Pre-application community and stakeholder engagement, including First Nations engagement.
- Pre-application government and agency engagement.
- Statutory Public Notification (intended post-lodgement engagement).

Two formal community engagement periods have been held in October 2023 and September 2025 to provide information on the planning and design of the Project whilst building a relationship with the community. Prior to each of these periods, targeted meetings were held with key stakeholders, including government agencies, utilities, business groups and neighbouring properties. An indicative project timeline is shown at **Figure 14** for information purposes, noting this is subject to change.



Figure 14: Indicative Project Timeline

The feedback from the community and stakeholder engagement has been used to inform the design of the Project, including mitigation of adverse impacts and the realisation of local opportunities and benefits. The insights have been considered as part of the technical assessments supporting the SDA development application.

The community and stakeholder engagement is particularly important as EfW technology is new to Australia and the local community. As there is limited community awareness about EfW technology in Australia and Queensland, community education is a critical element to the planning and design of the facility. As identified in **Section 3.4.2** of this Planning Report, a Visitor and Education Centre is incorporated into the design to provide opportunity to inform the community on concepts and practices relating to circular economy, recycling, resource recovery and EfW technology, and its importance to waste management.

Please refer to the **Community and Stakeholder Engagement Report (Appendix W)** prepared by Arup for further detail.

5.2 Engagement Objectives

Cleanaway is committed to engaging with the local community and key stakeholders to achieve the following objectives:

- Provide timely and relevant information to all stakeholders about the project to enable meaningful and well-informed engagement.
- Listen, understand and respond to issues raised by key stakeholders and decision makers to inform the BERC approvals process.
- Seek community and stakeholder inputs about the facility.
- Identify material issues to inform technical studies and respond with impact mitigation.
- Comply with government and statutory consultation requirements.
- Encourage social license and stakeholder support for the Project.

5.3 Legislative and Policy Context

The engagement approach for this Project accords with the International Association of Public Participation (IAP2) Quality Assurance Standard to ensure best practice stakeholder and community engagement and consultation. The engagement approach is carried out in accordance with other government and industry standards, including:

- Public Consultation Policy for State Development Areas.
- Queensland Government Energy from Waste Policy and Guideline.
- Community engagement toolkit for planning (Department of State Development, Infrastructure, Local Government and Planning).
- Queensland Resources Council tested principles for community engagement.
- Coordinator-General Social Impact Assessment (SIA) Guideline 2018.
- Supplementary material SIA Guideline 2025.

In addition, the Public Consultation Policy for State Development Areas and the Bromelton SDA Development Scheme encourage pre-lodgement consideration with OCG and relevant government agencies prior to lodgement of a SDA development application. Further detail is provided in **Section 5.5** of this Planning Report.

5.4 Social Licence

Establishing and maintaining social licence across the range of BERC stakeholders that have varied areas of interest is a long term commitment and has been the core of this engagement program. Engagement with the community from the earliest stages of the planning application process was intentional and sought to build relationships based on trust and transparency. Cleanaway is aware that gaining and maintaining social licence evolves over the life of the project and is essential to developing the project as something that contributes positively to the local community.

The detailed engagement program with multiple rounds of activity acknowledges the explanation of social licence given in the Queensland Government Energy from Waste Guideline: social licence is built on trust; it is not tangible as there is no written agreement or formal licence. Once earned, social licence is not fixed, but it varies over time in response to changes in the community and the company's behaviour and can be withdrawn at any time.

As defined in the Infrastructure Partnerships Australia and L.E.K. Consulting research paper, *Building Trust: Social Licence for Infrastructure*, having a social licence means the community trusts that an organisation will act in line with their interests, beyond complying with legal, regulatory or contractual obligations.

The BERC project team has actively been building trust and social licence through the following five pathways:

1. Genuine dialogue and relationship building.
2. Good neighbour agreement.
3. Demonstrating that we are minimising impacts.
4. Delivering positive impacts and community benefit.
5. Preserving environmental values.

Please refer to Section 5 of the **Community and Stakeholder Engagement Report (Appendix W)** for further detail regarding social licence.

5.5 Pre-Application Community and Stakeholder Engagement

5.5.1 Principles and Methodology of Engagement

The purpose of pre-application engagement is to proactively inform and consult with businesses and community stakeholders to support the SDA development application process for the EfW facility. This process contributes to the social impact assessment of the facility and builds social licence within the community.

Engagement with the community and targeted stakeholders has occurred in two) key rounds to support the planning program, as follows:

- Round 1 (October 2023) – This process included the introduction of the proposal and outline of the planning and approval process. It also detailed the EfW technology and provided opportunity for feedback.
- Round 2 (September & October 2025) – This process built upon early awareness, providing further detail on the proposal (i.e. capacity, scale, size and architectural design).

Engagement Principles

Six engagement principles guided the community and stakeholder engagement plan. These include:

- Relationship-driven
- Transparent
- Integrity
- Sustainable Decisions
- Inclusive and respectful
- Responsive

Methodology

The engagement and communication methodology was inclusive of a combination of in-person, print and online methods. The methods include the following:

- Targeted information briefings and meetings with a range of stakeholders including elected representatives, business groups and schools.
- Project website.
- Virtual Room.
- Fact sheets and posters.
- Project email.
- Project phone number.
- Newsletters – distributed October 2023, May 2025, September 2025.
- Facebook advertising.
- Newspaper advertising.
- Media release and enquiries.
- Stakeholder reference group – four meetings held between July and November 2025.
- Online survey (3 October 2023 - 31 October 2023 & 1 September 2025 – 10 October 2025).
- Community information sessions (October 2023 & September 2025).
- Attend various community events including Chamber of Commerce events and Beaudesert Show.
- Local business information session (October 2025).

Figure 15 below provides a summary of the engagement methodology. Additional engagement with the community and stakeholder groups will occur via the statutory Public Notification process. The dates for public notification will be confirmed during the application assessment process with OCG.

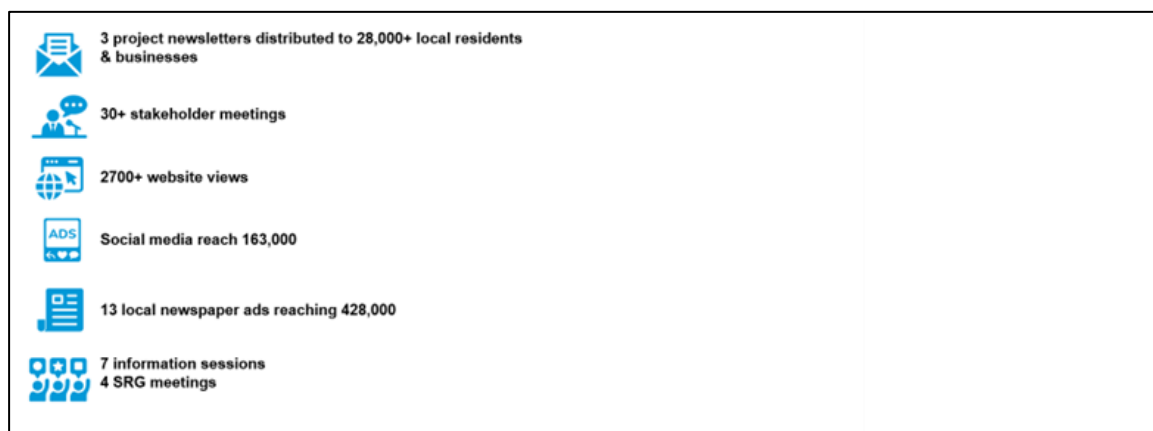


Figure 15: Engagement Snapshot

5.5.2 First Nations Engagement

Queensland South Native Title Services (**QSNTS**) consultants have been engaged to represent and connect with local Traditional Owners of the land where the Project is located. An initial project briefing occurred in April 2025 to introduce the Project and planning application process. Ongoing engagement with the Traditional Owners will be managed via QSNTS.

A partial field survey of the area north of the creek was undertaken on 9 November 2023. [REDACTED]

[REDACTED]

A further desktop assessment and field survey was undertaken on 24 July 2025 and 25 July 2025 to analyse the Aboriginal cultural heritage across the entirety of the site. [REDACTED]

[REDACTED]

A search of the Department of Women, Aboriginal and Torres Strait Islander Partnerships and Multiculturalism (**DWATSIPM**) Cultural Heritage Database was conducted on 4 August 2025 and demonstrated that the Danggan Balun People (Five Rivers People) are currently the Aboriginal Party for the Study Area. The findings of this search have also confirmed the presence of artefact scatter. The search further confirmed the following matters:

- There are no records of a Cultural Heritage Body.
- There are no records of Cultural Heritage Management Plans.
- There are no records of Designated Landscape Areas (DLA).
- There are no records of a Registered Cultural Heritage Study.
- There are no records of a National Heritage Area (Indigenous Values).

The following recommendations have been prepared in consultation with the Danggan Balun people to mitigate any potential risk to Aboriginal cultural heritage caused by the Project. These recommendations are to occur prior to construction

[REDACTED]

Please refer to Section 3.13 of the **Community and Stakeholder Engagement Report (Appendix W)** and **Aboriginal Cultural Heritage Assessment (Appendix J)** for further information.

5.5.3 Stakeholder Reference Group

A BERC stakeholder reference group (**SRG**) was established to be a regular advisory touchpoint with the local community. The consultative forum involves representatives of Cleanaway and the BERC project team, and the local community to discuss project matters. Four SRG meetings have occurred, including:

- Meeting 1: 23 July 2025
- Meeting 2: 4 September 2025
- Meeting 3 (Online session): 7 October 2025
- Meeting 4: 27 November 2025

5.5.4 Engagement Outcomes

The key topics raised through stakeholder and community feedback has given valuable insights to the project team about what the important issues are to address, and what opportunities should be further explored as the project progresses. The matters raised are outline in **Table G** and the responses to the feedback are summarised in **Table H** below.

Table G: Key topics of importance raised in 2023 and 2025

Key topics raised – Round 1 Engagement (2023)	Key topics raised – Round 2 Engagement (2025)
▪ Traffic impacts of additional trucks moving waste to and from the facility ▪ Environmental impacts including air quality and odour ▪ Local importance of water consumption and need for sustainable water sources ▪ Local employment opportunities especially for youth ▪ Benefits to the local economy ▪ Waste reduction or reuse and the need to focus on other local initiatives higher up on the waste hierarchy ▪ Energy production and reduced energy costs	▪ Odour from facility ▪ Topographical (valley) characteristics that could affect odour and air quality ▪ Emissions and air quality impacts ▪ Amount of electricity generated and used in facility ▪ Water sources and usage – recommend recycled water ▪ Truck volumes and local traffic impacts on already congested / poor roads ▪ Safety of IBAA ▪ Safety / treatment of flue gases and the detail about regulation ▪ Cumulative air quality and transport impacts not only from BERC but other existing and future facilities in the Bromelton SDA ▪ Local employment, especially opportunities for young people so they can stay in the area and develop career pathways ▪ High school learning and research programs – STEM, sustainability, EfW, environmental monitoring ▪ Shuttle transport opportunities from Beaudesert to BERC ▪ PCYC / YACC support ▪ Local business opportunities ▪ Need for more recycling programs ▪ Closing of other EfW facilities in other countries ▪ Make electricity cheaper for locals ▪ Local benefits / support needed ▪ Using IBAA for local projects ▪ Indigenous heritage artefacts

Table H: Responses to feedback

Responses to feedback
▪ Report back to the community about air quality and emissions from the specialist technical assessments. Provide assurance based on the assessments that emissions will be well below human health risk levels and explain how monitoring and reporting will be transparent (when advice is provided by Department of Environment, Tourism, Science and Innovation about regulator reporting). ▪ Report back to the community about results from Traffic Impact Assessment and Department of Transport and Main Roads requirements to mitigate transport impacts. Communicate transport routes once waste contracts are in place and source locations are confirmed (together with transport routes). ▪ Continue exploring future opportunities with Urban Utilities to use recycled water for BERC operations. ▪ Continue explaining how odours will be limited to the facility through negative pressurised building areas and combustion, and not noticeable outside the facility.

-
- Continue working with local high schools, indigenous groups, training and apprenticeship providers to get locals job-ready and maximise local employment.
 - Establish a quota of local business participation and procurement.
 - Establish a quota of First Nations business procurement.
 - Progress opportunities to co-design training pathways and delivery for First Nation people.
 - Implement cultural awareness training for project personnel facilitated by local First Nations representatives.
 - Demonstrate commitment to circular precinct opportunities through exploring local energy and resource off-takes to neighbouring operations.
 - Establish a Community Benefit Fund and local community administration to deliver benefits where they are needed.
 - Continue a SRG as an established touchpoint to the community through future project stages.
 - [REDACTED]
 - Create a keeping place for Aboriginal artefacts on site.
 - Utilise the visitor centre at BERC to promote Indigenous narratives as they relate to Country and educate visitors about Aboriginal ecological stewardship.
 - Utilise the visitor centre at BERC to promote waste management and recycling programs.
-

The engagement has confirmed the community sentiment and level of support or social licence for the Project is currently mixed. There is strong support within the community, however some continue to have concerns and require further information.

- Section 4.1 of the **Community and Stakeholder Engagement Report** comprehensively documents engagement results from 2023 and 2025 and how the key issues and opportunities will be addressed.
- Section 4.2 of the **Community and Stakeholder Engagement Report** provides a detailed summary of the engagement process including level of engagement, relevant stakeholders, timing and high-level results.
- Section 4.3 of the **Community and Stakeholder Engagement Report** identifies how the feedback has influenced the development design, mitigation of adverse impacts and manage future communication.

5.6 Pre-Application Government and Agency Engagement

Pre-application engagement with the government and relevant agencies has occurred between April and July 2023, and April and December 2025. The engagement involved stakeholders in the roles of decision-makers and referral / advice entities for the Project. The targeted engagement activities involved a project briefing and preliminary review of technical reports and assessment requirements. Detailed engagement with these stakeholders is outlined in the following sections.

5.6.1 Office of Coordinator General (OCG)

OCG is responsible for assessment and decisions for SDA development applications. Schedule 2 of the SDA Development Scheme encourages applicants to advance pre-lodgement engagement with OCG prior to lodgement of the SDA development application. Acknowledging the role of OCG as the assessing authority, early engagement was prioritised in alignment with the established engagement principles.

Early engagement involved a series of pre-lodgement meetings coordinated by OCG and guided by the engagement principles. These meetings involved regular proponent updates on the Project planning and development and community and stakeholder engagement. The frequent meetings allowed the project team to confirm the Project application and assessment requirements and ensure the preparation and lodgement of a comprehensive development application which addresses all the relevant matters.

5.6.2 Scenic Rim Regional Council (SRRC)

The Project is located on land within the Scenic Rim local government area and therefore SRRC is identified as a referral entity for the SDA development application. As a local authority, early engagement with SRRC representatives was prioritised to provide Project information and opportunity for feedback on community concerns and application planning requirements. SRRC conducts regular community engagement in Beaudesert and provided local insights and advice regarding the methodology for community engagement.

5.6.3 Department of Environment, Tourism, Science and Innovation (DETSI)

The Project requires an application for an EA to carry out multiple Prescribed ERAs. DETSI is the assessing authority for the EA application, and the administering authority for the ERAs. DETSI is also a referral entity for the SDA development application and therefore will play a key role in the assessment of both applications.

Early engagement with DETSI was prioritised and involved a number of meetings which addressed a number of matters, including:

- Project briefing and understanding of operation and capacity.
- Determining the applicable ERAs for the Project.
- Confirming key EfW policy matters and assessment benchmarks.
- Establishing the extent of information required to ensure adequacy of material provided for assessment purposes.
- Attendance at an all agency briefing on 14 August 2025.
- Attendance at two workshops in 2025 to discuss IBA, APCr, PFAS, Air Quality and Human Health.

DETSI has also separately sought specialist advice from Queensland Health in respect to the human health risk assessment and PFAS. Subsequent comments from Queensland Health have been reviewed and integrated into the final assessments.

5.6.4 Department of Transport and Main Roads (DTMR)

DTMR is a referral entity for the SDA development application as Beaudesert Boonah Road is identified as a State-controlled road and a State-controlled railway corridor is located along the full length of the eastern property boundary. Preliminary engagement has been held with both DTMR (road) and DTMR (rail) teams via various meetings, including an all agency briefing on 14 August 2025. The various meetings addressed the following:

- Site access arrangement at Beaudesert Boonah Road and associated assessments with consideration to neighbouring properties, conceptual intersection design, and operation of road network.
- Potential intersection upgrades to the road network as a consequence of the proposed traffic demand.
- Construction and operational impacts to the rail environment, include stormwater run-off, earthworks, dust and dangerous goods storage.

5.6.5 Department of Primary Industries (DPI)

DPI is identified as a potential referral entity for the SDA development application as there is a mapped waterway for waterway barrier works traversing the site. Representatives of DPI participated in an all agency briefing on 14 August 2025. On the basis that the proposed development does not intend works within the mapped waterway, DPI advised a preliminary position that it is unlikely to have any requirements. This will be confirmed and formalised through the application process.

5.6.6 Queensland Health

Queensland Health has been identified as a referral entity. Preliminary engagement has been undertaken with Queensland Health to discuss the draft human health risk assessment and PFAS. Subsequent comments from Queensland Health have been reviewed and integrated into the final assessment of the **Human Health Risk Assessment (Appendix U)**.

5.6.7 Seqwater

Seqwater has been nominated as a referral entity by OCG as the site is located within the drinking water catchment. Preliminary engagement has been held with Seqwater representatives to discuss the following:

- The potential impacts of the Project on Seqwater interests, including considerations to water quality in the drinking water catchment.
- Bulk water supply availability and access.

5.6.8 Urban Utilities

Pre-application engagement has been undertaken with Urban Utilities regarding proposed connection to the reticulated water supply infrastructure network, and potential connection to any future reticulated sewerage network. This engagement has assisted in confirming both Project requirements for provision of network infrastructure through subsequent applications for water approval.

It is noted that Urban Utilities has confirmed that a Class C recycled water network is available at Beaudesert Boonah Road and Beaudesert House Road intersection. Class C recycled water is the lowest quality of recycled water supplied by Urban Utilities and it is generally produced to meet effluent discharge requirements set out in a sewerage treatment plan environmental licenses. It may not be suitable for many industrial purposes and can be utilised only for limited irrigation purposes.

The EfW facility requires high quality water (at least Class A) for efficient operation and longevity of the infrastructure. Cleanaway will consider future opportunities to integrate recycled water into the Project once high-quality recycled water becomes available in the Bromelton SDA.

5.6.9 Energy Queensland

Engagement with Energy Queensland has focused on understanding the most appropriate approach to connecting the Project to the existing electricity supply networks. As BERC will generate electricity as part of its operation, a grid connection is required to export this electricity into the wider network so it can be distributed to homes and businesses.

Energex has provided a Site Specific Connection Assessment for the Project, which identifies a 110 kV connection from BERC to the Beaudesert Bulk Supply Substation as the most appropriate and efficient connection option.

5.7 Statutory Public Consultation

5.7.1 Introduction

Whilst the SDA and EA applications have been preceded by a comprehensive pre-application engagement process, it is important to note that post-lodgement statutory public consultation is required and offers additional opportunity for community and stakeholder engagement and feedback.

5.7.2 Statutory Public Consultation Requirements

The consultation period is a prescribed period of time contained within the SDA assessable development process which requires public consultation of a development application be undertaken. Public submissions are invited on the Project and will be administered by the OCG during the public notification period. As outlined in the SDA Development Scheme, the statutory public consultation will occur after the applicant receives referral entity responses. OCG will instruct the applicant to undertake the public consultation, and timing will be directed by OCG (likely second quarter of 2026).

Pursuant to section 2.3 of the SDA Development Scheme, the statutory public consultation requirements are outlined in **Table I** below.

Table I: Statutory Public Consultation Requirements

Action	Description	Stakeholder Group
Newspaper Notice	A notice placed in a newspaper.	All stakeholders
Sign on Land	A notice placed on each road frontage of the land.	All stakeholders
Letters to Adjoining Owners	Written notice to the owners of all land adjoining the subject land.	Adjoining landowners
Website	Application information is available for public scrutiny on the OCG website	All stakeholders

5.7.3 Post-Lodgement Community and Stakeholder Engagement

In addition to the statutory public consultation requirements, Cleanaway plans a third round of community and stakeholder engagement. The focus will be reporting back to the community about the results of the varied technical assessments and responding to concerns or opportunities raised through earlier feedback. Summary materials will be produced to support the full technical reports that will be made publicly available. Having the technical specialists involved will assist with community questions and address any inaccuracies about EFW in the community. This additional engagement activity is further demonstration of the applicant's commitment to building social licence through trust and transparency.

The additional engagement activity is summarised below in **Table J**.

Table J: Informal Public Consultation Strategy

Action	Description	Stakeholder Group
Drop in Sessions	Information sessions at a community venue with technical specialists on hand to answer questions	Local community
Newsletter	Summarising the application and promoting how the community can learn more and provide feedback	Local community
Local Newspaper Advertising	Display advertisements with project information and promoting how the community can learn more and provide feedback	Local community
Social Media Advertising	Geo-targeted Facebook campaign with project information and promoting engagement activity	Local community
Project Website	Detailed update on the Cleanaway BERC webpage with technical summaries and promoting how to engage with the team, ask questions and give feedback	All stakeholders
Stakeholder Reference Group	Meeting/s with the SRG to share technical information, with deep dives into topics of interest and respond to concerns and opportunities	Community representatives
Stakeholder Meetings	Meetings with key stakeholders including neighbours, elected representatives and others	Stakeholders
Other Communication Directives from OCG	Other stakeholders (beyond adjoining property owners) may also be provided with written notice, at the direction of OCG. Other Cleanaway-led activities may also be directed by OCG to communicate the information.	Local community

6.0 Regulatory Framework

6.1 Introduction

A review has been undertaken of the regulatory framework in respect of the Project to determine assessment and approval requirements. The findings of this review are summarised below and include matters involving:

- Commonwealth Government;
- State Government;
- Local Government; and
- Other regulated development.

6.2 Commonwealth Government

6.2.1 Introduction

The primary Commonwealth government legislation potentially applicable to the Project is the *Environmental Protection and Biodiversity Conservation Act 1999* (**EPBC Act**). The *Recycling and Waste Reduction Act 2020* and *National Greenhouse and Energy Reporting Act 2007* are also of relevance to the proposed development for an EfW facility. These are addressed below.

6.2.2 Environmental Protection and Biodiversity Conservation Act 1999

The EPBC Act is Australia's primary national environmental legislation that provides a method for protecting and managing nationally and internationally important environmental matters, including biodiversity and naturally and culturally significant places. The legislation is administered by the Department of Climate Change, Energy, the Environment and Water (**DCCEEW**) on behalf of the Environment Minister.

The legislation identifies protected matters which include: world heritage areas; national heritage places; wetlands of international importance (listed under the Ramsar Convention); listed threatened species and ecological communities; listed migratory species (protected under international agreements); Commonwealth marine areas; Great Barrier Reef Marine Park; nuclear actions (including uranium mines); and water resources (that relate to coal seam gas development and large coal mining development).

Under the regulatory framework, the onus is placed on a proponent to refer any matter that may have a significant impact on any of these areas to the Environment Minister for initial assessment. Determination of a 'significant impact' is assisted by reference to the accompanying significant impact guidelines. The Minister must then consider the environmental impacts of the action and determine if it will need to be assessed under the EPBC Act as a 'controlled action'.

A **Biodiversity Technical Report (Appendix G)** has been prepared by Arup and is inclusive of desktop and field assessments of the site and Project with respect to the requirements of the EPBC Act. This report concludes that the Project does not need to be referred to the Commonwealth government under the provisions of the EPBC Act as the site only support minimal ecological values for Matters of National Environmental Significance. As such, there is a very low risk of the Project having a significant impact to biodiversity and ecological values.

The Biodiversity Technical Report has provided an assessment against the EPBC Act for completeness. Importantly, the Project does not require referral to the Commonwealth Government pursuant to the EPBC Act.

6.2.3 Recycling and Waste Reduction Act 2020

The *Recycling and Waste Reduction Act 2020* (**RAWR Act**) is also administered by DCCEEW and provides a new framework for managing Australia's recycling and waste reduction objectives. A key objective of the RAWR Act is to encourage the development of a circular economy, including through product stewardship arrangements, that maximises the continued use of products and waste materials over their life cycle, including developing domestic waste management and recycling infrastructure capacity.

The objects of this Act are as follows:

- (a) to reduce the impact on human and environmental health of products, waste from products and waste material, including by reducing the amount of greenhouse gases emitted, energy and resources used and water consumed in connection with products, waste from products and waste material;
- (b) to realise the community and economic benefits of taking responsibility for products, waste from products and waste material;
- (c) to develop a circular economy that maximises the continued use of products and waste material over their life cycle and accounts for their environmental impacts;
- (d) to contribute to Australia meeting its international obligations concerning the impact referred to in paragraph (a).

The primary regulatory role of the RAWR Act is to regulate the export of waste material to promote its management in an environmentally sound way. Additional primary objectives are:

- encouraging and regulating the reuse, remanufacture, recycling and recovery of products, waste from products and waste material in an environmentally sound way; and
- encouraging and regulating manufacturers, importers, distributors, designers and other persons to take responsibility for products, including by taking action that relates to:
 - (i) reducing or avoiding generating waste through improvements in product design; and
 - (ii) improving the durability, reparability and reusability of products; and
 - (iii) managing products throughout their life cycle.

The RAWR Act therefore provides no direct regulatory function in respect of the Project, however, it does provide an overarching stewardship role relevant to the Project objectives.

6.2.4 National Greenhouse and Energy Reporting Act 2007

The *National Greenhouse and Energy Reporting Act 2007* (**NGER Act**) is the primary legislation under which the National Greenhouse and Energy Reporting Scheme (**NGER Scheme**) is established and administered by the DCCEEW. The NGER Scheme is a national framework for reporting greenhouse gas emissions, greenhouse gas projects and energy consumption and production by corporations in Australia.

The objectives of the NGER Scheme are to:

- Inform Government policy
- Inform the Australian public
- Help meet Australia's international reporting obligations
- Assist Commonwealth, State and Territory government programmes and activities
- Avoid duplication of similar reporting requirements in the States and Territories

The NGER Act has no direct regulatory function in respect of the Project. However, the Proponent triggers the corporate reporting threshold under the NGER Act and is required to provide emissions reporting

6.3 State Government

6.3.1 State Development and Public Works Organisation Act 1971

The site is located in the Bromelton SDA which was declared by regulation under the *State Development and Public Works Organisation Act 1971* (**SDPWO Act**).

The SDPWO Act establishes the role of OCG, who in turn administers the Act. OCG plays a key role in promoting Queensland's economic development, and has wide-ranging powers to plan, deliver and coordinate large-scale projects in the infrastructure, minerals and energy, tourism, agriculture and industrial / manufacturing sectors, while ensuring their environmental impacts are properly managed. These projects promote economic and social development in Queensland.

The SDPWO Act prescribes that OCG may declare an SDA, as an instrument for the above powers. As soon as practicable after the declaration of a SDA, OCG shall prepare in relation to that area a Development Scheme. The approved Development Scheme may regulate development in all or part of the applicable SDA, and OCG administers assessment of development regulated under the Development Scheme. OCG also has other powers in the SDA including powers related to acquisition and disposal of land.

The Bromelton SDA Development Scheme (**Development Scheme**) has been adopted and further detail of this is included in **Section 8**.

The SDA Development Scheme regulates certain development in the SDA area. Section 84 of the SDPWO Act states (generally) that for any development regulated under the approved Development Scheme of an SDA, if another Act or law would otherwise regulate such development, this other Act or law does not apply to the regulated development (i.e the Planning Act). In this instance, the SDA Development Scheme regulates development involving a Material change of use only, and therefore other Acts or law will continue to apply for other aspects of development.

The Project involves a Material Change of Use which is regulated under the Bromelton SDA Development Scheme and a SDA application is required to be made to the OCG to obtain approval. Please refer to Part B of this report for further detail.

Further details of the other aspects of development and/or approvals are outlined in the respective sections.

6.3.2 Environmental Protection Act 1994

The Project involves the carrying out of various environmentally relevant activities (**ERAs**) as defined under Schedule 2 of the *Environmental Protection Regulation 2019 (EP Regulation)*, which are activities with the potential to release contaminants into the environment that may cause environmental harm. A proponent must obtain approval for an environmental authority (**EA**), which is a licence to operate an ERA. A proponent must also be a registered suitable operator (**RSO**) to obtain approval for an EA.

Chapter 5 of the *Environmental Protection Act 1994 (EP Act)* primarily sets out the processes for applying for and managing an EA for an ERA. The Director-General of the Department of Environment, Science, Tourism and Innovation (**DETSI**) is the chief executive of the EP Act, however EAs are administered by a range of Queensland Government and local government agencies, with the relevant agency being the 'administering authority' for the EA.

In this instance, the proposed ERAs are not identified as being those devolved to local government under section 133 of the EP Regulation and therefore DETSI are taken to be the administering authority for the EA application.

The Project involves the carrying out of multiple ERAs, and an EA application is required to be made to DETSI to obtain approval. Please refer to **Part C** of this report for further detail.

6.3.3 Planning Act 2016

The *Planning Act 2016 (Planning Act)* and its subordinate legislation is generally the statutory framework for decision making in relation to land use and development in Queensland. However, as the Project is located in the Bromelton SDA, the SDPWO Act applies to development involving a Material Change of Use in lieu of the Planning Act.

Pursuant to section 1.3 of the SDA Development Scheme, development that is not regulated by the scheme (i.e Building Work, Operational Work, Reconfiguring a Lot) may be regulated by other legislation and planning instruments, including the Planning Act, Building Act, and the *Scenic Rim Regional Council Planning Scheme 2020*.

Schedule 2 (Section 2.1) of the Development Scheme also states that an SDA development application must state the referral triggers that would apply if the application were made under the Planning Act (and referral entities, if known) for the application. This has been included in **Section 9** of this report. Further detail is included in **Part B** of this report.

6.3.4 Transport Infrastructure Act 1994

The purpose of the *Transport Infrastructure Act 1994* is to provide a regime that allows for and encourages effective integrated planning and efficient management of a system of transport infrastructure.

The site has sole frontage to Beaudesert Boonah Road and adjoins a railway corridor at the eastern property boundary. The road and railway corridor are identified as State transport infrastructure. On this basis, Department of Transport and

Main Roads (**DTMR**) is a referral entity for the SDA development application and assessment against State Codes 1, 2 and 6 are required.

The Project includes a proposed site access to Beaudesert Boonah Road via a new signalised intersection. Part of DTMR's assessment of the SDA development application is to assess the proposed vehicular access to the State-controlled road. It is expected an SDA approval would provide conditioned approval for access.

Additional approvals are required under the *Transport Infrastructure Act 1994* (**TIA**) as follows:

A separate application is to be submitted to DTMR to obtain approval for a permitted road access location (in alignment with the SDA development approval) in accordance with Section 62(1) of the TIA. Pursuant to Section 62A of the TIA, an SDA development application is not taken to be an application under Section 62(1) of the TIA. It is intended that this application be made and assessed concurrently with the SDA development application.

In addition, a Road Works Approval is required pursuant to Section 33 of the TIA to carry out construction within a State-controlled Road. It is considered that approval for a Section 33 may be most appropriately sought post-approval of the SDA application and above referenced Section 62 application, during the detailed design phase.

6.4 Local Government

6.4.1 Scenic Rim Planning Scheme 2020

The site is within the bounds of the Scenic Rim Regional Council (**SRRC**) local government area. Section 1.3(3) of the Bromelton SDA Development Scheme states that development which is not regulated by the Development Scheme may be regulated by other legislation and planning instruments, including the *Scenic Rim Planning Scheme 2020* (**Planning Scheme**). OCG has identified SRRC as a referral agency to provide SRRC with the opportunity to assess the application against the relevant components of the Planning Scheme, including local matters, impacts on infrastructure networks (i.e. stormwater) and consistency with Council's design standards.

The Project requires Operational Works approval for filling and excavation and constitutes assessable development under the Planning Scheme and SRRC will be the assessment manager. The mapped planning scheme overlays are applicable to future development over the site (other than a Material Change of Use). As SRRC is a referral entity, concept earthwork plans are submitted as part of the SDA application for preliminary assessment and are contained in the **Architectural and Civil Engineering Drawings (Appendix B)**. An assessment against the relevant development codes is provided in the **Code Compliance Statements (Appendix Y)** to demonstrate a future Operational Works application can comply with the assessment requirements under the Planning Scheme. Further detail is set out in **Section 9.5** of this report.

It is anticipated that an Operational Works application will be submitted to SRRC after the SDA development approval is obtained.

6.4.2 Local Laws

At the time of writing, there are five Local Laws in effect in the SCCR local government area:

- Local Law No. 1 Administration 2011
- Local Law No. 2 Animal management 2011
- Local Law No. 3 Community and Environmental Management 2011
- Local Law No. 4 Local government controlled areas facilities and roads 2011
- Local Law No. 5 (Waste Management) 2018

It is not anticipated the above Local Laws would have any impact on the Project, however noting SRRC are a referral entity for the SDA development application, SRRC may request additional information during the referral process, if required.

6.5 Other Regulated Development

6.5.1 Water Approval

The Project involves proposed connection to the existing reticulated water supply network located in Beaudesert Boonah Road. The application material (refer **Engineering Report at Appendix C**) outlines the proposed strategy and intended works to enable connection to the network. An application for Water Approval is made to Urban Utilities after an SDA approval is given.

6.5.2 Grid Connection

The Project requires an electricity network transmission grid connection to existing supply networks. This will be progressed separately to the SDA application.

6.6 Conclusion

In summary, the relevant legislative framework has been reviewed to confirm the application and assessment requirements for the Project, which include an SDA development application for a Material Change of Use made under the SDPWO Act and a separate application for an EA made under the EP Act. Please refer to **Part B** and **Part C** for further detail.

As outlined in **Section 1.3** of this Planning Report, these applications are to be assessed concurrently. Others will be progressed post-approval.

7.0 Overview of Technical Reports

7.1 Introduction

This section provides an assessment of the technical reports submitted in support of the SDA development application and EA application. In order to avoid duplication, several technical reports have not been summarised in this section. The content and conclusions from these documents have been incorporated within the earlier sections of this Planning Report.

To assist with the technical assessment in **Part B** and **Part C** of this Planning Report, an **Environmental Risk Assessment (Appendix X)** has been prepared by Arup to summarise the mitigation / management strategies proposed.

7.2 Landscape Character and Visual Impact Assessment

7.2.1 Overview

A **Landscape Character and Visual Impact Assessment (LCVIA)** has been prepared by Arup to consider the landscape character and visual impacts of the proposed development during the construction and operational phases of the proposal (refer to **Appendix D**). For the purpose of the assessment, the construction phase is the physical process of building and is considered temporary in nature. The operational phase refers to the establishment and commencement of use of the permanent buildings and associated structures of the EFW facility.

7.2.2 Regulatory Context

Legislation and policies

The LCVIA has been prepared in response to the legislation listed below. In particular, the visual impacts are to be assessed in accordance with Section 2.5.3 (Character and Amenity) of the SDA Development Scheme.

- Bromelton State Development Area Development Scheme (December 2017).
- Queensland Government Energy from Waste Policy (December 2021).
- State Code 22: Environmentally Relevant Activities.
- Scenic Rim Regional Council Planning Scheme – Part 2 Landscape Design (February 2023).
- Scenic Rim Regional Council Planning Scheme – Part 3 Strategic Framework June 2022).

Standards and Guidelines

The following documents have influenced the methodology for this assessment:

- Queensland Government Energy from Waste Guideline (December, 2021)
- Queensland Government Application requirements for activities with impacts to land (September, 2021).
- The Guidance for Landscape and Visual Impact Assessment prepared by the Landscape Institute and Institute of Environmental Management & Assessment, UK (Third Edition, 2013).
- Guidance Note for Landscape and Visual Assessment by the Australian Institute of Landscape Architects (June, 2018).
- Transport for NSW Practice Note – Guideline for Landscape Character and Visual Impact Assessment EIA-NO4.

7.2.3 Technical Assessment

A LCVIA considers how the Project might impact visual amenity and landscape character. Landscape character describes the distinct, perceptible qualities of a place shaped by natural and human influences, while visual impact assesses how the landscape is seen and people's experience of the view. The assessment documents how the surroundings may be specifically affected both quantitatively (with regards to the physical extent of change) and qualitatively (with regards to the change to the qualities of the view or landscape).

The assessment is an objective report and is based on professional judgement of the visual environment and landscape character of the project. It is also noted that the assessment excludes the impacts of lighting and the stack plume from the facility as these detailed studies should be undertaken based on detailed design documentation (if required).

The assessment follows an iterative process where key issues, constraints and mitigation related to the landscape character and visual assessment are integrated into the proposed development. The approach consists of the following:

- **Methodology:** This chapter provides the methodology against which the potential impacts are assessed.
- **Context:** This chapter Includes a review of legislative and planning context (as listed above) and review of existing context: The chapter has a focus on landscape, urban and natural features, visual amenity and landscape character and establishes the existing baseline to understand the impacts associated with the proposed development.
- **LCVIA:** The assessment begins with a description of the existing landscape character and visual context of the representative viewpoints. This baseline informs the evaluation of identified landscape character areas (LCA) and viewpoints, and the potential impacts from the proposed development. Each LCA or viewpoint is assessed by determining its sensitivity (the degree to which a particular landscape type or view can accommodate change arising from a development, without detrimental effects on its character) and the magnitude (which considers factors such as scale, contrast, quality, and distance of the proposed development). These two themes are then combined to calculate an overall impact rating for each landscape character area or viewpoint.
- **Conclusion:** This chapter provides a summary of the landscape character and visual impacts identified throughout the report. It identifies potential impacts and suggested mitigation measures considered to reduce and manage the impacts of the Project on the landscape, views and visual amenity.

Landscape Character Assessment

The landscape character assessment considered the combination of built, natural and cultural aspects that make up an area and provide a sense of place. It divides the landscape into distinct units with defining characteristics, identified as Landscape Character Areas (LCA). Four distinct LCAs have been identified as outlined below and shown on **Figure 16** below.

- LCA 1: Hinterland
- LCA 2: Industry
- LCA 3: Rural Agriculture
- LCA 4: Rural Centre

The proposed development is considered in the context of these LCAs to evaluate if there are any direct or indirect impacts.

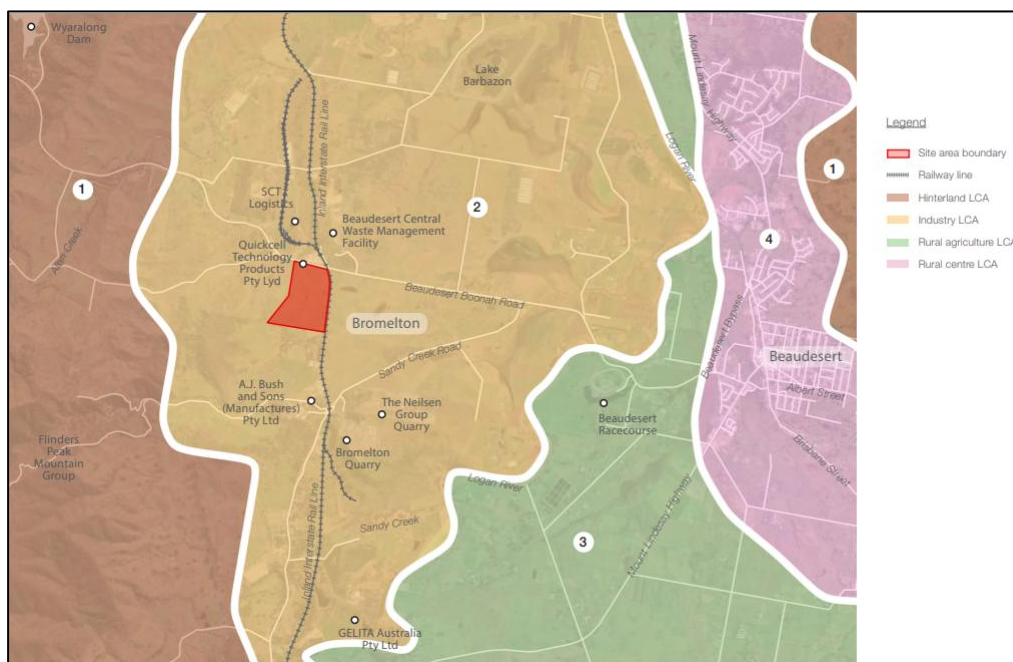


Figure 16: Extract of Landscape Character Areas

Visual Impact Assessment

The Visual Impact Assessment is an assessment of the theoretical area from which the proposed development and stack could be visible. **Figure 17** shows the viewpoints that are the subject of this visual analysis which are representative of sensitive receptors (i.e. adjacent residential properties, tourist driving routes and local recreational areas). The preliminary part of the assessment evaluates the overall level of sensitivity at the viewpoints.

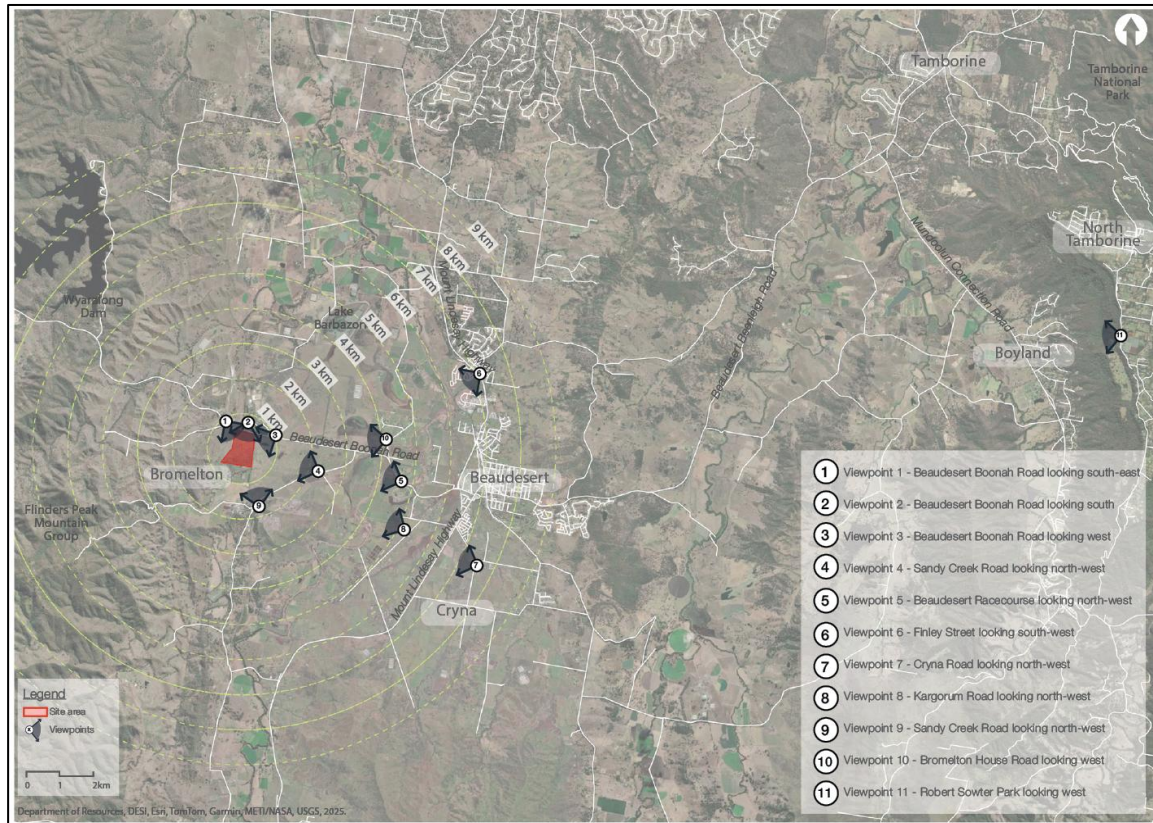


Figure 17: Extract of the Study Area and Viewpoint Location Plan

7.2.4 Assessment Findings

Landscape Character Assessment

The assessment outlined the magnitude of change during the construction phase and operational phase of development. A summary of findings for each LCA is outlined below.

LCA 1 – Hinterland is characterised by mountain ranges, agricultural farmland and areas of bushland. The sensitivity of this LCA is judged to be high due to the scenic nature of the LCA which make a positive contribution to the character and sense of place. From a construction perspective, the proposed development has a Negligible Adverse magnitude of change as the proposal is separated approximately 3km to the area and is unlikely to cause any direct physical impacts to the LCA. As such, the construction phase would result in a Negligible landscape impact. From an operational perspective, the proposed development has a negligible adverse magnitude of change for the reasons stated above and therefore it has a Negligible impact on the landscape character. The impacts arising at this location are considered to be visual and are assessed as part of the Visual Impact Assessment component of the Landscape and Visual Impact Assessment.

LCA 2 – Industry is characterised by large industrial development within a predominantly pastureland landscape setting. The sensitivity of this LCA is judged to be Low as it is comprised of elements creating unremarkable character and clustered industrial development. From a construction perspective, the proposed development has a Low Adverse magnitude of change due to the clearing of existing vegetation, earthworks and gradual introduction of large scale elevated components. As such, the construction phase would result in a Low landscape impact. From an operational perspective, the magnitude of change is identified as Low Adverse due to the existing clusters of industrial built form and

introduction of built form within a relatively low-lying topography. Therefore, the operational phase would result in a Low landscape impact.

The LCA 3 – Rural Agriculture is comprised of low-lying pastureland and agricultural farms with the presence of recreational facilities. The sensitivity of this LCA is judged to be Moderate due to being located within low-lying and relatively flat topography with expansive views of the landscape and adjoining mountains. From a construction perspective, the magnitude of change is considered to be Negligible Adverse as the changes are not anticipated to result in direct physical impacts to the LCA and the construction involves the gradual introduction of large scale elevated components (including machinery). The assessment has concluded that the construction phase would result in a Negligible landscape impact. From an operation perspective, the magnitude of change is identified as Negligible Adverse as the proposal is not in the LCA and changes are not anticipated to result in direct physical impacts to the LCA. The operational phase would result in a Negligible landscape impact, and the impacts arising at this location are considered to be visual. The visual impacts will be addressed as part of the Visual Impact Assessment component of the Landscape and Visual Impact Assessment.

The LCA 4 – Rural Centre describes areas of built-up development including Beaudesert town centre, and major transport infrastructure. It is also comprised of residential lots and detached dwellings and recreational facilities. The sensitivity of this LCA is judged to be moderate due to the low height built form and commercial activities, as well as expansive views westwards. At the construction phase, the magnitude of change is considered to be Negligible Adverse as the changes are not anticipated to result in direct physical impacts to this LCA and the construction activities are temporary in nature. Therefore, the construction phase has a Negligible landscape impact. From an operation perspective, the magnitude of change is assessed to be Negligible Adverse as the proposal is not in the LCA and is appropriately separated to minimise impacts to the existing character of the area. The operational phase would result in a Negligible landscape impact and the impacts arising are considered to be visual. The visual impacts will be addressed as part of the Visual Impact Assessment component of the Landscape and Visual Impact Assessment.

Visual Impact Assessment

The Visual Impact Assessment has considered both the landscape and visual impacts during the construction phase, and a summary of the assessment findings is outlined in **Figure 18**.

Viewpoints 1, 2 and 3 are located closest to the proposed development within the Bromelton SDA. The visual impact during operation for viewpoint 1 is Low and Moderate-Low for viewpoints 2 and 3. Viewpoint 3 has a moderate score in the construction phase due to the presence of machinery. Perimeter vegetation is proposed to integrate the proposed development into the natural landscape.

Viewpoints 4 to 11 represent receptors expected to view the proposed facility from a distance. The sensitivity rating for eight of these viewpoints is High, while the magnitude of change resulting from construction or operation is assessed as Low or Moderate. This is due to the project occupying only a small portion of the view, perceived at a small scale and from a distance. The application of appropriate siting, building design, use of materials (tone and colour), and landscape treatments is expected to reduce the perception of the visual mass of the development and support its integration into the existing landscape character for these viewpoints which are located at a distance from the project site.

	Sensitivity	Construction phase		Operation phase	
	Visual	Magnitude	Impact	Magnitude	Impact
Viewpoint 1 Beaudesert Boonah Road looking south-east	Low	Low	Low	Low	Low
Viewpoint 2 Beaudesert Boonah Road looking south	Low	High	Moderate	Moderate	Moderate-Low
Viewpoint 3 Beaudesert Boonah Road looking west	Moderate	Moderate	Moderate	Low	Moderate-Low
Viewpoint 4 Sandy Creek Road looking north-west	High	Moderate	High-Moderate	Moderate	High-Moderate
Viewpoint 5 Beaudesert Racecourse looking north-west	Moderate	Low	Moderate-Low	Low	Moderate-Low
Viewpoint 6 Finley Street looking south-west	High	Low	Moderate	Low	Moderate
Viewpoint 7 Cryna Road looking north-west	High	Low	Moderate	Low	Moderate
Viewpoint 8 Kargorum Road looking north-west	High	Moderate	High-Moderate	Moderate	High-Moderate
Viewpoint 9 Sandy Creek Road looking north-west	Low	Low	Low	Low	Low
Viewpoint 10 Bromelton House Road looking west	High	Moderate	High-Moderate	Moderate	High-Moderate
Viewpoint 11 Robert Sowler Park looking west	High	Low	Moderate	Low	Moderate

Figure 18: Extract of the Construction and Operation Phase Impact Summary Matrix

Embedded Mitigation Measures

To assist with mitigating the visual impact of the proposed development during operation, perimeter planting is proposed to screen built form elements, with intention to mitigate potential impacts for viewpoints that are located closest to the proposed development. Screen planting treatments are recommended as embedded design mitigation measures at viewpoints 3, 6 and 9 to contribute to reducing the visual bulk of the built form components. In addition, consideration has been given to the colour and material palette of the structure so that the overall finish will contribute to reducing the perception of visual mass of the facility, particularly when viewed from a distance.

7.2.5 Conclusion

The LCVIA has provided an assessment of both the LCAs and the visual impact of the proposal at particular viewpoints. It documents how the surrounds of individuals or groups of people may be specifically affected both quantitatively and qualitatively.

The proposed development is situated within a landscape currently undergoing a transition from predominantly cleared agricultural land, which includes some natural features and patches of dense vegetation, to a future characterised by industrial development. This evolving context reflects the strategic intent of the Bromelton SDA, which aims to facilitate regionally significant industrial growth. The assessment has found that the physical impact to the landscape character during construction and operation would be concentrated to the immediate proposed site extents. Embedded mitigation measures in the form of planting and colour and material selection for the structure are proposed to mitigate visual impacts of the proposed development and therefore achieves the intent of Section 2.5.3 (Character and Amenity) of the SDA Development Scheme.

On this basis, the proposal is considered to achieve an acceptable visual outcome in alignment with the SDA Development Scheme.

7.3 Preliminary Site Investigation for Contamination

7.3.1 Overview

A **Preliminary Site Investigation for Contamination (Appendix F1)** and an **Additional Contamination Investigation (Appendix F2)** were conducted by Douglas Partners for the proposed BERC site. The objective of these investigations was to identify potential sources of contamination, evaluate the associated contaminants of potential concern (CoPC), identify areas and activities of potential contamination, identify potential human and ecological receptors and identify potentially affected soil, groundwater or surface water.

7.3.2 Regulatory Context

Legislation and policies

The assessment has been developed in accordance with the following key policies and guidelines:

- National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [the 'NEPM'] (NEPC, 2013);
- Sections 387 and 388 of the *Environmental Protection Act 1994* (the 'EP Act'); and
- Bromelton State Development Area Development Scheme December 2017 (State of Queensland, Department of State Development).

7.3.3 Technical Assessment Methodology

The Preliminary Site Investigation (**PSI**) methodology involved conducting a desktop assessment of the site's history and other relevant environmental information, a site walkover inspection, a limited program of soil and groundwater sampling within the footprint of the development area and surface water sampling of dams located to the south of the development area.

The Additional Contamination Investigation aimed to assess soil and groundwater contamination in the area surrounding the spray race. The investigation involved drilling and soil sampling at 26 boreholes and three surface locations, laboratory testing of samples, installation of one new groundwater monitoring well and groundwater sampling from three monitoring wells.

7.3.4 Assessment Findings

Site History

Historical aerial photographs, maps, and lease records indicate that the site has been used for agricultural purposes since at least 1927. During this period, several cattle yards appear to have been constructed on the property.

A number of potential cattle dips were identified in the surrounding area, including one located within 150m of the site. The 1927 historical map also marked the word "*dip*" in the central-northern portion of the site, suggesting the possible presence of a former cattle dip. In addition, a former cattle spray race remains present on the site. Aerial imagery from the Lot search report indicates that the cattle pens were developed between 1965 and 1974, although the period of operation of the spray race is unknown.

A cattle dip is a permanent concrete bath used since the early 1900s to immerse cattle in treatments, initially containing arsenic (until the mid-1950s) and later DDT (dichloro-diphenyl-trichloroethane). Spray races, introduced in the early 1970s as more mobile alternatives, evidence suggests that DDT use for cattle ceased before spray races were introduced (in the mid 1960s), although it was not officially banned in Australia until 1987.

Preliminary Conceptual Site Model

A conceptual site model (CSM) is a theoretical representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM provides the framework for identifying how the site may become contaminated and how potential receptors may be exposed to contamination either in the present or the future i.e., it enables an assessment of the potential source – pathway – receptor linkages (complete pathways). The possible pathways between the sources and receptors are provided below in **Table K**.

Table K: Summary of potential complete exposure pathways

Source and CoPC	Transport Pathway	Receptor
S1: Agricultural activities – metals/metalloids, ammonia, nitrates, phosphorus, OPP, OCP, PFAS and asbestos	P1: Ingestion and dermal contact;	R1: Construction and maintenance workers
	P2: Inhalation of dust, fibres and/or vapours	R2: End users
S2: Spray race and potential cattle dip – arsenic, carbamate pesticides, OCP, OPP, synthetic pyrethroids and herbicides.	P3: Surface water run-off	R3: Adjacent site users
	P4: Leaching of contaminants and vertical migration into groundwater	R4: Surface water
	P5: Lateral migration of groundwater providing base flow to water bodies	R5: Groundwater and GDE
	P6: Inhalation, ingestion, and absorption by terrestrial ecology	R6: Terrestrial ecology

Ground conditions

The subsurface conditions generally comprised topsoil over residual clay and extremely weathered siltstone then bedrock of predominant siltstone and mudstone with interbedded sandstone.

Soil investigation

Soil investigation results

Sampling locations were selected in conjunction with the geotechnical investigation and distributed across the site to provide coverage within the proposed development footprint. The locations are shown in Appendix B of Preliminary Site Investigation for Contamination (PSI).

A total of 14 test locations were established, representing approximately 6% of the recommended minimum sampling density outlined in the NSW Environment Protection Authority (EPA) Sampling Design Guidelines for Contaminated Land (2022) for a site of 20 hectares. A total of 70 primary soil samples, two primary groundwater samples and two primary surface water samples were collected during the field investigation

The intrusive soil investigation indicated that contamination has not been detected at the locations and depths tested at concentrations that are considered to present a risk of harm to potential human and ecological receptors when compared against the adopted SAC for commercial/industrial site use.

Groundwater and surface water

Groundwater investigation results

Groundwater samples were collected from two groundwater monitoring wells (MW8 and MW9). Most parameters were within site assessment criteria limits, with the exception of pH, electrical conductivity (EC), turbidity, and certain metals. It should be noted that if the discharge of groundwater or dam water into a watercourse is proposed, treatment would be necessary due to these observed exceedances of site assessment criteria standards. However, since BERC works does not proposed discharge of groundwater, treatment is not expected to be required for exceedances.

Surface water investigation results

To assess the current contamination status of the dams located on the Lot, sampling of surface water from two dams was conducted. Exceedances were detected above the adopted site assessment criteria for pH, turbidity, metals and nutrients in the surface water samples collected. As in the case of groundwater, BERC project works is not expected to include discharge of surface water to watercourses, therefore, treatment is not expected to be required.

Spray Race

The intrusive soil investigation of the spray race indicated that contamination has not been detected at the locations and depths tested at concentrations that are considered to present a risk of harm to potential human and ecological receptors. It concluded that the spray race area is considered suitable for the proposed BERC development.

7.3.5 Conclusions

Based on the findings and analysis of the desktop review and site walkover, together with the results of the intrusive field works, the following recommendations were made:

- Intrusive soil sampling and analysis for the identified contaminants of potential concern (CoPC) should be conducted in the location of the spray race, which is considered to be the area of the site with the highest risk of contamination. This was undertaken as part of the Additional Contamination Investigation which concluded that the spray race area is considered suitable for the proposed BERC development.
- The remainder of the site is considered to present a lower risk of contamination. Some potential for contamination still exists due to the site's history of agricultural use. If a detailed site investigation over the larger site area is required, sampling should be conducted at sufficient density to meet the recommended minimum density detailed in NSW EPA (2022)
- If discharge of groundwater or dam water to a watercourse is proposed, then treatment would be required due to the reported exceedances of the site assessment criteria.

7.4 Biodiversity Technical Report

7.4.1 Overview

A **Biodiversity Technical Report (Appendix G)** has been prepared by Arup to provide a detailed ecological assessment of the Project to assess the compliance with relevant legislation and best practice requirements for the construction and operation of the Project. It outlines the biodiversity values that may be impacted by the Project at a local, regional and national level, with a specific focus on the northern portion of the site where the development footprint will be contained. The findings are based on two site visits, undertaken in autumn 2023 and winter 2025.

7.4.2 Regulatory Context

The applicable regulatory frameworks and instruments to the Project in the context of biodiversity are outlined below. The Biodiversity Technical Report provides a direct response to Section 2.5.8 (Water Quality) and Section 2.5.11 (Environment, Cultural Heritage and Community) of the SDA Development Scheme.

- *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC)
- *Biosecurity Act 2014*
- *Environmental Offsets Act 2014*
- *Environmental Protection Act 1994* (EP Act)
- *Energy from Waste Policy and Guideline 2021*
- *Environmentally Relevant Activities Guidelines 2019*
- *Fisheries Act 2016*
- *Nature Conservation Act 1992*
- *Planning Act 2016*
- *State Development and Public Works organisation Act 1971* (SDPWO Act)
- *South East Queensland Conservation Strategy 2020 – 2025*
- *Vegetation Management Act 1999*
- *Water Act 2000*

7.4.3 Technical Assessment

The Biodiversity Technical Report has been informed by a desktop review of public, State and Commonwealth databases to assist in determining the previously recorded ecological attributes with the potential to occur within and adjacent to the Project area. This includes a review of the following:

- Commonwealth Department of Climate Change, Energy, the Environment and Water's (DCCEEW) EPBC Act Protected Matters Tool (PMST) to determine the matters of national environmental significance (MNES) that have a potential to occur within area 5km radius of the centre of the site.
- Queensland Government's WildNet database, which is an online resource, managed by the DETSI on Queensland's flora and fauna to identify records of threatened species that have been recorded within a 5km radius of the site centre.
- DETSI Protected Plants Flora Survey Trigger Map to identify high-risk areas where endangered, vulnerable or near threatened native plants are present or are likely to be present.
- Department of Natural Resources and Mines, Manufacturing and Regional and Rural Development (DNRMMRRD) Vegetation Management Supporting Map to provide information on regional ecosystems, wetlands, watercourses, and essential habitat and factors.
- The South East Queensland Koala Conservation Strategy 2020–2025 koala habitat values mapping.
- DETSI State-wide biodiversity corridor mapping to identify areas of ecological value to be maintained and where incremental habitat loss, fragmentation and degradation should be avoided.
- The Queensland government's Queensland waterways for waterway barrier works GIS layer to determine if waterways are defined by the Fisheries Act 1994 and are required to need fish passages.
- Queensland watercourse identification map as per the Water Act 2000 to identify the status of watercourses that may be present.
- DETSI Wetland mapping to determine if there are any wetland environmental values that need to be considered.

- The State Planning Policy (SPP) Development Assessment Mapping System's Bushfire hazard area – bushfire prone area mapping.

In addition to the desktop analysis, field surveys were undertaken on 13 April 2023 and 15 August 2025 to generate a flora and fauna survey.

It is noted that the accuracy of the data obtained by handheld GPS devices during the survey was approximately 6m. There are inherent limitations associated with field surveys and observer accuracy in naturally variable vegetation communities and therefore not all flora and/or fauna species are likely to have been encountered. Field surveys were conducted during a single-day event, which may have limited the likelihood of detecting all potential species present on the site. In addition, the ecological surveys have been conducted in autumn and winter, and seasonal differences may influence species detectability and vegetation condition and should be considered when interpreting results. However, due to the disturbed nature of the site, the historic clearing of the area and the intended use of this report, the results presented are considered to be appropriate.

7.4.4 Assessment Findings

Desktop Assessment Results

A Protected Matters Search was undertaken and the report identified that the following Matters of National Significance (MNES) protected under the EPBC Act have the potential to occur within a 2km radius of the Project area.

- 7 Threatened Ecological Communities (TECs).
- 16 threatened flora species.
- 32 threatened fauna species.
- 23 migratory bird species, some of which are also recognised as threatened species.

In addition, a Queensland Government's WildNet database search was undertaken to identify records of threatened species that have been recorded within a 5km radius of the site centre.

A total of 198 flora and fauna species were recorded within a 5km radius of the Project area and the following threatened fauna species were recorded from WildNet.

Birds

- *Calidris acuminata* - listed as Vulnerable under the NC Act and Vulnerable and Marine and Migratory under the EPBC Act.
- *Gallinago hardwickii* – listed as Vulnerable under the NC Act and Vulnerable and Marine and Migratory under the EPBC Act.
- *Hirundapus caudacutus* - listed as Vulnerable under the NC Act and Vulnerable and Marine and Migratory under the EPBC Act

Mammals

- *Phascolarctos cinereus* – listed as Endangered under the NC Act and Endangered under the EPBC Act.
- *Pteropus poliocephalus* – listed as Least Concern under the NC Act and Vulnerable under the EPBC Act.

Monotremes

- *Tachyglossus aculeatus* – listed as Special Least Concern under the NC Act and is not listed under the EPBC Act.

There were no records of threatened flora species or threatened aquatic species to the WildNet Species List within the search radius.

A review of other relevant legislation and associated mapping identified the following:

- There are no high-risk areas of Protected Plants within the Project area.
- There is a relatively small polygon of High Value Regrowth (HVR) that extends marginally into the southern boundary of the site. It contains 'Of concern' *Eucalyptus moluccana* open forest.
- Essential habitat does not encroach into the site and is located outside of the proposed development area.
- There are no known priority species Matters of State Environmental Significance (MSES) identified on the Scenic Rim Planning Scheme 2020.
- There are no Matters of Local Environmental Significance (MLES) located on the site.

- The Koala Habitat Area (Core) is identified on the Development Assessment Mapping System and is located outside of the proposed development site and will not be impacted by construction or operation of the Project. It is associated with the HVR.
- The site is not mapped within Statewide Biodiversity Corridors.
- At the time of the original site survey (April 2023), the Queensland Waterways for Waterway Barrier Works GIS mapping layer indicated that no mapped waterways intersected the site. The State has since updated its waterways mapping and now shows a low-level (green) waterway in the central portion of the site, connecting the existing farm dams and conveying flows to the east. A second waterway is present in the western adjoining property, in close proximity to the site boundary.
- A watercourse identification map under the Water Act 2000, shows a waterway feature that correlates with the mapped waterway identified above.
- There are no DETSI wetlands mapped within the site.
- The SPP mapping identified part of the site is within the Bushfire hazard area and are predominantly contained to the southern portion of the site.

Please refer to Section 5 of the **Biodiversity Technical Report** for further information on the desktop assessment results.

Field Survey Findings

There is a small area within the site containing HVR. This area was ground-truthed during the 2023 field survey and confirmed to consist of canopy overhang from adjacent vegetation, with no vegetation consistent with HVR. This was reconfirmed in 2025 and therefore no HVR is mapped or recorded within the development footprint.

The vegetation contained within the site was observed to be dominated by exotic grasses and weeds with low density individual native eucalyptus trees consistent with grazing paddocks. Low density non-juvenile koala habitat trees (**NJKHT**) are present within or near the development area. It is identified that 36 NJKHT will require removal to facilitate the Project. Other native trees are presented in low densities. Due to the high-density of weeds in the ground layer, the historical clearing of the site and historical (and current) use of the site for grazing, there is a low potential for threatened flora species to be present within the site.

In addition, there were a total of 19 fauna species observed during the field survey. Due to the general lack of vegetation within the site and limited availability of habitat features, the potential for threatened fauna species to permanently reside within the site is considered low. The site supports only sparse woody vegetation and lacks a complex and structurally diverse understorey. In this regard, the vegetation within the site is unlikely to play an important role in providing dispersal habitat to terrestrial fauna species. Fauna dispersal values are likely limited to aerial fauna (birds and bats) which are likely to utilise the site transiently as steppingstone habitat.

Furthermore, it is identified that the dams provide minimal habitat value and do not provide essential habitat for aquatic species. The dams are human made, situated high in the catchment and there are several barriers to movement throughout the drainage channel within and downstream of the site.

Please refer to Section 6 of the **Biodiversity Technical Report** for further information on the desktop assessment results.

Legislative Outcomes

From a legislative assessment perspective, the following can be confirmed:

- The Project will not require referral to the Commonwealth government under the provision of the EPBC Act.
- Cleanaway is required to control all restricted invasive species within the site area and must not spread invasive plants during the construction phase of the Project under the Biosecurity Act 2014.
- Environmental offsets associated with Koala Habitat Area (Core) is not required.
- A development approval for works in Great Barrier Reef wetland protection areas will not be required under the *Environmental Protection Act 1994* for ecological matters as there are no wetland protection areas within or adjacent to the site.
- The Project is located outside of the waterways and will not require an operational works application for the construction of waterway barrier works.
- A total of 36 non-juvenile koala habitat trees were identified for removal to facilitate the Project. The removal does not trigger assessment under the Planning Regulation as it is not located within the mapped Priority Koala Habitat Area.

- No threatened flora species were identified during field surveys and therefore a clearing permit of exemption notice of protected plants is not required.
- A Species Management Program (Low Risk) is required to be obtained prior to any vegetation clearing and earthworks.
- Assessment against the provisions of the SEQ Koala Conversation Plan will not apply to the site.
- The Project will not impact any mapped regulated vegetation and an assessment under the Vegetation Management Act 1999 is not required.
- A development approval for environmentally relevant activities is required.

Please refer to Section 7 of the **Biodiversity Technical Report** for further information on the desktop assessment results.

Mitigation Measures

The Biodiversity Technical Report has identified potential impacts to the ecological value of the site during the construction phase and operational phase. Various design mitigation and management measures are proposed to mitigate the potential biodiversity impacts. Further detail is outlined below.

- Construction mitigation measures, include:
 - Site infrastructure is designed to discourage wildlife from interaction with site operations, including lighting considerations.
 - Preparation and implementation of a Construction Environmental Management Plan (CEMP).
- Operation mitigation measures, include:
 - Preparation and implementation of an Operational Environmental Management Plan, Revegetation Plan and a Stormwater Quality Monitoring Program.

Please refer to Section 8 of the **Biodiversity Technical Report** for further information on the desktop assessment results.

7.4.5 Conclusions

The assessment has concluded that the site has been subject to previous disturbance and generally has low ecological value. It has provided a desktop assessment that was ground-truthed via two field surveys in 2023 and 2025, and the below recommendations are suggested to minimise the potential ecological impacts associated with the Project.

- Comply with all legislative requirements under State and Commonwealth legislation.
- Avoid the removal of mature trees where possible, and where complete avoidance is not possible, it is recommended trees are pruned rather than completely removed.
- Habitat features (e.g. log piles) that are required to be disturbed should be relocated on site where possible.
- All works are to be undertaken under an approved Low Risk Species Management Program (SMP) under the NC Act and a suitably experienced and licensed fauna spotter/catcher is recommended to be engaged to manage fauna prior to and during any vegetation clearing and initial earthworks/grubbing.
- A Soil and Water Management Plan is recommended to be developed, implemented, and maintained for the duration of works to minimise impacts to water quality and prevent sediment entering the dams and drainage line on the site.
- A Revegetation Plan (or similar) is recommended to be developed and implemented for all areas impacted by the construction works.
- A landscape plan has been developed to ensure the site is appropriately restored and enhanced, using native, low-maintenance species.

The Project is consistent with all State and Commonwealth legislation and is consistent with Section 2.5.8 (Water Quality) and Section 2.5.11 (Environment, Cultural Heritage and Community) of the SDA Development Scheme.

7.5 Bushfire Hazard Assessment

7.5.1 Overview

A **Bushfire Hazard Assessment (Appendix H)** has been prepared by Arup to provide a site-specific assessment of the mapped Bushfire Prone Area under the *State Planning Policy 2017 (SPP)* and *Scenic Rim Regional Planning Scheme 2020 (Planning Scheme)*. The assessment has considered the risks and consequences to personnel in both the construction and operational phases.

7.5.2 Regulatory Context

The applicable regulatory frameworks and instruments to the Project in the context of bushfire hazard management are outlined below. The Bushfire Hazard Assessment provides a direct response to Section 2.5.6 (Natural Hazards – Other) of the SDA Development Scheme.

- Bromelton State Development Area Development Scheme (December 2017).
- State Planning Policy (2017).
- AS3959:2018 – Construction of Buildings in Bushfire-Prone Areas (Standards Australia, 2018) (AS2959|2018).
- SPP State Interest Guidance Material – Natural hazards, risk and resilience – Bushfire (2019).
- BRC Technical Guide (2019).

The Bushfire Hazard Assessment has been prepared in accordance with AS3959:2019 and provides a response to the Bushfire Hazard Overlay code under the Planning Scheme as the site is mapped as containing bushfire hazard. It is noted that the Bushfire Hazard Overlay Code is not a relevant assessment benchmark, an analysis has been included for completeness to demonstrate compliance for future applications that are assessable under the Planning Scheme (i.e. Operational Work).

7.5.3 Technical Assessment

The site is mapped in the Bushfire Prone Area and specifically as containing areas of high and very high potential bushfire intensity predominantly in the southern portion of the site (refer **Figure 19**). The land outside of the property to the north-east and south also triggers assessment against the Bushfire Hazard Code assessment benchmarks as it contains medium, high or very high potential bushfire intensity, and potential impact buffer. Importantly, the mapped bushfire hazard under the SPP aligns with the Planning Scheme Mapping.

The Bushfire Hazard Assessment has been prepared to assess the potential local and landscape hazards associated with bushfire and address legislative implications associated with the project. It first considers relevant regulatory guidance and requirements, then presents an overview of the existing environment. Next it considers potential fire hazards associated with the site and an assessment against the Bushfire Hazard Code.

Bushfire Attack Levels (**BAL**) are used to quantify the levels of attack (radiant heat exposures / flux) that built structures may experience during a fire event. It establishes the requirements for construction to improve protection of building elements from attack by bushfire. The assessment considers the follows spatial factors to identify the potential bushfire intensity for the site and surrounding land:

- Identification of all Forest Fire Danger Index (FFDI).
- Identification of Vegetation Hazard Classes (**VHC**) through an assessment of vegetation communities.
- Identification of site slope and effective slope to determine if proposed buildings are upslope or downslope of hazardous vegetation.
- Remodelling of bushfire hazard and calculation of potential fireline intensity.



Figure 19: Bushfire prone area (Source: DSDMIP SPP IMS)

7.5.4 Assessment Findings

A ground-truth assessment of existing vegetation concludes that the vegetation within the 150m assessment area of the site boundary consists of native vegetation with varying levels of degradation, clearing farming and horticulture land. It can be defined into two vegetation communities as described below.

Vegetation Community 1 – Cleared Farmland Vegetation

Vegetation associated with the Project consists of open paddock dominated by ground covering invasive grass and weed species with individual *Eucalyptus Moluccana* present throughout the site as individuals or small aggregations (with a canopy cover not exceeding 10%). The densities and understorey do not support a **VHC** or bushfire front. Therefore, this community is a non-bushfire prone vegetation community and is a low-risk vegetation community. BAL calculations are not necessitated on this basis.

Vegetation Community 2 – Degraded *Eucalyptus* Woodland

The vegetation community is located off the southern boundary along a mapped waterway in Lots 1 on RP43189 and Lot 2 on RP68584. It is associated with the rail line corridor and retained vegetation in Lot 101 on SP223082, and along the roadside verge to the west of the site. The vegetation community is representative of a degraded woodland community.

It is concluded that no vegetation is located within the assessment area that is capable of supporting a fully developed flame front or generate a fireline intensity of 4,000Kw/h or more that can provide medium or higher exposure to a built asset.

The assessment has confirmed the mapped Bushfire Prone Area does not entirely reflect the ground-truth VHCs. The results of the potential fireline intensity calculation for bushfire-prone vegetation that sits outside of the assessment area show that vegetation to the north-east of the site has a potential bushfire hazard class of 'medium' (Potential fire line intensity 4,000 -20,000 kW/m). With separation distances of about 200m to the north-east and 670m to the south from unmanaged classified vegetation, the development footprint falls outside any BAL separation zones. All other vegetation

within 150m of the development footprint is not classified as bushfire-prone and therefore, calculation of radiant heat flux/BAL is not applicable.

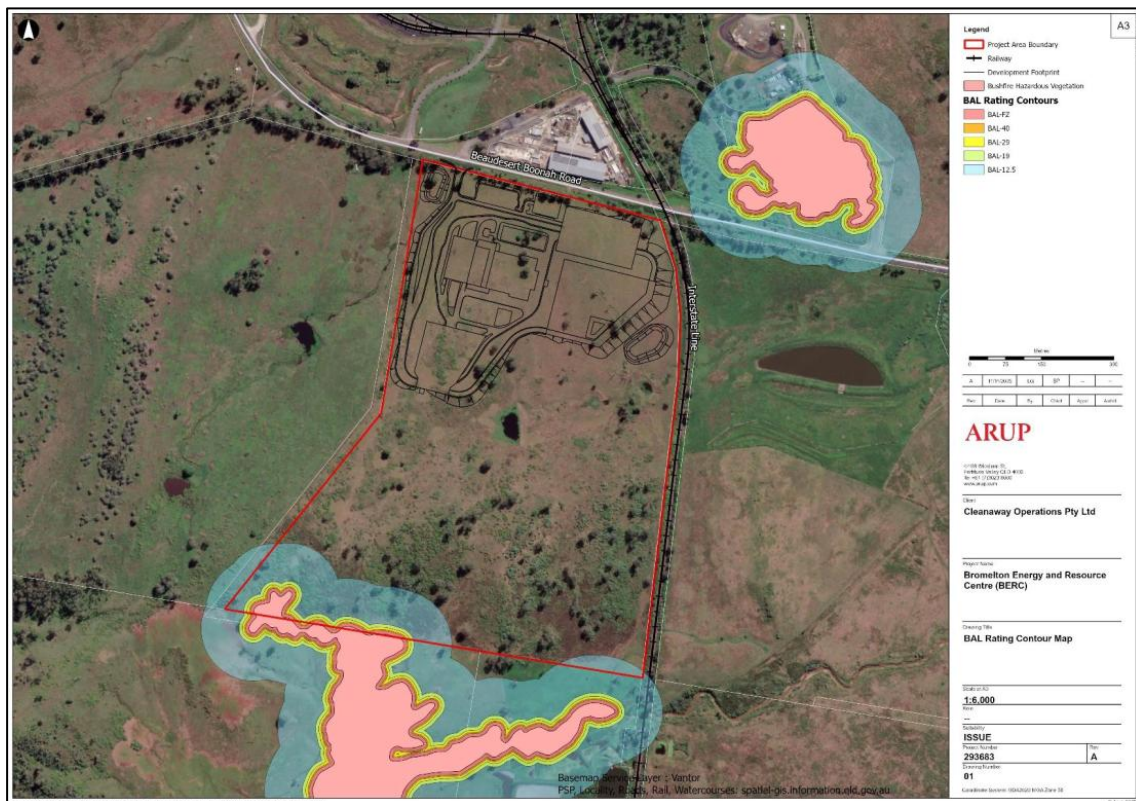


Figure 20: BAL Rating Contour Map

Mitigation Measures

Based on the above findings, it is concluded that the location of the Project is rated BAL-LOW and therefore bushfire construction requirements, including setbacks under the Australian Standards, are not needed due to insufficient risk.

7.5.5 Conclusions

This section provided a summary of the Bushfire Hazard Assessment prepared by Arup, being a site-specific assessment of the mapped Bushfire Prone Area under the SPP and Planning Scheme. The assessment concluded that the small patches of vegetation associated with the rail corridor, the roadside verge vegetation to the west and vegetation to the north-east of the site are too small to develop into a full fire front and have been removed from the assessment. The larger patches of hazardous vegetation to the north-east and off the southern boundary pose low risk of bushfire impacts to the building assets forming part of the Project.

The Project is consistent with the SPP and Bushfire Hazard Overlay Code and ultimately complies with Section 2.5.6 (Natural Hazards – Other) of the SDA Development Scheme.

7.6 Hazards and Risk Assessment

7.6.1 Overview

A **Hazards and Risk Assessment (Appendix I)** was prepared by Arup for the proposed BERC facility. The assessment considers impacts and risks associated with hazardous chemicals and industrial hazards for the construction and operation of the project, and outlines management measures to address these risks. Supporting site-specific risk assessments were also undertaken for the nearby rail corridor and water quality, confirming that risks can be appropriately managed through the implementation of the proposed design and mitigation measures.

7.6.2 Regulatory Context

Legislation and policies

The assessment has been developed in accordance with the following key legislation:

- Work Health and Safety (WHS) Regulations 2011
 - Chapter 7.1: Hazardous Chemicals
 - Schedule 11: Placard and Manifest Quantities
 - Regulation 361: Emergency Plans
 - Schedule 13: Placard Requirements
- Bromelton State Development Area Development Scheme
- State Code 21: Hazardous Chemical Facilities
- Environmental Protection Act 1994
- Environmental Protection Regulation 2019
- Environmentally Relevant Activities Guidelines

7.6.3 Technical Assessment

The assessment reviews hazardous chemicals and industrial risks associated with the BERC project. This approach involves the following steps:

- Review of key regulatory requirements for the project.
- Identification of expected quantities of hazardous materials.
- Assessment of regulatory thresholds and development of a hazard identification (HAZID) register.
- Development of mitigation measures.
- A separate rail risk assessment has been undertaken due to the proximity of the site to the rail line (Refer to Appendix B of the Hazards and Risk Assessment).

7.6.4 Assessment Findings

Expected Quantities

The BERC is expected to store on-site the following quantities of hazardous chemicals, defined by the global harmonised system as required by the WHS Regulations.

Table L: Expected Quantities of Hazardous Chemicals Stored On-Site.

Hazardous Chemicals	Use on-site / By Product	Quantity Held On-Site
Hydraulic oil	The use of mechanical equipment such as the grate, cranes and turbines in the facility requires the use of hydraulic and lubrication oil.	2t
Lubrication oil		2t
Activated carbon	Activated carbon is added to the flue gas to remove absorbing dioxins, furans, gaseous mercury and other impurities that may be present in the flue gas.	50m ³

Hazardous Chemicals	Use on-site / By Product	Quantity Held On-Site
25% aqueous ammonia Solution (if used)	Used in the Selective Non-Catalytic Reduction (SNCR) process where ammonia is injected into the boiler to reduce nitrogen oxide emissions in the combustion process Note: Currently the design is likely to use a 40% w/w urea solution as opposed to ammonia. Ammonia is classified as a Class 8 dangerous good under the Australian Code for the Transport of Dangerous Good by Road & Rail and has been included in at Table L for completeness.	<120t
Propane/acetylene	Propane and/or Acetylene are used as fuels for welding as required during maintenance operations	<100kg
Sodium hydroxide	Used to adjust pH of process water	1400kg
Hydrochloric acid	Used in water treatment regeneration.	1400kg
APCr	APCr is collected as a solid residue from the flue gas treatment system, then stabilised in concrete for transport.	350t
Stabilised APCr (curing)		4,600t
Stabilised APCr (cured)		4,600t
Diesel	BERC uses diesel as the start-up fuel to ensure temperatures are high enough for safe and efficient waste combustion. Once the temperature can be sustained by the waste, diesel is no longer required. While diesel is not classified as a dangerous good, it can add to the fuel load in the event of a fire and shall be considered when assessing the site.	360kL

Regulatory Outcomes

The hazardous chemicals have been assessed against the regulatory requirements under the WHS Regulations, State Code 21, and EP Act and Regulations. The following exceedances of regulatory thresholds have been noted:

- WHS Regulations (Schedule 11)
 - 25% aqueous ammonia solution (if used) – Exceeds Placard and Manifest quantities
 - Sodium hydroxide – Exceeds Placard quantity
 - Hydrochloric acid – Exceeds Placard quantity
 - Diesel - Exceeds Placard and Manifest quantities.
- State Code 21
 - No hazardous chemicals exceed the quantity required to meet a Hazardous Chemical Facility (HCF) or Major Hazard Facility (MHF).
- EP Act and Regulations
 - Under the EP Act, diesel storage exceeds the threshold and is classified as a ‘notifiable activity’ with DETSI notified by the operator.
 - No hazardous chemicals are identified as ERAs under Schedule 2 of the EP Regulations.

7.6.5 Conclusions

The assessment concludes that the BERC must ensure that hazardous chemicals are stored, handled and recorded correctly, with DETSI notified for select chemicals exceeding threshold quantities. Development of an emergency plan and provision of placard and manifest requirements will ensure that the Project complies with the WHS Regulations, State Code 21 and EP Act and Regulations.

7.7 Aboriginal Cultural Heritage Assessment

7.7.1 Overview

An **Aboriginal Cultural Heritage Assessment (Appendix K)** has been prepared by Everick Heritage as technical advisor to the Danggan Balun People to determine the presence of Aboriginal cultural heritage within the specified study area prior to the construction of the Project. The report provides the results of field surveys conducted in 2023 and 2024 and outlines cultural heritage management strategies to be implemented during the planning and construction stages of the Project.

7.7.2 Regulatory Context

The Aboriginal Cultural Heritage Assessment was undertaken in accordance with the *Aboriginal Cultural Heritage Act 2003 (ACH Act)*, *Queensland Heritage Act 1992* and all relevant legislation application to the management of cultural heritage in Queensland. In addition, the assessment has been undertaken in response to Section 2.5.11 (Environmental, Cultural Heritage and Community) of the SDA Development Scheme.

7.7.3 Technical Assessment

The Aboriginal Cultural Heritage Assessment is inclusive of the following:

- A legislative overview.
- A search of applicable registers, including Department of Women, Aboriginal and Torres Strait Islander Partnerships and Multiculturalism (DWATSIPM) Cultural Heritage Database; and other local, national, state and local heritage registers.
- A desktop assessment including a review of relevant archaeological and environmental literature; a review of previous cultural heritage assessments for the region; and archaeological predictive modelling.
- The results of the 2023 and 2025 field surveys; and the three-day test excavation program in 2024.

Cultural heritage management measures addressing the proponent's statutory obligations under the ACH Act, and other relevant legislation.

An Aboriginal Cultural Heritage Assessment was conducted in 2023 and was based on a study area in the northern portion of the site (left). An updated Aboriginal Cultural Heritage Report based on a new 'study area' as shown at **Figure 21** (right) was conducted in 2025. The 2025 assessment provides a cumulative summary of the previous findings and new findings for completeness.

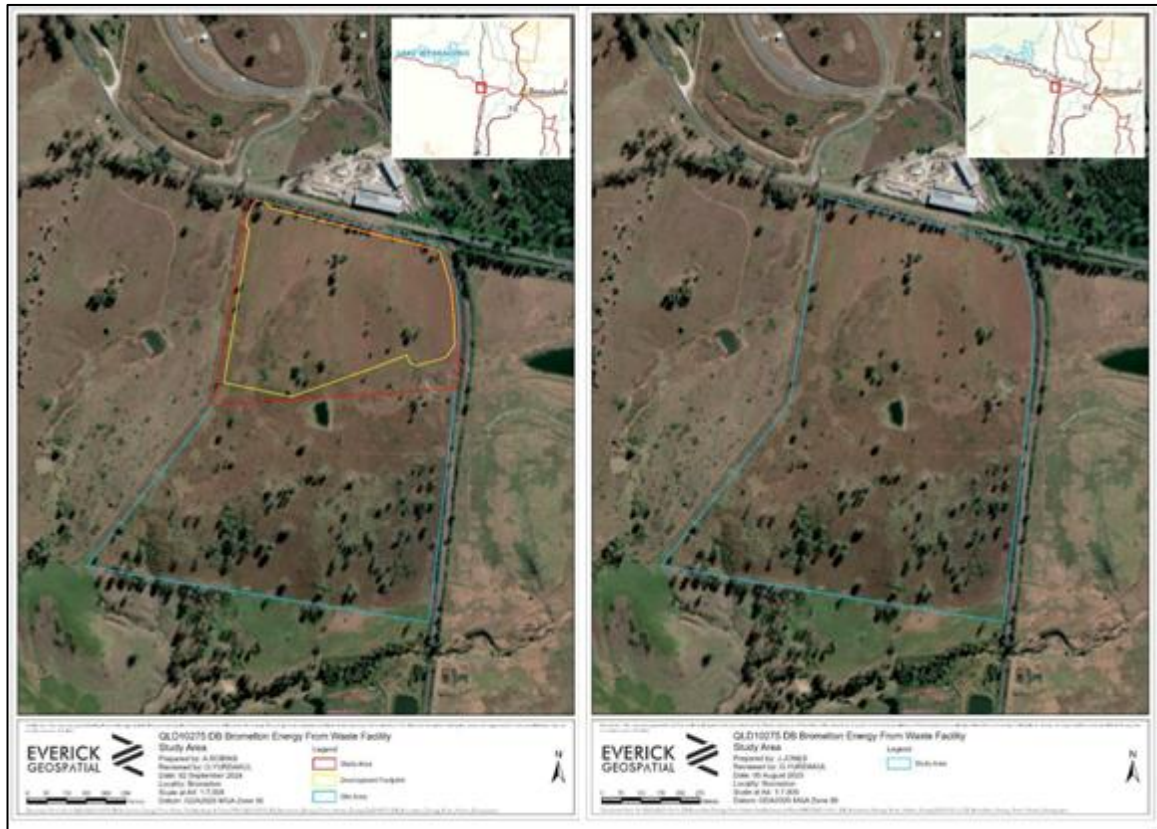


Figure 21: Comparison of Study Areas

Field Surveys and Excavations

A field survey was conducted of the study area on 9 November 2023. A subsequent three-day test excavation program was completed on 15 March 2024 in the northern-most ridge crest. This included a total of 20 test pits within the northern portion of the study area. A further field survey was undertaken on 24 - 25 July 2025 to assess the entirety of the site.

Desktop Searches

A search of the DWATSIPM Cultural Heritage Database was conducted on 4 August 2025 of the Study Area and its surroundings. The search had a 1000m buffer applied to the Study Area (Refer **Figure 22**). No registered sites were recorded within the boundaries of the Study Area, and six registered sites were recorded within the buffer zone.

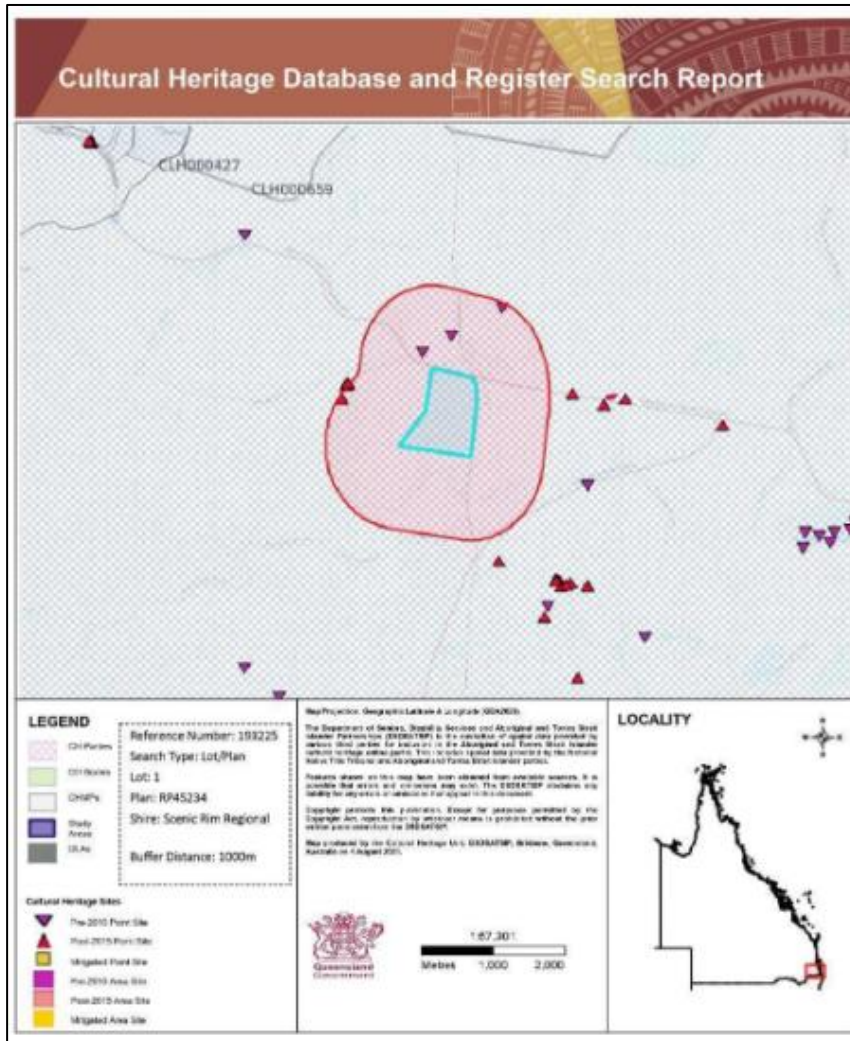


Figure 22: Buffer Area

7.7.4 Assessment Findings



7.7.5 Recommendations

7.7.6 Conclusions

7.8 Waste Feedstock Report

7.8.1 Overview

The **Waste Feedstock Report (Appendix L)** was prepared by Arup to define the waste feedstock to be used for energy recovery at the BERC facility. Its primary aim is to demonstrate that BERC will comply with relevant Queensland EfW Policy requirements and uphold the principles of the waste hierarchy by accepting only residual waste.

7.8.2 Regulatory Context

The Waste Feedstock Report primarily addresses the Queensland Energy from Waste Policy (2021) and EfW Guideline (2021). Specifically, the report seeks to conclude alignment with the below Queensland EfW policy outcomes:

- Policy outcome 1: Protect the waste hierarchy.
- Policy outcome 4: Use only residual waste as feedstock.
- Policy outcome 5: Adapt to residual waste changes over time.

7.8.3 Technical Assessment

The assessment provides a structured review of the BERC's proposed feedstock types, acceptance protocols and alignment with the Queensland EfW Policy.

The report includes:

- A summary of the waste feedstock strategy proposed for the BERC.
- A summary of the feedstock modelling undertaken for the BERC.
- Confirmation of the compliance of the feedstock with the Queensland Energy from Waste (EfW) Policy (2021) and EfW Guideline (2021).
- A description of expected feedstock composition.
- An overview of the sampling and testing regimes to be undertaken at the BERC during facility operation.
- A draft Waste Acceptance Protocol which defines acceptable and unacceptable waste for the facility, as well as provide information about waste supply, on-site procedures, contingency measures and operational practices to suppliers and operators.

7.8.4 Assessment Findings

Proposed Feedstock

BERC will receive and process residual waste streams, which are materials that are not technically, environmentally, and economically practical (TEEP) to reuse or recycle, which would otherwise be sent to landfill for disposal. These include:

- Residual municipal solid waste (MSW) — the portion of household waste that remains after residents have sorted recyclables (and food organics and/or garden organics if applicable) through their regular kerbside collection systems. In Queensland residual MSW is typically collected in the household “red” bin.
- Residual commercial and industrial waste (C&I), which refers to waste generated by businesses and industries that is not technically, environmentally or economically practicable to be recycled or reused.

Feedstock Availability

Feedstock modelling by Arcadis confirms that BERC will have a surplus of eligible residual waste available for processing, even as recycling and source separation rates increase over time.

The Waste Flow Analysis for SEQ report estimates that, in 2031, the BERC's feedstock requirements of 760,000 tpa represents approximately 53% of the residual MSW and residual C&I waste expected to be generated within the target catchment (defined as Local Government Areas (LGAs) with a geographic centroid within a 90 minute one-way trip to/from the BERC via road).

BERC can adapt to changes in supply contracts, recycling practices and policy drivers by accepting varying proportions of MSW and C&I waste without impacting efficiency and performance (environmental and operational). The modelling takes into account population growth, improving recycling behaviours (including GO uptake by councils), policy impacts and other potential EfW facilities in South East Queensland.

Feedstock Compliance (Policy outcome 4)

To be eligible as a feedstock for thermal EfW processes under the Queensland EfW policy, all waste feedstock must be residual (that is, not technically, environmentally, or economically practicable (TEEP) to reuse or recycle). Waste streams processed at BERC will meet the definition of residual waste under the Queensland EfW Policy and EfW Guideline.

The Waste Acceptance Protocol prepared by Ramboll establishes a clear framework to ensure only suitable waste streams are accepted and managed at the facility. It defines “Acceptable Waste” and sets out a hierarchy of controls, including:

- Supplier Pre-Qualification: All waste suppliers must be approved and pre-qualified, confirming that the waste they provide meets the criteria for Acceptable Waste.
- Contractual Arrangements: Contracts with suppliers include specific waste acceptance criteria, ensuring only compliant waste is delivered.
- Inspection and Exclusion: On-site procedures include random inspection of feedstock deliveries, periodic sampling and testing and rejection and removal of unacceptable deliveries. If waste is found to be unacceptable, the supplier will be required to implement a corrective action plan, which may include an increased inspection frequency.

Adapting to Change (Policy outcome 5)

The waste system in Queensland will continue to evolve due to changes in regulation, policy and recycling schemes. Policy outcome 5 of the Queensland EfW Policy requires EfW facilities to adapt to changes in residual waste.

The BERC is designed to accommodate variability in waste composition and future changes by:

- Employing technology capable of processing variations in calorific value, allowing for short- and long-term fluctuations in feedstock, including different proportions of MSW and C&I waste.
- Identifying that there is sufficient residual waste—forecast at 1.4 to 1.9 million tonnes per year within the target catchment between 2026 and 2056—to support EfW operations and accommodate future policy and feedstock changes.

Supporting Higher-Order Resource Management (Policy outcome 1)

BERC contributes to higher-order resource management by:

- Accepting residual waste: BERC receives residual MSW and C&I waste from households and businesses, providing a pathway for materials that would otherwise be disposed of in landfill.
- Adapting to changes in waste composition: The facility is designed to handle variability in waste streams, including shifts in the proportions of MSW and C&I waste, as well as changes in calorific value over time. This allows BERC to respond to improvements in recycling, policy changes and evolving collection systems.
- Energy recovery: Residual waste is processed to generate electricity, turning otherwise unusable materials into a valuable energy resource.
- Material recovery: Metals are recovered from the combustion process for recycling and Incinerator Bottom Ash Aggregate (IBAA) is to be prepared to facilitate reuse as a construction material (subject to compliance with an applicable End of Waste (**EOW**) code), further reducing landfill disposal.

Through these measures, BERC supports the principles of the waste hierarchy, ensuring that residual waste is managed efficiently and sustainably while complementing broader recycling and landfill diversion initiatives in South East Queensland transitions toward a circular economy.

7.8.5 Conclusions

The BERC’s feedstock will consist of residual MSW and residual C&I wastes that meet the definition of residual waste in the Queensland EfW Policy and are therefore suitable for processing in a thermal energy recovery facility. Feedstock modelling, undertaken by Arcadis, has demonstrated that there is sufficient feedstock available to support the operation of the BERC. This report concludes that the BERC has been developed in alignment with the Queensland EfW policy outcomes 1, 4 and 5.

7.9 Resource and Waste Management Technical Report

7.9.1 Overview

The **Resource and Waste Management Technical Report (Appendix M)** was prepared by Arup to assess waste generation, classification, handling and treatment during the facility's construction, commissioning and operational phases. The assessment considers residues from the EfW process, construction waste and operational waste from staff amenity spaces.

7.9.2 Regulatory Context

Commonwealth and State Legislation

The assessment has considered the following Queensland legislation relevant to waste and resource management:

- *Environmental Protection Act 1994* (Qld)
- Environmental Protection Regulation 2019
- *Waste Reduction and Recycling Act 2011*
- Waste Reduction and Recycling Regulation 2011

Policy, Standards and Guidelines

The following policies and guidelines have informed the assessment:

- National Waste Policy and National Waste Policy Action Plan
- Queensland Energy from Waste (EfW) Policy and EfW Guideline (2021)
- Queensland Waste Management and Resource Recovery Strategy
- End of Waste (EOW) Guideline and applicable EOW codes
- Bromelton State Development Area (SDA) Scheme
- Queensland ERA Guidelines, including those for activities with waste impacts

International Legislation, Policy, Standards and Guidelines

International best practice has been considered through reference to:

- European Union Industrial Emissions Directive (2010/75/EU)
- EU Best Available Techniques Reference Documents (BREFs):
 - Waste Incineration (BREF-WI, 2019)
 - Waste Treatment (BREF-WT, 2018)

These standards inform the environmental performance expectations for EfW facilities, including the treatment and stabilisation of residues such as APCr and IBA.

7.9.3 Technical Assessment

An assessment was undertaken to identify likely waste streams and estimate waste generation for the main phases of the project—construction, commissioning and operation. Waste streams were classified according to their type, source and potential environmental impact, using available benchmark data and comparable project information. The assessment of waste generation and management for the BERC has been undertaken at a high level, recognising that detailed design of the facility is yet to be completed. This approach allows for the identification of potential waste management issues early in the project lifecycle and supports the development of appropriate mitigation and management measures to minimise impacts.

The key waste streams expected to be generated are:

- Waste streams primarily generated during construction
- Waste streams primarily generated during operation (municipal-type waste and commercial-type waste)
- Residues generated from the thermal treatment process (Incinerator Bottom Ash (IBA) and Air Pollution Control residue (APCr))

7.9.4 Assessment Findings

Waste streams primarily generated during construction

Waste generated during construction will be managed in accordance with industry best practice and the waste hierarchy. The largest waste stream is expected to be spoil from excavation and site enabling works, with an estimated surplus of approximately 30,000 m³.

Other construction waste streams include masonry, concrete, offcuts, and packaging materials. These are not classified as regulated waste under Schedule 9 of the EP Regulation but must still be managed to avoid environmental harm. Source separation systems will be implemented to maximise recovery and recycling.

A Construction Waste Management Plan (CWMP) will be developed prior to commencement of works.

Waste streams primarily generated during operation

Operational waste will be generated from administrative areas, staff amenities and the EfW process. Cleanaway will implement best practice waste management, including:

- Source separation of recyclables (including paper and cardboard, comingled recycling, organics, e-waste).
- Containment in labelled, colour-coded receptacles.
- Removal by licensed contractors for recycling or lawful disposal. In the case of residual waste meeting the definition of Acceptable Waste in the draft Waste Acceptance Protocol, to be processed through the EfW operation.

An Operational Waste Management Plan (OWMP) will be developed during detailed design.

Residuals generated from the thermal treatment process

Thermal treatment of waste at the BERC will generate two primary solid residue streams:

1. Incinerator Bottom Ash (IBA)
2. Air Pollution Control Residue (APCr)

These residues require careful management to ensure environmental protection and compliance with regulatory requirements.

Incinerator Bottom Ash (IBA)

IBA is the non-combustible material left over after the combustion process. It includes materials such as glass, ceramics, stone and metals.

The key management steps for IBA are:

1. Quenching and maturation: IBA will be cooled with water and matured on-site for 2–12 weeks.
2. Metals recovery: Ferrous and non-ferrous metals will be separated using screening, magnetic and eddy current separation.
3. Aggregate production: Matured IBA will be processed into Incinerator Bottom Ash Aggregate (IBAA), suitable for reuse in construction applications, subject to compliance with an applicable EOW code.

Air Pollution Control Residue (APCr)

APCr is a fine powder recovered when the gases from the combustion process are cleaned before being released from the stack. It contains tiny particles of ash, along with lime and carbon used to capture and neutralise pollutants, ensuring the flue gas that is released into the atmosphere meets strict environmental emission standards. APCr contains elevated levels of heavy metals and other contaminants, requiring stabilisation prior to disposal.

The key management steps for APCr are:

1. On-site stabilisation: APCr will be mixed with cement and water, to form a solidified matrix that reduces leachability.
2. Curing and containment: The stabilised APCr will be cured in sealed bags within a covered area for approximately seven days.
3. Disposal: Once stabilised, APCr is expected to be classified as Category 2 Regulated Waste and disposed of at a licensed landfill.

Assessment of Potential Impacts

An assessment has been undertaken to identify potential impacts related to generation, storage and handling of waste materials. The key potential impacts identified include:

- Escape of waste (including thermal treatment residues) or runoff from waste (leachate), impacting the adjacent environment (land, waterways, groundwater).
- Risk to human health through exposure to potentially hazardous waste materials if not managed appropriately.
- Disposal of valuable resources to landfill.

A range of measures have been proposed to mitigate the risks identified that will be implemented throughout the Project development including planning and design, construction and operation. The control measures identified at this stage represent reasonable steps to avoid and minimise impacts to human health and the environment so far as reasonably practicable.

7.9.5 Management Pathways

To maximise diversion of waste from landfill and resource recovery, waste generated through construction, commissioning and operation of the facility will be managed in accordance with the waste hierarchy. Any waste material generated will be stored, handled and transported to a suitable processing or disposal facility. In the case of residual waste meeting the definition of Acceptable Waste in the draft Waste Acceptance Protocol, to be processed through the EfW operation. The key management measures are outlined at **Table M**.

Table M: Management Measures

Waste Type	Management Pathway
Construction Waste Management	▪ Waste generation will be avoided or minimised through appropriate planning and design. ▪ Waste materials generated during construction will be reused in construction where appropriate. ▪ Source separation of recyclable materials from residual waste.
Operational Waste Management	▪ An Operational Waste Management Plan (OWMP) will be developed to identify a suitable waste management strategy including appropriate storage and servicing arrangements. ▪ Waste generation will be avoided, where possible. ▪ Source separation of recyclable materials. ▪ Residual waste materials to be processed through the EfW operation.
Residual Waste Management	▪ IBA will undergo maturation, processing and metals recovery on-site, producing IBAA. ▪ IBAA will be reused as a construction aggregate (subject to EOW approval). ▪ APCr will be stabilised on-site through solidification with cement and water before disposal to landfill.
Wastewater Management	▪ Stormwater will be collected and processed through the on-site stormwater management system designed to an appropriate event size and to meet all relevant discharge quality requirements. ▪ Greywater generated from on-site staff and visitor amenities will be segregated and managed separately from sewage wastewater to facilitate reuse of greywater. Greywater will be stored in tanks and may be reused within the process as recycled water. ▪ Residual non-process wastewater will be managed through an on-site treatment system for collection and transport off-site once septic systems become full.

7.9.6 Key Opportunities

Opportunities for the facility to manage process waste in line with the waste hierarchy include:

- Recovery of construction spoil – to be reused onsite, where possible.
- Designing the BERC EfW process for zero process wastewater discharge, thus avoiding disposal of process wastewater.
- From the IBA stream:
 - Recovery of ferrous and non-ferrous metals for recycling
 - Reuse of IBBA as a construction aggregate under a future EOW code
- Source separation of recyclable materials generated in construction and operation (in offices/visitor and education centre).
- Containment, classification and correct identification of non-recyclable wastes, including reportable regulated wastes, to ensure that these can be correctly treated by the EfW operations or disposed of by waste contractors.
- Segregation of greywater and non-process wastewater generated from onsite staff amenities to facilitate further reuse opportunities. Further investigation is required to consider potential reuse of greywater for onsite landscape irrigation.

7.9.7 Conclusions

The Resource and Waste Management report identified the relevant waste streams generated during construction, commissioning and operation of the Project. Waste streams were classified according to Queensland regulations and guidelines, including the expected classification and management pathway for IBAA and APCr.

Potential risks associated with waste management at the BERC have been proactively identified. Robust mitigation measures have been developed to protect environmental and human health.

During the detailed design stage, further plans will need to be developed relating to waste management, including:

- Construction Waste Management Plan.
- Operational Waste Management Plan.
- Commissioning Plan.
- Hazardous Materials Management Plan.
- Weed Management Plan.

All waste management activities will comply with the *Environmental Protection Act 1994* and Environmental Protection Regulation 2019.

7.10 Climate and Climate Change Assessment

7.10.1 Overview

A **Climate and Climate Change Assessment (Appendix N)** was prepared by Katestone Environmental for the proposed BERC facility. The assessment considers the local and regional climate, identifies material weather and climate risks for the construction and operation of the project and outlines management measures to address these risks.

7.10.2 Regulatory Context

Legislation and policies

The assessment has been developed in accordance with the following key policies and guidelines:

- National Climate Resilience and Adaptation Strategy
- Queensland Climate Adaptation Strategy
- Bromelton State Development Area Development Scheme (Section 2.5.10: Climate change adaptation)
- Environmentally Relevant Activities Guidelines

Standards and Guidelines

The methodology underpinning the assessment is guided by the following frameworks and best practice standards:

- AS/NZS ISO 31000:2018 Risk management
- AS 5334-2013 Climate change adaptation for settlements and infrastructure
- IPCC Sixth Assessment Report
- Electricity Sector Climate Information (ESCI) project

7.10.3 Technical Assessment

The assessment reviews climate-related risks associated with the BERC project, examining both measurable factors (such as how often and how severe events are) and descriptive elements (like possible effects). The assessment meets the requirements of the Climate-EIS information guideline (ESR/2020/5298) and involves the following steps:

- Provide data and statistics that characterise the existing weather patterns at the project site
- Describe the local and regional climate considering seasons and susceptibility to extreme events
- Assess the aspects of local and regional climate that are relevant to the management of the project
- Assess the potential change in climate at the project site over the expected life of the project
- Assess the project's vulnerabilities to projected climate change
- Assess and describe feasible risk management strategies
- Demonstrate how the Project will adapt to the projected climate change conditions in the region

7.10.4 Assessment Findings

Weather and Climate

The BERC project is located in subtropical South East Queensland, where summers are warm (average maximum 29°C) and winters are mild (average maximum 20°C). Rainfall is highest in summer and autumn, but is highly variable year to year, with a history of intense storms, flooding, heatwaves, and droughts.

Australia's weather and climatic patterns are driven by several processes (drivers), which can have levels of influence depending on their relative strength at the time. The El Niño Southern Oscillation (ENSO), the Indian Ocean Dipole (IOD), the Subtropical Ridge, and the Easterly Trough are the drivers with the strongest influence in South East Queensland.

Historic weather data for the Project area was obtained from the Bureau of Meteorology (BoM) monitoring stations at Beaudesert Drumley Street, Beaudesert Cryna, and the SILO dataset (SILO). **Table N** summarises the key weather data for the project area.

Table N: Weather Assessment

Topic	Details
Temperature	▪ Average annual temperature: 19.9°C. ▪ Maximum temperatures above 30°C in all months except June and July. ▪ Days above 35°C in all months except May to July. ▪ Winter minimums below 0°C; average winter minimum ranges from 6.7°C to 8.2°C.
Rainfall	▪ Average annual rainfall: 863mm. ▪ Maximum monthly rainfall: 587mm (Jan); minimum: 121mm (Sep). ▪ Most rain in summer; least in winter/spring.
Thunderstorms & Hail	▪ Project area is one of South East Queensland's most intense for summer storms. ▪ Frequent extreme thunderstorms, lightning, and damaging hail.
Wind	▪ Prevailing winds are from the northeast during spring and summer, and from the south in autumn and winter. ▪ The average wind speed is 1.43m/s. ▪ Calm days make up 11% of the year. ▪ Maximum 3-second wind gusts are mostly between 25–35km/h, with 22 events exceeding 50km/h (the highest recorded was 74km/h in December). ▪ Winds are strongest from midday to 6pm and lightest from midnight to 6am.
Tropical Cyclones	▪ Most destructive cyclones hit central and north Queensland, but South East Queensland has experienced significant events (e.g., 1954, 1967, 2019). ▪ Eleven cyclones have tracked within 100km of the site between 1950 and 2022. ▪ Cyclone Alfred (2025) caused regional impacts.
Fire Weather	▪ Southern section of site is in the bushfire zone.

Climate Risk Assessment

Material Weather Events and Climatic Conditions

This key weather and climate hazards that are most relevant to the construction, operation and eventual rehabilitation of the BERC are:

- Extreme temperature: Includes the number of days above 35°C and the frequency and extent of heatwaves.
- Heavy rainfall: Focuses on days with more than 25mm of rain, which can lead to flooding and operational disruption.
- Wind: Considers both sustained winds ($\geq 63\text{km/h}$) and gusts ($\geq 90\text{km/h}$), which can damage infrastructure.
- Severe storms: Includes East Coast lows, tropical cyclones, thunderstorms, hail ($\geq 2\text{cm}$), intense rainfall ($\geq 100\text{mm/day}$), and lightning.
- Fire weather: Increased risk of bushfires due to hotter and drier conditions.

The assessment highlights that these hazards are not independent, they are compounding and cascading events are more likely under projected climate change.

Climate Change in South East Queensland

Climate projections for Queensland are based on global and downscaled models that simulate the earth's climate system under a range of greenhouse gas emission scenarios, known as Representative Concentration Pathways (RCPs). For this assessment, RCP8.5 is used as a worst-case scenario to evaluate risk. Under this scenario, Queensland is projected to experience an average annual temperature increase of about 1.3–2.5°C over the next 30 years.

Other key projections include:

- The number of hot days (>35°C) in Brisbane will rise from about 2 to 8 per year.
- Extreme rainfall events are expected to become more intense.
- Winter and early spring are likely to become drier.
- East Coast lows are projected to decrease by up to 20%, especially in winter.
- Annual maximum wind speed may increase.
- The number of tropical cyclones making landfall is projected to decrease by about 8%, but the proportion of intense cyclones may increase.
- Queensland can expect longer fire seasons, with around 40% more very high fire danger days.

Project Vulnerability

The following risk scenarios (**Table O**) and statements are developed to identify Project vulnerability and are used to frame risk management.

Table O: Project Vulnerabilities Identified for Construction and Operational Phases

Phase	Hazard	Description
During Construction	Extreme heat	Risks to worker safety and productivity.
	Extreme rainfall	Potential for unsafe site conditions, machinery disruption, and erosion.
	Thunderstorms	Hazards from lightning and hail, with risks to workers and infrastructure.
During Operation	Extreme heat	Impacts on worker safety, equipment, and infrastructure.
	Extreme rainfall	Flooding risks to site and transport routes, potential for increased waste requiring treatment.
	Extreme winds	Damage to infrastructure and operational disruption.
	Fire weather	Increased risk of bushfire affecting site operations.

Climate Risk Mitigation

The assessment notes that Cleanaway will include the risk posed by extreme weather conditions in their construction and operation risk identification and mitigation process to ensure business continuity. The following options follow from the scenarios described above and are indicative rather than comprehensive.

- CCA01 Climate change adaptation design measures:
 - Cleanaway will identify acceptable infrastructure risk and prescribe design engineering tolerances to cope with extreme heat, wind, and/or rainfall to the level of acceptable risk.
- CCA02 Climate Change Adaptation Management Plan:
 - Cleanaway to require the principal contractor to engage with appropriate labour representatives to identify and confirm mitigation measures to ensure that construction can continue as necessary during periods of extreme heat.
 - Cleanaway to require the principal contractor to establish site rules for construction work during hailstorms, thunderstorms, and (or immediately after) extreme rainfall events.
 - Cleanaway to apply an early warning system for dangerous thunderstorms and establish site rules for operational work outdoors during thunderstorms.
 - Cleanaway to identify acceptable infrastructure risk and prescribe design engineering tolerances to cope with extreme heat, wind, and/or rainfall to the level of acceptable risk.

- Cleanaway to develop an operational site and near-site fire response and control plan in conjunction with emergency services.
- Cleanaway to establish emergency controls for bypass or plant shutdown in the event of an extended catastrophic transmission infrastructure failure at or near site.

7.10.5 Conclusions

The assessment concludes that the BERC is exposed to a range of climate-related hazards, with extreme weather events likely to increase in frequency and intensity due to climate change. Development of the climate change adaptation design measures and a Climate Change Adaptation and Risk Management Plan will ensure that the Project complies with Section 2.5.10 of the Bromelton State Development Area Development Scheme.

7.11 Greenhouse Gas Assessment

7.11.1 Overview

A **Greenhouse Gas Assessment (Appendix O)** was prepared by Katestone Environmental for the proposed BERC facility. The report evaluates Scope 1, Scope 2, and Scope 3 emissions associated with the construction and operation of BERC.

7.11.2 Regulatory Context

The assessment has been developed in accordance with the following key regulations, policies and guidelines:

Legislation and policies

- *Climate Change Act 2022*
- *Climate Change (Consequential Amendments) Act 2022*
- *National Greenhouse and Energy Reporting Act 2007*
- *Safeguard Mechanism (Crediting) Amendment Act 2023*
- Environmental Protection (Air) Policy 2019 (Qld)
- Queensland State Planning Policy (SPP)
- Bromelton State Development Area (SDA) Development Scheme
- Environmentally Relevant Activities (ERA) Guidelines

International Agreements

- Paris Agreement
- Global Methane Pledge

7.11.3 Technical Assessment

This analysis has used data supplied by Cleanaway to calculate expected GHG emissions during construction and operation. The assessment meets the requirements of the Climate-EIS information guideline (ESR/2020/5298) and is consistent with the Guideline Greenhouse gas emissions ESR/2024/6819 (GHG Guideline).

The requirements are to:

- Document the State and Federal policy, legislation, standards, and guidelines applicable to GHG emissions from the Project.
- Analyse Scope 1 and Scope 2 emissions (tCO₂-e) generated during the construction and operation phases of the Project.
- Assess significant Scope 3 emissions associated with major construction materials and transport of primary input and output materials to and from site.
- Assess the potential for avoided emissions.
- Demonstrate how the Project will minimise its GHG emissions.
- Demonstrate compliance with regulatory and best practice requirements for the construction and operation of an EfW facility.

7.11.4 Assessment Findings

Scope 1 and Scope 2 Emissions

Scope 1 GHG emissions are those emissions released to the atmosphere as a direct result of the activity conducted at a facility and that are under the direct control of the facility or operation. These include emissions from:

- Diesel combustion in road-registered vehicles and stationary plant owned by Cleanaway
- Combustion of waste material to produce electricity
- Land clearing for construction of the proposed facility.

The emissions value is obtained by multiplying, for example, the total volume of diesel used during the reporting period with its emission factor.

Scope 2 GHG emissions are those associated with the production of electricity that is purchased and used by the facility. The emissions value is obtained from the total electricity used, in kilowatt hours (kWh), during the reporting period, or that projected to be used in future, multiplied by the emission factor of the state in which the facility operates.

The scope 1 and 2 emissions for the base case are presented in **Table P** below.

Table P: Scope 1 and Scope 2 Emissions (t CO₂-e) for the Base Case

Emission Scope	Construction (39 months)	Operation	
		2030-2050	2050 onwards
Scope 1	5,961	396,683	323,494
Scope 2	0	454	468
Total	5,961	398,046	397,137

Diesel combustion for transporting materials to site is estimated to be the largest source of Scope 1 emissions during the 39-month construction phase (5,961 t CO₂-e),

Scope 3 Emission

Scope 3 GHG emissions are those associated with the provision of goods and services purchased by the facility or operation but that are not owned or controlled by the entity responsible for the facility or operation. Emissions are categorised according to Scope 3 Standard. The Scope 3 emissions categories relevant to the Project include:

- Category 1: Purchased goods and services
- Category 2: Capital goods
- Category 3: Fuel and energy related activities
- Category 4: Upstream transportation and distribution
- Category 7: Employee commuting

The emissions values are obtained from the volume, mass, or volume of construction materials or fuel multiplied by their emissions factor. The Scope 3 emissions inventory for the Project is provided in **Table Q**.

Table Q: Summary of projected Scope 3 GHG emissions (t CO₂-e) per year for the Construction phase (39 months) and the Operations phase for base case

GHG Protocol Category		Item	Construction (39 months)	Operation
1	Consumables – Quicklime, activated carbon, urea, cement		NA	28,919
2	Materials – Steel, aggregate, Concrete		20,024	0
3	Diesel and electricity		1,469	2,016
4	Trucking of freight		13,046	245
7	Employee commute		23,215	279
Total			57,754	31,459

Employee commuting represents the largest share of the Scope 3 inventory during the construction phase, estimated as 23,215t CO₂-e. The embodied emissions from concrete and steel manufacturing represent the second largest share of Scope 3 emissions.

During the operation phase upstream manufacturing of goods is the largest contributing category of Scope 3 emissions, estimated as 28,919t CO₂-e. The upstream production of energy related activities is the second largest contributing operation phase source, estimated as 2,016t CO₂-e. Employee commuting is the third largest contributor of Scope 3 emissions during the operational phase, estimated as 279t CO₂-e.

Avoided Emissions

Avoided emissions are calculated when the process or products of the Project effectively replace a greater number of emissions that would have occurred in the absence of the Project and its products. The avoided emissions scenario has three parts:

- Avoided landfill gas emissions (preventing methane generation from decomposing organic material)
- Avoided emissions from electricity generated by Queensland's current coal generators
- Avoided emissions from recyclable or reusable materials recovered after waste incineration and used to replace virgin materials.

Electricity generation from the Project offsets emissions is expected to decrease over time as the electricity grid transitions to a higher proportion of renewable sources.

The avoided scope 3 emission are summarised in **Table R**.

Table R: Summary of Scope 3 emissions avoided per year (t CO₂-e/y)

Emission Source	Details	Base Case
Landfill gas	Avoided methane	252,860
Recovered materials	Avoided emissions from recovered recycling materials	121,653 - 143,107

Emission intensity of production

Emission intensity refers to the amount of greenhouse gas emissions produced per megawatt-hour (MWh) of electricity generated. It provides a measure of the efficiency and environmental impact of a process, allowing comparison between different energy sources, technologies, or operational scenarios. In this context, lower emission intensity indicates that less GHG is emitted for each unit of electricity produced, reflecting more efficient and environmentally sustainable operations.

The emissions intensity of the Project at 0.6tCO₂-e/MWh is within the range of Queensland's gas generators and 0.3 – 0.4t CO₂-e less than the coal fired generators. Queensland's lowest emitting coal-fired power stations are the Stanwell Power Station and Kogan Creek Power Station with an emissions intensity of 0.86t CO₂-e/MWh while the highest emitting stations are Callide B at 0.94t CO₂-e/MWh and Gladstone Power Station at 0.99t CO₂-e/MWh.

Impact on environmental values

The average annual GHG emissions will represent approximately 0.6% of Queensland's current emissions and 0.14% of Australia's current emissions. The facility will be subject to the electricity sector Safeguard Mechanism threshold and will not be required to progressively reduce its GHG emissions unless the threshold is exceeded by all electricity generation in Australia.

7.11.5 Greenhouse Gas Abatement Plan

The GHG Abatement and Mitigation Plan addresses the requirements of the GHG Guideline in line with Queensland's emission reduction targets, supporting Cleanaway in their application for approval. The Project is considered a medium to high emitter, with Scope 1 GHG emissions ranging from ~360,000 — 415,000t CO₂-e per year and is, therefore, required to identify emissions mitigation and management practices and provide a GHG abatement plan.

The GHG Abatement and Mitigation Plan is framed on the GHG Guidelines abatement hierarchy and applies management controls to Scope 1 and Scope 3 emissions.

Avoid:

- Scope 3 emissions are avoided by diverting residual waste from landfill, preventing fugitive methane emissions.
- Process only residual waste, which cannot feasibly be reused or recycled, is combusted for energy recovery.
- Combustion of biogenic material is considered carbon neutral, and CO₂ emissions from combustion have a lower global warming potential than methane from landfills.

Reduce:

- Electricity generated from waste combustion has a lower emissions intensity than coal-fired power and is comparable to gas-fired generation.
- The Project employs an efficient energy recovery system, including a combustion system and steam turbine, designed to maintain performance across variable waste types.
- Co-location with nearby industries could allow for the use of heat or cooling, further improving energy efficiency and lowering overall emissions intensity.
- Technological and process improvements will continue to be explored to enhance efficiency before commissioning.

Substitute:

- Scope 3 emissions during construction and operation can be reduced by using low-emission alternatives such as cement with supplementary binders, low-emission concrete, and lower-emission construction steel.
- The Project will supply post-combustion metals and incinerator bottom ash aggregate (IBAA) to replace virgin materials, reducing downstream emissions.
- Use of biodiesel instead of diesel for startup processes could reduce Scope 1 emissions, though supply limitations exist.

Offset:

- The Project is not required to offset emissions under current regulatory thresholds.
- Cleanaway will continue to explore carbon capture, utilisation, and storage (CCUS) options, but industrial-scale application is currently not commercially feasible in Australia.

7.11.6 Conclusions

The Greenhouse Gas Assessment utilised data provided by Cleanaway to estimate anticipated Scope 1, Scope 2 and Scope 3 greenhouse gas emissions associated with both the construction and operational phases of the BERC.

While combustion of waste produces GHG emissions, EfW allows for the offsetting or avoidance of emissions that might otherwise have occurred, including avoidance of future generation of methane from decomposing organic matter in landfills, and as a substitute for electricity produced from coal combustion.

Cleanaway will evaluate and incorporate best practice measures for the management of GHG emissions where practicable, including:

- Seek options for the supply of low emission steel and concrete by tendering contractors.
- Use biodiesel instead of diesel for facility startup processes, subject to review of biodiesel fuel availability and supply chain reliability.
- Designing the plant for high energy recovery and electricity generation efficiency.
- Explore options for offtake agreements and supply of heat to other industries in the Bromelton SDA.
- Supply of recovered recyclable or reusable materials (metals and IBAA) to the market, subject to approvals for IBAA reuse.

Development of these GHG mitigation design measures demonstrates that Cleanaway will comply with Section 2.5.10 of the SDA Development Scheme.

7.12 Sustainability Management Plan

7.12.1 Overview

A **Sustainability Management Plan (SMP) (Appendix P)** was prepared by Arup for the proposed BERC facility. The SMP aims to demonstrate compliance with various sustainability requirements, including the Bromelton State Development Area (SDA) Development Scheme, State Development Assessment Provisions, Environmental Protection Regulation, and the National Construction Code (NCC) 2022. In addition, the SMP acknowledges Cleanaway’s broader sustainability commitments such as emissions reduction, circular economy initiatives and alignment with the organisation’s People, Planet and Prosperity pillars, which provide the overarching corporate context for this plan.

7.12.2 Regulatory Context

The relevant sections of the following documents have been reviewed to identify the criteria and requirements that are relevant to the Sustainability Management Plan.

- Bromelton State Development Area Development Scheme – Dec 2017
- State Development Assessment Provisions Version 3.3 - 18 Jul 2025
- Environmental Protection Regulation 2019 – Schedule 8 Environmental objective assessment
- National Construction Code (NCC) Volume One 2022
- Green Star Buildings Submission Guidelines

7.12.3 Technical Assessment

The primary focus of the Sustainability Management Plan is on the occupied areas of the development including the Administration Building and Visitor Centre and Gate House. A preliminary review of the Incinerator Bottom Ash (IBA) Administration Building has been undertaken; however, a quantified assessment has not been carried out at this stage, as layout plans are yet to be developed.

The methodology for the assessment includes:

- Reviewing regulatory and policy documents to extract pertinent requirements for the SMP.
- Referencing requirements from the National Construction Code (NCC) 2022 and sustainability standards, including Green Star Buildings version 1, to propose a sustainability strategy.
- Demonstrating that the proposed design strategy, is in accordance with the Bromelton State Development Area Development Scheme and good industry practice in terms of energy, water and waste.

7.12.4 Assessment Findings

Design Strategy

The design strategy for energy, water and waste has been developed to minimise resource consumption, reduce environmental impacts and support long-term operational efficiency. These aspects are reviewed in the SMP to identify opportunities for conservation, optimise system performance and align the project with sustainability objectives and relevant best practice standards.

Energy – occupied spaces

The focus of the energy assessment is for occupied spaces including the Administration Building and Visitor Centre and Gate House. The following features (**Table 5**) are proposed in accordance with Bromelton State Development Area SDA Development Scheme and best practice requirements to maximise energy efficiency and will be included as part of the development.

Table S: Sustainable Energy Design Summary

Energy Element	Key Details
Passive Solar Design	Building orientation and sun shading devices incorporated in solar admittance assessment; current design of the assessed buildings achieves at least 10% improvement over NCC 2022 minimum requirements.

Energy Element	Key Details
Natural Lighting	Daylight Autonomy calculations show 40% of occupied floor area receives high daylight levels, meeting Green Star guidelines.
Ventilation	Air-conditioned spaces (L/s) with commitment to increase outdoor air rates by 50% above AS1668:2012 minimums.
Landscape Treatment	Includes endemic planting, tree canopy cover, vegetated swales, stormwater basins, and recycled water use; supports biodiversity and Water Sensitive Urban Design. Refer to Architecture & Landscape Design Strategy Report (Appendix A) for detailed information.
Building Fabric	Preliminary NCC Façade Calculator assessment shows compliance with NCC2022 Section J; roof/ceiling construction to be developed.
Mechanical Systems	Air-conditioning systems designed to exceed NCC 2022 requirements by at least 10%; MEPS compliant; further development planned.
Lighting	90% of relevant building classes to meet NCC 2022 maximum illumination power density; strategy to be refined during design.

Water

The assessment uses the Green Star potable water calculator to demonstrate that the assessed building achieves at least a 15% reduction in potable water usage compared to a reference building. This result is based on current design assumptions and does not yet include the full benefits of rainwater collection and reuse. With the proposed rainwater tanks, the reduction could reach up to 79%. The minimum 15% reduction in potable water compared to a standard building can be achieved through the implementation of the following proposed design features:

- **Efficient fixtures and fittings:** The project targets Water Efficiency Labelling and Standards (WELS) ratings of 5 stars for toilets and dishwashers, 6 star for urinals and taps, and 3 star for showerheads. These will be reviewed as the design progresses to ensure the overall reduction target of >15% reduction in potable water is met.
- **Rainwater harvesting:** The preliminary stormwater design includes rainwater harvesting systems from the EfW, IBA, and IBA Maturing Buildings, with a total collection area of 26,590m² at 74% harvesting efficiency and four 100kL rainwater tanks. This system is expected to significantly reduce potable water demand.
- **Water-efficient landscaping:** The landscape design prioritises endemic/native plant species to enhance biodiversity and reduce irrigation needs. Where irrigation is required, harvested rainwater will be used. No permanent irrigation system is proposed, but efficient drip-type irrigation may be used in targeted areas during establishment. Planting will also consider bushfire resilience, favouring lower fuel load species.

The Green Star potable water calculator relies on certain assumptions, which will be subject to review and potential updates as the Project advances through the detailed design stages. These assumptions include:

- **Recycled water sources:** While greywater and blackwater collection are currently excluded from the calculations (to be conservative), onsite treatment of greywater will be reviewed further as the design advances.
- **Mechanical system assumptions:** The current design assumes no water-based process cooling for the Administration Building and Visitor Centre, but this will be reviewed as the design progresses.

Waste

The Sustainability Management Plan focuses on the waste generated on-site from the occupied spaces (e.g. Administration Building and Visitor Centre), and not the waste by-product produced from the EfW process. The following measures are proposed for the relevant waste:

- **Operational Waste Management Plan (OWMP):** The site will generate small amounts of operational waste from the Administration Building and Visitor Centre, delivery of consumables and maintenance works. This includes paper and cardboard, comingled recyclables, organic waste and e-waste. An Operational Waste Management Plan should be prepared as part of next phase of the Project to further demonstrate that the waste is managed properly according to relevant standards and best practice.
- **Recycling:** Waste management areas are designated in the Administration Building and Visitor Centre. The Project is committed to demonstrate that recycling facilities are conveniently located across the development, to allow for ease of use. The waste generated by operators of the facility will be source-separated for recycling, where practicable, and collected regularly by waste collection contractors or Council as required

It is noted that the **Resource and Waste Management Technical Report (Appendix M)** provides a comprehensive snapshot of construction, demolition and operational waste management including EfW process byproducts. It covers waste classification, impacts, management options, and key opportunities for BERC waste streams.

7.12.5 Conclusions

The Sustainability Management Plan has demonstrated compliance with various sustainability requirements from the Bromelton State Development Area Development SDA Scheme and good industry practice in terms of energy, water and waste. Other requirements that could indirectly impact sustainability such as emissions, contaminated land, water quality and climate change have been acknowledged and will be supported by the studies and reports from the relevant disciplines such as environmental, landscape and civil as the project progresses. As the Project progresses, detailed design strategies will be developed to further enhance sustainability and compliance with relevant standards and guidelines.

7.13 Traffic Impact Assessment

7.13.1 Overview

A **Traffic Impact Assessment (Appendix Q)** has been prepared by Arup to examine the traffic implications of the Project. The scope of the assessment is to compile, analyse and document the effect of the Project on the operational of the road network and demonstrate how these can be avoided, reduced, managed or mitigated.

7.13.2 Regulatory Context

The applicable regulatory frameworks and instruments to the Project in the context of the traffic assessment include the following:

- DTMR's Guide to Traffic Impact Assessment 2018 (**GTIA**)
- DTMR Road Planning and Design Manual.
- Section 2.5.2 (Transport) of the SDA Development Scheme.
- State Code 2: Development in a railway environment.
- State Code 6: Protection of state transport networks.

It is noted that Beaudesert Boonah Road is a State-controlled Road and a response to State Code 1: Development in a state-controlled road environment and State Code 6: Protection of state transport networks is provided in the **Code Compliance Statements (Appendix Y)**.

7.13.3 Technical Assessment

The Traffic Impact Assessment is inclusive of the following components:

- A review of background conditions including land use zoning, road network hierarchy / configuration and public and active transport facilities in light of relevant Queensland legislation and the State Development Area (SDA) scheme.
- A review of the trip generation and distribution from the development.
- An assessment of the potential road safety, access and frontage intersection delay impacts of the proposed developments on the surrounding road network.
- An outline of recommendations and mitigation measures.

Preliminary engagement communications have been held with DTMR in 2023 and 2025 to discuss and confirm the preferred site access arrangement.

7.13.4 Assessment Findings

Project Design

The site has sole frontage to Beaudesert Boonah Road which is identified as a State-controlled road. It is a single carriageway road featuring one lane of traffic in each direction and a 100km/h posted speed limit near the development site. The road features limited / no shoulder and no pedestrian and / or cycling facilities / infrastructure.

The Project is reliant on freight movements and has been designed to receive waste from a number of waste delivery vehicle types, including:

- Type 1A: A-double trucks (maximum payload 42t/truck).
- Type 1B: B-double trucks (maximum payload 35t/truck).
- Type 2: Semi-trailer trucks (maximum payload 21t/truck).
- Type 3: Compactor trucks (maximum payload 9t/truck).

At present, A-double trucks are not permitted to use Beaudesert Boonah Road under the National Heavy Vehicle Regulator's (NHVR) National Road Access Map and DTMR's heavy vehicle network mapping. The proposed facility has, been designed to geometric standards suitable for A-double movements. This design approach enables future access by A-double should the road be reclassified through the National Heavy Vehicle Regulator route assessment and approval process, undertaken in consultation with DTMR and the respective local councils.

For the purposes of this assessment, all waste proposed to be carried by A-double trucks will be carried by B-double trucks (i.e. there will be more B-doubles required to carry the same amount of waste).

Access Arrangements

Site access is proposed via a new signalised intersection at Beaudesert Boonah Road and Recycling Street. The provision of the proposed signalised access triggers a reduction in speed limit along the fronting section of Beaudesert Boonah Road to 70km/h. Through consultation with DTMR, the proposed signalised access arrangement has been determined as the most suitable and safe access solution for the site, due to the sufficient provision of sight distance and turning lane requirements.

The intersection design has been 'future proofed' to allow for the potential future widening upgrade to four lanes on Beaudesert Boonah Road. A total width of 8m (3.5m lane and 4.5m offset) has been allowed. The design also allows future consolidation of access points along Beaudesert Boonah Road, providing for a whole of precinct approach to access for the development. A design review has been undertaken within the normal design domain which confirms that the new 4-way signalised intersection can be achieved in concert with the Mitchell Road upgrade further west without reliance on design exceptions.

A Turn Warrant Assessment considers the need for turn lanes at an intersection and has been based on consideration of estimated through and turning volumes at this intersection. A Turn Warrant Assessment has been conducted for the Project, and the following treatments are considered appropriate (refer **Figure 23**):

- Basic Right Turn / Left Turn.
- Channelised Right Turn and Auxiliar Left Turn.

The proposed turning treatments have been checked via swept path analysis for 26m B-Double vehicles and 36m A-Double vehicles.

A traffic analysis has been carried out for the proposed access for the 2032 opening year and 2042 design year using SIDRA software. The analysis has confirmed the access intersection is expected to operate within acceptable limits with low levels of delays and all vehicle queuing can be accommodated within the short turn lanes provided.

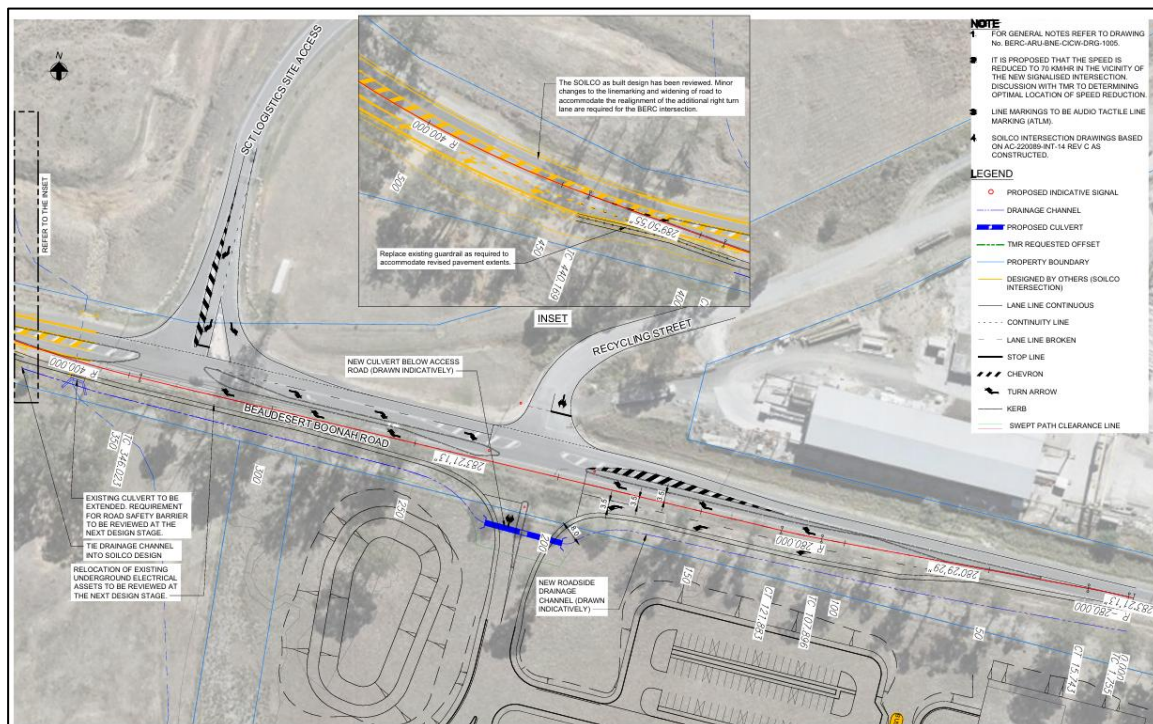


Figure 23: Site Access Functional Layout

Car Parking

The Project provides 60 on-site car parking spaces in the Main Staff and Visitor Car Parking area as shown at the **Architectural and Landscape Drawings (Appendix B1)**. The car park is physically separated from heavy vehicle movements to minimise vehicle / pedestrian conflicts. There are another 34 car parks available across the facility.

The proposed car parking rate is based on first principles basis founded on the expected peak time, at the shift changeover. It is noted the Planning Scheme does not have a prescribed car parking rate and therefore the proposed car parking supply is considered sufficient to meet the anticipated demand.

A maximum of 60 staff could be expected on-site at any one time. In the event of a shutdown period, a total number of 90-100 persons could be on-site at any one time. Overflow parking is able to be accommodated on the truck decoupling hardstand and additional formal car parking spaces for shutdown periods are not required. A small number of visitors are expected each weekday. A nominal allowance of ten visitors per day can be expected. On this basis, it is anticipated that a minimum of 70 on-site car parking spaces would be required.

Queuing

Based on the Planning Scheme, the number of vehicles to be accommodated in the queue for parking areas with between 61-100 car parking spaces is three vehicles or 18m. The Project design provides 58.8m clear queuing space between the site access and the entrance of the Main Staff and Visitor Car Parking area. It is sufficient to accommodate the expected design queue at the access.

Active and Public Transport

There are currently no footpaths within the vicinity of the site. Consultation with DTMR has been undertaken regarding the provision of pedestrian crossings at the site access intersection and was agreed that there is no requirement to provide pedestrian crossings due to the lack of pedestrian demand expected and existing infrastructure in the surrounding area.

The Planning Scheme and SDA Development Scheme do not outline any requirement for bicycle parking to be provided on-site. With consideration to the hierarchy and function of Beaudesert Boonah Road, additional demand for cycling infrastructure facilities on-site is not expected. Notwithstanding this, end-of-trip facilities have been provided to accommodate any staff who may choose to ride to / from the site.

Further, it is noted that the closest bus stops are located 7km from the site. The Project is not expected to generate a demand for public transport.

Impact Assessment

Traffic Distribution and Generation

The Traffic Impact Assessment has calculated the anticipated traffic generation associated with the operations of the Project. To forecast traffic volumes in the year 2032 a compounding growth rate of 4.2% per annum has been applied. It is anticipated that the Project will generate 79 trips in the morning and evening peak hours.

The distribution of traffic generated by the Project has been determined based on the location of waste transfer stations, population distribution and existing traffic patterns, with most of the traffic expected to travel to / from the east of the site. It is proposed that all heavy vehicles be routed via Beaudesert Bypass Road and Mt Lindesay Highway towards Brisbane. This route was selected to mitigate the additional heavy vehicles from traversing through the town centre.

Intersection delay impact assessment and mitigation

An intersection delay assessment was undertaken in accordance with the GTIA to determine the potential impacts of development-generated traffic on the surrounding road network. The analysis included the following six key intersections:

- Beaudesert Boonah Road / Beaudesert Bypass Road / Bromelton Street.
- Beaudesert Boonah Road / Sandy Creek Road.
- Beaudesert Boonah Road / Bromelton House Road.
- Beaudesert Boonah Road / Ilbogan Road.
- Beaudesert Boonah Road / Lupton Road.

- Beaudesert Bypass Road / Mt Lindesay Highway / Brisbane Street / Helen Street.

Modelling for the 2032 design year showed that most intersections are expected to continue operating within acceptable limits both with and without the development traffic and with low levels of delays.

The modelling for Beaudesert Bypass Road / Mt Lindesay Highway / Brisbane Street / Helen Street intersection indicates that the intersection is expected to operate within acceptable limits both with and without the development traffic in the AM peak hour, with low levels of delay. However, queues for the short left turn lane on Mt Lindesay Highway exceed the available short turn lane length in the post development scenario. It is further noted that the intersection is expected to exceed acceptable limits with the development traffic and moderate levels of delay are expected in both pre and post development scenarios. Queues for the short right turn lane on Beaudesert Bypass Road exceed the available short turn length in both the pre and post development scenarios.

Two potential mitigation measures were explored to improve the performance of the Beaudesert Bypass Road / Mt Lindesay Highway / Brisbane Street / Helen Street intersection:

- Allowing right turns from both lanes on Brisbane Street (i.e. dual right turn).
- Increasing the turn lane length to 130m for the right turn lane on Beaudesert Bypass Road. This turn lane length can be accommodated within the existing median.

A net worsening analysis has been undertaken with the implementation of these mitigation measures and demonstrates the Project does not increase the intersection delay by more than 5%.

Road Link Capacity Assessment

A road link capacity assessment was conducted to ensure that traffic generated by the development does not significantly worsen the operational capacity of the road links in the study area. This assessment is carried out on all road links where the development traffic exceeds 5% of the base traffic in either direction of the link's annual average daily traffic in the year of opening.

The above-described intersections are also considered road links. The road link capacity assessment has identified that all above-described intersections exceed 5% of the base traffic.

The results indicate all assessed links are expected to operate well within capacity in both pre- and post-development conditions. While minor increases in volumes were observed, these did not translate to significant changes in performance or result in unacceptable operational outcomes. Overall, the development is not expected to cause any material degradation in road link efficiency within the local or regional network.

Road Safety Impact Assessment

A road safety impact assessment has been carried out to identify the existing safety risks in the study area and any new or modified risks as a result of the Project. This assessment has identified the need to implement the following mitigation measures:

- The addition of a signalised intersection will reduce the time that eastbound travelling vehicles will be queuing to enter the site, reducing the likelihood of a collision occurring.
- A separate left turning lane on Beaudesert Boonah Road, removing left turning trucks and vehicles from the through lane.
- Additional turning lanes will be added to Beaudesert Boonah Road to accommodate the increase in turning vehicles.
- A "Turning Vehicles" sign to be installed prior to the crest of the curve on Beaudesert Boonah Road to warn oncoming drivers of the potential for slowing vehicles ahead.
- Reduced speed limit to 70km/hr and supporting signage to ensure drivers are aware of the speed change.
- Signalisation of the Beaudesert Boonah Road / Recycling Street / Site Access intersection, allowing compliant sight distance for vehicles exiting Recycling Street and reducing potential for crashes between through traffic and turning vehicles at both Recycling Street and SCT Logistics Site Access. Cleanaway to work with DTMR and OCG to develop operational safety upgrades within the impact assessment area in the interim, prior to outcomes from strategic transport network planning for the Bromelton SDA being implemented.

7.13.5 Conclusions

This section has provided a summary of the Traffic Impact Assessment prepared by Arup to assess the traffic implications of the Project on the existing road network. The assessment has concluded that a new signalised intersection to access the BERC site at Beaudesert Boonah Road and Recycling Street is necessary to mitigate impacts to road safety.

The assessment found that most intersections within the study area will continue to operate satisfactorily in the post development scenario. Minor road upgrades are proposed for the Beaudesert Bypass Road / Mt Lindesay Highway / Brisbane Street / Helen Street to ensure the operational performance is not worsened as a consequence of the Project.

A road link capacity assessment has been carried out to ensure that traffic generated by the development does not significantly worsen the operational capacity of the road links in the study area. This assessment has determined that the Project is not expected to cause any material degradation in the road link efficiency within the local or regional network.

The Traffic Impact Assessment carried out in accordance with the GTIA demonstrates that Project does not compromise the safety, efficient and infrastructure condition of the surrounding road network. As such, the Project is consistent with Section 2.5.2 (Transport) of the SDA Development Scheme.

7.14 Stormwater Management Plan and Flood Risk Assessment

7.14.1 Overview

A **Stormwater Management Plan and Flood Risk Assessment (Appendix R)** was prepared by Arup for the proposed BERC facility. The report provides information on the existing site hydrology and flood risk, outlines the proposed surface water drainage design (quality and quantity) and presents the flood modelling.

7.14.2 Regulatory Context

Legislation and policies

The following legislation and policies have been considered in the development of the A Stormwater Management Plan and Flood Risk Assessment:

- Managing the Floodplain: A Guide to Best Practice in Flood Risk Management in Australia (2017)
- Australian Rainfall and Runoff (ARR) (2019)
- Bromelton State Development Area Development Scheme
- Queensland *Environmental Protection Act 1994*
- Queensland Water Act 2000
- Fisheries Act 1994
- Seqwater Development Guidelines
- State Codes:
 - State Code 1: Development in a State-Controlled Road Environment
 - State Code 2: Development in a Railway Environment
 - State Code 22: Environmentally Relevant Activities

7.14.3 Methodology

The drainage design has been developed to manage stormwater quantity and quality in accordance with best-practice Water Sensitive Urban Design (WSUD) principles and relevant local and state guidelines. The design process integrates hydrological, hydraulic and water quality modelling to achieve compliance and deliver sustainable stormwater outcomes.

The steps involved in developing the design are:

1. Data collection and site assessment to establish baseline condition
2. Establish design objectives and criteria
3. Undertake concept engineering design
4. Undertake stormwater quality modelling and consider runoff from sensitive areas

The flood risk assessment methodology involved establishing the existing flood conditions across the site. Hydraulic modelling was then undertaken using TUFLOW (version 2023-03-AB), a two-dimensional (2D) hydraulic modelling software to enable a comparison between the pre and post development configurations.

7.14.4 Technical Assessment

1. Data Collection and Site Assessment

Existing Drainage and Catchments

The current site conditions were assessed by several methods including site walkovers, topographical surveys, desktop reviews of publicly available information (such as Queensland Globe), examination of relevant legislation and policies and consultation with stakeholders such as Seqwater, DTMR, and Council.

The Project area is pastoral and currently contains no formal piped stormwater infrastructure. There are no formal stormwater quality improvement devices on site; however, it is considered that the series of farm dams provide a level of stormwater attenuation and allow sediment removal.

The site is defined by a series of ridgelines that divide it into three distinct drainage catchments — northern, central and southern — as illustrated in **Figure 24**.

- **Catchment 1 (Northern):** Overland flows are collected by a swale within the Beaudesert Boonah Road corridor. These flows are conveyed to twin 2.125m × 0.9m pre-cast concrete box culverts beneath Beaudesert Boonah Road, discharging into a man-made channel that flows north toward Allen Creek.
- **Catchments 2A and 2B (Central):** Catchment 2A drains into existing on-site farm dams. Catchment 2B conveys overland flows to an arch culvert (1.85m × 1.85m) beneath the railway corridor, providing flow conveyance toward the north.
- **Catchments 3 and 4 (Southern):** These southern catchments shed overland flows off-site toward Swan Creek, located approximately 200m south of the lot boundary.

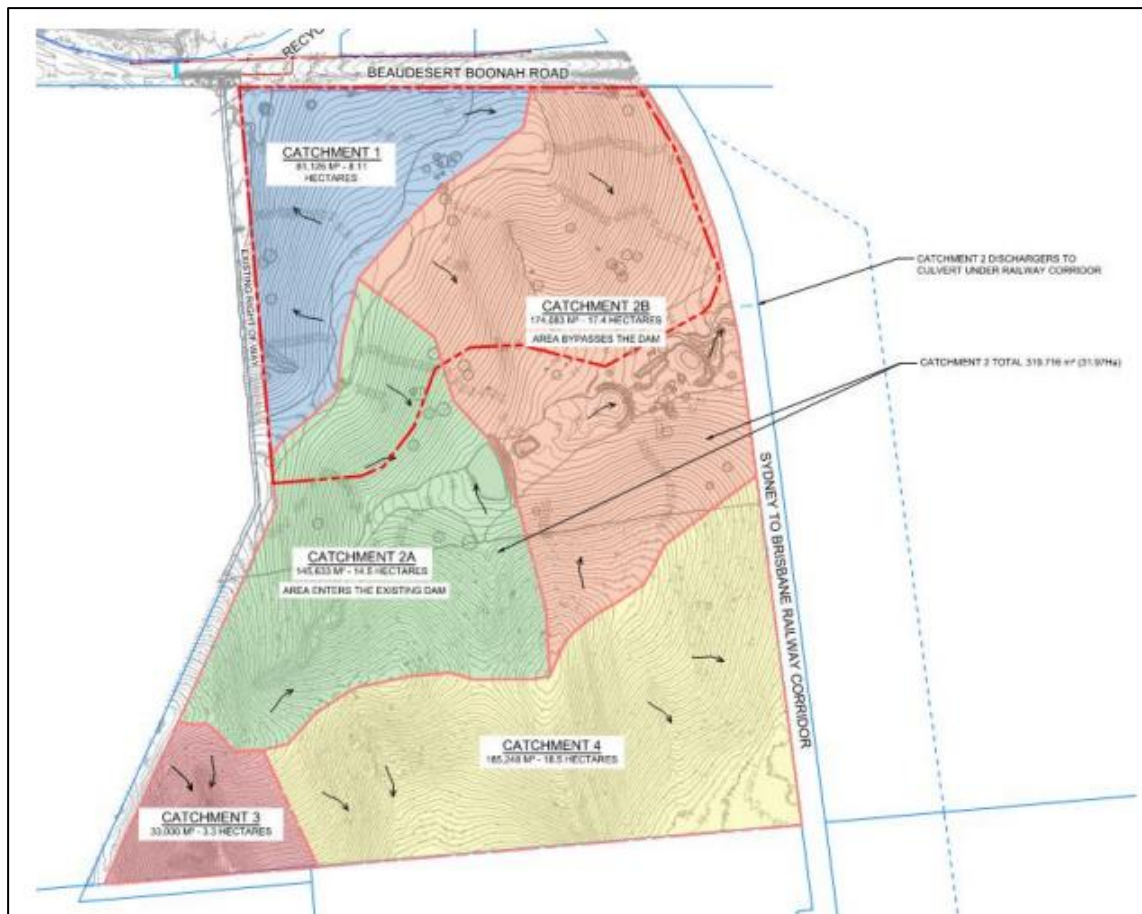


Figure 24: Existing Catchments

Existing Watercourses

Swan Creek is the closest formal watercourse to the Project area and is approximately 70m south of the southeast corner of the subject site's Lot Boundary. Swan Creek flows into Logan River about 4km east of the site.

There is an overland flow path through the site dams. The Vegetation Management Act 1999, classifies this flow path as a Stream Order 1. For the purpose of this assessment and code compliance, the overland flow path within the site boundary, including the three farm dams present, are considered as Stream Order 1 features. The watercourse surrounding the site are shown in **Figure 25**.



Existing Flood Risk

The TUFLOW model was simulated for the 20% Annual Exceedance Probability (AEP) event through to the 1% AEP + CC (SSP2-4.5) event. The peak flood depth results from the existing conditions model simulation are presented in **Figure 25** for the 1% AEP + CC (SSP2-4.5) event.

The existing condition results demonstrate that:

- Flooding is generally contained within watercourse/stream corridors, with flows following the natural topography of the site, collecting within the cascading farm dams. Some ponding is observed against the rail and road embankments.
- Beaudesert-Boonah Road is shown to be overtopped in the 1% AEP + CC (SSP2-4.5) event at the culvert crossing northwest of the project site.
- The railway is shown to be flood free in the 1% AEP + CC (SSP2-4.5) event.

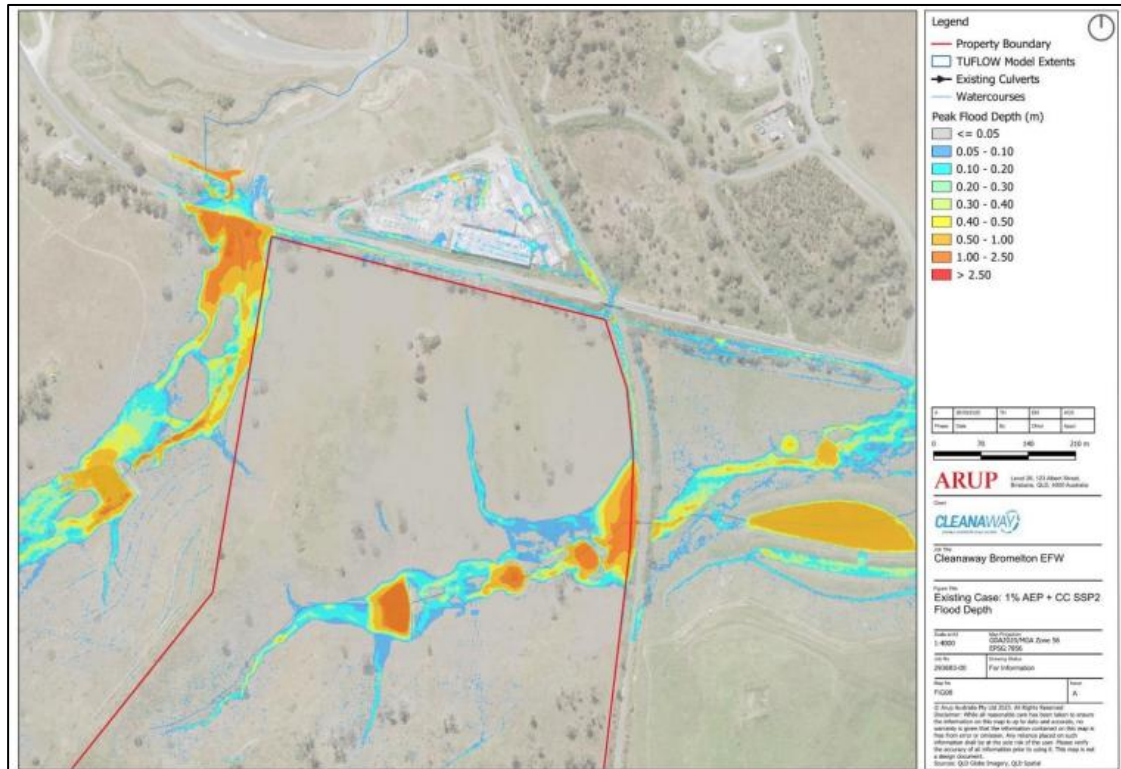


Figure 26: Existing Conditions 1% AEP + CC (SSP2-4.5) Peak Flood Depth

2. Data Collection and Site Assessment

Design Objectives

The over-arching strategy of the BERC stormwater design is to:

1. Retain existing farm dams serving the southern part of the central catchment (Catchment 2) allowing un-developed areas of this catchment to maintain existing drainage regime.
2. Maintain the existing drainage regime within the southern catchments (Catchment 3 and 4) of the site.
3. Generally maintain pre-development catchment distribution.
4. Retain current stormwater discharge locations and flow rates via use of detention basins.
5. Provide catchment wide stormwater quality improvement measures at centralised locations.
6. Collect rainwater and re-use to offset high process demands.
7. Provide specific measures locally to serve areas of higher risk.

Design Criteria

The Bromelton SDA requires that stormwater quantity is managed in accordance with Queensland Urban Drainage Manual (QUDM) and Australian Rainfall and Runoff (where referenced by QUDM). The key design criteria adopted for the BERC are:

- Pipework and attenuation basins sized for the 10% AEP return event.
- Secondary control for waterway stability to limit post development peak 1-year ARI event discharge to the pre-development peak 1-year ARI event.
- Intensity Frequency Duration (IFD) Design rainfall intensity data from the Bureau of Meteorology (BoM) website – from Bromelton.
- Pre-development discharge rates to be determined using the Rational Method for rural catchments as per QUDM.
- Storage volumes to be determined by matching post development flows to the pre-development condition for the 10-year ARI event.

- Detention basins to be sized in accordance with AustRoads Part 5A (AustRoads 2023) as required by DTMR's Road Drainage Manual.
- The stormwater quality design to be based on pollutant reduction targets specified in Seqwater's Development Guidelines 2024, which are the most stringent among the referenced standards and exceed both WSUD guidelines for South East Queensland and Scenic Rim Regional Council's requirements. The Seqwater reduction targets are shown in **Table T**.

Table T: Stormwater Pollutant Reduction Targets

Pollutant	Target Reduction (Seqwater)
Total Suspended Solids (TSS)	85%
Total Phosphorus (TP)	65%
Total Nitrogen (TN)	45%
Gross Pollutants	95%

3. Data Collection and Site Assessment

The development footprint of the Project area is approximately 22.6ha and occupies all existing Catchment 1 and part of existing Catchment 2. Existing Catchment 3 and 4 are not within the development footprint. **Figure 27** shows the post development catchment and the proposed drainage network.

The concept stormwater management design captures runoff from hardstand areas via a pit and piped drainage network. The drainage network conveys flows via a Gross Pollutant Trap (GPT) to a combined bio-retention and detention basin to provide water quality treatment and flow attenuation.

Each stormwater basin combines bio-retention and detention functions to manage both water quality and flow. The bio-retention area treats smaller rainfall events by slowing water, allowing pollutants to settle or be absorbed by vegetation and soil. Larger flows spill into the detention portion of the basin, which temporarily stores stormwater and gradually releases it to downstream systems at controlled rates.

The basins are equipped with a complex outlet control, including an orifice and overflow weir, to limit discharges to pre-development flow rates for the 1-year and 10-year ARI events. An emergency spillway safely conveys flows exceeding the 10-year ARI, and a 300 mm freeboard is provided above the design storage level as an additional safety margin.

The northern basin (serving *Catchment 1*) has capacity of 596m³ (to be refined during future design stages) and controlled discharge into the existing swale on the western boundary, which connects to the roadside channel and twin box culverts beneath Beaudesert–Boonah Road.

The eastern basin (serving *Catchment 2*) has capacity of 2,411m³ (to be refined during future design stages) and controlled discharge into the existing overland flow path downstream of the farm dam, which continues under the rail corridor via the 1.85m high arch culvert.

Another aspect of the drainage design is rainwater harvesting for reuse for as irrigation and process water. In total, four roof rainwater harvesting tanks are proposed:

- Two 100kL tanks at EfW building, each serving half of the roof catchment.
- One 100kL tank at IBA maturing building.
- One 100kL tank at IBA sorting building.

High level overflow pipes from these tanks discharges to the adjacent stormwater pit and pipe network.



Figure 27: Post-Development Catchment Plan (Note – Red Line denotes split between catchments 1 & 2)

Undertake Stormwater Quality Modelling and Consider Run-Off from Sensitive Areas

MUSIC Modelling

MUSIC (Model for Urban Stormwater Improvement Conceptualisation) modelling software was utilised to evaluate the stormwater management strategy's ability to meet mandated water quality objectives.

The water quality treatment train for Catchment 1 and 2 comprises:

- Rainwater harvesting on key buildings including EfW building, IBA maturing and sorting buildings (all part of the southern catchment).
- Collection of roads and hardstands via inlet pits with piped conveyance.
- Proprietary Gross Pollutant Trap (GTP) upstream of stormwater basins.
- Integrated bio-retention basin and detention basin.

The pollution reduction results from the MUSIC model are summarised in **Table U**. These results demonstrate compliance with the targets set by Seqwater.

Table U: Summary of MUSIC Model Results

Pollutant	Target Reduction (Seqwater)	Northern Catchment	Compliant	Southern Catchment	Compliant
Flow Reduction (ML/yr)	N/A	3%	N/A	18.4%	N/A
Total Suspended Solids (kg/yr)	85%	87.6%	Y	85.0%	Y
Total Phosphorus (kg/yr)	65%	76.8%	Y	69.5%	Y
Total Nitrogen (kg/yr)	45%	46.2%	Y	48.7%	Y
Gross Pollutants (kg/yr)	95%	99.2%	Y	99.4%	Y

Run-Off From Sensitive Areas

Most of the site operates under typical industrial conditions, with stormwater runoff from roofs, roads and hardstands managed through standard drainage measures. However, some areas of the facility require additional controls to address site specific factors such as waste delivery, IBA stockpiles diesel and oil and sewer infrastructure.

- **Waste Delivery:** All waste is delivered to the tipping hall via covered vehicles. No waste will be stored externally.
- **IBAA Stockpiles:** The maturing incinerator bottom ash stockpiles can contain heavy metals and high salt content which are to be kept separate from the stormwater system. Run-off from the IBAA hardstand, will be directed to a separate lined retention basin. This basin has been designed to a 1-in-20 year storm and has a freeboard allowance. Recovered water from the lined retention basin is to be pumped into storage tanks with minimum capacity 150 kL, treated and reused to maintain moisture levels in IBAA stockpiles and for stockpile dust suppression and hardstand wetting. In the event of the lined retention basin approaching its capacity the operator will make provision to tanker off-site collected runoff to a licensed facility.
- **Diesel and oil:** Two diesel storage tanks are proposed adjacent to the main EfW building. These tanks will be designed in accordance with AS 1940:2017. Spill response kits shall be provided on site. An oil and water separator has been included at the point of discharge from the HV substation area.
- **Sewer Infrastructure:** On-site sewer holding tanks are proposed to cater for sewage wastewater (kitchen, toilets) for each of the buildings which will house staff (EfW building and IBA admin). These retention systems will be fully contained, sized for seven days capacity, with no overflow to landscaped areas. Effluent will be transported off-site as required when these septic tanks approach capacity

7.14.5 Flood Impact Assessment

The design conditions 1% AEP + CC (SSP2-4.5) peak flood depth results presented in **Figure 28** showed that the critical site elements are located outside the peak 1% AEP + CC (SSP2-4.5) peak flood extents.

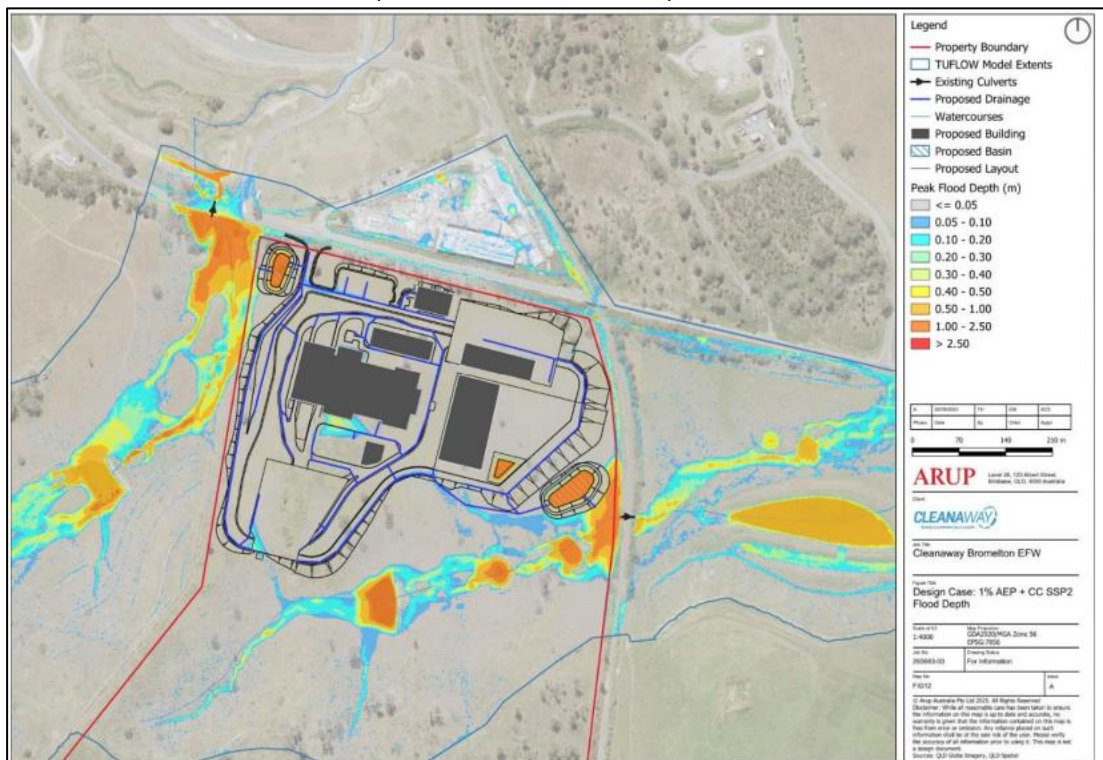


Figure 28: Design Conditions 1% AEP + CC (SSP2-4.5) Peak Flood Depth

The design conditions modelling 1% AEP + CC (SSP2-4.5) peak flood depth difference presented in **Figure 29** showed that no adverse off-site flood impacts are observed due to the proposed works. The proposed stormwater detention basins are shown to retain a portion of the local runoff flows within the site, resulting in a decrease in off-site flood flows.

Notably it is observed that here is no worsening in flood depth or hazard to:

1. Beaudesert Boonah Road in 1% AEP + CC (SSP2-4.5) event.
2. Railway corridor or to railway infrastructure in 1% AEP + CC (SSP2-4.5) event.

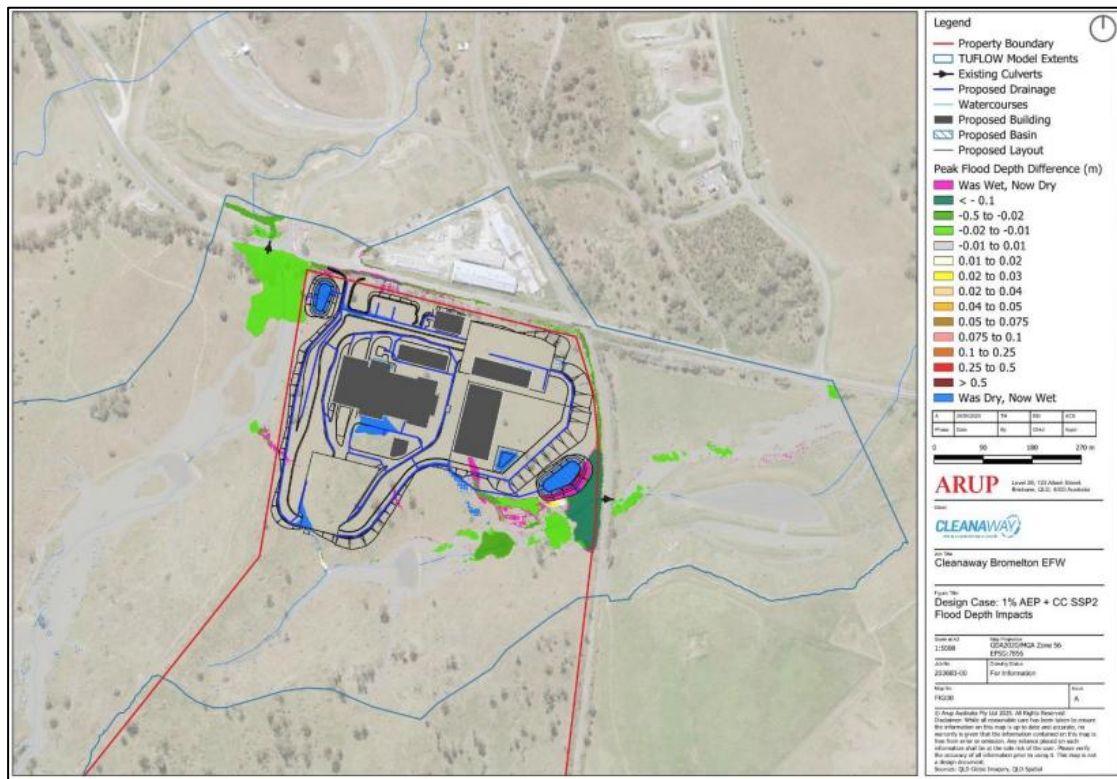


Figure 29: Design Conditions 1% AEP + CC (SSP2-4.5) Peak Flood Impact (Change in peak flood depth)

7.14.6 Conclusions

A stormwater management and flood risk assessment was completed for the Project area, considering existing site conditions, potential risks and relevant environmental and planning regulations. Key findings include:

- Existing overland flow paths and farm dams outside the development footprint will be retained, and southern catchment flows are unaffected by construction or operation.
- All buildings are positioned above the 1% AEP flood level plus freeboard.
- The stormwater strategy integrates pits, pipes, detention and bio-retention basins, water quality treatment devices, and rainwater harvesting to minimise off-site impacts.
- Post-development discharge flows for a 10-year ARI event do not exceed pre-development flows in accordance with requirements outlined in Bromelton SDA and QUDM.
- MUSIC modelling confirms that water sensitive urban design and water recycling measures meet Seqwater pollution reduction targets.
- Four rainwater harvesting tanks are incorporated to supply process water and a lined retention basin will manage stormwater from the IBAA hardstand.
- Detailed civil and stormwater designs will be developed and refined during later design stages.
- Flood modelling indicates the Project does not materially worsen flood performance or create safety hazards for adjacent state-controlled roads, rail, or transport infrastructure during a 1% AEP event + CC (SSP2-4.5).

The stormwater management and flood risk assessment concludes compliance with relevant environmental and planning regulations, relevant state code performance outcomes and the Seqwater Development Guideline 2024.

7.15 Air Quality Technical Report

7.15.1 Overview

An **Air Quality Assessment (Appendix S)** was prepared by Katestone Environmental for the proposed BERC project. The assessment evaluates air quality, odour and plume visibility under the *Environment Protection Act 1994*.

7.15.2 Regulatory Context

Legislation and policies

The assessment has been developed in accordance with the following key regulations and guidelines:

- National Environment Protection (Ambient Air Quality) Measure (Air NEPM), 2021
- Environmental Protection (Air) Policy 2019 and Environmental Protection (Air) Policy Amendment 2024 (Air EPP).
- Guideline: Application requirements for activities with impacts to air, ESR/2015/1840 (Queensland Government 2025a)
- Guideline: Odour impact assessment from developments, ESR/2024/6828 (DESI, 2024)
- Bromelton State Development Area Development Scheme 2017.
- State Code 22: Environmentally Relevant Activities
- State Code 2: Development in a railway environment

International Guidelines

The assessment is guided by the following frameworks and best practice standards:

- European Commission, Best Available Techniques (BAT) Reference Document for Waste Incineration (BREF WI) (2019) and the associated Best Available Techniques Conclusions (BATC) for waste incineration (2019).
- Directive 2010/75/EU of the European Parliament and the Council on industrial emissions (the Industrial Emissions Directive (IED)) Annex VI.

7.15.3 Construction Air Quality Assessment

The Project has the potential to generate air quality impacts during construction through:

- dust emissions from land clearing, the handling of material, windblown dust of exposed areas and vehicle movements.
- exhaust emissions from vehicles and diesel generators.

Methodology

The potential impacts of dust emissions during construction of the Project have been assessed using a risk-based methodology. This is appropriate due to the temporary nature of the proposed construction activities and well-established mitigation measures that can be applied to minimise potential dust emissions. Refer to Appendix C of the **Air Quality Assessment** for additional information on the adopted methodology.

Emissions from other sources (vehicle exhaust emissions) and diesel generator are considered insignificant and therefore have not been further assessed.

Construction Air Quality Impacts

For the Project's construction phase, the air quality risk assessment identified that, without mitigation, the preliminary risk of dust soiling is low to medium, the risk to human health is low and the risk to ecological receptors is low.

Mitigation

The key mitigation measure is the preparation of a Construction Dust Management Plan which will be developed and implemented by the construction contractor. The plan will include measures such as regular site inspections, water-based dust suppression, covering of stockpiles and vehicle speed controls. With the implementation of the identified mitigation measures, the risk of dust emissions causing soiling or adversely affecting human health or ecological receptors is low.

7.15.4 Operational Air Quality Assessment

The Project has the potential to generate air quality impacts during operation through:

- Flue gases from the combustion of waste to produce energy.
- Dust from IBA/IBAA maturation / processing areas.

Methodology

The potential impacts of emissions during operation of the Project have been assessed using a dispersion modelling approach. The assessment of air quality comprises four main steps:

Step 1: Establishing the existing environment

Understanding the existing air quality environment in the area surrounding the Project site. This includes identifying sensitive receptors, existing industrial emission sources, existing ambient air quality and local meteorological conditions (including wind speed, direction, temperature, and atmospheric stability) that influence the dispersion of pollutants.

Step 2: Quantifying emissions to air

Emissions to air from the stack are quantified for various operating scenarios to reflect the variability in mixed waste feedstock composition and/or combustion characteristics. These emissions take into consideration best available techniques for waste incineration.

Step 3: Predicting air pollutant dispersion

Using a regulatory-approved dispersion model, to simulate the transport and dispersion of air pollutant emissions from the key sources identified for the Project.

Step 4: Assessing compliance against relevant standards

Comparing the model predicted ground-level concentrations for each pollutant with the corresponding health-based air quality assessment objectives and standards. These standards are adopted from the Environmental Protection (Air) Policy 2019, a Environmental Protection (Air) Amendment Policy 2024 (Air EPP), EPA Victoria Publication 1961, and the National Environment Protection (Ambient Air Quality) Measure (AAQ NEPM). The assessment incorporates existing (background) air pollutant concentrations when determining overall compliance.

7.15.5 Technical Assessment of Operational Air Quality

Step 1: Establishing the Existing Environment

Existing ambient air quality

Ambient air quality data was sourced from the closest DETSI monitoring stations to the Project at Springwood and Woolloongabba. These stations are closer to urban/industrial areas than the project site, so their data likely overestimates background pollutant levels at Bromelton.

Existing sources of emissions

Major local emission sources identified via the National Pollutant Inventory include:

- Bromelton Protein Recovery facility (contributor of particulates, NO_x, SO₂, CO locally)
- Bromelton Quarry
- Gelita Australia (gelatin manufacturing)
- LMS Energy (landfill gas flaring)

The Bromelton Protein Recovery facility has been explicitly included in the cumulative air quality assessment to ensure potential combined impacts are appropriately considered. The other facilities were not included in the modelling and these are relatively minor emission sources and it is expected that the ambient background will adequately address contributions from these facilities.

Sensitive receptors

Sensitive receptors are considered as a location where people are regularly present. These receptors include:

- residential dwellings (including hotels)

- educational, community and health buildings parks
- a public park / garden
- a place used as a workplace including an office for business or commercial purposes

The sensitive receptors for the Project are shown in **Figure 30**.

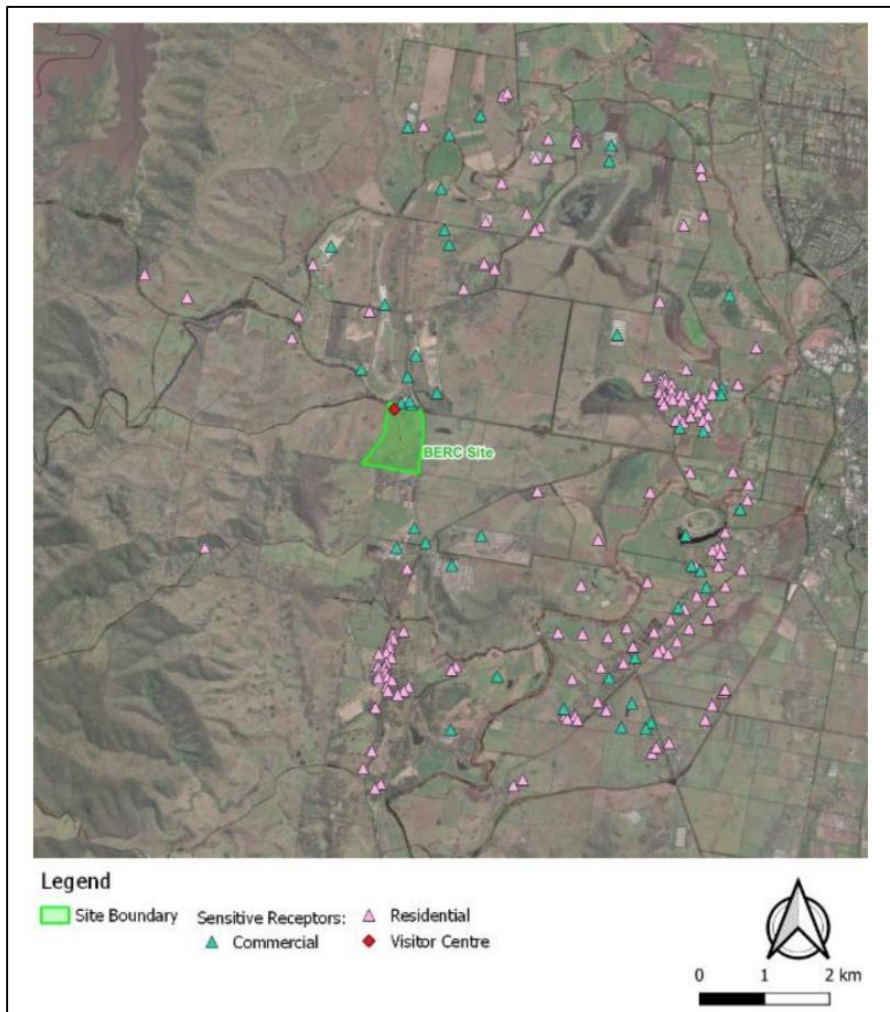


Figure 30: Sensitive Receptors

Meteorology

The dispersion of air emissions from a source (e.g. a stack) depends on terrain and meteorological conditions. Dispersion modelling uses hourly data for temperature, wind and other parameters. The dispersion modelling assessment was conducted using the most recent versions of the TAPM (version 4.0.5) and CALMET (version 6.5.0). Detailed meteorological data and modelling for the Project site are provided in Appendix A of the Air Quality Assessment. Observational data from the Bureau of Meteorology's automatic weather station located at Beaudesert Drumley Steet and the DETSI station located Josephville were included in the meteorological model.

Step 2: Quantifying emissions to air

Scenarios

To ensure the assessment covers all possible operating conditions, four scenarios were modelled. These scenarios represent both normal and higher levels of operation that could occur from time to time (refer **Table V**).

Table V: Operational Air Quality Assessment Scenarios

Scenarios	Description	Emission Limit Adopted
LP1 – daily average operations	Represents the facility running under typical day-to-day conditions, processing waste at normal capacity. To allow for variations in waste composition a 10% margin on the emission has been included in this scenario.	BREF WI, 2019 - daily average (upper) concentration limits
LP1 – short-term operations	Represents short periods when one processing line may temporarily emit slightly higher levels, while the other line operates under normal limits.	EU IED (2010) - short-term (30-minute average) emission limits.
LP2 – daily average operations	Represents times when the facility is processing waste at maximum capacity (120% mechanical load) but still operating within normal thermal conditions.	BREF WI, 2019 - daily average (upper) concentration limits
LP2 – short-term operations	Represents a conservative, ‘worst-case’ scenario where the facility is operating at maximum capacity and one line temporarily emits at the higher short-term limit while the other continues at normal levels.	EU IED (2010) - short-term (30-minute average) emission limits.

Emission Rates

- Flue Gas Treatment: Emission rates are based on the upper end of the Best Available Techniques – Associated Emission Levels (BAT-AELs) defined in the European BREF for Waste Incineration (2019). The European BREF for Waste Incineration (2019) is a guidance document developed by the European Commission that sets out the *Best Available Techniques* (BAT) and associated emission limits for Energy from Waste facilities. Actual emissions from the BERC are expected to be lower than these conservative values.
- IBA/IBAA storage area: Dust emissions (TSP, PM₁₀, PM_{2.5}) were estimated using published emission factors from the National Pollutant Inventory. Where unavailable the US AP-42 air emission factors have been used.

Step 3: Predicting Air Pollutant Dispersion

The CALPUFF model (version 7.2.1) was used for dispersion modelling across a 20km x 20km modelling domain. CALPUFF is an advanced non-steady-state air quality modelling system. Twelve months of modelled meteorological data was used as input for the dispersion model to include all weather conditions likely to be experienced in the region during a typical year.

Step 4: Assessing compliance against relevant standards

The health based and amenity ambient air quality objective for the Project for each pollutant are listed in Section 3.6 of the Air Quality Assessment.

Flue Gas

For all four scenarios the Project (in isolation) is predicted to have an insignificant impact on air quality as measured against the relevant objectives.

The predicted maximum ground-level concentrations, including cumulative background, for the Project under the four operational scenarios at either a commercial or residential receptor are summarised below.

- LP1 daily average (BREF limits): ≤ 95% of relevant objectives
- LP1 short-term (EU IED 2010 limits): ≤ 76% of relevant objectives
- LP2 daily average (BREF limits): ≤ 95% of relevant objectives
- LP2 short-term (EU IED 2010 limits): ≤ 76% of relevant objectives

The graphs below (**Figures 31 - 34**) identify the Project contribution in isolation and with cumulative background to the relevant objectives for the key air pollutants at a residential receptor for the four scenarios assessed. The dark blue bars

represent levels from the Project alone, while the lighter blue bars show the combined levels from the Project and existing background air quality. To allow all pollutants to be shown on the same graph, the results are expressed as a percentage of their respective air quality objective rather than actual concentration values.

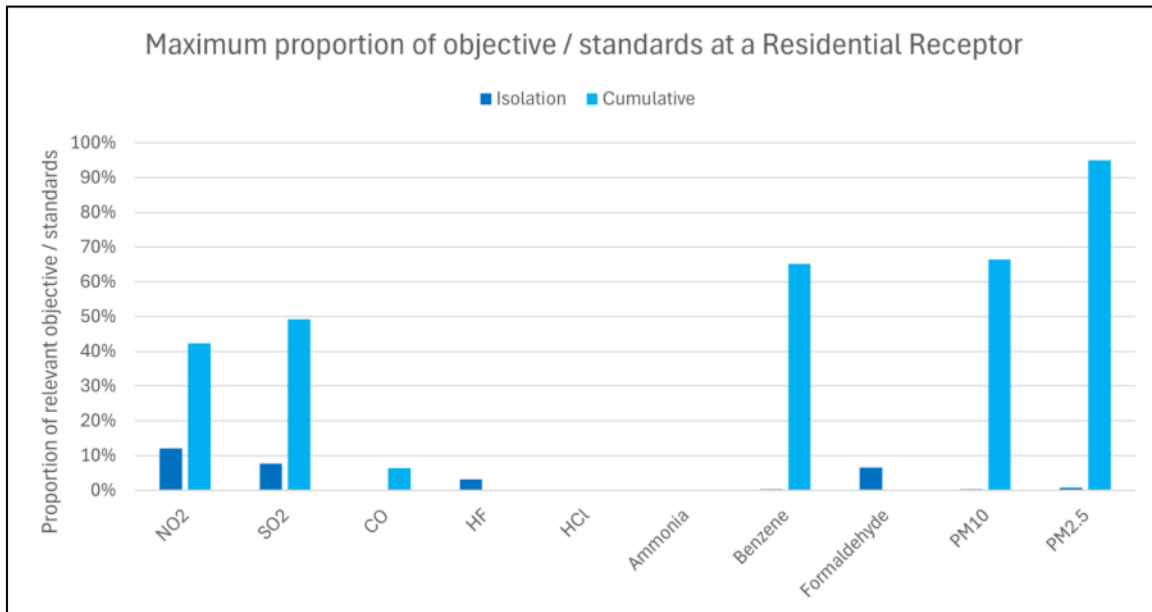


Figure 31: Project Contribution in Isolation and with Cumulative Background at a Residential Receptor (LP1 Daily Average)

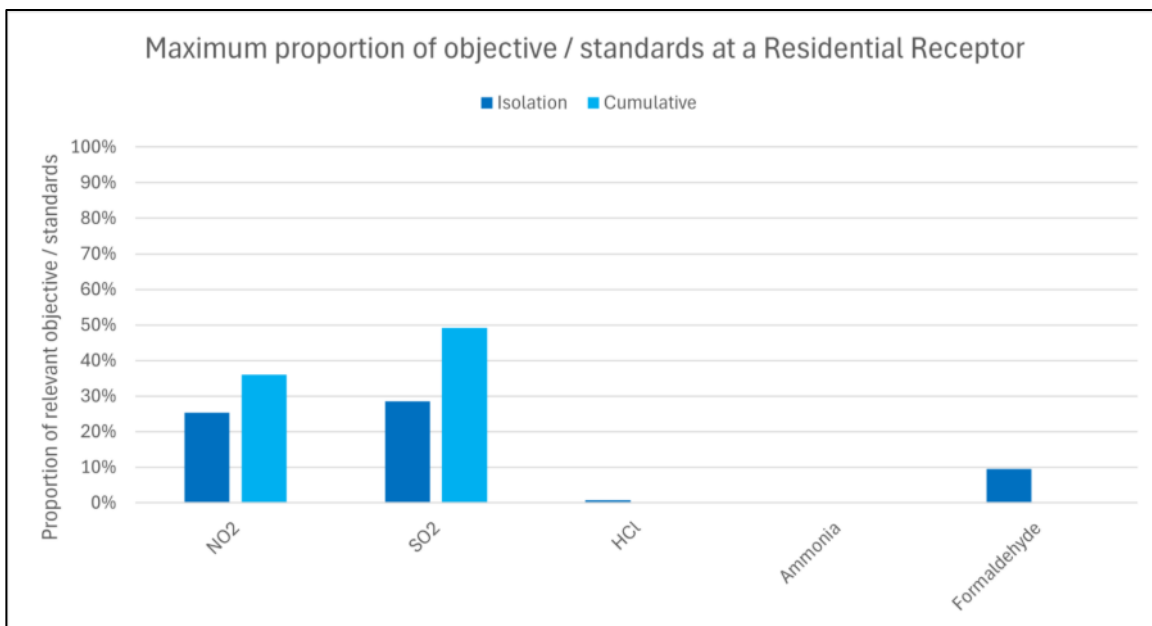


Figure 32: Project Contribution in Isolation and with Cumulative Background at a Residential Receptor (LP1 Short-Term)

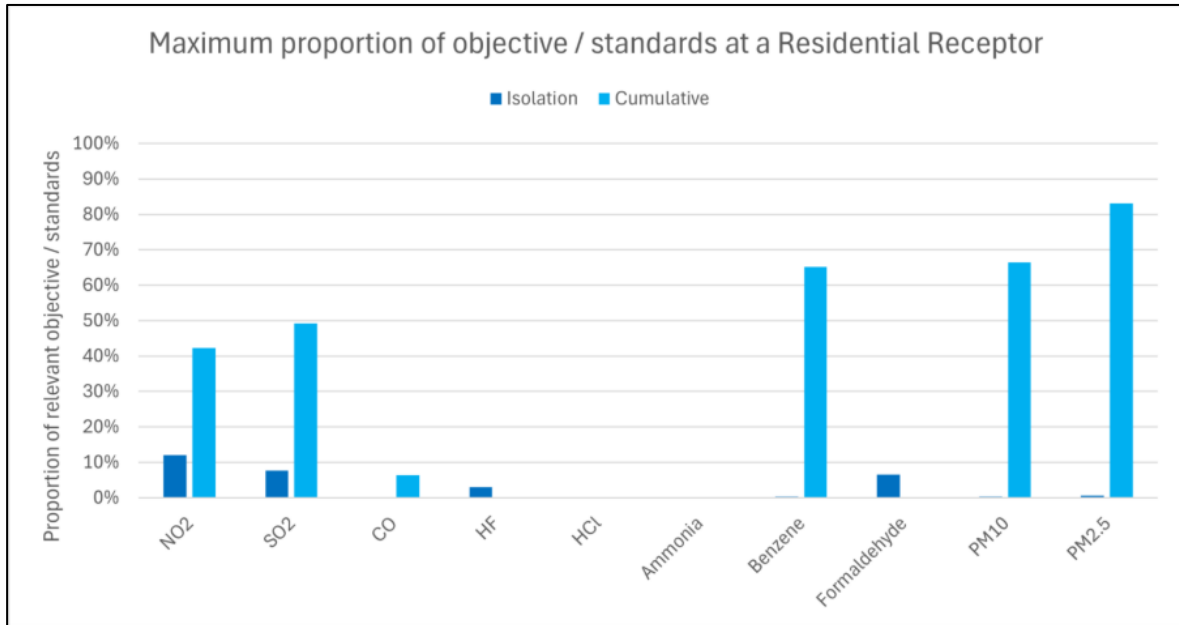


Figure 33: Project Contribution in Isolation and with Cumulative Background at a Residential Receptor (LP2 Daily Average)

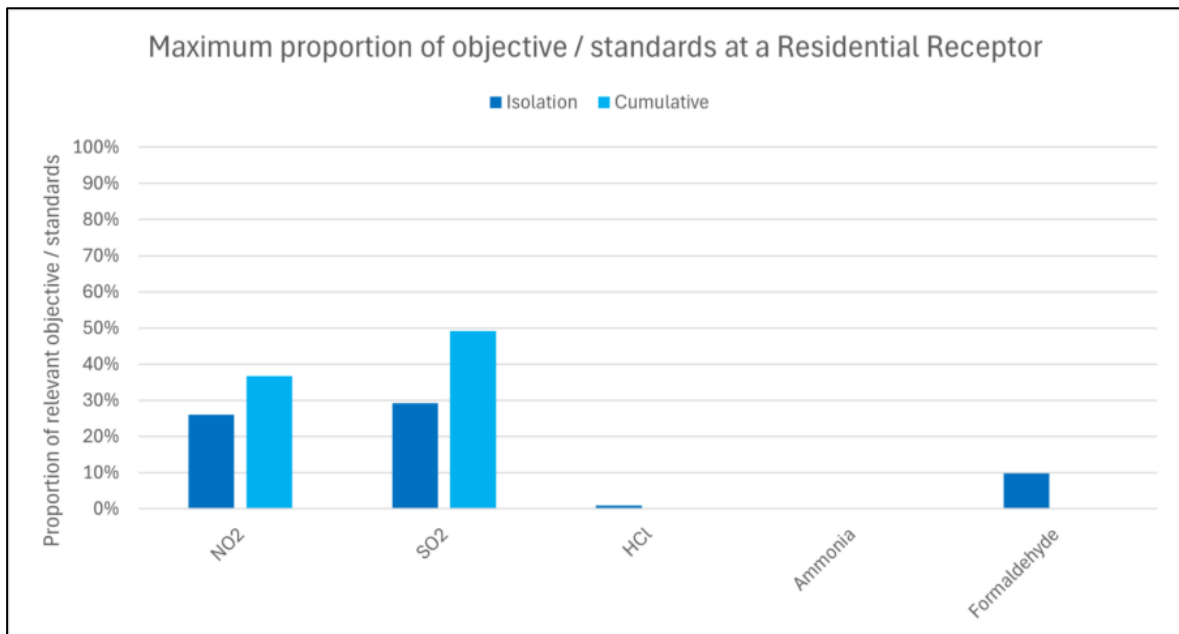


Figure 34: Project Contribution in Isolation and with Cumulative Background at a Residential Receptor (LP2 Short-Term)

IBA / IBAA

The air quality modelling indicates that emissions from the IBA/IBAA storage area are very low and compliant with relevant standards:

- PM₁₀: Maximum concentrations at residential and commercial receptors are less than 0.3% of the relevant objectives.
- PM_{2.5}: Maximum concentrations at receptors are less than 0.1% of the relevant objectives.
- Total Suspended Particles (TSP): Maximum concentrations are less than 0.05% of the relevant objectives.
- Dust deposition: Maximum monthly deposition rates are less than 0.1% of the relevant objectives.

Overall, the IBA/IBAA storage area is predicted to have an insignificant impact on local air quality when the proposed control measures are implemented.

Mitigation

Flue Gas

The Project includes primary and secondary emission control systems which are designed to achieve emissions at or below the upper end of the BAT-AEL range as defined in the European BREF Waste Incineration (2019) and meet short-term emission limits under the European IED, representing international best practice.

Primary emission control measures:

- Waste preparation and mixing: Waste delivered to the facility is mixed in the waste bunker before combustion. This ensures the waste burns consistently and efficiently, reducing the formation of pollutants
- Temperature control and combustion optimisation: The amount of air used in the combustion process is carefully controlled to minimise nitrogen oxide (NO_x) formation while preventing excessive carbon monoxide (CO). The system maintains flue gas temperatures above 850°C for at least two seconds, which effectively destroys harmful compounds such as volatile organic compounds (VOCs), dioxins, and furans.

Secondary emission control measures:

- Selective Non-Catalytic Reduction (SNCR): A chemical solution of ammonia or urea is injected into the hot flue gas, converting the majority of NO_x that may be present into nitrogen and water.
- Semi-dry scrubber:
 - Lime injection neutralises acid gases such as hydrogen chloride (HCl), hydrogen fluoride (HF), and sulphur dioxide (SO₂).
 - Activated carbon adsorbs heavy metals (e.g., mercury, lead, cadmium) and residual organics.
- Baghouse Filter: The baghouse filter, which consists of a series of fabric bags with very small pores, captures particulate matter, reaction products, and adsorbed pollutants from the flue gas before it is released from the stack
- Continuous Emissions Monitoring System (CEMS): The facility is equipped with real-time monitoring of key pollutants, including NO_x, CO, particulates, TOC, HCl, HF, NH₃, SO₂, and mercury. Continuous monitoring of HF and mercury emissions may be replaced by periodic measurements taken at least every six months if emission levels are proven to be low and stable. Routine sampling ensures compliance for pollutants not continuously monitored.

IBA/IBAA

The Project includes several measures to minimise dust emissions from IBA/IBAA maturation, processing, and storage:

- IBA maturation: Stockpiles contained within a 3-sided building and sprayed with water to limit dust.
- IBA sorting: Conducted in a fully enclosed building with a baghouse or cartridge filter; cleaned air is released via a vent stack above the roof.
- IBAA storage: Temporary outdoor stockpiles sprayed with water, with most particles too large to be carried far by wind.
- Dust suppression: Water sprays on sealed roadways minimise dust from material handling and wind erosion; metal emissions are expected to be negligible.

7.15.6 Odour

The Project has the potential to generate odour during operation through the receiving of waste and temporary storage in the waste bunker prior to processing.

Methodology

The methodology for the odour assessment was the Victorian Environment Protection Authority (EPA) Publication 1883 (2022) framework. A Level 2 assessment was undertaken, which includes two key tools:

- Cumulative effects test – considers potential odour impacts from multiple or clustered sources in the surrounding area.
- Source–pathway–receiving environment tool – evaluates the nature of the odour source, how effectively odour could travel to surrounding areas, and the sensitivity of nearby receptors to determine an overall risk score.

Mitigation

To minimise odour impacts from the Project during operation, a range of mitigation measures will be implemented, including:

- Waste handling occurs within enclosed buildings, including the tipping hall and waste bunker, to contain odours.
- No waste is stored outside of the waste bunker.
- Trucks are covered during transport to the site to minimise odour release.
- The tipping hall is maintained under negative pressure, ensuring odorous air is drawn into the treatment system rather than escaping.
- Fast-acting roller doors remain closed by default and only open briefly for truck access.
- Flue gas emissions are not expected to produce odour, as odorous compounds are destroyed at the high temperatures within the facility.

Odour Impact

The Level 2 odour risk assessment identified that risk of odour impacts from the project is low.

7.15.7 Plume visibility

The Project has the potential to produce a visible plume from the flue gas stack, primarily caused by the condensation of water vapour in the exhaust air when it cools and becomes visible as steam.

Methodology

A plume visibility study was conducted using ADMS-6, which modelled the frequency, height, and downwind distance of visible plumes over a five-year period.

Impact

The modelling indicates that the plume is visible only a small proportion of the time, with maximum heights ranging from approximately 100 m to 262 m and horizontal extents averaging 21–26 m. The plume is predominantly contained within the Project site boundary and will not affect nearby infrastructure such as the railway corridor.

7.15.8 Future Industry - Bromelton Compost Manufacturing Facility - SOILCO

SOILCO has gained approval for a compost manufacturing facility at 260 Mitchell Road, Bromelton, about 850m west of the Project. The facility would process up to 250,000tpa of garden and food organics.

An air quality assessment by GHD (2024) found odour and dust to be the main potential emissions, both presenting low risk. Predicted odour levels comply with guidelines, and no significant air quality impacts are expected.

Given the low dust and odour risk from both projects, cumulative impacts are not anticipated.

7.15.9 Community Concerns

During consultation, the main community concerns regarding air quality related to the potential for emissions and impacts on human health. Specific concerns were raised about the facility's location within a basin and that temperature inversions in the area could limit the dispersion of emissions, potentially leading to elevated pollutant concentrations. Additional concerns focused on odour from waste handling and processing.

The Project team has addressed these concerns through a combination of design and operational measures:

- Emission accumulation and temperature inversions: Stack heights and emission control systems have been designed to optimise dispersion and minimise local accumulation. Detailed air quality modelling was conducted for both normal and worst-case conditions, including consideration of local meteorology. The results demonstrated that pollutant concentrations are predicted to remain well below relevant air quality objectives, even under inversion conditions.
- Odour: Waste handling and storage occurs within enclosed buildings maintained under negative pressure, and tipping hall doors remain closed except for brief truck access. The flue gas system operates at high temperatures, which destroys odorous compounds, and ventilation air is treated through filters and scrubbers. A Level 2 odour risk

assessment concluded that the overall risk of odour impacts is low, and the facility is separated from sensitive receptors.

- Human health: Potential impacts on human health from air emissions were assessed in the **Human Health Risk Assessment (Appendix U)**. This assessment concluded that, with the proposed mitigation and emission controls, there is a low risk to human health from facility operations.

7.15.10 Conclusions

The daily average (i.e., under normal operating conditions) and short-term average air quality modelling results demonstrate that, with the proposed emission limit settings based on the upper end of the BATAEL range associated with implementation of BAT for emission control and flue gas treatment, the Project (in isolation) is predicted to have an insignificant impact on air quality, as measured against the relevant health based and environmental based air quality objectives.

These results and the operation of the Project as described in the Air Quality Assessment demonstrate:

- The appropriate implementation of best practices as described in the BREF WI, and therefore, satisfaction of Policy outcome 7 of Queensland's EfW Policy.
- The Project complies with the objectives in the Air EPP and will meet AO2.1, PO3, and PO7 of State Code 22 and Section 2.5.4 of the Bromelton SDA wide assessment criteria.
- The Project will meet PO1, PO2, PO3, PO6, PO34 of State Code 22 as emissions due to operations comply with the objectives in the Air EPP and plume visibility will not impede the rail corridor and dust during construction will be managed to avoid nuisance.

7.16 Noise and Vibration Technical Report

7.16.1 Overview

A **Noise and Vibration Technical Report (Appendix T)** was prepared by Arup for the proposed BERC facility. This report provides an assessment of potential for environmental harm from noise and vibration and identifies mitigation measures to address the risks.

7.16.2 Regulatory Context

Reviewing applicable noise and vibration regulations, policies, and guidelines is an essential component of the assessment methodology. Collectively, these documents establish the existing regulatory framework and state of knowledge regarding noise and vibration in the Project area. The main regulations, policies, and guidelines reviewed for this assessment are summarized in **Table W** below.

Table W: Summary of Key Regulatory and Guidance Documents Reviewed for the Noise and Vibrations Assessment

Title / Source	Purpose / Application
<i>Environmental Protection Act 1994 (EP Act)</i>	Primary environmental legislation for Queensland; includes noise and vibration as environmental harm
Environmental Protection Regulation 2019 (EP Regulation)	Details prescribed standards and methods for noise
Environmental Protection (Noise) Policy 2019 (EPP Noise)	Sets acoustic quality objectives (AQOs), background creep, and environmental values for noise
(former) DES, Noise Measurement Manual (NMM) (2020)	Provides noise measurement methodology
(former) DESI, Noise and Vibration – EIS Information Guideline (2024)	Guidance for EIS noise and vibration assessment, including background creep methodology
Department of State Development, Bromelton SDA Development Scheme (2017)	Planning framework for SDA, including noise/vibration criteria
(former) DES, Energy from Waste Policy (2021)	Policy for EfW projects, including noise/vibration compliance
(former) DES, Energy from Waste Guideline (2022)	Guidance for EfW projects
State Code 22: Environmentally Relevant Activities (ERA)	Assessment code for activities with noise impacts
(former) DES, Guideline – SDAP State Code 22: ERA (2019)	Guidance for ERA applications
DETSI, Guideline – EP Act, Application requirements for activities with noise impacts (2025)	Application requirements for noise-impacting activities
State Code 2: Development in a Railway Environment	Performance outcomes for vibration impacts on rail corridors
DTMR, Guide to Development in a Transport Environment: Rail (2015)	Guidance for development near rail
DTMR, Transport Noise Management Code of Practice: Volume 1 – Road Traffic Noise (CoPV1) (2013)	Criteria for road traffic noise, including assessment of increased traffic from projects
DTMR, Transport Noise Management Code of Practice: Volume 2 – Construction Noise and Vibration (CoPV2) (2023)	Criteria and management for construction noise and vibration Referenced for construction noise screening and mitigation
DTMR, Technical Specification MRTS02 Provision for Traffic (2023)	Haul route and traffic noise management during construction

Title / Source	Purpose / Application
(former) DEHP, EcoAccess Guideline for the assessment of Low Frequency Noise (2004)	Screening for low-frequency noise annoyance Used in absence of current DETSI guidance
NSW EPA, Assessing Vibration: A Technical Guideline (2006)	Vibration assessment methodology Used due to lack of QLD-specific vibration criteria
Australian Standards, "AS2187:2006 Explosives - Storage and Use - Part 2: Use of Explosives"	International standards for vibration (structural damage, human comfort, buried utilities)
British Standards Institute, "BS7385:1993 Evaluation and Measurement for Vibration in Buildings Part 2"	
Deutsche Norm DIN 4150-3:2016 Vibrations in buildings-part 3: Effects on structures. DIN, Germany	

7.16.3 Technical Assessment

This Noise and Vibration assessment includes:

1. Noise and vibration criteria based on the EP Act (Queensland) with its subordinate legislation and related guidelines. In the absence of Queensland specific guidance, New South Wales vibration guidance has been referenced where appropriate
2. Assessment of airborne noise emissions for construction and operation of the BERC EfW facility to the nearest sensitive receptors outside the Project area boundary
3. Assessment of increase of road traffic airborne noise emissions along Beaudesert Boonah Road for construction and operation of the BERC EfW facility
4. Assessment of vibration emissions for construction of the Project to the nearest sensitive receptors outside the Project area boundary. This is in the form of expected safe working distances of vibration generating construction plant and equipment.

The construction and operational airborne noise impact assessments have been undertaken using 3D computer acoustic modelling software SoundPLAN 9.1. Construction vibration assessment has been conducted as a desktop assessment. A preliminary desktop noise assessment for road traffic noise was undertaken based on the Calculation of Road Traffic Noise algorithm¹⁸ (CoRTN) in general accordance with DTMR CoPV1.

7.16.4 Assessment Findings

Existing conditions

The report establishes the baseline noise environment around the BERC site, identifies the most sensitive residential receptors, and provides the measured background noise levels that form the basis for all subsequent noise and vibration impact assessments.

Baseline noise measurements were conducted both within the project area and at representative locations near sensitive receptors. Unattended (continuous) and attended (spot-check) noise monitoring were performed in June 2023 by Arup. Please refer to **Figure 35** below.

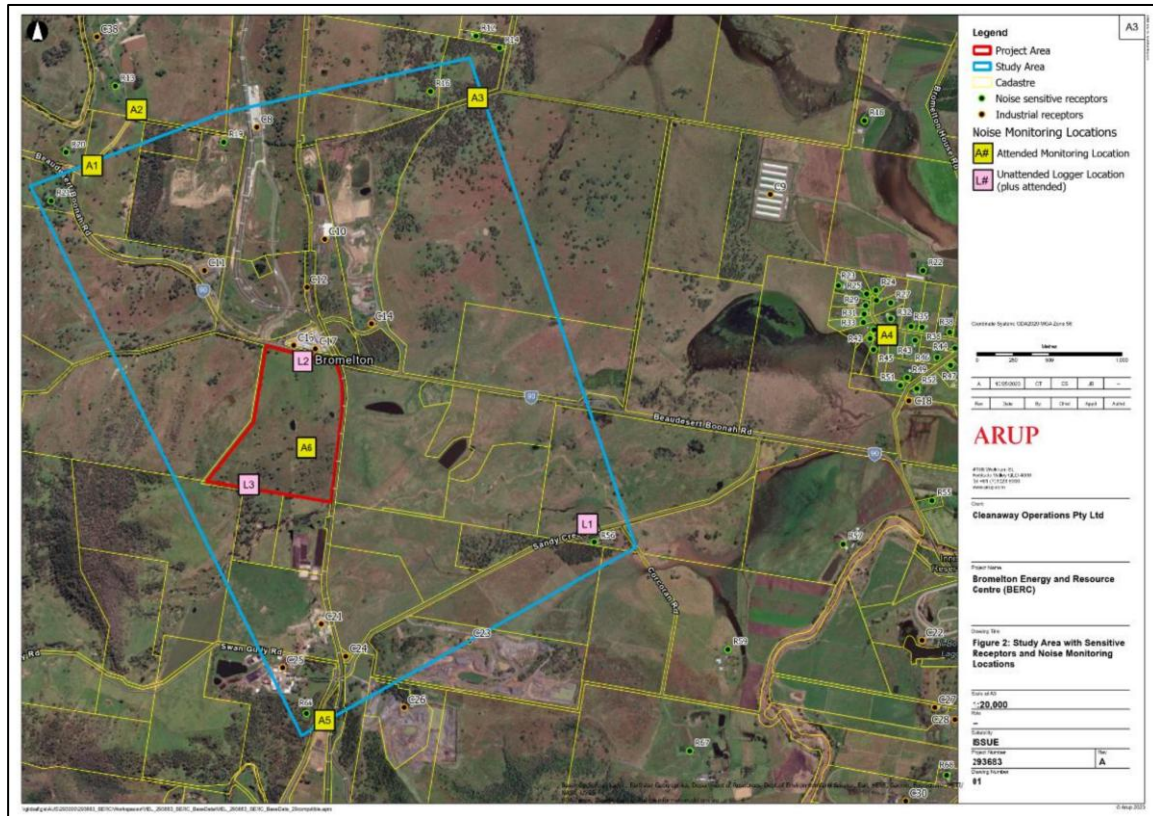


Figure 35: Project Study Area Showing Nearest Sensitive Receptors and Noise Monitoring Locations

The nearest residential locations are listed in **Table X**, all situated more than 1km from the Project site. The table also presents background noise levels at these receptors, established through detailed monitoring, which define the specific Rating Background Levels (RBLs) for day, evening, and night periods.

Table X: Nearest Noise Sensitive Receptors and Their Rating Background Levels

Sensitive receptor ID	Address	Distance to Project area boundary (m)	Rating Background Level (RBL), dB LA90,1hr		
			Day	Evening	Night
R16	356 Brabazon Road, Gleneagle	1994	34	29	29
R19	140 Tilley Road, Bromelton	1438	34	29	29
R21	2430 Beaudesert Boonah Road, Bromelton	1797	35	32	30
R56	149 Sandy Creek Road, Bromelton	1843	31	29	29
R66	358 Sandy Creek Road, Bromelton	1466	39	36	34

The dominant noise sources in the area are road traffic, bird activity, and occasional industrial or quarry operations. The main potential environmental risks identified are noise and vibration impacts on these sensitive residential receptors, which form the basis for all subsequent impact assessments in the report.

Construction noise and vibrations assessment

Construction Noise Guidelines

Noise limits were determined to manage impacts from noise during construction using the DTMR's Transport Noise Management Code of Practice: Volume 2 – Construction Noise and Vibration (CoPV2) (2023). This guidance indicates that

the construction noise criteria are developed by allowing noise levels 5 or 10 dB(A) above RBL depending on the time of day. A lower limit of 45 dBL_{Aeq,adj,15min} applies to all sensitive receptors outside standard hours, a lower limit of 45 dBL_{Aeq,adj,15min} applies to all sensitive receptors during standard hours with the exception of R66 which has a lower noise limit of 49 dBL_{Aeq,adj,15min}. The lower limit external noise levels are shown in column three of **Table Y**.

Noise Assessment

A preliminary Noise and Vibration assessment has been undertaken based on the construction phases provided below. There is no blasting anticipated to be required as part of the construction works. Construction works have been broadly broken down into four phases:

- Phase 1: Earthworks and piling (site establishment and enabling works including initial mobilisation works such as site clearing/tree removal, earthworks and piling)
- Phase 2: Main construction works
- Phase 3: Testing and commissioning
- Phase 4: Finishing and landscaping.

Estimates were made regarding the types and amounts of plant and equipment that will be used during each planned phase of construction. This information is based on conservative assumptions for the construction of the BERC and is indicative only.

Table Y: Predicted Construction Noise to Sensitive Receptors for Different Phases of Construction, dB re 20 uPa

Work period	Sensitive receptor ID ¹	External noise level, lower limit LAeq,adj,15min ^{2,3} , dB(A)	Predicted noise level for construction phase, LAeq,adj,15min ^{2,3} , dB(A)		Complies with lower limit?
			Phase 1	Phase 2 to 4	
Standard hours Monday – Friday 7am to 6pm, Saturday 8am to 1pm	R16	45 ⁴	43	44	ü
	R19		38	40	ü
	R21		38	39	ü
	R56		38	39	ü
	R66	49 ⁴	37	38	ü
Non-Standard hours – Day/Evening Monday – Friday 6pm to 10pm, Saturday 7am to 8am, Saturday 1pm to 10pm, Sunday 7am to 10pm,	R16	45	43	44	ü
	R19		38	40	ü
	R21		38	39	ü
	R56		38	39	ü
	R66		37	38	ü
Non-standard hours – Night Monday – Sunday 10pm to 7am	R16	45	43	44	ü
	R19		38	40	ü
	R21		38	39	ü
	R56		38	39	ü
	R66		37	38	ü

1. Refer Table U for location of sensitive receptor IDs

2. Noise contribution from construction activity determined as the component level (that is, noise from construction activity only)

3. The noise level from construction includes adjustment factors from DTMR CoPV2

4. Lower limit depends on duration of construction noise required, the most onerous limit is shown for assessment purposes, assuming construction noise may be required greater than 6 months. If less than 6 months, then lower limit increases to 50 dB(A).

Based on the equipment type and usage assumptions, the predicted noise levels at each sensitive receptor comply with the lower limit construction noise criteria during both Standard hours and any of the potential Non-Standard hours work periods should they be required.

Although the risk of noise exceedances is considered low based on this initial assessment, it is still recommended that typical ‘industry best practice’ construction noise mitigation measures including the production of a Construction Noise and

Construction Traffic Assessment

Based on 2024 DTMR data, Beaudesert Boonah Road carries an AADT of 4,023 vehicles per day, including 18.7% heavy vehicles. DTMR CoPV1 states that increases up to 3 dB(A) over existing road traffic noise levels result in no change in subjective loudness and are thus considered an insignificant change in noise exposure. Modelling indicates that road traffic volumes would need to approximately double to increase noise levels by more than 3 dB(A). As this is not the case, construction traffic external to the project area is expected to have a negligible impact on existing road traffic noise and has not been considered further in this assessment.

It is suggested that a Construction Traffic Management Plan be developed for the Project. Construction transport routes and site access will aim to avoid residential areas and sensitive receptors, with optimal routes to be identified in consultation with DTMR. Delivery timing and vehicle movements will be considered to minimise potential impacts where practicable.

Vibrations Assessment

Construction vibration safe working distances for various construction equipment and plant based on international standards and guidance are reviewed. Due to the distance of 1.4km between the Project area (construction site) boundary and the nearest residential dwelling (R19) and distance of 86m to the nearest industrial receivers (C16 and C17 at 2613 Beaudesert Boonah Road) compliance is expected with both the cosmetic damage and human comfort criteria at all building structures and sensitive receptors within the study area.

Vibration impacts on the rail corridor are not anticipated, as piling and compaction activities are located well away from the eastern boundary. Construction vibration levels are expected to remain below existing rail vibration levels and comply with relevant performance outcomes.

Operational Noise and Vibrations Assessment

Operation Noise Guidelines

Potential noise from the Project has been assessed on the basis of guidance in the Environmental Protection Policy (Noise).

The EP Act lists obligations and duties to prevent environmental harm, nuisances, and contamination. One of the primary duties that applies is the general environmental duty (i.e., GED). This duty means a person must not carry out any activity that causes or is likely to cause environmental harm unless all reasonable and practicable measures to prevent or minimise the harm have been taken.

Noise creating activities during operations are those generally expected in an urban area like vehicle movements etc. Most of the activities at the site will be undertaken within the main building or within structures.

The EPP (Noise) provides noise limits for people living nearby – the acoustic quality objectives. These criteria are to be achieved at the closest residence to a development. The values recommended for this facility are the values listed in terms of L_{Aeq} as these were the most stringent of the options in the guidance. The values are listed in **Table Z**.

Table Z: Operation Noise Guidelines

Time of day		Acoustic quality objective (dB(A) LAeq,adj,1hr)
Residence – outdoors	Daytime or evening	50
	Night	30
Residence – indoors	Daytime or evening	35
	Night	30

The guidance also notes that an adjustment of 7 dB(A) to convert indoor values to outdoor values is permissible based on that is understood about typical homes in Queensland.

This means the acoustic quality objectives to be applied for this project are 42 dBL_{Aeq,adj,1hr} applied to the external area (i.e., outside the house) for daytime/evening and 37 dBL_{Aeq,adj,1hr} applied to the external area (i.e., outside the house) for night. These values are more stringent than the outdoor value listed above so are the most appropriate to apply.

Low Frequency Noise Guidelines

The proposed low-frequency noise screening criteria is sourced from the (former) DEHP EcoAccess Guideline for the assessment of Low Frequency Noise (2004). The guideline contains an initial screening assessment methodology and a more detailed assessment if the screening assessment indicates adverse impacts.

The detailed one-third octave assessment requires analysis that cannot reliably be completed with available noise source data and modelling methods. The initial screening assessment is considered an appropriate method for the assessment of low frequency noise impacts for the Project.

The criteria for the initial screening assessment are as follows:

- Overall sound pressure level inside residences should not exceed 50 dB(Linear) Leq to minimise risk of complaints of low frequency noise annoyance
- If the dB(Linear) measurement exceeds the dB(A) measurement by more than 15 dB, a one-third octave band measurement in the frequency range 20 to 200Hz should be carried out.

To convert the internal noise criterion of 50 dB(Linear) to an external noise criterion, a 5 dB noise reduction through open windows has been used, resulting in an equivalent external noise criterion of 55 dB(Linear). Therefore, the resulting criteria adopted for assessment of low frequency noise on this Project are as follows:

- External noise criterion of 55 dB(Linear) Leq at a sensitive receptor
- The difference between the A-weighted dB(A) and unweighted dB(Linear) levels should not be greater than 15 dB.

Noise Assessment

The primary operational noise sources associated with the proposed development are listed below:

- Buildings (such as, Waste Reception Hall (Tipping Hall), Waste Bunker, Boiler Halls, Flue Gas Treatment Halls (FGT), Incinerator Bottom Ash (IBA) Sorting Process Building, IBA Storage and Maturing Building, and various internal processes and equipment)
- Outdoor plant and equipment (Air Cooled Condensers, Substation with Auxiliary Transformers, Main Transformer, main and auxiliary IBA conveyors, Exhaust Stack, Radiator Cooler fans / component cooler fans, IBA extraction mechanical ventilation fans)
- Emergency and maintenance equipment (Emergency Diesel Generators, Odour Control system, Fire Pump, Vehicular traffic)
- Heavy vehicles

Noise modelling without mitigation measures was undertaken first to understand dominant noise source contributions. The only instance where initial worst-case unmitigated condition predictions exceed the project criteria is during the evening and night periods at sensitive receptor R19. This is a 3 dB(A) exceedance of background noise emission criteria (L_{A90,1hr}) for both evening and night periods predominantly due to unmitigated fixed plant, unmitigated buildings and truck noise.

To address the unmitigated night exceedance predicted at R19, additional mitigation measures are incorporated into the model including:

- Upgrade of roofing to ensure minimal noise impacts.
- Installing acoustically rated louvres at roof vents etc.
- Enclosing the IBA conveyor belt motor.
- Addition of an upgraded silencer on the ID fans serving the stack flue exhaust.
- Installation of a noise barrier to the west, north and east sides of the main site transformer – extending to a height of 2.5m above the height of the transformer (i.e., likely to be 6.5m in height) and installation of sound absorbing material on the inside of those walls – including on the south side of the transformer (the wall of the main building).
- Attenuator on IBA mechanical ventilation fans.

The final predicted ‘mitigated’ normal operations noise levels are provided in **Table AA** and **Table BB**.

Table AA: Predicted ‘Mitigated’ Operational Noise Levels During Worst-Case Hour of Each Period/Scenario

Sensitive Receptor ID		Daytime (7am – 6pm)			Evening (6pm – 10pm)			Night (10pm – 7am)		
		Leq,adj,1hr	L90,1hr	Leq,1hr	Leq,adj,1hr	L90,1hr	Leq,1hr	Leq,adj,1hr	L90,1hr	Leq,1hr
		dB(A)	dB(A)	dB(linear)	dB(A)	dB(A)	dB(linear)	dB(A)	dB(A)	dB(linear)
R16	Criteria	42	34	55	42	29	55	37	29	55
	Prediction	31	26	49	29	24	47	29	24	47
	Complies?	✓	✓	✓	✓	✓	✓	✓	✓	✓
R19	Criteria	42	34	55	42	29	55	37	29	55
	Prediction	36	31	52	32	27	50	32	27	50
	Complies?	✓	✓	✓	✓	✓	✓	✓	✓	✓
R21	Criteria	42	35	55	42	32	55	37	30	55
	Prediction	33	28	50	28	23	48	28	23	48
	Complies?	✓	✓	✓	✓	✓	✓	✓	✓	✓
R56	Criteria	42	31	55	42	29	55	37	29	55
	Prediction	32	27	48	29	24	47	29	24	47
	Complies?	✓	✓	✓	✓	✓	✓	✓	✓	✓
R66	Criteria	42	39	55	42	36	55	37	34	55
	Prediction	33	28	49	30	25	47	30	25	47
	Complies?	✓	✓	✓	✓	✓	✓	✓	✓	✓

Table BB: Predicted ‘Mitigated’ Emergency/Maintenance Operational Noise Levels for Worst-Case Hour of Day Period

Sensitive Receptor ID		Daytime (7am – 6pm)		
		Leq,adj,1hr	L90,1hr	Leq,1hr
		dB(A)	dB(A)	dB(linear)
R16	Criteria	47	39	55
	Prediction	31	26	49
	Complies?	✓	✓	✓

R19	Criteria	47	39	55
	Prediction	36	31	52
	Complies?	✓	✓	✓
R21	Criteria	47	40	55
	Prediction	33	28	50
	Complies?	✓	✓	✓
R56	Criteria	47	36	55
	Prediction	34	29	48
	Complies?	✓	✓	✓
R66	Criteria	47	44	55
	Prediction	35	30	49
	Complies?	✓	✓	✓

Note that modelling of the mitigated emergency/maintenance scenario has not been undertaken for the evening and night periods because the testing is only expected to occur during the day period.

Operational Low Frequency Noise

The predicted mitigated dB(Linear) Leq noise levels are all below the threshold of 55 dB and thus comply with the low frequency screening assessment at all sensitive receptors.

Operation Road Traffic Noise

It is understood the AADT for the Beaudesert Boonah Road segment along the Project area northern boundary in 4,023 vehicles per day (vpd) with average 18.7% heavy vehicles in both directions based on 2024 DTMR supplied data. For a conservative initial screening assessment, the lower of the two daily flow directions (1,974 vehicles) was used as a baseline to compare with the potential increase of total vehicles along the road due to BERC operations. Both traffic flow directions had reasonably high percentages of heavy vehicles (about 18-19%), due to existing industry in the Bromelton SDA.

Ramboll estimates an additional 472 trips (236 arrivals and 236 departures) 19 per weekday associated with the operation of BERC (total for heavy (77%) and light (23%) vehicles) and for a worst-case noise screening assessment the entire flow was assumed to travel to/from the west of the Project area, where it would generate the highest percentage increase in traffic flow along Beaudesert Boonah Road. The predicted increase in road traffic noise under these worst-case assumptions was less than 1. dB. As such, no significant increase in traffic noise impacts to sensitive receptors is predicted for road traffic associated with the Project.

DTMR CoPV1 states that increases up to 3dB(A) over existing road traffic noise levels result in no change in subjective loudness and are thus considered an insignificant change in noise exposure (refer to Table 5). On this basis, it is expected that traffic due to BERC operations on public roads will have an insignificant impact on the existing road traffic noise level.

Operational Vibrations

The potential impacts of vibration are generated by key operational equipment such as the turbine, emergency diesel generator (EDG), and air-cooled condensers (ACCs). Vibration can occur during equipment startup, shutdown, and normal operation. To address this, the report recommends implementing appropriate vibration isolation measures (such as rubber or spring floor mounts, concrete inertia bases, and variable speed drives for ACC fans) based on the final equipment selection and location. A detailed structural dynamics assessment of the natural frequencies of these systems will be required to ensure that vibration does not adversely affect the facility or its occupants.

Due to the significant separation distances between the main equipment and the nearest sensitive receptors (1.4km to the closest residence and about 86m to the nearest industrial building), and with the application of standard vibration

mitigation measures, it is unlikely that operational vibration will cause structural damage or affect human comfort at surrounding buildings, the telecoms line, or the rail corridor.

Cumulative Noise Assessment

Cumulative noise considerations to shared sensitive receptors R19, R21 and R66 from newly proposed Bromelton Compost Manufacturing Facility (BCMF) by operators SOILCO Pty Ltd has also been considered in the noise assessment along with noise emissions from the BERC EfW facility.

The findings for construction noise assessment are as follows:

- Due to the early planning stage of both BCMF and BERC EfW facility, it is not possible to predict whether construction noise impacts on the shared receptors will occur from both facilities simultaneously. However, based on preliminary construction phase/equipment assumptions provided in Section 5.1.2 BCMF acoustic report and worst-case construction activity noise predictions reported from both facilities, it is unlikely that construction noise criteria established in the BERC EfW facility assessment will be exceeded at the shared receptors in the event of simultaneous construction occurring.

The findings for operational noise assessment are as follows:

- Despite the potential for noise increases, cumulative noise from BCMF and BERC EfW facility are unlikely to exceed the AQO derived external noise limits of 42dBA day/evening periods, and 37dBA night period at the shared receptors by a comfortable margin of approximately 3dBA.
- Background creep noise criteria established for the BERC assessment may be affected only if the BCMF begins to operate prior to the operation of the BERC EfW facility; background levels at the shared receptors would likely increase but may stay the same. A future increase in background levels due to the operation of the BCMF would increase (relax) background creep noise criteria for BERC EfW facility (i.e. if they were to be re-assessed at that point in the future).

Noise And Vibrations Mitigation Measures

Table CC below presents a condensed summary of the proposed mitigation and management measures developed to address potential noise and vibration impacts during both construction and operation phases of the project. A comprehensive version of these mitigation measures is provided in the report.

Table CC: Summary of Noise and Vibration Recommended Mitigation Measures

Assessment	Mitigation Measures
Construction	
Airborne Noise And Vibration	NV01 – Construction Noise and Vibration Management Plan (CNVMP) to be formed before construction to ensure scheduling of activities and equipment usage are controlled during construction activities. TT01 – Construction Traffic Management Plan (CTMP) will be prepared to include measures to reduce construction traffic. It will contain a Supply Chain Haul Route Management Strategy that outlines mitigation measures to avoid noise and vibration impacts from construction vehicles.
Operation	
Day Period – Airborne Noise	NV03 – Operational Environmental Management Plan - noise measures NV04 – Acoustic enclosure of buildings NV05 – Operational noise - stationary plant, most notably including: - Enclosure around IBA conveyor drive motor - Requires silencer applied to the ID fan to ensure mitigated sound power levels of 93dBA per flue are achieved at stack termination. - A noise barrier around the main transformer just north of the C2 boiler hall, with a barrier height extending to at least 2.5m taller than the

Assessment	Mitigation Measures
	transformer, and with sound absorptive material (min. rating NRC 0.90) on the inner barrier faces and EfW facility north wall portion. ▪ Apply an attenuator to the outlet of both IBA extraction mechanical ventilation fans with a nominal length of 1.2m. ▪ Apply attenuation to air-intake/discharge and to generator exhaust flue to achieve a maximum total sound power emission of 115dBA. Note that these standard noise control elements are assumed to be included to the EDG in the unmitigated and mitigated noise assessments. NV07 – Operational noise and vibration control to administration buildings
Night And Evening Period – Airborne Noise	NV03 – Operational Environmental Management Plan - noise measures NV04 – Acoustic enclosure of buildings NV05 – Operational noise - stationary plant, including notable items as summarised in the daytime row above NV07 – Operational noise and vibration control to administration buildings
Vibration	NV06 – Operational vibration – stationary plant, which notably includes undertaking a detailed structural dynamics assessment of natural frequencies of the systems in a future design stage.

7.16.5 Conclusions

The Noise and Vibration Technical Report provided an assessment of potential for environmental harm from noise and vibration and identifies mitigation measures to address the risks.

The report concludes that with mitigation measures applied, during all stages of the project (construction and operation), there are no exceedances expected of the EPP Noise limits for surrounding sensitive receptors, or of the other noise and vibration criteria relevant for assessment of the Project. The Project is considered noise and vibration compliant.

7.17 Human Health Risk Assessment

7.17.1 Overview

A **Human Health Risk Assessment (HHRA) (Appendix U)** was prepared by Environmental Risk Sciences (enRiskS) for the proposed BERC facility. The HHRA addressed potential impacts to community health from air emissions and other matters (including water management, stormwater management, flooding, bushfire and dangerous goods storage and transport).

7.17.2 Regulatory Context

Commonwealth Legislation and Guidelines

The assessment has been developed in accordance with the following national legislations and guidelines:

- National Environment Protection Council Act 1994.
- enHealth Environmental Health Risk Assessment: Guidelines for Assessing Human Health Risks from Environmental Hazards (2012).
- enHealth Australian Exposure Factors Guide (2012).
- NEPC National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No.1).
- NEPC National Environment Protection (Ambient Air Quality) Measure (2016 and as updated 2021).
- NEPC National Environment Protection (Air Toxics) Measure (2011a).
- NEPC Schedule B8 Guideline on Community Consultation and Risk Communication.

State Legislation and Guidelines

The assessment has been developed in accordance with the following state legislations and guidelines:

- Environmental Protection Act 1994.
- Bromelton State Development Area, December 2017).
- Environmentally Relevant Activities (ERAs), State Code 22.
- Environmental Protection (Air) Policy 2019.
- Environmental Protection (Noise) Policy 2019.
- Health Considerations – Environmental Impact Statement (guidelines for proponents) (2016).
- Queensland Energy from Waste Policy and Guideline (2021).

7.17.3 Technical Assessment

Assessment Of Emissions to Air

Location of receptors and types of exposure

The human health risk assessment has evaluated the potential for exposure to air emissions from the facility in a quantitative fashion. The report describes the assessment of the potential for people to be exposed to contaminants in air via:

- Inhalation of air containing the emissions.
- Deposition of particles (arising from the facility emissions) onto soil followed by:
 - Direct contact with that soil.
 - Uptake into and consumption of home grown fruit and vegetables grown in this soil.
 - Uptake into and consumption of home grown eggs where chickens have access to this soil.
 - Uptake into and consumption of home grown meat where cattle have access to this soil.
 - Uptake into and consumption of home grown milk where cattle have access to this soil.
- Deposition of particles onto a roof, collection into household rainwater tanks and consumption of tank water for domestic purposes including drinking.

A conceptual site model outlining the ways the community may come in contact with contaminants arising from this facility is provided in **Figure 36**.

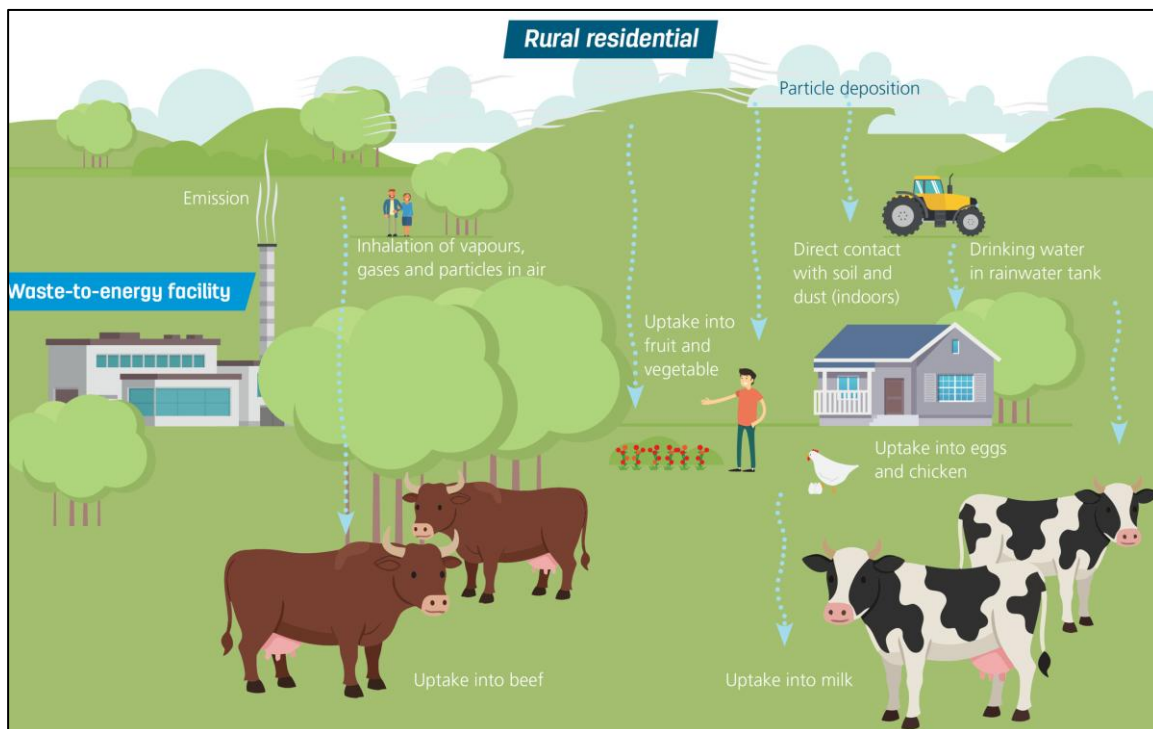


Figure 36: Conceptual Site Model

Exposure scenarios evaluated

The following exposure scenarios have been assessed:

- Off-site location with the highest modelled ground-level concentrations - exposure occurs through inhalation and direct contact with soil.
- Maximum residential location (current residential use): This is the residential site with the highest predicted ground-level concentrations. Exposure occurs via inhalation, direct contact with soil, consumption of home-grown fruit, vegetables, and eggs, and use of a rainwater tank.
- Maximum residential location (potential future farm use): If the above residential site were converted to a farm, exposures would include inhalation, direct contact with soil, consumption of home-grown fruit, vegetables, eggs, milk, and meat, as well as the use of a rainwater tank.
- Maximum commercial/industrial location (current use): The commercial or industrial site with the highest ground-level concentrations. Exposure occurs through inhalation and direct contact with soil.
- Maximum commercial/industrial location (potential future residential use): Assumes this site may be converted to residential use in the future, and would then be assessed for residential exposure pathways.
- Maximum on-site location: Exposure for workers at the Visitor and Education Centre is through inhalation and direct contact with soil. This assessment is also protective for visitors, who spend less time at the centre than staff.

Modelling

Emissions from the facility were modelled by Katestone Environmental in accordance with DETSI requirements. The facility has been designed to meet the daily average and spot sample emission concentration limits (upper) set out in the BREF 2019 (EU 2019) (this document is the most recent update on best practice technologies for such facilities developed in Europe), and the half-hour average emission concentration limits set out in the EU Industrial Emissions Directive (2010) for short-term emission rates.

The modelling estimated concentrations at ground level for assessing both short and long term exposures. The potential for impacts on human health due to short term exposures were assessed using the maximum 1 hour concentrations at ground level for the plant operating at its maximum capacity. The potential for impacts on human health due to long term exposure scenarios were assessed using annual average ground level concentrations assuming normal operations.

Cumulative impacts on air quality have also been assessed considering existing air quality in the area, estimated emissions from this proposed facility and background levels in diet and water across Australia.

For air quality modelling and risk calculations, it has been assumed that the following mitigation measures will be implemented during the facility's operation:

- Proper operation and maintenance of the facility.
- Detailed monitoring of emissions (including continuous monitoring for relevant pollutants and plant conditions (which indicate appropriate conditions for destruction/minimisation of those pollutants which cannot be monitored continuously)).
- Monitoring of the proper operation of pollution control/flue gas equipment using sensors to detect changes or breakdowns and includes sensors to detect bag breakage in the baghouse.
- Automated doors that rapidly open and close for each tipping bay.
- Transport of waste to the site using enclosed trucks or other relevant techniques.
- Waste always unloaded within the building housing the tipping bays and storage bunker.

7.17.4 Results

Criteria pollutants

Criteria air pollutants are those that are targeted by the National Environment Protection (Ambient Air Quality) Measure (NEPM) (NEPC 2021). They are common air pollutants arising from many sources (e.g. vehicles, windblown dust, fires) that are always present in the air people breathe and which need to be managed well to maintain acceptable air quality. These pollutants include sulfur dioxide (SO₂), nitrogen dioxide (NO₂), carbon monoxide (CO) and particles (PM₁₀, PM_{2.5}).

Air quality modelling was undertaken by Katestone Environmental to estimate the ground level concentrations at all relevant locations around the proposed facility. The results for the maximum off-site location (the location with the maximum modelled ground level concentrations outside the boundary of the facility) have been listed in **Table DD**. All other locations around the facility will have lower concentrations than those listed here.

Table DD: Summary of Air Quality Modelling (

Scenario	Sulfur dioxide (µg/m ³)	Nitrogen dioxide (µg/m ³)	Carbon monoxide (µg/m ³)	PM _{2.5} (µg/m ³)	PM ₁₀ (µg/m ³)
Guideline (NEPC 2021a)	52	28	10,000	7	25
Guideline (EPP Air – QLD Government 2019b)	229	62	11,000	8	25
Averaging period	24-hour average	Annual average	8-hour average	Annual average	Annual average
Contribution from project	3.1	0.3	16	0.01	0.01
% contribution from project (compared to NEPM guideline)	6%	1%	0.2%	0.1%	0.04%
Cumulative case (including background)	18	13	870	6.7	17

For all of these pollutants, levels contributed by the BERC facility are low.

For all of these pollutants, while the increments for this facility are low, the cumulative concentrations (those including background) are higher but still remain below the relevant national guidelines.

Particles

For particles, particularly those that are very small (PM_{2.5}), levels contributed by this facility are extremely low. When adding the levels from the project to the existing levels in the atmosphere in the area (i.e. cumulative case), the overall concentrations remain in compliance with the national guidelines – the same as is currently the case.

The existing levels of particles come from the many sources of particles to the atmosphere including wood heaters, gas fired BBQs, gas cooking, candles, all types of vehicles, bushfires, power stations, windblown dust and degradation/breakdown of vegetation.

PM_{2.5} sized particles (i.e. those less than 2.5 µm) are always present in air, particularly in urban areas. National health authorities have developed guidelines for particles based on understanding all of this background.

Regardless, more detailed evaluation has been undertaken in this assessment to confirm risks to community health due to exposure to this small additional contribution of PM_{2.5} will be negligible (i.e. increased risk of 1x10⁻⁷).

Other pollutants

Short Term Exposures

The assessment of short term exposure for all other air pollutants used the maximum 1 hour average ground level concentration at the worst-case location and compared that value to public health based guidelines for exposure over 1 hour. The worst-case location is the maximum off-site location (the location with the maximum modelled ground level concentrations outside the boundary of the facility). This location varies depending on the chemical (gases versus those attached to particles). It will, however, be located just outside the site boundary or on the roads surrounding the facility.

The risk quotient (**RQ**) is the ratio between the maximum 1 hour average ground level concentration and the public health based guideline for each chemical that might be present in the emissions (i.e. how much lower the estimated concentration arising due to the presence of the facility is than the guideline which public health authorities have deemed to be acceptable (and based on no effects)). When the maximum predicted concentration for an individual chemical is less than the guideline value that results in a risk quotient less than 1.

$$RQ = \frac{\text{Maximum 1-hour average ground-level concentration}}{\text{1-hour public health guideline}}$$

To deal with exposure to mixtures of chemicals, all risk quotients for the individual chemicals are summed to give a risk index (RI) for the facility overall. When the total risk index for all chemical quotients added together is less than 1, it means the concentrations of each chemical must be well below each of their individual guideline values. T

For this assessment, the individual risk quotients were between 1.5 times and 5,000 times lower than the relevant guideline based on short term exposure in air. In addition, all the risk quotients were summed to get an overall consideration of short term risk. This risk index was also below 1 (i.e. 0.3 or 0.7 depending on which chemical was assumed to be relevant for assessing total volatile organic chemicals).

Short term exposures at the most affected location pose a negligible risk based on guidelines recommended by Australian health authorities. All other locations will have lower short term concentrations and, therefore, lower short term risks.

Long term exposures

The assessment of long term exposures to emissions has been assessed for the types of exposures noted above. The assessment used the annual average ground level concentrations. The risk calculations involved determining exposure for each of the various chemicals that might be present in the emissions via:

- Inhalation (breathing it in).
- Ingestion (eating or drinking it – direct or indirect).
- Dermal (absorbing it through the skin).

There are two mechanisms by which chemicals are presumed to act to cause effects:

- Threshold – chemicals that have a threshold below which no effects will occur (i.e. no risk at low exposures)
- Non-threshold – chemical that have a low risk at low exposures because of the way they cause damage.

Risks (using risk quotients and risk indices etc) have been calculated for each exposure scenario and each type of exposure. An overall summary of the findings for the risk calculations is provided in **Table EE** for chemicals that act via a mechanism with a threshold and **Table FF** for chemicals that act via a mechanism with no threshold.

Table EE: Calculation Risk – Threshold Chemicals

Scenario	Risk (inhalation)	Risk (deposition – i.e. accumulation in soil or produce)	Risk (rainwater tank)	Risk (total)
Maximum off-site	0.03	0.0002	NA	0.03
Maximum residential	0.02	0.00004	0.00003	0.02
Maximum residential (as farm)	0.02	0.00004	0.00004	0.02
Maximum commercial	0.003	0.000004	NA	0.003
Maximum on-site	0.003	0.000004	NA	0.003
Guideline			≤1	

Table FF: Calculation Risk – Non-threshold Chemicals

Scenario	Risk (inhalation)	Risk (deposition – i.e. accumulation in soil or produce)	Risk (rainwater tank)	Risk (total)
Maximum off-site	8×10^{-8}	3×10^{-16}	NA	8×10^{-8}
Maximum residential	5×10^{-8}	3×10^{-16}	6×10^{-18}	5×10^{-8}
Maximum residential (as farm)	5×10^{-8}	1×10^{-15}	6×10^{-18}	5×10^{-8}
Maximum commercial	4×10^{-8}	1×10^{-17}	NA	4×10^{-8}
Maximum on-site	6×10^{-9}	1×10^{-17}	NA	6×10^{-9}
Guideline				$\leq 1 \times 10^{-5}$

For chemicals that act via a threshold mechanism, risks calculated across all the various scenarios evaluated for this facility are at least 30 times below the relevant guideline at the locations where ground level concentrations are expected to be highest (i.e. maximum off-site) and between 50 times and 300 times lower than the relevant guideline for all the other worst-case locations (maximum residential or commercial/industrial location). For chemicals that act via a non-threshold mechanism, risks are at least 125 times below the relevant guideline for the combination of chemicals at the maximum off-site location and between 200 and 2,000 times lower than the relevant guideline for the other worst-case locations.

7.17.5 Assessment of other matters

To assess the potential for impacts to community health arising due to other aspects of the project such as noise, water management, bushfire potential or chemical hazards, information from other technical studies prepared for this planning assessment has been used. The approach taken in this assessment was to determine if those technical studies have included consideration of potential impacts to human health (in addition to the range of issues they must address) and whether those matters have the potential to cause any changes to the current situation.

For matters related to noise, the project will comply with relevant Queensland guidelines as well as guidelines from the World Health Organisation (WHO) which are targeted at limiting impacts to community health due to changes in noise levels.

For matters related to water, the project has been designed to have appropriate stormwater management and to not change the current flooding potential for the site – i.e. little change to the current situation.

For matters related to chemical hazards, the Project will comply with all relevant Queensland guidance in relation to storage and handling of such materials which will ensure such hazards are appropriately managed.

7.17.6 Conclusions

Based on the assessment undertaken in relation to the Project and the potential for changes to community health, the following has been concluded:

Air Quality

With consideration of the air quality guidance adopted and the assessment of potential changes in air quality arising due to this proposed facility, where the facility is designed to meet the specifications identified, there will be no changes in air quality that could impact on community health in the area around the proposed facility. In particular, this assessment has shown:

- No unacceptable risks for criteria pollutants (NO_x, SO_x, CO, PM_{2.5}, PM₁₀).
- No unacceptable risks for short term exposures from the proposed facility at the maximum off-site location – all other locations will have lower concentrations and so risks will be lower.
- No unacceptable risks for relevant exposure scenarios considering long term exposures (both via inhalation and after deposition of particles onto soil and uptake into home grown produce) at:
 - Maximum off-site location.
 - Maximum residential location (and maximum commercial/industrial and maximum other places if land use changes to residential).
 - Maximum commercial/industrial location.
 - Maximum on-site location.
- No unacceptable risks for relevant exposure scenarios for rainwater tanks.
- Potential for PFAS (per/poly fluoroalkyl substances) to be present in emissions from this facility has been considered in this assessment. Using worst case monitoring data from a Swedish facility, these chemicals were included in the air quality modelling and were found to make an insignificant contribution to the overall risk estimates for this project. Given the control measures built into the facility (i.e. temperatures in the combustion chamber, use of activated carbon and other chemicals in the pollution control equipment and the inclusion of a baghouse), it is expected that levels of PFAS in the emissions will be negligible/not measurable.

Negligible impacts to community health are predicted during both construction and operations in regard to changes in air quality arising from this project.

Noise

With consideration of the noise limits adopted and the assessment of potential changes in noise levels for the project, where the project is designed to meet the noise specifications identified (i.e. predicted levels), and where the identified noise mitigation measures are implemented, there will be no changes in noise sufficient to cause changes in community health for the off-site community. Negligible impacts to community health are predicted during both construction and operations in regard to changes in the noise environment arising from this project.

Other matters (water, soil contamination, dangerous goods/chemical hazards)

Based on the evaluations provided and ensuring that government regulations about storage and transport of hazardous chemicals are followed, there are no changes in stormwater management, flooding potential, handling of dangerous goods or bushfire hazard that would be sufficient to cause changes in community health for the off-site community

Negligible impacts to community health are predicted during both construction and operations in regard to handling of hazardous substances, soil contamination, water management, flooding or bushfire potential.

Drinking water catchment

Given the very low levels of emissions from the BERC facility, it is not possible for these emissions to make a noticeable change in the concentrations of the relevant chemicals in raw water within the drinking water catchment (Logan Albert Catchment) due to deposition of particles from this facility. This has been confirmed by comparison of worst case air concentrations to existing air quality likely in urban areas and by comparison of estimated water concentrations in rainwater tanks to Australian drinking water guidelines and considering deposition onto the surface of Wyaralong Dam.. In both cases, the estimated levels from this facility are thousands of times lower, if not, millions of times lower than relevant air or drinking water guidelines. The emissions will not change the existing air quality or water quality in a way that is measurable or noticeable.

7.18 Socioeconomic Impact Assessment

7.18.1 Overview

A **Socioeconomic Impact Assessment (SIA) (Appendix V)** was prepared by Arup for the proposed BERC facility. The assessment considers the positive and negative social impacts of the project during construction and operational phases compared to baseline conditions and outlines measures to mitigate negative impacts and enhance benefits mitigation.

7.18.2 Regulatory Context

Legislation and policies

The assessment has been developed in accordance with the following key legislation and policies:

- Environment Protection and Biodiversity Conservation Act (EPBC Act) 1999 (Cth)
- State Development and Public Works Organisation Act (SDPWO) 1971
- Planning Act 2016
- State Planning Policy (SPP) 2017
- Social Impact Assessment Guideline (SIA Guideline) 2025
- Queensland Energy from Waste Policy (2021) and Guideline (2021)
- Bromelton State Development Area (SDA) Development Scheme
- Environmentally Relevant Activities Guidelines

7.18.3 Technical Assessment

Methodology

The assessment provides an overview of the direct and indirect social impacts that affect people and their communities across the construction and operation of the BERC. The methodology follows a process to identify, analyse, assess and monitor these impacts through the following steps as set out in the SIA Guideline:

- Define the study area and identify who may be affected.
- Use Census data and planning documents to describe current socioeconomic conditions.
- Review feedback from community and stakeholders to understand key concerns and interests.
- Assess possible positive and negative social impacts, drawing on findings from technical studies for support.
- Develop measures to reduce negative impacts and enhance benefits.
- Prepare a Social Impact Management Plan (SIMP) and set up ongoing monitoring to track effectiveness.

Social impacts have been considered under the following categories:

- Community values and function
- Way of life
- Culture and heritage
- Community safety and access to resources
- Quality of life
- Access and infrastructure
- Health and wellbeing
- Livelihood

7.18.4 Assessment Findings

Existing Conditions

The existing socioeconomic conditions were established as a baseline across the study area boundary of Beaudesert (SA2), encompassing the project area and a 5km buffer. **Table GG** summarised the baseline conditions within the Beaudesert SA2 and wider local government area (LGA) of the Scenic Rim.

Table GG: Calculation Risk – Non-threshold Chemicals

Topic	Summary Of Existing Conditions
Land use and tenure	▪ The project area is surrounded mainly by industrial land uses within the SDA, making the project consistent with existing and planned uses. ▪ Most businesses in the Beaudesert SA2 focus on industrial or agricultural activities. ▪ Beaudesert, about 8km east of the site, is the nearest urban center and provides key services such as medical facilities, schools, parks and a golf course.
Community profile	▪ The Beaudesert SA2 population is projected to grow by nearly 39% to 20,699 by 2046, increasing pressure on infrastructure and creating a need for more local jobs. ▪ Most residents are born in Australia, England, New Zealand, the Philippines, or South Korea, and 6.4% identify as Aboriginal and/or Torres Strait Islander—higher than the regional average. ▪ The median age is 45, with a high proportion of young and middle-aged people, indicating many growing families in the area.
Employment and business	▪ The working age population makes up 58.9% of Beaudesert SA2, with a high unemployment rate of 6.0% compared to 4.3% in Scenic Rim LGA. ▪ Just over half of residents work locally, indicating limited job opportunities and financial vulnerability. ▪ Common occupations are Technicians and Trade Workers, Managers, Labourers, and Professionals, reflecting a focus on industrial and technical roles. ▪ The leading industries for employment are Construction (12.3%), Healthcare and Social Assistance (11.7%), and Retail Trade (8.8%).
Housing and income	▪ Most homes in Beaudesert SA2 are separate houses (84.2%), with a higher proportion of semi-detached housing (13.6%) than the surrounding region, offering more diverse housing options. ▪ Renting is more common in Beaudesert SA2 compared to Scenic Rim LGA, with less homes owned either outright or with a mortgage. Median mortgage repayments are lower in Beaudesert than Scenic Rim LGA. ▪ Median rental payments are consistent across Beaudesert SA2 and Scenic Rim LGA. ▪ Median income in Beaudesert SA2 (\$1,118 per week) is lower than in Scenic Rim LGA (\$1,410 per week). ▪ Approximately 44% of renter households in Beaudesert have rent payments that are greater than 30% of their household income – which is an indicator of rent affordability.
Vulnerable groups	▪ Beaudesert SA2 has a very low socioeconomic profile (SEIFA score of 1), making the community more vulnerable to sudden and long-term changes. ▪ The area has a higher proportion of people with long-term health conditions (24.3%) compared to Scenic Rim LGA (23.1%). These include physical and mental health conditions. ▪ Lower weekly incomes and high unemployment rates indicate potential economic vulnerability in Beaudesert SA2.

Impact Assessment

The potential positive impacts are generally associated with the operational phase and would therefore provide long term socio-economic benefits for the community. In addition to this, measures to mitigate negative impacts have been identified and address matters of air quality, disruption to community values and fears, noise and vibration emissions, traffic networks, and landscape amendments. Overall, the assessment indicates that the Project has the potential to generate both positive and negative socio-economic outcomes. The extent to which positive outcomes are realised, and potential adverse impacts are minimised, will depend on the effective implementation of the proposed mitigation, management and enhancement measures throughout the Project lifecycle.

The key positive and negative social impacts associated with the Project, assessed as having a social significance rating of medium or high are summarised in **Table HH**.

Table HH: Summary of Key Potential Social Impacts Identified for Construction and Operational Phases

Phase	Positive Impacts	Negative Impacts
Construction	▫ Potential benefits on way of life as a result of increased local employment and training opportunities. ▫ Potential benefits to livelihoods associated with direct job opportunities (800 jobs) and flow-on effects from increased business opportunities and indirect economic activity	▫ Potential impacts on community values (sense of place) from construction and new industrial infrastructure ▫ Potential disruption to community composition due to increased construction workforce. ▫ Potential impacts to First Nations people due to impact on culture and heritage from potential disturbance of Indigenous items of significance.
Operation	▫ Potential for greater awareness and education of the local community around sustainable waste management and energy generation. ▫ Potential for enhanced community resilience and support of strategic sustainability objectives and encouraging circular economy practices in the area. ▫ Potential improvements to way of life due to local employment opportunities and a diversified local economy (around 50-60 job opportunities). ▫ Potential improvements to livability associated with an increase in community initiatives supported by the Community Benefits Fund. ▫ Potential increased community and infrastructure resilience through providing additional infrastructure for the region. ▫ Potential improvements to livelihoods due to employment, training and upskilling opportunities for the local community.	▫ Potential impacts to quality of life and socio-economic status from fear of living near an EfW facility.

Phase	Positive Impacts	Negative Impacts
	Potential improvements to livelihoods related to local procurement for businesses.	

Impact Mitigation and Benefit Enhancement

The proposed mitigation and enhancement measures have been developed to address potential socioeconomic impacts. These measures align with the key impact categories outlined in the SIA Guideline and are designed to minimise potential adverse effects while enhancing social and economic benefits for the local community. Many of the measures relate to broader environmental and amenity impacts—such as air quality, noise and vibration, visual changes and traffic—and will be delivered in coordination with relevant mitigation of each of the technical assessments.

Table II: Mitigation Measures for Potential Social Impacts

Category	Mitigation / Enhancement Measure
Community Values and Functions	SIA01 – Prepare a Social Impact Management Plan (SIMP) to manage and monitor mitigation measures throughout the project lifecycle. SIA02 – Develop and implement a local procurement and upskilling strategy to support local employment and business opportunities. SIA03 – Partner with local high schools to upskill potential recruits and retain younger population in Beaudesert. SIA04 – Provide local training and skills development programs, including apprenticeships and pre-trade training. SIA05 – Develop and implement local business support initiatives (e.g., business register, procurement opportunities). SIA06 – Collaborate with the regional economic development team (DSDIP) to map out a local procurement plan. SIA07 – Develop and implement a Local and Indigenous Participation Strategy. SIA08 – Ensure contractor requirements align with the Local and Indigenous Participation Strategy for inclusive recruitment. SIA09 – Maintain ongoing engagement with First Nations stakeholders for employment and training opportunities. SIA10 – Develop a mentoring program for Indigenous workers to increase retention. SIA11 – Develop a Stakeholder and Community Engagement Plan for timely and accurate information sharing and feedback. SIA12 – Continue consultation with the Stakeholder Reference Group for adaptive management and community benefit fund oversight. SIA13 – Implement Environmental Risk Assessment measures (e.g., Construction and Operational Environmental Management Plans) for amenity impacts.
Way of Life	SIA14 – Establish an annual Community Benefit Fund for local amenity improvements, identified by locals. SIA15 – Implement measures from the Environmental Risk Assessment (e.g., Construction Dust, Noise, and Transport Management Plans; Operational Environmental Management Plan) to address air quality, noise, and transport impacts.
Culture and Heritage	SIA16 – Develop a Cultural Heritage Management Plan and unexpected finds procedure. SIA17 – Provide cultural awareness training for staff, delivered by the Danggan Balun group.

Category	Mitigation / Enhancement Measure
	▪ SIA18 – Integrate features in the Visitor Centre to acknowledge and celebrate Danggan Balun cultural heritage.
Community Safety and Access to Resource	▪ SIA19 – Implement safety and risk management measures from the Environmental Risk Assessment (e.g., Hazardous Materials Management Plan, Construction and Operational Environmental Management Plans). ▪ SIA20 – Engage with local emergency services to align on access, containment, and response protocols.
Quality of Life	▪ SIA15 (see above) – Address air quality, transport, and amenity impacts through Environmental Risk Assessment measures. ▪ SIA21 – Work with OCG and DETSI to establish an SDA-wide independent air quality monitoring station
Access and Infrastructure	▪ SIA22 – Collaborate with Urban Utilities and Scenic Rim Regional Council to support water and sewerage expansion. ▪ SIA23 – Explore options for recycled water use in the project. ▪ SIA24 – Implement Construction and Operational Transport Management Plans and Supply Chain Haul Route Management Strategy.
Health and Wellbeing	▪ SIA19 (see above) – Address health and wellbeing impacts through air quality, noise, transport, and safety measures. ▪ SIA25 – Develop and promote a community complaints procedure for direct feedback to the project team. ▪ SIA26 – Maintain ongoing engagement with the Stakeholder Reference Group for adaptive management of impacts. ▪ SIA27 – Publish air quality data on the project website for transparency.
Livelihood	▪ SIA01–SIA14 (see above) – Address livelihood impacts through local employment, training, and business development strategies.

7.18.5 Conclusions

The Social Impact Assessment concludes that the BERC project would generate some potential negative socioeconomic impacts to the community, however, there is also the potential for some potential positive socioeconomic benefits to the local and broader community. Implementation of the recommended mitigation and enhancement measures and a Social Impact Management Plan will ensure that the Project complies with Queensland Social Impact Assessment Guideline 2025.

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PART B

**SDA Application and
Assessment**

8.0 SDA Application

8.1 Bromelton SDA Development Scheme

8.1.1 Overview

The Bromelton SDA, which was declared in August 2008, comprises an area of approximately 15,610 hectares of land in the Scenic Rim Regional Council local government area, approximately 6km west of the town of Beaudesert. The purpose of the Bromelton SDA is to promote and facilitate economic development in Queensland, and more specifically to support the growing demand for medium to large scale industries and difficult to locate industries.

Development outcomes for the Bromelton SDA are included in the Bromelton SDA Development Scheme, dated December 2017. The Development Scheme establishes a regulatory framework for the assessment of development which is regulated under the Development Scheme.

8.1.2 Regulated Development

Pursuant to section 1.3 of the Development Scheme, a person may only carry out regulated development in the Bromelton SDA in accordance with the SDPWO Act and the Development Scheme. Development that is not regulated by this Development Scheme may be regulated by other legislation and planning instruments, including the Planning Act, or the Planning Scheme.

Development regulated by the Development Scheme is identified in Tables 1 to 6 as SDA assessable development or SDA self-assessable development. Development identified as SDA assessable development requires an SDA development application to be made to OCG in accordance with Schedule 2 in order to obtain an SDA approval.

As shown in **Figure 38**, the site is located within the Special Industry Precinct. Table 3 (refer **Figure 37** below) outlines the regulated development within the Special Industry Precinct and confirms that any development involving a Material Change of Use is SDA assessable development.

Table 3	Regulated development within the Special Industry Precinct
	SDA assessable development within the precinct Material change of use All uses
Note: This table must be read in conjunction with section 1.3	

Figure 37: Extract of Table 3 of Bromelton SDA Development Scheme

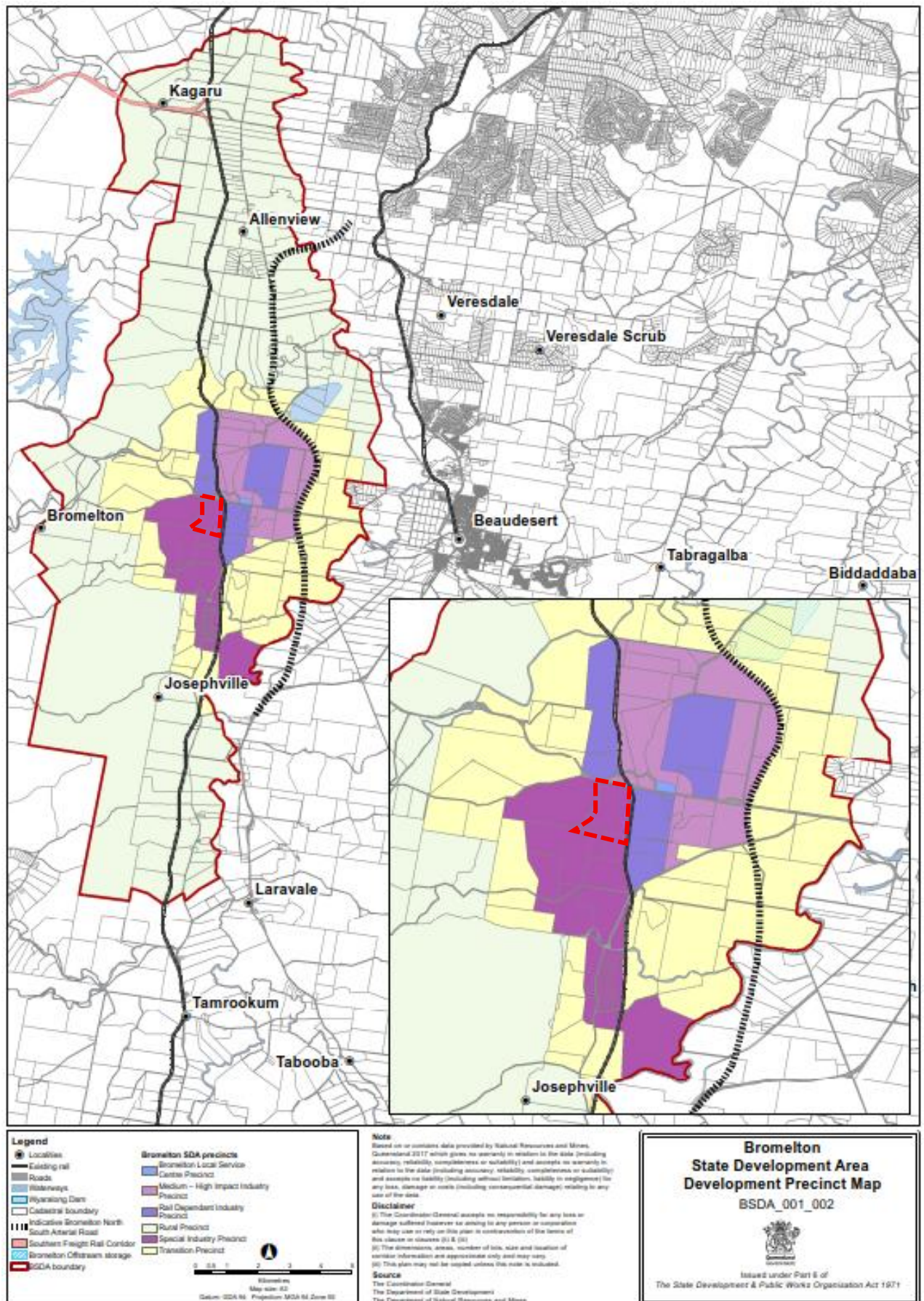


Figure 38: Bromelton SDA Development Precinct Map

8.2 Land Use

Land uses are defined in Schedule 1, Part 2 of the Development Scheme. The proposed development and ancillary activities are defined as Special Industry in accordance with the land use definitions. An extract of the definition is provided at **Figure 39** below.

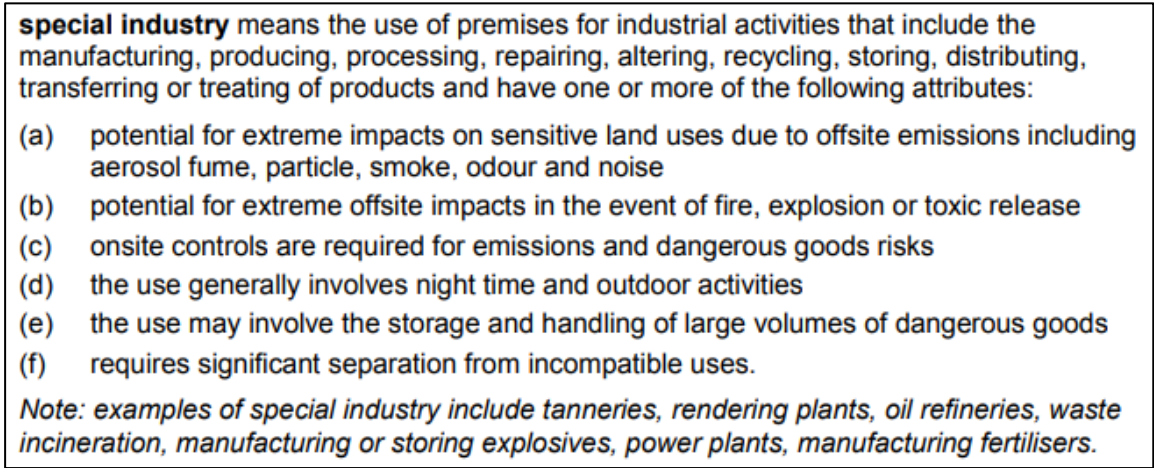


Figure 39: Extract of land use definition of Bromelton SDA Development Scheme

The proposed development and its component parts were reviewed in detail to determine all potential aspects of development and the following was confirmed with OCG during the pre-application engagement.

- The proposed Cleanaway BERC facility is Special Industry by definition. This includes the following ancillary components (Administration and visitor centre building and carparking; Air cooled condenser; Reception (tipping) hall; Substation; Switchyard; Stack; APCr stabilisation and storage yard; IBA conveyer; IBAA lined retention pond; Gatehouse and weighbridges; Truck decoupling area; Pre-inspection area; and Stormwater combined treatment and detention basin.
- The proposed IBA sorting process and IBA maturation building are a stand-alone independent use and is also deemed to be Special Industry by definition. This includes ancillary vehicle manoeuvring and parking on site.

8.3 Application Process

Schedule 2 of the of the Development Scheme sets out the process for making, assessing and deciding a SDA development application. Further detail on the stages of the application and assessment process for this application is set out in **Table JJ** below

Table JJ: SDA Application and Assessment Stages

Stage	Steps
1. Application	The SDA application is deemed to be a properly made application as it includes the detail prescribed in Schedule 2, clause 2.1(2) of the Development Scheme as follows: ▪ The application has been made to OCG in the approved form. ▪ Table B of this report provides a clear and accurate description of the land subject to the application, and the proponent’s name address and contact details. ▪ Table B of this report identifies the development for which the approval is being sought. ▪ Written consent of the owner of the land is included with the application material. ▪ Table A of this report identifies the referral triggers under the Planning Act (and also identifies anticipated referral entities for the application). ▪ The application is accompanied by this planning report. ▪ The relevant fee will be paid immediately after lodgement upon confirmation of the prescribed fee.

Stage	Steps
2. Referral (Anticipated)	OCG will refer the application to multiple referral entities. A referral entity is an entity nominated by OCG to provide technical advice about any element of an SDA development application. Referral entities may include: - any state government agency that has a referral trigger under the Planning Act. - relevant council in which the SDA is situated. - any other entity nominated by OCG. Based on prelodgement engagement, it is understood the application will be referred to the following entities: - Scenic Rim Regional Council (SRRC) - Department of Environment, Tourism, Science and Innovation (DETSI) - Department of Transport and Main Roads (DTMR) - Department of Primary Industries (DPI) - Offices of Industrial Relations (OIR) - Seqwater - Urban Utilities - Seqwater - Energy Queensland The application material provides detailed information relevant to the interest of these anticipated entities, and to enable them to undertake technical assessment of the Project and provide advice to OCG. This includes supporting technical information and response to relevant State Codes and other assessment criteria and guidelines.
3. Public consultation	Public consultation requirements are determined by OCG. The application will require statutory public consultation. Public consultation will be undertaken in accordance with the Public consultation policy for SDAs. Section 5 of this report provides further details regarding stakeholder and community engagement, including the anticipated statutory public consultation process.
4. Review	This stage may be required at the discretion of OCG.
5. Decision	It is noted that OCG must decide the application within the decision stage.

9.0 SDA Assessment

9.1 Overview of Assessment Benchmarks

A summary of the anticipated assessment benchmarks for the SDA development application is included at **Table KK** below, with the responses to each assessment benchmark included in the following sections.

Table KK: Summary of Assessment Benchmarks

Agency	Rationale	Assessment Benchmark(s)
Assessing Authority		
Office of the Coordinator-General (OCG)	OCG is the assessing authority for the SDA development application.	Bromelton SDA Development Scheme, to the extent relevant, including: ▪ Strategic vision ▪ Overall objectives ▪ Preferred development intent for the Special Industry Precinct. ▪ SDA wide assessment criteria. ▪ Relevant engineering standards
Referral Entities (anticipated)		
Department of Transport and Main Roads (DTMR)	The application, if made under the Planning Act, would have triggered referral to DTMR. See Section 9.3 for further detail.	▪ State Code 1: Development in a state-controlled road environment ▪ State Code 2: Development in a railway environment ▪ State Code 6: Protection of state transport networks
Department of Environment, Tourism, Science and Innovation (DETSI)	The application, if made under the Planning Act, would have triggered referral to DETSI. See Section 9.3 for further detail.	State Code 22: Environmentally relevant activities
Department of Primary Industries (DPI)	The site is intersected by a waterway mapped as a waterway for waterway barrier works on the State Development Assessment Mapping System. The Project does not involve waterway barrier works and therefore is not required to address assessment benchmarks. Notwithstanding the above, OCG may elect to refer the application to confirm no requirements.	Not Applicable
Office of Industrial Relations (OIR)	The Project does not meet the definition of a Hazardous Chemical Facility as defined under the Planning Regulation and therefore assessment against State Code 21 is not required.	Not Applicable

Agency	Rationale	Assessment Benchmark(s)
	Notwithstanding the above, OCG may elect to refer the application to confirm no requirements.	
Scenic Rim Regional Council (SRRC)	The site is located within this local government authority area and SRRC will be the assessment manager for development not regulated by the Development Scheme (e.g. Reconfiguring a Lot, Building Work, Operational Works). See Section 9.5 for further detail.	- Earthworks, Construction and Water Quality Code - General Development Provisions Code - Regional Infrastructure Overlay Code
Queensland Health	OCG may elect to refer the application to confirm no requirements.	Not Applicable
Urban Utilities	Urban Utilities is the SEQ distributor-retailer under the SEQ Water Act. See Section 9.3 for further detail.	SEQ Water Code
Seqwater	The site is located in the Seqwater supply catchment. See Section 9.3 for further detail.	Seqwater Development Guidelines 2024
Energy Queensland	The Project is for an energy generation facility which requires connection to Energex owned and operated transmission grid and supply networks.	Energex standards and guidelines

9.2 Bromelton SDA Development Scheme

9.2.1 Strategic Vision

The Strategic Vision outlines the broader intent for the Bromelton SDA, defining the purpose of development in the area and the anticipated development outcomes. The Strategic Vision provides general direction as to the ultimate development goals for the SDA, specifying the land use intent, desired integration with established infrastructure and site characteristics, and the relationships between other land uses.

A response to the SDA Development Scheme is addressed in this section of the Planning Report and is repeated in **Code Compliance Statements (Appendix Y)**. A response to the Strategic Vision is provided in **Table LL** below.

Table LL: Response to Strategic Vision for Bromelton SDA

Vision Statement	Response
(a) Establish Bromelton as a major industrial area for industrial development of regional, State and national significance	Complies Cleanaway supports the Queensland Government's strategy to reduce waste disposed to landfill and seeks approval to establish an EfW facility (BERC) in the Bromelton SDA. The Project is located on a 63ha land parcel in the Bromelton SDA, specifically the Special Industry precinct. BERC aims to recover energy from residual municipal solid waste and residual commercial and industrial waste that would otherwise be disposed in a landfill.

Vision Statement	Response
	The Project is identified as a major industrial facility that has regional and state significance based on its scale, servicing catchment, stakeholder involvement and operational requirements. The Project contributes to the SDA vision by supporting national and state policy guidelines to transition to a circular economy and improve waste management. In addition, the Project supports existing and future industrial development in the Bromelton SDA on the following basis: ▪ Upgrade to the existing State controlled road network through establishment of a new signalised intersection and associated road design improvements, which support safe access to the site and surrounding landholdings. ▪ Improvements to water infrastructure through extension of the reticulated supply network to the site which may potentially support future connections to surrounding properties. ▪ Creating potential business synergies in the locality through production of electricity supply and steam offtake. ▪ Employment generation through construction and operation.
(b) Encourage industrial development and support services to take advantage of the access to key rail and road networks	Complies Cleanaway specifically selected and acquired the site due to its locational characteristics and strategic positioning, including the proximity to state transport infrastructure. The site is highly accessible to Brisbane, Gold Coast, Ipswich and Logan. It has sole frontage to Beaudesert Boonah Road (State-controlled road) and direct access is proposed via a new signalised intersection. The Project takes advantage of the road infrastructure to facilitate heavy vehicle movement to and from the site.
(c) Maximise opportunities for the clustering and co-location of synergistic developments, including supporting infrastructure	Complies The Project is located on a 63ha land parcel in the Bromelton SDA, specifically the Special Industry precinct. The broader Bromelton SDA area comprises a mix of established and emerging industrial land uses, including SOILCO, SCT Logistics, GELITA Australia, A.J Bush and Son's, Quickcell Technology Products, Bromelton quarry, Beaudesert Central Waste Management Facility and the Neilsen Group quarry. Cleanaway is open to exploring opportunities for precinct circularity including electricity and heat / steam and IBAA off takes for neighbouring industries. The Project maximises opportunities for clustering and co-location of synergistic developments. The cumulative

Vision Statement	Response
	impact of the developments operating in the area necessitates upgrades to the infrastructure network, including water servicing, enhancement of the electricity supply grid and road transport network upgrades.
(d) Maximise the utilisation of the rail network by establishing multi modal freight and logistics operations, manufacturing and warehousing facilities, and industries that are reliant on rail access	Complies The site also adjoins a State-controlled railway corridor (Sydney-Brisbane rail corridor) along the full length of the eastern property boundary. The Project operations are dependent upon vehicular / freight movements, including B-Doubles and ultimately A-Doubles. The Project does not require utilisation of the rail corridor adjacent to its eastern boundary. However, opportunity for future use or integration of rail transport infrastructure remains possible.
(e) Encourage activities that require large lots, separation distances or other specialist needs	Complies The Project is located on a 63ha land parcel within the Bromelton SDA, which is identified as a key location to support high impact and difficult to locate industries. The site is sufficiently separated from sensitive land uses and zones and can appropriately accommodate the proposed on-site activities.
(f) Protect the continued operation and future development of existing industrial activities, appropriately located rural activities and the regionally significant extractive resources within the Bromelton SDA from incompatible development and encroachment	Complies The Project seeks SDA development approval for Special Industry land use within the Special Industry precinct of the Bromelton SDA. The Project is consistent with the land uses intended under the SDA Development Scheme and is not sensitive to other industrial land uses. It does not constitute the encroachment of incompatible development.
(g) Leverage the opportunities created by the proximity of the Bromelton SDA to the Beaudesert centre, by fostering synergies between industry and business activity clusters.	Complies The Project is located on a 63ha land parcel in the Bromelton SDA, specifically the Special Industry precinct. The broader Bromelton SDA area comprises a mix of established and emerging industrial land uses, including SOILCO, SCT Logistics, GELITA Australia, A.J Bush and Son's, Quickcell Technology Products, Bromelton quarry, Beaudesert Central Waste Management Facility and the Neilsen Group quarry. The Project maximises opportunities for clustering and co-location of synergistic developments. The cumulative impact of the developments operating in the area necessitates upgrades to the infrastructure network, including water servicing, the electricity supply grid and road transport network.

9.2.2 Overall Objectives

The Strategic Vision is underpinned by Overall Objectives that support the alignment of development with the Strategic Vision. The Overall Objectives are more specific, talking to land compatibility, site operations and function, and risks and hazards. The Overall Objectives, much like the Strategic Vision, apply to the entirety of the Bromelton SDA.

A response to the SDA Overall Objectives is provided in **Table MM** below.

Table MM: Response to SDA Overall Objectives

Overall Objectives	Response
Development within the Bromelton SDA will:	Complies
(a) be consistent with the strategic vision for the Bromelton SDA and the development precinct	The Project is consistent with the strategic vision for the Bromelton SDA. Please refer to the response to the strategic vision above for further information.
(b) ensure the integrity and long-term functionality of the Bromelton SDA is maintained and protected from land uses and activities that may be incompatible with, or adversely affect, the continued use of the Bromelton SDA for industrial development of regional, State and national significance	Complies The Project seeks SDA development approval for Special Industry land use within the Special Industry precinct of the Bromelton SDA. The proposal is consistent with the land uses intended under the SDA Development Scheme and is not sensitive to other industrial land uses. It does not constitute the encroachment of incompatible development. Therefore, the Project ensures the integrity and long-term functionality of the continued use of the Bromelton SDA.
(c) avoid new sensitive land uses and other incompatible land uses which could restrict the ability to establish and operate industrial development within the Bromelton SDA	Complies Project seeks SDA development approval for Special Industry land use within the Special Industry precinct of the Bromelton SDA. The proposal is consistent with the land uses intended under the SDA Development Scheme and is not sensitive to other industrial land uses. It does not constitute the encroachment of new sensitive land uses or incompatible development.
(d) maximise the efficient use of land, and existing and planned infrastructure	Complies The Project seeks to facilitate the BERC within the northern portion of the site. The extent of the development footprint has considered the site topography, watercourses, vegetation and access. The intended development footprint seeks a consolidated outcome that is located outside of the mapped state interests and physical land constraints, maximising the efficient use of land. The Project has sole frontage to Beaudesert Boonah Road (State-controlled road) and direct access is proposed via a new signalised intersection as shown in the Traffic Impact Assessment (Appendix Q) . In addition to this, the Project necessitates improvements to the water infrastructure through extension of the reticulated supply network to the site which also supports future connections to surrounding properties

Overall Objectives	Response
(e) minimise adverse impacts on infrastructure and infrastructure corridors	and industrial / commercial development in the Bromelton SDA. Complies The Project does not have adverse impacts on the State or local infrastructure and infrastructure corridors. <u>State Transport Infrastructure</u> The Project has sole frontage to Beaudesert Boonah Road and adjoins a railway corridor along the full length of the eastern property boundary. The Project involves a new signalised intersection at Beaudesert Boonah Road and Recycling Street. The Traffic Impact Assessment (Appendix Q) has included a turn warrant assessment, and traffic analysis to demonstrate the proposed access arrangement does not impede the structural integrity, operation or safety of the road network. In addition, the Project provides a 4.5m clear zone from the junction and does not impact on future widening of the road transport infrastructure. As per the Stormwater Management Plan and Flood Risk Assessment (Appendix R), the proposed stormwater strategy is to generally maintain the pre-development catchment distribution and stormwater discharge locations and flow rates via use of attenuation basin. The northern basin will discharge into an existing swale within the road corridor passing under Beaudesert Boonah Road via the box culverts, and the eastern basin will discharge into the existing overland flow path passing under the rail corridor via the 1.85m high culvert. The flood modelling of the post-development scenario demonstrates that the proposed development does not result in a material worsening of the operating performance of the state-controlled road or railway in the 1% AEP event. In addition to this, the buildings and storage of dangerous goods are appropriately managed and will not create a safety hazard in the railway corridor. Please refer to the Hazard and Risk Assessment (Appendix I) for further information. An Air Quality Technical Report (Appendix S) has addressed the potential dust impacts during construction and operation. Dust mitigation measures are proposed to ensure no impact to the users of the road and rail infrastructure. A Noise and Vibration Technical Report (Appendix T) has been prepared and demonstrates that the vibration

Overall Objectives	Response
	during construction is unlikely to cause structural damage to the railway corridor. Please refer to the responses to State Codes 1, 2 and 6 for further information. <u>Local Infrastructure</u> As outlined in Section 3.5 of the Planning Report, the Project requires upgrades to the water infrastructure to support the development and ultimately improve the servicing to the broader Bromelton SDA. Please refer to the Engineering (Infrastructure) Report at Appendix C for further information. Please refer to the response to Seqwater Development Guidelines for further detail.
(f) support the safe and efficient function and operation of existing and planned transport infrastructure	Complies Cleanaway has undertaken substantial preliminary engagement with DTMR. The Development Assessment Mapping System identifies a Planned Upgrade for part of the State-controlled road from Waste Facility Road to Bromelton House Road. DTMR has advised that the planned upgrades are approved pursuant to Category C (Protect Planning) and there is no delivery timeframe for the planning arrangements. On this basis, the proposed development does not impede the delivery of planned upgrades for state-controlled roads. The Project involves a new signalised intersection at Beaudesert Boonah Road and associated road upgrades. It provides a 4.5m clear zone from the junction to allow for future road widening to support safe and efficient function of planned transport infrastructure. Please refer to the Traffic Impact Assessment (Appendix Q) and the Code Compliance Statements (Appendix Y) for a response to State Code 1 and State Code 6 for further detail.
(g) include site specific stormwater and waste water controls to avoid potential adverse impacts on the water quality of receiving waters and water assets	Complies As per the Stormwater Management Plan and Flood Risk Assessment (Appendix R), the proposed stormwater strategy is to generally maintain the pre-development catchment distribution and stormwater discharge locations and flow rates via use of attenuation basins. The northern basin will discharge into an existing swale within the road corridor passing under Beaudesert Boonah Road via the box culverts, and the eastern basin will discharge into the existing overland flow path passing under the rail corridor via the 1.85m high culvert. The flood modelling of the post-development scenario demonstrates that the proposed development does not

Overall Objectives	Response
	result in a material worsening of the operating performance of the state-controlled road or railway in the 1% AEP event. Construction activities have the potential to impact off-site watercourses. To mitigate high volumes of sediment from the site, the following measures are proposed: ▪ Earthworks material will be stockpiled clear of temporary overland flow paths and surrounded with silt fences. ▪ A construction sediment and erosion control plan will be developed with ongoing monitoring of the water quality discharging from the site. ▪ Fuels and chemicals stored on site to support construction works will be securely stored to avoid accidental spillages discharging from the site. Please refer to the State code responses and response to the Seqwater Development Guideline for further information.
(h) protect, and where possible, enhance the values of water supply catchments and key water supply infrastructure to ensure a safe and secure water supply	Complies The Project will connect into the trunk water main on Beaudesert Boonah Road which is planned to be operational by 2031. Given the period of inactivity, the water main will require quality assurance testing (including bacterial sampling) to ensure water quality compliance. Please refer to the Engineering (Infrastructure) Report (Appendix C) for further information. In addition, the site is located within the catchment of the proposed Wyaralong water treatment plant. The dam is located more than 5km northwest of the Project and runoff would likely come from areas further away from the facility. The estimated ground level air concentrations that might deposit onto the ground within the catchment for the drinking water treatment plant and dam contain low quantities of metals. The concentration change of these metals are expected to not be measurable and therefore the Project maintains the values of the water supply catchment and water supply infrastructure. Please refer to the Human Health Risk Assessment (Appendix U) for further detail.
(i) manage the risks associated with natural hazards, to protect people and property	Complies The State Planning Policy mapping identifies the site as containing areas of high and very high potential bushfire intensity predominantly in the southern portion of the site. The northern portion of the site contains medium, high, or very high potential bushfire intensity and potential impact buffer under the local mapping. A Bushfire Hazard Assessment (Appendix H) has been

Overall Objectives	Response
	prepared to provide an assessment of the bushfire risk and provide appropriate mitigation measures to reduce the consequences of any bushfire events. It is concluded that the areas of vegetation are too small to develop a full fire front and the proposed site access provides efficient access for fire-fighting services and other emergency vehicles. On this basis, the proposal complies with the relevant assessment benchmarks contained in the SPP and the Bromelton SDA Development Scheme. The State Planning Policy mapping identifies the whole site within the Flood hazard area. A Stormwater Management Plan and Flood Risk Assessment (Appendix R) has been prepared and identifies the development footprint is located approximately 8m higher than the detention basins and is not subject to flooding. The proposed stormwater management systems provide a post-development scenario that does not result in a material worsening and demonstrates a reduction to peak flows in the 1% AEP event. In addition, a Climate and Climate Change Assessment (Appendix N) has been prepared and assesses the potential hazards and vulnerability of the Project due to extreme weather events and climate change. It described feasible environmental management measures to cope with hazards and risks imposed by climate change.
(j) avoid adverse impacts on environmental, cultural heritage and community values, or minimise and mitigate impacts where they can't be reasonably avoided	Complies The Project minimises adverse impacts on environmental, cultural heritage and community values. Please refer to the Human Health Risk Assessment (Appendix U), Greenhouse Gas Assessment (Appendix O), Biodiversity Technical Report (Appendix G), Aboriginal Cultural Heritage Assessment (Appendix J) and Community and Stakeholder Engagement Assessment (Appendix W) for further detail.
(k) be located, designed and constructed in accordance with best practice principles	Complies The Project uses EfW technology that is well-established internationally and numerous facilities operate successfully across Europe. It has been guided by the EfW guidelines and policy and relevant planning regulation. The Project will use best available techniques in the engineering design, operation, maintenance and monitoring activities. Please refer to the Technical Process Description (Appendix E) and Energy from Waste Policy Report (Appendix K) for further information.

Overall Objectives	Response
(l) be located and designed to avoid impacts on the ongoing operation of quarries within key resource areas and their haulage routes.	Complies The Project involves haulage exceeding 10,000 tonnes per year. It is unlikely that the Project will impact on the ongoing operation of quarries and their haulage routes.

9.2.3 Special Industry Precinct

Each precinct identified in the Bromelton SDA is subject to a Preferred Development Intent, prepared exclusively for each precinct. The Special Industry Precinct Preferred Development Intent outlines few criteria which have been designed to reflect the vision for the precinct. The criteria focusses on the land use form, and anticipated function of proposed uses.

A response to the Special Industry Precinct Preferred Development Intent is provided in **Table NN** below.

Table NN: Response to Special Industry Precinct Preferred Development Intent

Preferred Development Intent	Response
(a) This precinct is to accommodate the development of high impact and special industries which require separation from incompatible uses due to the potential for offsite impacts.	Complies The Project seeks SDA development approval for Special Industry land use within the Special Industry precinct of the Bromelton SDA. The proposal is consistent with the land uses intended under the SDA Development Scheme.
(b) The precinct will generally accommodate development which: (i) may be difficult to locate in conventional industrial estates (ii) may require separation from residential land, sensitive and/or incompatible land uses (iii) are of a nature and scale to benefit from, and make efficient use of, well serviced, unconstrained industrial land.	Complies The Project seeks SDA development approval for Special Industry land use, which is identified as a 'difficult to locate use'. The proposal is consistent with the land uses intended under the SDA Development Scheme and is physically separated from sensitive land uses and incompatible land uses.
(c) Development does not compromise the long-term functionality of the Bromelton SDA or sterilise land allocated for special or high impact industry.	Complies The Project seeks SDA development approval for Special Industry land use within the Special Industry precinct of the Bromelton SDA. The proposal is consistent with the land uses intended under the SDA Development Scheme and is not sensitive to other industrial land uses. It does not constitute the encroachment of incompatible development.
(d) Development does not result in emissions that would compromise the ability to develop other parts of the SDA for their intended purpose.	Complies The Project does not result in emissions that would compromise the ability to develop other parts of the SDA for their intended purpose. The Project imposes mitigation measures to minimise off-site emissions during construction and operation as outlined below. <u>Construction</u> ▪ Machinery and dust causing activities are located away from sensitive receptors (as far as practically possible).

Preferred Development Intent	Response
	- Remove materials that have the potential to produce dust or cover, seed or fence stockpiles to prevent wind whipping. - Develop and implement a construction dust management plan. - Ensure materials are transported and stored appropriately. - Development and implement a construction noise and vibration management plan. - Development and implement a construction traffic management plan. <u>Operation:</u> - Ongoing monitoring. - Waste delivered to be transported in fully enclosed vehicles or loads. - Intentional building design to include roller doors at the tipping hall to control odour emissions. - Acoustic enclosure of buildings and a noise barrier to the main transformer. - Prepare and implement an Operational Environmental Management Plan. - Vibration mitigation including a detailed structural dynamics assessment of natural frequencies of the systems. - Noise controls to the IBA conveyor, stack flue exhaust, main transformer, IBA extraction mechanical ventilation fans and emergency diesel generator. Please refer to the Air Quality Technical Report (Appendix S), Noise and Vibration Technical Report (Appendix E) and Greenhouse Gas Assessment (Appendix O) for further information.
(e) Defined uses which are generally considered to meet the precinct intent include high impact industry and special industry.	Complies The Project seeks SDA development approval for Special Industry land use within the Special Industry precinct of the Bromelton SDA. The land use is consistent with Schedule 1 of the SDA Development Scheme.

9.2.4 SDA Wide Assessment Criteria

The SDA Wide Assessment Criteria prescribe the specific design and technical outcomes desired for development in the Bromelton SDA. These design and technical aspects include items relating to appropriateness of land, provision of infrastructure, hazards and risks, environment, and built form. A full response to the SDA Wide Assessment Criteria is provided in the **Code Compliance Statements (Appendix Y)**.

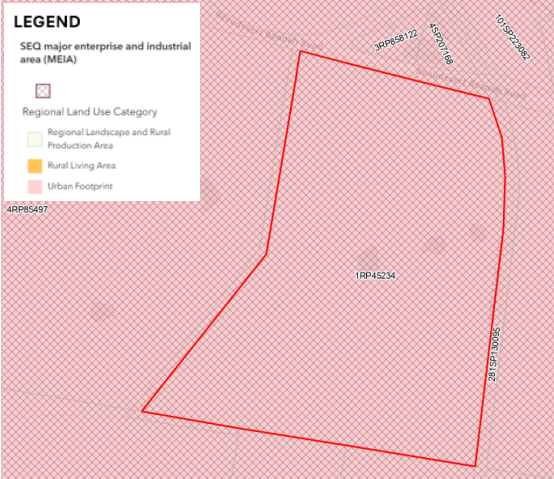
9.2.5 Relevant Engineering Standards

Table 7 of the Development Scheme identifies the relevant engineering standards for development in the SDA area. These standards are addressed to the extent relevant in respective technical reports.

9.3 Referral Entity Assessment Benchmarks

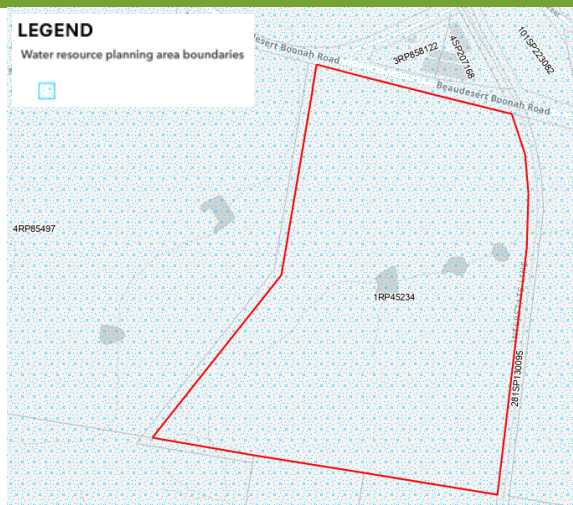
The Development Assessment Mapping System (**DAMS**) identifies State interests that affect the site and identify development assessment triggers and referrals that would ordinarily occur under the *Planning Regulation 2017* (**Planning Regulation**). Schedules 9 and 10 of the Planning Regulation outlines various types of development which are prohibited development, assessable development or development requiring referral agency assessment. A copy of the DAMS Mapping is provided at the **Site Searches (Appendix Z)** and summarised at **Table OO** below.

Table OO: DAMS Mapping

State Interest (DAMS Mapping)	Response
	SEQ Regional Plan Triggers The site is affected by the following sub-categories of the SEQ Regional Plan Trigger overlay: - Urban Footprint - SEQ major enterprise and industrial area (MEIA) The site is located in a State Development Area and the project is not assessable development pursuant to Schedule 10, Part 15 of the Planning Regulation. Therefore, no further assessment is required.
	Fish Habitat Areas The site is affected by the following sub-categories of the Fish Habitat Areas overlay: Queensland waterways for waterway barrier works (Low) The <i>Queensland Fisheries Act 1994</i> (Fisheries Act) provides for the protection of fisheries resources by regulating impacts to fish habitat, including upstream reaches of freshwater systems. The waterway mapping has recently been revised by the state and identifies the waterway as a stream order 1 watercourse, originating near the site's westernmost dam. Cleanaway has undertaken preliminary engagement with the Department of Primary Industries (DPI) and it is confirmed that the extend of development does not trigger an Operational Works application for the construction of waterway barrier works under the Fisheries Act. On this basis, referral is not triggered pursuant to Schedule 10, Part 6, Division 4 of the Planning Regulation. Please refer to the Biodiversity Technical Report (Appendix G) and the Stormwater Management Plan and Flood Risk Assessment (Appendix R) for further information.

State Interest (DAMS Mapping)

Response

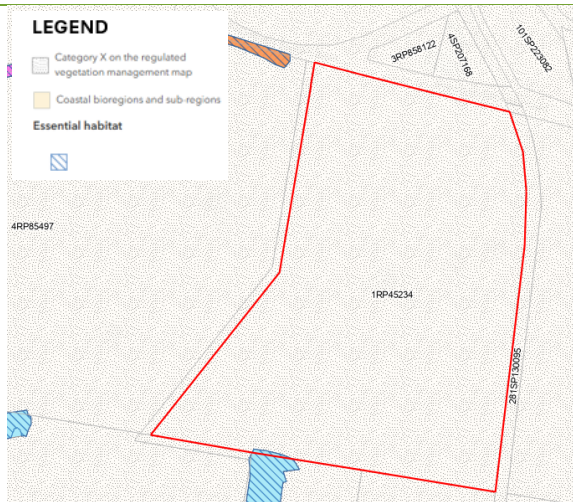


Water Resources

The site is affected by the follow sub-categories of the Water Resources overlay:

- Water resource planning area boundaries

The **Stormwater Management Plan and Flood Risk Assessment (Appendix R)** has confirmed the site does not include any mapped watercourses under the *Queensland Water Act 2000 (Water Act)*. In addition, the Department of Regional Development, Manufacturing and Water (**DRDMW**) confirmed the unmapped feature is a drainage line not a watercourse. Therefore, a riverine protection permit is not necessitated under the Water Act. State referrals are not triggered pursuant to Schedule 10, Part 19 of the Planning Regulation.



Native Vegetation Clearing

The site is affected by the follow sub-categories of the Native Vegetation Clearing overlay:

- Regulated vegetation management map (other vegetation categories) – Category X on the regulated vegetation management map
- Vegetation management coastal and non-coastal bioregions and sub-regions
- Essential habitat

The **Biodiversity Technical Report (Appendix G)** has undertaken an assessment of the ecological values of the site. The field surveys have identified that the areas mapped as essential habitat are located outside of the proposed development area. In addition, the assessment confirms that the Project will not impact any mapped regulated vegetation and assessment under the *Vegetation Management Act 1999* is not required. As such, referral under the Schedule 10, Part 3 of the Planning Regulation is not triggered.



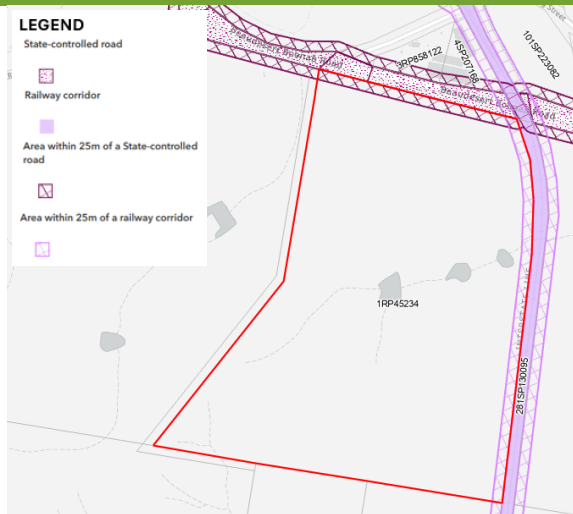
Koala Habitat Area

The site is affected by the follow sub-categories of the Koala Habitat Area overlay:

- Core koala habitat area

The **Biodiversity Technical Report (Appendix G)** has confirmed the extent of development is located outside of the mapped Koala Habitat Area (Core) and will not be impacted by the construction or operation of the Project. Pursuant to Schedule 10, Part 10 of the Planning Regulation, the Project is identified as 'exempted development' and does not trigger assessable development.

State Interest (DAMS Mapping)



Response

State Transport

The site is affected by the follow sub-categories of the State Transport overlay:

- State transport corridor – State-controlled Road
- State transport corridor – Railway corridor
- Areas within 25m of a State-controlled road
- Areas within 25 of a railway corridor

Pursuant to Schedule 10, Part 9 of the Planning Regulation, referral to DTMR is necessitated for the following:

- The site is located within 25m of a State transport corridor.
- The Project exceeds the infrastructure thresholds in Schedule 20 as it uses machinery that has an annual throughput of product of 10,000t.

Please refer to **Table Z** below for a summary of the referral triggers, entity and state code responses. The Applicant has undertaken substantial preliminary engagement with both DTMR (road) and DTMR (rail) in 2023 and 2025.

9.3.1 Referral Summary

Table PP below provides a summary of the referral requirements associated with the SDA development application based on the preliminary assessment of the Planning Regulation and associated mapping. In addition, OCG has nominated specific referral entities which are identified below. OCG may seek technical advice about any element of an SDA development application.

Table PP: Referral Summary

Referral Trigger	Aspect of Development	Referral Agency	Assessment Benchmarks	Response Location
Schedule 10, Part 9, Division 4, Subdivision 2, Table 4, Column 2	Development application for a Material Change of Use, other than an excluded Material Change of Use, that is assessable development under a local categorising instrument, if all or part of the premises— (a) <u>are within 25m of a State transport corridor; or</u> (b) are a future State transport corridor; or (c) are— i. adjacent to a road that intersects with a State-controlled road; and	DTMR	▪ State Code 1: Development in a state-controlled road environment ▪ State Code 2: Development in a railway environment	Refer to Code Compliance Statements (Appendix Y) .

Referral Trigger	Aspect of Development	Referral Agency	Assessment Benchmarks	Response Location
	ii. within 100m of the intersection			
Schedule 10, Part 9, Division 4, Subdivision 1, Table 1, Column 2	Development application for an aspect of development stated in schedule 20 that is assessable development under a local categorising instrument or section 21, if— (a) the development is for a purpose stated in schedule 20, column 1 for the aspect; and (b) <u>the development meets or exceeds the threshold—</u> i. <u>for development in local government area 1—stated in schedule 20, column 2 for the purpose; or</u> ii. for development in local government area 2—stated in schedule 20, column 3 for the purpose; and (c) for development in local government area 1—the development is not for an accommodation activity or an office at premises wholly or partly in the excluded area However, if the development is for a combination of purposes stated in the same item of schedule 20, the threshold is for the combination of purposes and not for each individual purpose.	DTMR	State Code 6: Protection of state transport networks	Refer to Code Compliance Statements (Appendix Y)
Schedule 10, Part 5, Division 4, Table 2, Column 2	Development application for a Material Change of Use that is assessable development under section 8, if— (a) <u>the environmentally relevant activity the subject of the application has not been devolved to a local government under the Environmental Protection Regulation; and</u>	DETSI	State Code 22: Environmentally relevant activities	- Refer to Part C of this Planning Report - Refer to the Code Compliance Statements (Appendix Y)

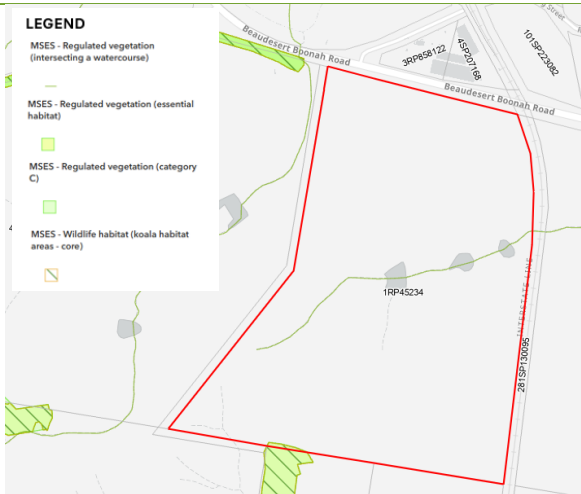
Referral Trigger	Aspect of Development	Referral Agency	Assessment Benchmarks	Response Location
	(b) the chief executive is not the prescribed assessment manager for the application			
Entity nominated by OCG	Only if status of proposal is identified as a Hazardous Chemical Facility (applicant position is that proposal is not a Hazardous Chemical Facility).	Offices of Industrial Relations	Refer to section 9.5 of this Planning Report	Not Applicable
Entity nominated by OCG	SRRC is the local government authority in which the SDA is situated. SRRC is the assessment manager for development applications, other than a Material Change of Use	SRRC	Refer to Section 9.5 of this Planning Report.	Not Applicable
Entity nominated by OCG	DPI (Fisheries) is a potential referral entity in the event the proposal involves waterway barrier works	DPI	The Project does not involve or propose waterway barrier works and therefore a response to the applicable assessment benchmarks is not required. Referral to DPI (Fisheries) is intended to seek written confirmation that no assessment is required.	Not Applicable
Entity nominated by OCG	Queensland Health is a potential referral entity elected by OCG.	Queensland Health	Not Applicable	Not Applicable
Entity nominated by OCG	SEQ distributor-retailer	Urban Utilities	Seqwater Code	Refer to Engineering Report (Appendix C)
Entity nominated by OCG	The Project is within the Seqwater supply catchment	Seqwater	Seqwater Development Guidelines 2024	- Refer to the Code Compliance Statements (Appendix Y) - Refer to Stormwater Management Plan and Flood Risk Assessment (Appendix R)

Referral Trigger	Aspect of Development	Referral Agency	Assessment Benchmarks	Response Location
Entity nominated by OCG	The Project involves a substation component and the generation of additional electricity supply to the grid.	Energy Queensland	Energex Standards and Guidelines	Not Applicable

9.4 State Planning Policy

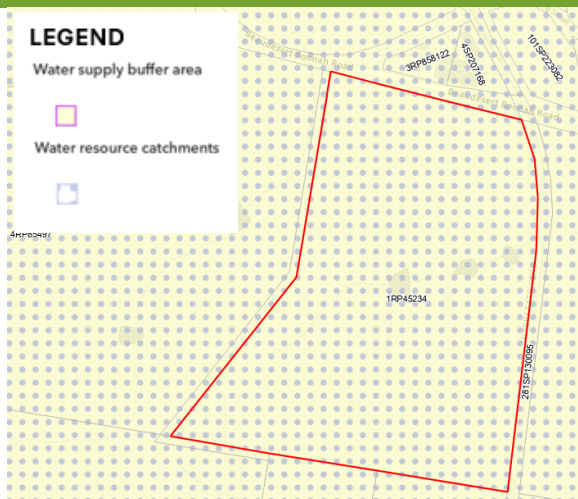
The State Planning Policy (July 2017) relates to 17 separate State interests grouped together under 5 broad themes. A copy of the SPP Mapping is provided at the **Site Searches (Appendix Z)** and summarised at **Table QQ** below.

Table QQ: SPP Mapping

State Interest (SPP Mapping)	Response
	Agriculture The site is affected by the following sub-categories of the Agriculture overlay: ▪ Agricultural land classification – class A and B. ▪ Important agricultural areas. The site is located within the Bromelton SDA and is intended for industrial development. The Project is located outside of the mapped watercourse and does not impact on fisheries or water quality. Therefore, further assessment against the Agriculture SPP is not required.
	Biodiversity The site is affected by the following sub-categories of the Biodiversity overlay: ▪ MSES - Regulated vegetation (intersecting a watercourse). ▪ MSES - Regulated vegetation (essential habitat). ▪ MSES - Regulated vegetation (category C). ▪ MSES - Wildlife habitat (koala habitat areas - core). The Project is designed and sited outside of the mapped MSES overlays. Please refer to the Biodiversity Technical Report (Appendix G) for an assessment of the MSES areas.

State Interest (SPP Mapping)

Response



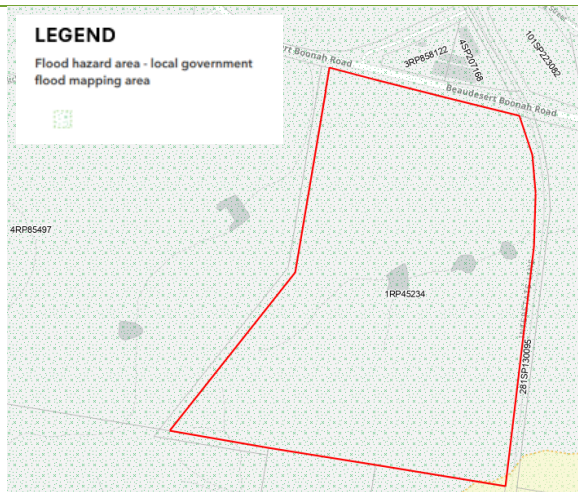
Water Quality

The site is affected by the following sub-categories of the Water Quality overlay:

- Water resource catchments.
- Water supply buffer area.

The Project has been assessed against the Seqwater Development Guidelines and confirms the water quality standards can be achieved. Please refer to the **Code Compliance Statements (Appendix Y)**, and **Stormwater Management Plan and Flood Risk Assessment (Appendix R)** for a response.

The **Human Health Risk Assessment (Appendix U)** confirms the Project does not result in a measurable change to the catchment for the drink water treatment plant and Wyaralong water treatment plant.

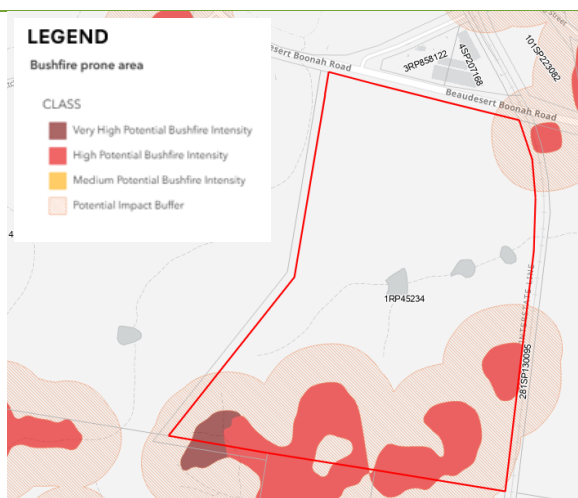


Natural Hazards Risk and Resilience (Flood)

The site is affected by the following sub-categories of the Natural Hazards Risk and Resilience overlay:

- Flood hazard area - local government flood mapping area.
- Flood hazard area - Level 1 - Queensland floodplain assessment overlay.

The **Stormwater Management Plan and Flood Risk Assessment (Appendix R)** has undertaken an assessment of the flood risks. The modelling confirms the Project does not result in a worsening in the flood depth or hazard.



Natural Hazards Risk and Resilience (Bushfire)

The site is affected by the following sub-categories of the Natural Hazards Risk and Resilience overlay:

- Very High Potential Bushfire Intensity.
- High Potential Bushfire Intensity.
- Potential Impact Buffer.

The **Bushfire Hazard Assessment (Appendix H)** has provided a site-specific assessment of the bushfire hazard and risk. It demonstrates compliance with the assessment benchmarks in the SPP.

9.5 Local Planning Scheme

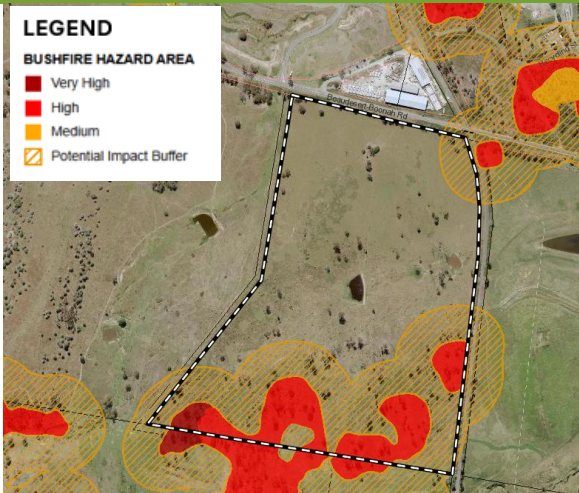
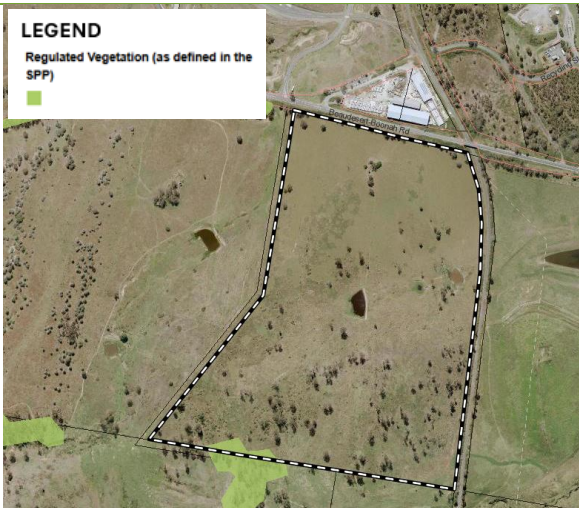
The site is located within the bounds of Scenic Rim Regional Council. As detailed in **Section 6.4.1** of this Planning Report, SRRC is the assessing authority for development that is not regulated by the Development Scheme or other legislation and planning instruments.

As a future Operational Works application is required for Filling and Excavation, a preliminary assessment against the following assessment benchmarks of the Planning Scheme has been provided to demonstrate compliance of the proposed works:

- Earthworks, construction and water quality code;
- General development provisions code; and
- Regional Infrastructure Overlay Code.

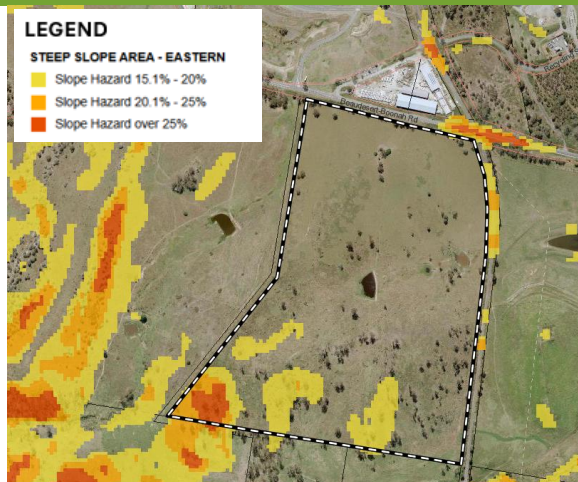
Please refer to the **Code Compliance Statements (Appendix Y)** for a response to these benchmarks. In addition, a preliminary review of the mapped overlays in the context of an Operational Works application is provided at **Table RR** below.

Table RR: SRRC Overlay Mapping

Overlay Mapping	Response
LEGEND BUSHFIRE HAZARD AREA Very High High Medium Potential Impact Buffer  <td> Bushfire Hazard Area Overlay The site is affected by the following sub-categories of the Bushfire Hazard Area overlay: ▪ Very High. ▪ High. ▪ Potential Impact Buffer. Pursuant to Table 5.10.1 of the Planning Scheme, Operational Works does not trigger assessment against the Bushfire Hazard Area overlay. As the Bushfire Hazard Area overlay aligns with the SPP mapping, the Bushfire Hazard Assessment (Appendix H) inherently demonstrates compliance with the Bushfire Hazard Area overlay. </td>	Bushfire Hazard Area Overlay The site is affected by the following sub-categories of the Bushfire Hazard Area overlay: ▪ Very High. ▪ High. ▪ Potential Impact Buffer. Pursuant to Table 5.10.1 of the Planning Scheme, Operational Works does not trigger assessment against the Bushfire Hazard Area overlay. As the Bushfire Hazard Area overlay aligns with the SPP mapping, the Bushfire Hazard Assessment (Appendix H) inherently demonstrates compliance with the Bushfire Hazard Area overlay.
LEGEND Regulated Vegetation (as defined in the SPP)  <td> Environmental Significance Overlay – Biodiversity The site is affected by the following sub-categories of the Environmental Significance Overlay: ▪ Regulated Vegetation (as defined in the SPP). The extent of the development is located outside of the mapped Regulated Vegetation. Pursuant to Table 5.10.1 of the Planning Scheme, Operational Works does not trigger assessment against the Environmental Significance overlay. Please refer to the Biodiversity Technical Report (Appendix G) for further information. </td>	Environmental Significance Overlay – Biodiversity The site is affected by the following sub-categories of the Environmental Significance Overlay: ▪ Regulated Vegetation (as defined in the SPP). The extent of the development is located outside of the mapped Regulated Vegetation. Pursuant to Table 5.10.1 of the Planning Scheme, Operational Works does not trigger assessment against the Environmental Significance overlay. Please refer to the Biodiversity Technical Report (Appendix G) for further information.

Overlay Mapping

Response

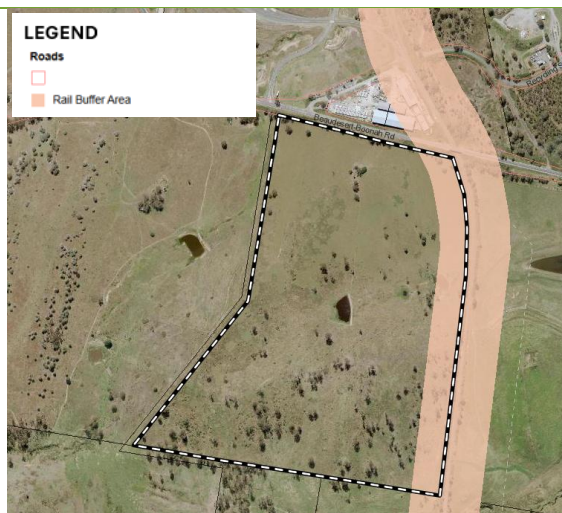


Landslide Hazard Steep Slope Overlay

The site is affected by the following sub-categories of the Landslide Hazard Steep Slope Overlay:

- Slope Hazard 15.1% - 20%.
- Slope Hazard 20.1% - 25%.
- Slope Hazard over 25%.

The extent of the development is located outside of the mapped slope hazard areas. Pursuant to Table 5.10.1 of the Planning Scheme, Operational Works does not trigger assessment against the Landslide Hazard Steep Slope overlay.

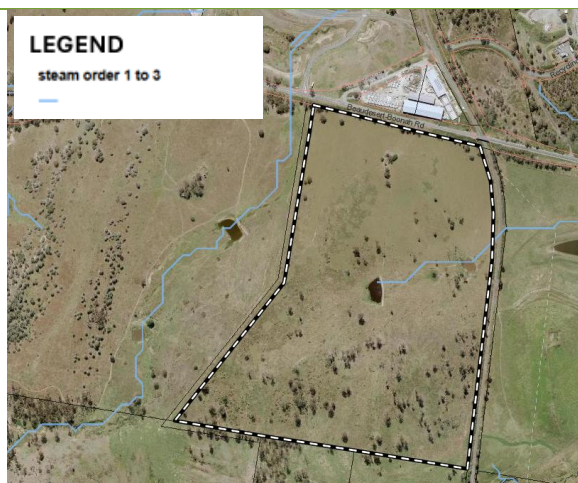


Regional Infrastructure Overlay – Rail Infrastructure

The site is affected by the following sub-categories of the Regional Infrastructure Overlay:

- Rail Buffer Area.

The Project will involve filling and / or excavation within the mapped Rail Buffer Area. Pursuant to Table 5.10.1 of the Planning Scheme, Operational Works does trigger assessment against the Regional Infrastructure Overlay Code. A response to the Regional Infrastructure Overlay Code is provided in **the Code Compliance Statements (Appendix Y)**.



Water Resource Catchments Overlay

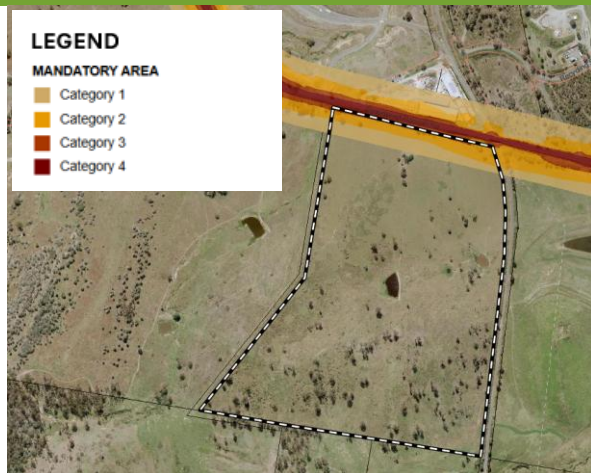
The site is affected by the following sub-categories of the Water Resource Catchments Overlay:

- Stream order 1 to 3.

Pursuant to Table 5.10.1 of the Planning Scheme, Operational Works triggers assessment against the Water Resource Catchments Overlay Code. By way of response, the Project is inclusive of mitigation actions to prevent increased post-development flows. Stormwater management is proposed in alignment with the relevant water quality standards.

Overlay Mapping

Response



Transport Noise Corridor Overlay

The site is affected by the following sub-categories of the Transport Noise Corridor Overlay:

- Category 1.
- Category 2.
- Category 3.

Pursuant to Table 5.10.1 of the Planning Scheme, the Transport Noise Corridor overlay is provided for information purposes only. Therefore, no further assessment is required.

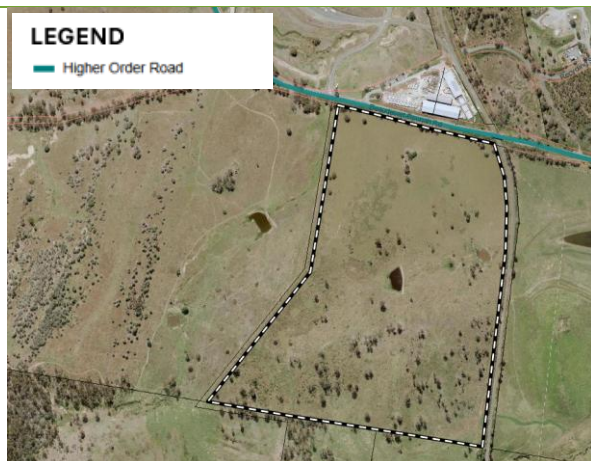


Minimum Lot Size Overlay

The site is affected by the following sub-categories of the Minimum Lot Size Overlay:

- Special Industry precinct.

Pursuant to Table 5.10.1 of the Planning Scheme, the Minimum Lot Size overlay is provided for administrative purposes only. Therefore, no further assessment is required.



Higher Order Roads Overlay

The site is affected by the following sub-categories of the Higher Order Roads Overlay:

- Higher Order Road.

Pursuant to Table 5.10.1 of the Planning Scheme, the Higher Order Roads overlay is provided for administrative purposes only. Therefore, no further assessment is required.

Overlay Mapping	Response
	Road Hierarchy Overlay The site is affected by the following sub-categories of the Road Hierarchy Overlay: State Controlled roads. Pursuant to Table 5.10.1 of the Planning Scheme, the Road Hierarchy overlay is provided for information purposes only. Therefore, no further assessment is required.

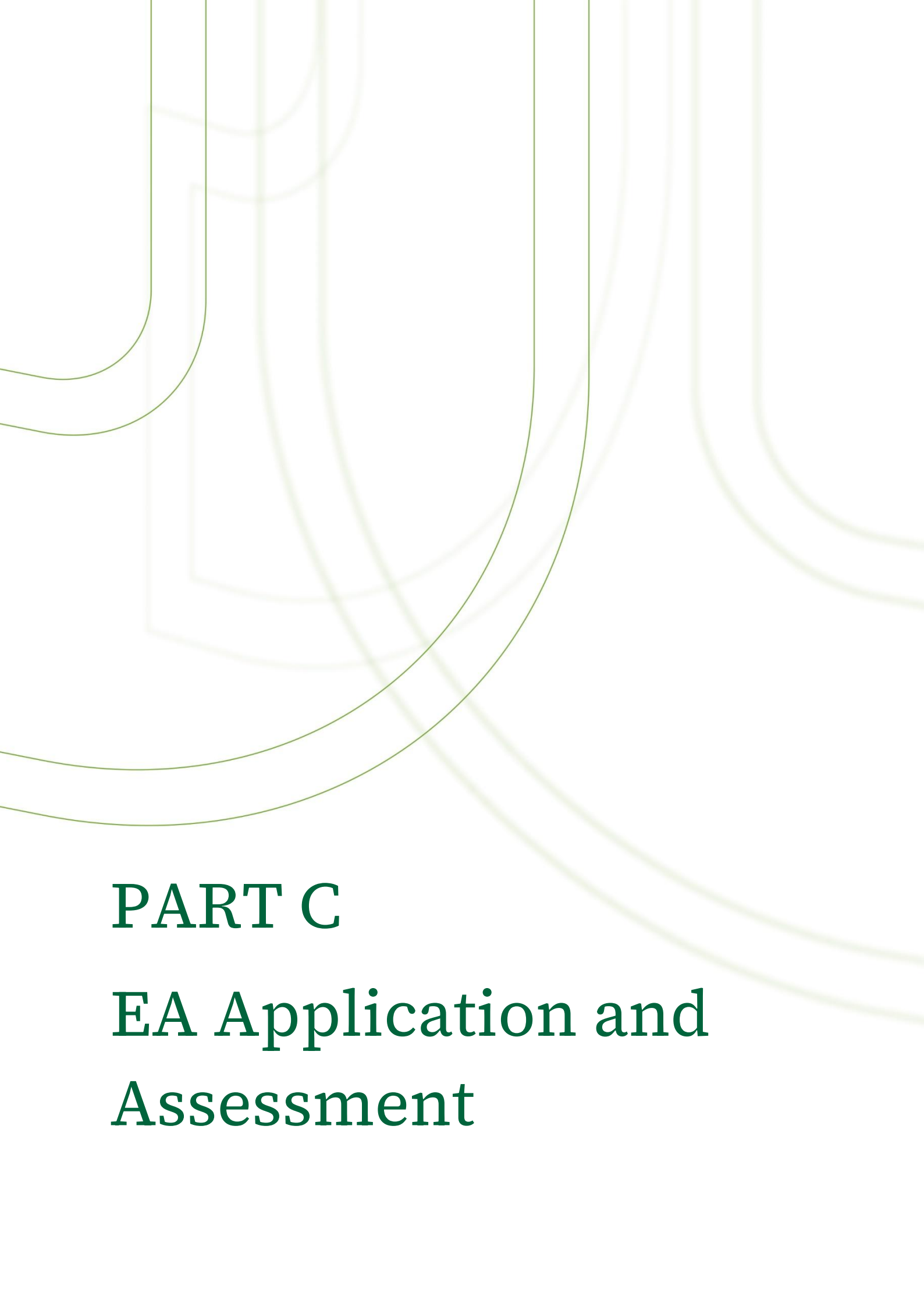
9.6 Conclusions and Recommendations

Part B of the Planning Report has provided a comprehensive assessment against the relevant assessment benchmarks, including the following:

- Bromelton SDA Development Scheme.
- Planning Regulation and associated State Development Codes.
- State Planning Policy.
- Scenic Rim Regional Planning Scheme in the context of future development not regulated by the Development Scheme.

The assessment has concluded that the proposed Special Industry land use is consistent with the strategic vision and overall outcomes of the SDA Development Scheme. Cleanaway supports the Queensland Government's strategy to reduce waste disposal to landfill via the proposed EfW facility. It is identified as a major industrial facility that has regional and state significance based on its scale, servicing catchment, stakeholder involvement and operational requirements.

Preliminary engagement has been undertaken with various referral entities, and the feedback has been considered and integration into the Project design.

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PART C

EA Application and Assessment

10.0 EA Application

10.1 Proposed ERAs

The Proponent has undertaken a detailed review of the Project operations against the activities described in Schedule 2 of the EP Regulation and in consultation with OCG and DETSI through pre-lodgement processes, has determined the applicable ERAs are those set in **Table SS** below.

Table SS: Overview of proposed ERAs

ERA	Threshold	AES*	C*
ERA 14 Electricity generation	14(3)2(a) Generating electricity by using a fuel, other than gas, at a rated capacity of 10MW electrical to 150MW electrical.	76	C
ERA 54 Mechanical waste reprocessing	54(3)2(c) Operating a facility for receiving and mechanically reprocessing, in a year, the following quantity of general waste -more than 10,000t.	31	C
ERA 61 Thermal waste processing and treatment	61(3)1(c) Thermally reprocessing or treating, in a year, the following quantity of general waste - more than 10,000t.	45	C

*AES = aggregate environmental score, C = Concurrence ERA.

10.2 EA Application Details

10.2.1 ERA Category

There are three categories of ERA being:

- Prescribed ERAs (prescribed under section 19 of the EP Act as an ERA).
- Resource activities (defined under section 107 of the EP Act).
- Agricultural ERAs (defined under section 107 of the EP Act).

All the above ERAs are Prescribed ERAs.

10.2.2 Adminstrating Authority

DETSI is the administering authority in respect of each proposed ERAs, noting none of the proposed ERAs have been devolved to local government pursuant to section 133 of the EP Regulation.

10.2.3 Application Type and Term

There are three different types of applications for a new EA, which are briefly described below:

- A standard EA application is made for eligible low risk ERAs that meet eligibility criteria, and are subject to standard conditions.
- A variation application is made for an EA where the applicant is seeking a variation to the standard conditions and where all proposed ERAs are eligible ERAs.
- A site-specific application is made where any of the proposed ERAs are not eligible ERAs and the EA is to be subject to conditions which are specific to the site.

It is identified that none of the Prescribed ERAs have an ERA standard and therefore do not meet the eligibility for a standard EA application. As the EA is for multiple Prescribed ERAs, the EA application is a Site-specific application for a Prescribed ERA project.

The proposed term of the EA application is indefinite (i.e no timeframe limit is proposed). Noting section 200(2)(c) of the EP Act identifies an EA cannot take effect before the date the SDA Approval takes effect, the effect date for the EA Permit is not yet known.

10.3 Application Process

Chapter 5, Parts 2 to 5, of the EP Act specify the EA assessment process, with each Part relating to a different stage (i.e. application stage (Part 2), information stage (Part 3), notification stage (Part 4), and decision stage (Part 5)). The required stages are dependent on the specific application made. In this instance, the notification stage does not apply pursuant to section 149 of the EP Act, as the Project does not involve a mining activity, or geothermal activity.

The EA application is therefore subject to the application stage, information stage and decision stage only. **Table TT** below sets out the stages of the application and assessment process.

Table TT: EA Application and Assessment Stages

Stage	Steps
Application stage	The application is valid in accordance with section 116-124 of the EP Act (as applicable): ▪ In accordance with section 116, anyone can apply for an EA. ▪ In accordance with section 118, the proposed ERAs are included in a single application and will be under a single EA in accordance with section 119. ▪ In accordance with section 120: a. the activity is to be carried out on a parcel of land within a SDA; b. the Bromelton SDA Development Scheme states that the development of the parcel of land for the Prescribed ERA is SDA assessable development under the SDPWO Act; and c. the applicant has applied for an SDA approval for the development. ▪ In accordance with sections 121 and 124, the applicant has applied for a site-specific application which is the correct application in this instance, as all of the proposed environmentally relevant activities for the authority are ineligible ERAs. ▪ Other sections are not applicable. The application is considered to be properly made in accordance with sections 125-127 of the EP Act (as applicable), as it has provided all of the requirements for applications as set out in section 125 of the EP Act, and other sections are not applicable.
Information stage	▪ The application material includes detailed technical reports which provide a comprehensive assessment of the Project in response to the relevant matters of assessment. ▪ It is understood that DETSI may issue an information request during this stage and the applicant is required to prepare and submit a response to this request.
Decision stage	▪ It is noted that DETSI must decide the application within the decision stage, which may be extended by mutual agreement between the applicant and DETSI.

11.0 Assessment

11.1 EP Regulation

Chapter 4, Part 2 of the EP Regulation sets out the regulatory requirements with which the administering authority, being DETSI, is required to address for making environmental management decisions.

Section 35 (Part 3) of the EP Regulation identifies for an environmental management decision relating to a Prescribed ERA, the administering authority making the decision must—

- (a) *carry out an environmental objective assessment against the environmental objective and performance outcomes mentioned in schedule 8, part 3, division 1; and*
- (b) *consider the matters mentioned in subsection (1)(b), (c) and (d).*

In respect of **part (a)**, a response to these outcomes are addressed in **Section 11.1.1** below.

In respect of **part (b)**, the matters mentioned in subsection (1)(b), (c) and (d) are as follows:

- (b) *consider the environmental values declared under this regulation; and*
- (c) *if the activity is to be carried out in a strategic environmental area—consider the impacts of the activity on the environmental attributes for the area under the Regional Planning Interests Act 2014; and*
- (d) *consider each of the following under any relevant environmental protection policies—*
 - (i) *the management hierarchy;*
 - (ii) *environmental values;*
 - (iii) *quality objectives;*
 - (iv) *the management intent.*

The above reference parts (1)(b), (c) and (d) and addressed in the following **Sections 11.1.2, 11.1.3 and 11.1.4** respectively.

The following sections provide a comprehensive assessment of the EA application against the above-referenced regulatory requirements and assessment matters. Multiple technical reports have also been prepared to support this assessment. In preparing these reports, specialist consultants have referenced and utilised, as applicable, the technical guidelines which set out application requirements for activities with impacts (Series ESR/2015/1836 to 1840). The technical reports are summarised in **Section 7**.

11.1.1 Environmental Objectives and Performance Outcomes

Schedule 8, part 3, division 1 of the EP Regulation sets out a variety of environmental objectives and performance outcomes for operational matters which have been addressed at **Table UU** below.

Table UU: Response to Environmental objectives and performance outcomes (Operational assessment)

Performance outcome	Response
Air	
Environmental Objective	
The activity will be operated in a way that protects the environmental values of air.	Complies An Air Quality Assessment (Appendix S) has been prepared by Katestone Environmental and provides an assessment of the relevant aspects of State Code 22. It demonstrates compliance with the air quality objectives of the EP (Air) Policy.

Performance outcome		Response
Performance Outcomes		
1	There is no discharge to air of contaminants that may cause an adverse effect on the environment from the operation of the activity.	Complies The Project is designed to mitigate emissions to air from the EfW stack and IBA / IBAA handling. The Air Quality Assessment (Appendix S) prepared by Katestone Environmental to evaluate the air quality, odour and plume visibility during operation. The assessment has concluded that the Project is predicted to have an insignificant impact on air quality. The following mitigation measures are recommended: ▪ IBA stockpiles contained within a 3-sided IBA maturation building to limit dust emissions from raw IBA. ▪ IBA sorting will occur within the fully enclosed IBA sorting building. ▪ APCr is managed in fully enclosed systems and cement stabilisation of APCr will occur within a building. ▪ Inclusion of fugitive dust management system. ▪ Dust suppression on sealed roadways and stockpiles. ▪ Inclusion of a Selective Non-Catalytic Reduction (SNCR) system and semidry flue gas treatment system to ensure that emission levels are consistent with international best practice emission concentration levels for waste incineration. ▪ Continuous emissions monitoring system. On this basis, the Project (with mitigation) is demonstrated to have an insignificant impact on air quality and the environment.
2	All of the following—	
	(a) fugitive emissions of contaminants from storage, handling and processing of materials and transporting materials within the site are prevented or minimised;	Complies Waste deliveries will arrive onsite via full enclosed vehicles or loads. Stockpiles are to be managed undercover and / or with dust suppression. Please refer to the Air Quality Assessment (Appendix S) prepared by Katestone Environmental for further information.
	(b) contingency measures will prevent or minimise adverse effects on the environment from unplanned emissions and shut down and start up emissions of contaminants to air;	Complies The Project is inclusive of an automatic combustion control system that is designed to achieve complete combustion, carbon burnout and emissions outcomes by adjusting fuel feeding, grate movement and combustion air supply to maintain a steam flow setpoint. In the event of shut down and start up process (not including when the auxiliary diesel burners are operating), these processes are covered by the 'short term' (30-minute average) emission limit values specified in the EU Industrial Emissions Directive (IED) for the portion of a start up or shut down where waste is still

Performance outcome		Response
		being combusted as it is the most important aspect with respect to air emissions. The air-pollution control equipment continues to operate until the plant is fully shut down, ensuring emissions remain controlled throughout the process. The auxiliary fuel burners will be provided to ensure flue gas temperatures remain above 850 degrees Celsius for at least two seconds after the last injection of combustion air, whenever waste is being combusted. This helps destroy any residual volatile organic compounds and limits the formation of dioxins and furans. A UPS and an EDG will be provided to ensure a safe and controlled plant shutdown by providing emergency back-up power to critical systems and motors. Please refer to the Air Quality Assessment (Appendix S) prepared by Katestone Environmental for further information.
(c) releases of contaminants to the atmosphere for dispersion will be managed to prevent or minimise adverse effects on environmental values.		Complies The Project will implement a range of primary and secondary air pollution controls which are BAT and have been demonstrated at operating reference facilities which have been implemented the same or similar controls. An Air Quality Assessment has been prepared by Katestone Environmental and demonstrates compliance with the air quality objectives of the EP (Air) Policy.
Water		
Environmental Objective		
The activity will be operated in a way that protects environmental values of waters.		Complies The Project is being designed for zero process wastewater discharge during normal operation and has a stormwater design that incorporates stormwater quality improvement devices. Please refer to the Technical Process Description (Appendix E), Human Health Risk Assessment (Appendix U) and Stormwater Management Plan and Flood Risk Assessment (Appendix R) and MUSIC modelling for further detail. Non-process wastewater (sewage) from toilets and kitchens will be managed on-site (retained on-site in tanks prior to removal via tanker to an appropriate municipal sewage treatment facility). Grey water from handwashing and showers will be reused within the process or used for landscape irrigation, subject to an assessment of the suitability of the soil to receive the water and SRRC approval.
Performance Outcomes		
1	There is no actual or potential discharge to waters of contaminants that may cause an adverse effect on an environmental value from the operation of the activity.	Complies The Project is being designed for zero process wastewater discharge during normal operation and has a stormwater design that incorporates stormwater quality

Performance outcome		Response
		improvement devices. Please refer to the Stormwater Management Plan and Flood Risk Assessment (Appendix R) for further detail. Non-process wastewater from toilets and kitchens will be managed on-site (retained prior to removal via tanker to an appropriate municipal sewage treatment facility). Grey water from handwashing and showers will be reused within the process or used for landscape irrigation, subject to an assessment of the suitability of the soil to receive the water and SRRC approval.
2	All of the following—	
	(a) the storage and handling of contaminants will include effective means of secondary containment to prevent or minimise releases to the environment from spillage or leaks;	Complies The Project includes the storage and handling of hazardous chemicals exceeding 200L or 200k. The Project is designed to ensure that hazardous materials are stored and handled in a manner that minimises for the potential release into the environment. Please refer to the Hazard and Risk Report (Appendix I) for further information.
	(b) contingency measures will prevent or minimise adverse effects on the environment due to unplanned releases or discharges of contaminants to water;	Complies The Project has a stormwater design that incorporates stormwater quality improvement devices. Please refer to the Stormwater Management Plan and Flood Risk Assessment (Appendix R) for further detail.
	(c) the activity will be managed so that stormwater contaminated by the activity that may cause an adverse effect on an environmental value will not leave the site without prior treatment;	Complies The Project has a stormwater design that incorporates stormwater quality improvement devices. A separate lined retention pond, serving the IBAA maturing hardstand area, is proposed to collect potentially contaminated water. Please refer to the Stormwater Management Plan and Flood Risk Assessment (Appendix R) for further detail.
	(d) the disturbance of any acid sulfate soil, or potential acid sulfate soil, will be managed to prevent or minimise adverse effects on environmental values;	Complies The Preliminary Site Investigation for Contamination (Appendix F1) prepared by Douglas Partners identifies the site has an extremely low probability of occurrence of Acid Sulfate Soils. The site elevations are greater than 5m above the AHD and are unlikely to be disturbed.
	(e) acid producing rock will be managed to ensure that the production and release of acidic waste is prevented or minimised, including impacts during operation and after the environmental authority has been surrendered;	Not Applicable The Project does not include acid producing rock.
	(f) any discharge to water or a watercourse or wetland will be managed so that there will be no adverse effects due to the altering of existing flow regimes for water or a watercourse or wetland;	Complies The Project has a stormwater design that incorporates stormwater quality improvement devices. Please refer to the Stormwater Management Plan and Flood Risk Assessment (Appendix R) for further detail.

Performance outcome		Response
(g) for a petroleum activity, the activity will be managed in a way that is consistent with the coal seam gas water management policy, including the prioritisation hierarchy for managing and using coal seam gas water and the prioritisation hierarchy for managing saline waste;		Not Applicable The Project does not involve a petroleum activity.
(h) the activity will be managed so that adverse effects on environmental values are prevented or minimised.		Complies The Project has a stormwater design that incorporates stormwater quality improvement devices. A separate lined retention pond, serving the IBAA maturing hardstand area, is proposed to collect potentially contaminated water. This water will be captured and re-used within the maturation process. Oil and water separators are proposed to serve connections from the HV substation area. Please refer to the Stormwater Management Plan and Flood Risk Assessment (Appendix R) for further detail.
Wetlands		
Environmental Objective		
The activity will be operated in a way that protects the environmental values of wetlands.		Not Applicable The site does not contain wetlands.
Performance Outcomes		
1	There will be no potential or actual adverse effect on a wetland as part of carrying out the activity.	Not Applicable The site does not contain wetlands.
2	The activity will be managed in a way that prevents or minimises adverse effects on wetlands.	Not Applicable The site does not contain wetlands.
Groundwater		
Environmental Objective		
The activity will be operated in a way that protects the environmental values of groundwater and any associated surface ecological systems.		Complies The Project has a stormwater design that incorporates stormwater quality improvement devices. A separate lined retention pond, serving the IBAA maturing hardstand area, is proposed to collect potentially contaminated water. This water will be captured and re-used within the maturation process. Oil and water separators are proposed to serve connections from the HV substation area. Please refer to the Stormwater Management Plan and Flood Risk Assessment (Appendix R) and MUSIC modelling for further detail.

Performance outcome		Response
Performance Outcomes		
1	Both of the following apply— (a) there will be no direct or indirect release of contaminants to groundwater from the operation of the activity; (b) there will be no actual or potential adverse effect on groundwater from the operation of the activity.	Complies The Project has a stormwater design that incorporates stormwater quality improvement devices. A separate lined retention pond, serving the IBAA maturing hardstand area, is proposed to collect potentially contaminated water. This water will be captured and re-used within the maturation process. Oil and water separators are proposed to serve connections from the HV substation area. Please refer to the Stormwater Management Plan and Flood Risk Assessment (Appendix R) and MUSIC modelling for further detail.
2	The activity will be managed to prevent or minimise adverse effects on groundwater or any associated surface ecological systems. <i>Note—</i> Some activities involving direct releases to groundwater are prohibited under section 41 of this regulation.	
Noise		
Environmental Objective		
	The activity will be operated in a way that protects the environmental values of the acoustic environment.	Complies A Noise and Vibration Technical Report (Appendix T) has been prepared by Arup and demonstrates compliance with the EP (Noise) Policy.
Performance Outcomes		
1	Sound from the activity is not audible at a sensitive receptor.	Complies The acoustic modelling has identified that there are no EPP Noise exceedances expected during all stages of the Project with mitigation measures. These measures include: ▪ Prepare and implement a Construction Environmental Management Plan – noise measures. ▪ Prepare and implement an Operational Environmental Management Plan – noise measures. ▪ The Main Waste Processing Building is designed to be almost fully enclosed. ▪ Acoustically rated louvres are required to all louvre openings on the façade and roof of the Main Waste Processing Building. ▪ IBA conveyor will involve interventions to mitigate noise, such as: ▫ Dampen idlers. ▫ Locate the motor of the conveyor within the Main Waste Processing Building and provide an enclosure around the exposed IBA conveyor motor. ▫ Reduce structure-borne noise of the metal enclosure by isolating the conveyor from the enclosure with rubber pads (or similar). ▫ Provide a solid barrier on the northern side and underneath of the IBA conveyor enclosure.

Performance outcome		Response
		▪ Add a silencer to the ID fan of the stack flue exhaust. ▪ Install a noise barrier at the western, northern and eastern sides of the main transformer with a height extending to a minimum of 2.5m above the top side of the transformer. ▪ Apply attenuation to air-intake / discharge and to the exhaust flue of the emergency diesel generator. Please refer to Section 6.11 of the Noise and Vibration Technical Report (Appendix T) for further information.
2	The release of sound to the environment from the activity is managed so that adverse effects on environmental values, including health and wellbeing and sensitive ecosystems, are prevented or minimised.	Complies A Human Health Risk Assessment (Appendix U) has been undertaken to evaluate the potential for the Project to cause impacts on human health for the off-site community. This assessment has demonstrated that the design, operational characteristics and proposed mitigation measures of the Project ensures the health and wellbeing of the community and sensitive ecosystems is maintained, as follows: ▪ The nearest sensitive receiver is located a minimum distance of 1.4km from the site. ▪ Negligible air quality impacts to community health during construction and operation. Machinery and dust causing activities are located away from sensitive receptors and stockpiles are appropriately managed on-site (i.e. covered, fenced). ▪ Negligible noise impacts to community health during construction and operation. The building design and materials mitigate noise impacts, such as roofing material; acoustic treatment to louvres; enclosing of the IBA conveyor belt motor; and installation of a noise barrier to the western, northern and eastern side of the main transformer. ▪ The Project results in non-measurable concentration of metals in the drinking water catchment. The metals are generally found in areas where people live and work. In addition, a Noise and Vibration Technical Report (Appendix T) has been prepared by Arup and demonstrates compliance with the EP (Noise) Policy.
Waste		
Environmental Objective		
	Any waste generated, transported, or received as part of carrying out the activity is managed in a way that protects all environmental values.	Complies Waste deliveries will arrive on-site via full enclosed vehicles or loads. Please refer to the Technical Process Description (Appendix E), Waste Feedstock Report (Appendix L) and Resource and Waste Management Technical Report (Appendix M).
Performance Outcomes		
1	Both of the following apply—	

Performance outcome		Response
(a) waste generated, transported or received is managed in accordance with the waste and resource management hierarchy under the <i>Waste Reduction and Recycling Act 2011</i> ;		Complies The waste generated, transported or received is management in accordance with the Waste Reduction and Recycling Act 2011. Please refer to the Resource and Waste Management Technical Report (Appendix M) for further information.
(b) if waste is disposed of, it is disposed of in a way that prevents or minimises adverse effects on environmental values.		
Land		
Environmental Objective		
The activity is operated in a way that protects the environmental values of land, including soils, subsoils, landforms and associated flora and fauna.		Complies Please refer to the Biodiversity Technical Report (Appendix G) prepared by Arup for an assessment of the ecological values present on the site.
Performance Outcomes		
1	There is no actual or potential disturbance or adverse effect to the environmental values of land as part of carrying out the activity.	Complies The construction and operation of the Project do not adversely affect the environmental values of the land. The ecological values are predominantly located in the southern portion of the site. Please refer to the Biodiversity Technical Report (Appendix G) prepared by Arup for further information.
2	All of the following apply—	
	(a) activities that disturb land, soils, subsoils, landforms and associated flora and fauna will be managed in a way that prevents or minimises adverse effects on the environmental values of land;	Complies The Biodiversity Technical Report (Appendix G) prepared by Arup has identified potential impacts to the existing ecological values of the site during construction and operation. Various mitigation measures are proposed, and include: ▪ Preparation and implementation of a Construction Environmental Management Plan. ▪ Preparation and implementation of an Operational Environmental Management Plan. ▪ Preparation and implementation of a Revegetation Plan and Stormwater Quality Monitoring Program.
	(b) areas disturbed will be rehabilitated or restored to achieve sites— (i) that are safe and stable; and (ii) where no environmental harm is being caused by anything on or in the land; and (iii) that are able to sustain an appropriate land use after rehabilitation or restoration;	Complies Please refer to the Biodiversity Technical Report (Appendix G) prepared. A landscape plan (refer Architecture and Landscape Drawings (Appendix B1)) has been developed to ensure the site is appropriately restored and enhanced, using native, low-maintenance species.
	(c) the activity will be managed to prevent or minimise adverse effects on the environmental values of land due to unplanned releases or discharges, including spills and leaks of contaminants;	Complies The Project has a stormwater design that incorporates stormwater quality improvement devices. A separate lined retention pond, serving the IBAA maturing hardstand area, is proposed to collect potentially contaminated water. This water will be captured and re-used within the maturation process. Oil and water

Performance outcome	Response
	separators are proposed to serve connections from the HV substation area. Please refer to the Stormwater Management Plan and Flood Risk Assessment (Appendix R) and MUSIC modelling for further detail.
(d) the application of water or waste to the land is sustainable and is managed to prevent or minimise adverse effects on the composition or structure of soils and subsoils.	Complies The Project will generate waste from construction, commissioning and operational activities which will need to be managed to avoid environmental and human health impacts in accordance with relevant legislation, policies and guidelines. Please refer to the Resource and Waste Management Technical Report (Appendix M) for further information. The Project is being designed for zero process wastewater discharge. It is proposed to reuse greywater from showers and handwashing basins to facilitate reuse within the process plant. The use for on-site landscape irrigation is subject to further investigation. Please refer to the Technical Process Description (Appendix E) for further information.

11.1.2 Environmental values declared under EP Regulation

Definition of Environmental Value

Section 9 of the *Environmental Protection Act* defines an environmental value as follows:

- (a) a quality or physical characteristic of the environment that is conducive to ecological health; or
- (b) a quality or physical characteristic of the environment that is conducive to public health, safety or amenity; or
- (c) a quality or physical characteristic of the environment that contributes to its biological diversity and integrity, intrinsic or attributed scientific value or interest, amenity, harmony and sense of community; or
- (d) another quality of the environment identified and declared to be an environmental value under an environmental protection policy or regulation.

These values are further enshrined in the associated Environmental Protection Policies (EPPs) which are summarised below.

Environmental Protection (Air) Policy 2019

The environmental values for air are defined in Section 6 of the policy and include:

- Protection of ecosystem health and biodiversity
- Protection of human health and wellbeing
- Protection of environmental aesthetics, including the appearance of buildings and property
- Protection of agricultural uses of the air environment

These values are supported by air quality objectives for various indicators (e.g. particulate matter, nitrogen dioxide, ozone) to ensure the air remains safe and suitable for these uses.

Environmental Protection (Noise) Policy 2019

The environmental values for the acoustic environment are outlined in Section 6 and include:

- Protection of ecosystem health and biodiversity
- Protection of human health and wellbeing, including ensuring suitable conditions for:
 - a. Sleep
 - b. Study or learning
 - c. Recreation, relaxation, and conversation
- Protection of community amenity

These values are maintained through acoustic quality objectives for sensitive receptors (e.g. residences, schools, hospitals), which specify acceptable noise levels during different times of day.

Environmental Protection (Water and Wetland Biodiversity) Policy 2019

The environmental values (EVs) for water are the qualities that make it suitable for supporting aquatic ecosystems and human uses. These include:

- Aquatic ecosystem health (applies to all Queensland waters)
- Aquaculture and human consumption of aquatic foods
- Agricultural uses (e.g. stock watering, irrigation)
- Recreational uses (e.g. swimming, boating, fishing, aesthetic enjoyment)
- Drinking water (raw water supply)
- Industrial uses (e.g. power generation, manufacturing, mining)
- Cultural and spiritual values

These EVs are protected through water quality objectives (WQOs), which are either numerical or narrative.

Assessment

Section 125(1)(l) of the EP Act requires a site-specific application to -

- (i) *include an assessment of the likely impact of each relevant activity on the environmental values, including—*
 - (A) *a description of the environmental values likely to be affected by each relevant activity; and*
 - (B) *details of any emissions or releases likely to be generated by each relevant activity; and*
 - (C) *a description of the risk and likely magnitude of impacts on the environmental values; and*
 - (D) *details of the management practices proposed to be implemented to prevent or minimise adverse impacts; and*
 - (E) *if paragraph (n) does not apply—details of how the land the subject of the application will be rehabilitated after each relevant activity ceases; and*
- (ii) *include a description of the proposed measures for minimising and managing waste generated by each relevant activity; and*
- (iii) *include details of any site management plan that relates to the land the subject of the application.*

The technical assessment reports accompanying the application have identified and assessed the risk and likely magnitude of impacts of the proposed development on relevant environmental values. The assessment of impact on environmental values is also partly addressed in the response to the environmental objectives and performance outcomes in Schedule 8 of the Regulation (refer **Section 11.1.1** above).

The following **Table VV** identifies key environmental domains which provide a framework for categorising the environmental values and provides a summary of the outcome of assessment in respect of these values.

In addition, the **Environmental Risk Assessment (Appendix X)** has been prepared by Arup summarises the mitigation / management strategies.

Table VV: Summary of Assessment against Environmental Values

Environmental Domain	Summary of Values	Summary of Assessment
Air	- Human health and wellbeing - Ecosystem health and biodiversity - Amenity (odour and visibility) - Protection of agricultural uses of the air environment	As per the Air Quality Assessment (Appendix S) and Human Health Risk Assessment (Appendix U), it is determined that the Project will protect and maintain the environmental values for air. Air emissions from the Project are designed and managed to achieve the applicable environmental standards during normal and abnormal operations. The Project (in isolation) is predicted to have an insignificant impact on air quality as measured against the relevant objectives and the risk of adverse odour impacts is low In addition, the Air Quality Assessment has undertaken a plume visibility study. Plume visibility is primarily a function of temperature related condensation of steam in the exhaust air. When this air condenses the water vapour becomes visible. It is identified that the plume visibility is considered to be low (estimated to be 5.7% of total operating hours over a five-year period) when visible during daylight hours. Modelling shows that the visible plume is predominantly contained within the site. In addition, the site is located within the catchment of the proposed Wyaralong water treatment plant. The dam is located more than 5km northwest of the Project and runoff would likely come from areas further away from the facility. The estimated ground level air concentrations that might deposit onto the ground within the catchment for the drinking water treatment plant and dam contain low quantities of metals. The concentration change of these metals are expected to not be measurable and therefore the Project maintains the values of the water supply catchment and water supply infrastructure.
Acoustic (Noise)	- Health and wellbeing - Ecosystem protection - Protection of amenity (quiet enjoyment of life)	The Project is designed to maintain the environmental values for noise. Acoustic modelling has identified that there are no EPP Noise exceedances expected during all stages of the Project with mitigation measures. These measures include: - Prepare and implement a Construction Environmental Management Plan – noise measures. - Prepare and implement an Operational Environmental Management Plan – noise measures. - Acoustic enclosure of buildings. The Main Waste Processing Building is designed to be almost fully enclosed. - Acoustically rated louvres are required to all louvre openings on the façade and roof of the Main Waste Processing Building. - IBA conveyor will involve interventions to mitigate noise, such as: - Dampen idlers. - Locate the motor of the conveyor within the Main Waste Processing Building and provide an enclosure around the exposed IBA conveyor motor. - Reduce structure-borne noise of the metal enclosure by isolating the conveyor from the enclosure with rubber pads (or similar). - Provide a solid barrier on the northern side and underneath of the IBA conveyor enclosure.

Environmental Domain	Summary of Values	Summary of Assessment
		▪ Add a silencer to the ID fan of the stack flue exhaust. ▪ Install a noise barrier at the western, northern and eastern sides of the main transformer with a height extending to a minimum of 2.5m above the top side of the transformer. ▪ Apply attenuation to air-intake / discharge and to the exhaust flue of the emergency diesel generator. Please refer to Section 6.11 of the Noise and Vibration Technical Report (Appendix T) and the Human Health Risk Assessment (Appendix U) for further information.
Water And Wetlands	▪ Aquatic ecosystem health ▪ Drinking water supply ▪ Recreation (primary & secondary contact) ▪ Irrigation ▪ Stock watering	The Project will protect and maintain the environmental values for water and wetlands. The site is located within the catchment of the proposed Wyaralong water treatment plant. The dam is located more than 5km northwest of the Project and runoff would likely come from areas further away from the facility. The estimated ground level air concentrations that might deposit onto the ground within the catchment for the drinking water treatment plant and dam contain low quantities of metals. The concentration change of these metals are expected to not be measurable and therefore the Project maintains the values of the water supply catchment and water supply infrastructure. From an on-site operational perspective, the Project implements stormwater quality control measures to protect existing flow regimes and comply with the relevant water quality objectives. The project has a stormwater design that incorporates stormwater quality improvement devices. A separate lined retention pond, serving the IBAA maturing hardstand area, is proposed to collect potentially contaminated water. This water will be captured and re-used within the maturation process. Oil and water separators are proposed to serve connections from the HV substation area. The Project is being designed for zero process wastewater discharge. It is proposed to reuse greywater from showers and handwashing basins to facilitate reuse within the process plant. The use for on-site landscape irrigation is subject to further investigation. Please refer to the Human Health Risk Assessment (Appendix U) and Stormwater Management Plan and Flood Risk Assessment (Appendix R) and MUSIC modelling for further detail.
Land	▪ Soil quality for ecological health ▪ Suitability for agriculture and other uses	The site history indicates the site has been used for agricultural purpose since at least 1944 and there is evidence of historical presence of spray race on the site. A Preliminary Site Investigation (Appendix F1) confirms the soils samples did not show contamination above the national guidelines and the metal concentrations were quite low. Groundwater samples showed elevated levels of conductivity, turbidity and some metals. The construction of the Project is not expected to impact on the existing soil quality. The Project includes the storage and handling of hazardous chemicals exceeding 200L or 200kg. The Project is designed to ensure that hazardous materials are stored and handled in a manner that

Environmental Domain	Summary of Values	Summary of Assessment
		minimises for the potential release into the environment or soil contamination. The Human Health Risk Assessment (Appendix U) has demonstrated that the Project will have negligible impacts to the community health during both construction and operations in regard to the handling of hazardous substances and soil contamination.
Biodiversity And Ecosystems	- Biological diversity and integrity - Intrinsic ecological value	The proposal will protect and maintain the environmental values for biodiversity and ecosystems. As per the Biodiversity Technical Report (Appendix G), the site is a highly degraded site due to historic clearing and agricultural practices. The Project is located in the northern portion of the site to avoid impacts to potential biodiversity values. During operation, it is recommended that a Operational Environmental Management Plan and Rehabilitation Plan be prepared and implemented. The purpose of these management plans is to: - Demonstrate with environmental law and project commitments. - Avoidance, minimisation and / or mitigation of environmental impacts. - Manage assets in accordance with design criteria. - Provide a guide to the management and notification of environmental incidents. - Effective response to community requests and complains. - General improvements in environmental maintenance methods. - Process for regular review of the plan during the operational life of the facility.

11.1.3 Strategic Environmental Area

The site is not located within an identified Strategic Environmental Area.

11.1.4 Relevant Environmental Protection Policies

As referenced in the response to **Section 11.1.2** above, the technical assessment reports accompanying the application specifically identify and address the EPPs and the relevant attributable values.

11.2 State Code 22

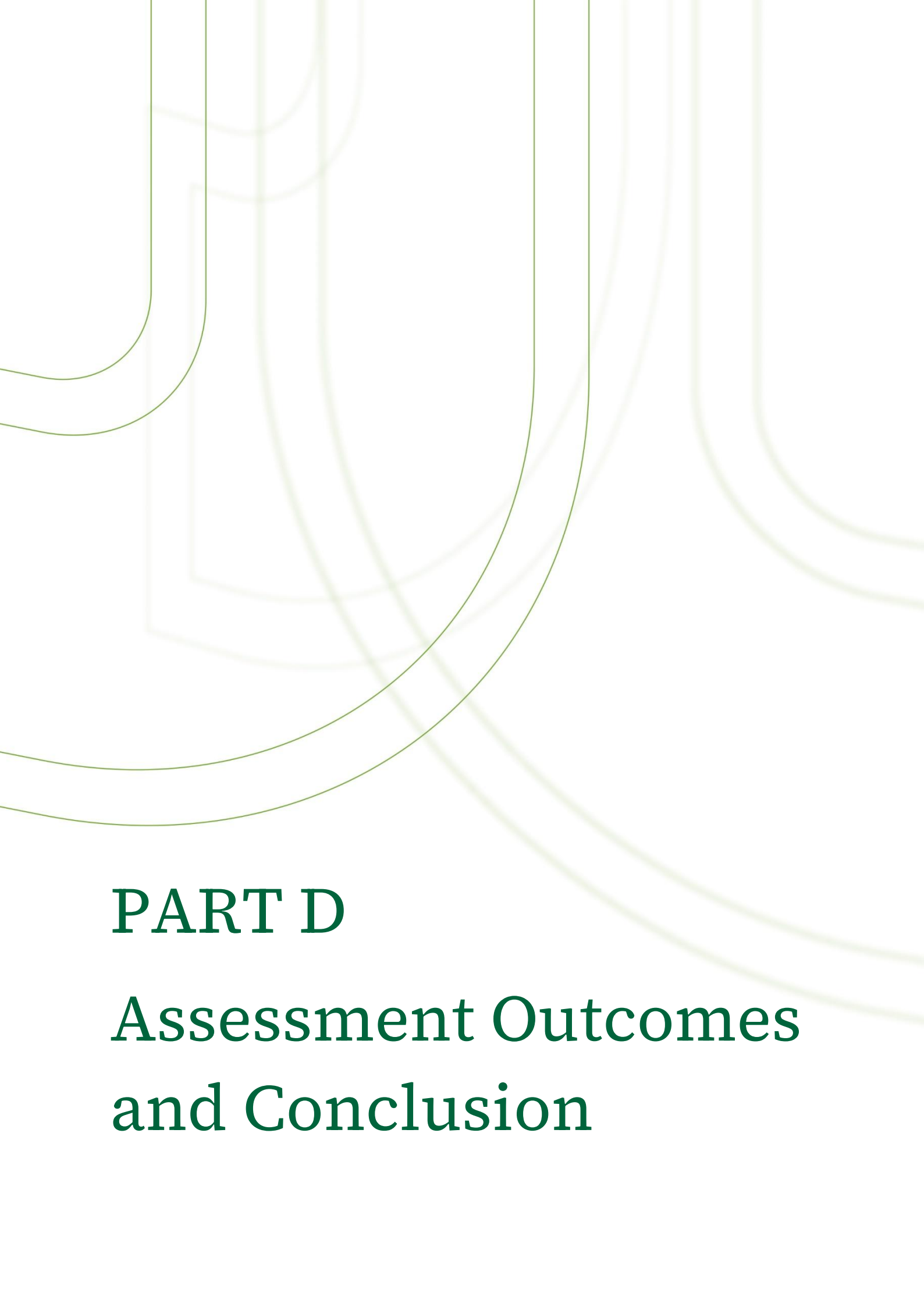
The application, if made under the Planning Act, would have triggered assessment against the State development assessment provisions, and with reference to environmentally relevant activities, this would include State Code 22. An assessment against this State Code has been provided in the **Code Compliance Statements (Appendix Y)**.

11.3 Summary and Conclusion

This section of the Planning Report has provided an environmental objective assessment in accordance with Section 35 EP Regulation to assist DETSI to make an environmental management decision.

Section 125 of the EP Act outlines the methodology applied to the assessment to identify the likely impact of each relevant activity on the environmental values. **Section 11.1.2** of this Planning Report and the supporting technical reports has provided an assessment in respect of these values and how the potentially competing matters are balanced.

The assessment has also provided an assessment against State Code 22: Environmentally Relevant Activities which demonstrates the Project can comply with the relevant assessment provisions.

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PART D

Assessment Outcomes and Conclusion

12.0 Conclusion & Statement of Reasons

12.1 Conclusion

This Planning Report has been prepared on behalf of Cleanaway Operations Pty Ltd to accommodate an integrated assessment for a proposed Energy from Waste facility, known as BERC, located over land at Lot 1 Beaudesert Boonah Road, Bromelton (formally described as Lot 1 on RP45234).

This Planning Report and accompanying technical reports support an application for the following:

- SDA development application for a Material Change of Use for Special Industry pursuant to the Bromelton SDA Development Scheme. This application has been made in accordance with the State Development and *Public Works Organisation Act 1971*.
- Application for Environmental Authority to carry out the following environmentally relevant activities in accordance with the *Environmental Protection Regulation 2019*.
 - ERA 14 Electricity Generation.
 - ERA 54 Mechanical Waste Reprocessing.
 - ERA 61 Thermal Waste Processing and Treatment.

Whilst the planning and environmental approvals processes are progressed through two separate applications, this application provides a coordinated and integrated assessment by providing a consolidated set of application material that addresses all planning and environmental assessment matters. In particular:

- **Part B** provided an Overview and Assessment of the SDA Application; and
- **Part C** provided an Overview and Assessment of the EA Application.

The development application and supporting information provided a comprehensive assessment of the Project in accordance with the relevant assessment requirements and legislative framework.

12.2 Statement of Reasons

On a balanced assessment, it is considered the facts and circumstances outlined within this report and the supporting material are overall favourable to the approval of the proposed development. The reasons for approval include:

- The proposal substantially complies with the relevant assessment benchmarks, this includes:
 - Bromelton SDA Development Scheme.
 - Environmental Protection Act and Environmental Protection Regulation.
 - Transport Infrastructure Act.
 - State Planning Policy.
 - State Development Assessment Provisions.
 - Scenic Rim Planning Scheme.
- The Project is consistent with the Special Industry precinct of the Bromelton SDA.
- It aligns with the current Queensland EfW policy to transition Queensland to a circular economy and ultimately reduces the quantity of waste sent to landfill.
- The Project uses the best available techniques in the engineering design, operation, maintenance and monitoring activities. These technologies are proven at international EfW facilities.
- Generation of jobs and local employment during construction and operation.
- The Project contributes additional and unique base load renewable electricity supply to the grid network.
- It involves an on-site visitor and education centre to inform visitors on circulate economy principles.
- The site layout has been developed with consideration to the site characteristics, environmental values and operational requirements of the purpose-built facility.
- The Project incorporates design principles and landscaping providing an integrated visual outcome.
- The Project does not adversely affect the structural integrity, operation or safety of existing State-transport infrastructure and corridors.

- The Project establishes and continues to build social licence across a range of stakeholder groups (including government, businesses and community groups).
- The Project incorporates design outcomes and mitigation measures to achieve relevant environmental standards.

12.3 Recommendations

This Planning Report and accompanying technical reports has set out recommendation for mitigation and management measures to ensure the Project can be developed to comply with the relevant requirements through construction and operational phases of development.

On this basis, it is recommended that the planning and environmental applications be approved subject to reasonable and relevant conditions in accordance with the relevant regulatory framework.



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Level 2, 76 Skyring Terrace

Newstead QLD 4006

PO Box 436 New Farm QLD 4005

Ph +61 7 3666 5200

brisbane@thereforgroup.com.au

Sunshine Coast

Gubbi Gubbi Country

Building 1

30 Chancellor Village Blvd

Sippy Downs QLD 4556

Ph +61 7 5294 0374

sunshinecoast@thereforgroup.com.au

Gold Coast

Kombumerri Land

Level 1, 24 Bay Street

Southport QLD 4215

Ph +61 7 5636 9943

goldcoast@thereforgroup.com.au

ABN 61 147 343 084

ACN 147 343 084

www.thereforgroup.com.au