

Appendix H

Waste Management Plan



Bromelton Compost Manufacturing Facility

Waste Management Plan

SOILCO Pty Limited

14 August 2024

→ The Power of Commitment



Project name		Bromelton Compost Manufacturing Facility					
Document title		Bromelton Compost Manufacturing Facility Waste Management Plan					
Project number		12626213					
File name		12626213_REP-Waste Management Plan.docx					
Status Code	Revision	Author	Reviewer		Approved for issue		
			Name	Signature	Name	Signature	Date
S4	A	A McCormack Y Teng	M Gravett		E Rothwell		03/07/2024
S4	0	A McCormack	M Gravett		E Rothwell		14/08/2024

GHD Pty Ltd | ABN 39 008 488 373

Level 13, 203 Robina Town, Centre Drive
Robina, Queensland 4226, Australia

T +61 7 5557 1000 | **E** goldcoastmail@ghd.com | **ghd.com**

© GHD 2024

This document is and shall remain the property of GHD. The document may only be used for the purpose for which it was commissioned and in accordance with the Terms of Engagement for the commission. Unauthorised use of this document in any form whatsoever is prohibited.

Contents

1.	Introduction	1
1.1	Purpose of this report	1
1.2	Objective	1
1.3	Definitions	1
1.4	Development staging	1
1.5	Limitations	2
2.	Environmental requirements	4
2.1	Relevant legislation and guidelines	4
2.1.1	Legislation	4
2.1.2	Guidelines and standards	4
3.	Waste management	5
3.1	Preferred waste management hierarchy	6
4.	Waste stream characterisation and waste generation	7
4.1	Construction waste generation	7
4.2	Operational waste generation	7
4.2.1	Waste characterisation and generation	7
4.2.2	Waste storage areas	8
4.2.3	Estimated waste volumes and servicing	10
4.2.4	Waste collection	10
4.3	Potential environmental aspects and impacts	10
5.	Environmental mitigation and management measures	11
5.1	Construction	11
5.2	Operations	14
6.	Compliance management	16
6.1	Roles and responsibilities	16
6.2	Training	16
6.3	Monitoring and inspections	16
6.4	Auditing	16
6.5	Reporting	16
7.	Review and improvement	17
7.1	Continuous improvement	17
7.2	Plan update and amendment	17

Table index

Table 3.1	Waste management hierarchy alignment measures	6
Table 4.1	Waste generated at key associated infrastructure	8
Table 4.2	Estimated waste generation from operation of site infrastructure	10
Table 5.1	Waste management plan during construction	11

Table 5.2	Waste management plan during operations	14
Table A.1	Acceptable feedstock at Bromelton CMF	20

Figure index

Figure 1.1	Site location	3
Figure 3.1	Waste hierarchy and circular economy framework (Australian Government, 2018)	5
Figure 4.1	High level schematic of composting process and waste generation areas	8
Figure 4.2	Waste storage areas	9

Appendices

Appendix A	Acceptable feedstock
------------	----------------------

1. Introduction

SOILCO Pty Ltd (hereafter referred to as SOILCO) is an industry leader in organics recycling, producing soil, compost and mulch products. SOILCO is developing a new Compost Manufacturing Facility (CMF) in Southeast Queensland at their site located at Lot 4, 260 Mitchell Road, Bromelton, Queensland. The facility will be fully open air and will receive, process, compost and store the following materials: garden, food, wood wastes, manures and soil for the sale and distribution of finished compost, mulch and soil products. A list of potentially acceptable feedstocks is provided in Appendix A.

1.1 Purpose of this report

The purpose of this Waste Management Plan (hereinafter referred to as the Plan) is to identify the waste streams associated with the construction and operation of the CMF and detail the operations of the Project and measures that will be implemented to safely manage waste and promote resource recovery. The Plan has been developed to align with the requirements of the Scenic Rim Planning Scheme 2020 Scheme Section 9.3.7 – General Development Provisions Code Acceptable Outcomes AO13.

1.2 Objective

The key objective of this Plan is to ensure that waste requiring disposal is dealt with appropriately and waste generation is minimised as far as reasonably practicable. To achieve this objective, the following will be undertaken:

- Identify and implement measures to manage waste during construction and operation.
- Ensure the preferred waste management hierarchy of avoid, reduce, re-use, recycle, recover, treat and dispose is followed, as per the *Waste Reduction and Recycling Act 2011*.
- Provide staff with an increased level of understanding and awareness of waste and resource use management issues.
- Implement appropriate measures to comply with all relevant legislation and other requirements.

The Plan will be reviewed and updated no less frequently than annually. A review may occur sooner consequent to a material change in risk, legal requirements or an incident relevant to waste management. Mitigation strategies will be reviewed for effectiveness and any corrective actions will be implemented.

1.3 Definitions

For the purposes of this report, the following definitions are used:

- **Proposed development area** – includes the construction footprint and extent of the proposed works, located at Lot 4, 260 Mitchell Road, Bromelton, QLD.
- **Project area** – includes all land within the boundary of Lot 4 on RP85497. The term 'Project area' and 'site' are used interchangeably within this report.
- Figure 1.1 delineates the proposed development area within the Project area (site).

1.4 Development staging

The development staging is currently being finalised. This Plan is limited to the management of the construction and operation of the CMF, which includes the following:

- Receipt, processing, composting and storage of up to 250,000 tpa of organic wastes (including garden, food, wood wastes and manure from councils and from SOILCO's Pinkenba facility).
- Receipt, processing, storage and blending of up to 150,000 tpa of sand and soil products for manufacturing (Virgin Extracted Natural Material or VENM).
- Sale and distribution of finished compost, mulch and soil products.

1.5 Limitations

This report: has been prepared by GHD for SOILCO Pty Limited and may only be used and relied on by SOILCO Pty Limited for the purpose agreed between GHD and SOILCO Pty Limited as set out in section 1.1 of this report.

GHD otherwise disclaims responsibility to any person other than SOILCO Pty Limited arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by SOILCO Pty Limited and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

Accessibility of documents

If this report is required to be accessible in any other format, this can be provided by GHD upon request and at an additional cost if necessary.



Paper Size ISO A4

0 50 100 150 200
Metres



Map Projection: Transverse Mercator
Horizontal Datum: GDA2020
Grid: GDA2020 MGA Zone 56



SOILCO Pty Ltd
Bromelton Compost Manufacturing Facility

Project No. 12626213
Revision No. A
Date 8/08/2024

Project area and locality

FIGURE 1.1

2. Environmental requirements

2.1 Relevant legislation and guidelines

2.1.1 Legislation

The *Queensland Waste Reduction and Recycling Act 2011* is the principal guiding legislation which establishes the strategic framework to modernise waste management resource recovery practices in the state. This Act aligns with federal legislation and policies and provides a framework for state policies and strategies, namely the National Waste Policy 2019 and the Queensland Waste Management and Resource Recovery Strategy 2019 and associated strategies, policies and action plans.

Legislation relevant to waste management and resource recovery in Queensland includes:

- *Environmentally Hazardous Chemicals Act 1985*
- *Environmental Protection Act 1994*
- *Contaminated Land Management Act 1997*
- *National Greenhouse and Energy Reporting Act 2007*
- *Queensland Waste Reduction and Recycling Act 2011*
- *Waste Reduction and Recycling Regulation 2011*
- *Environmental Protection Regulation 2019*
- *Recycling and Waste Reduction Act 2020 (C'th)*
- *Queensland Waste Reduction and Recycling Regulation 2023*

2.1.2 Guidelines and standards

Guidelines, specifications and policy documents relevant to this Plan include:

- *Environmental Protection (Regulated Waste) Amendment regulation 2018 (DESI)*
- *Environmental Protection (Waste ERA Framework) Amendment Regulation 2018 (DESI)*
- *Transforming Queensland's Recycling and Waste Industry – Directions Paper 2018*
- *Local Law No. 5 (Waste Management) 2018 (Scenic Rim Regional Council)*
- *Scenic Rim Planning Scheme 2020 (Scenic Rim Regional Council)*
- *Scenic Rim Regional Council Waste Management and Resource Recovery Strategy 2021-2026 (Strategy) (Scenic Rim Regional Council)*
- *2025 Vision on Waste Scenic Rim Regional Council Waste Reduction & Recycling Plan 2015 – 2025 (Scenic Rim Regional Council)*
- *National Waste Policy 2018*
- *National Waste Policy Action Plan 2019 and Annexure 2022*
- *Council of Mayors South East Queensland Waste Management Plan – Final Report 2021*
- *Queensland Waste Management and Resource Recovery Strategy 2019*
- *Queensland Organics Strategy and Action Plan 2022-2032*
- *Queensland Waste Avoidance and Resource Productivity Strategy (2014-2024)*
- *QLD Energy from Waste Policy 2020*
- *Queensland Biofutures 10-Year Roadmap 2016*
- *Council of Australian Governments waste export ban*
- *Resource Recovery Industries 10-year Roadmap and Action Plan 2019*

3. Waste management

The waste management hierarchy preferences waste avoidance, minimisation, reuse and recycling over treatment and disposal. Circular economy principles represent a shift from a linear take-make-use-dispose approach towards a circular system and product cycle whereby products and materials are kept circulating within the economy at their highest value for as long as possible, through reuse, recycling, remanufacturing, delivering products as services, and sharing of resources.

SOILCO's operational activities which will generate, transport, or receive waste will be managed in accordance with the waste and resource management hierarchy defined in the *Waste Reduction and Recycling Act 2011*, and circular economy framework of the National Waste Policy, presented in Figure 3.1.

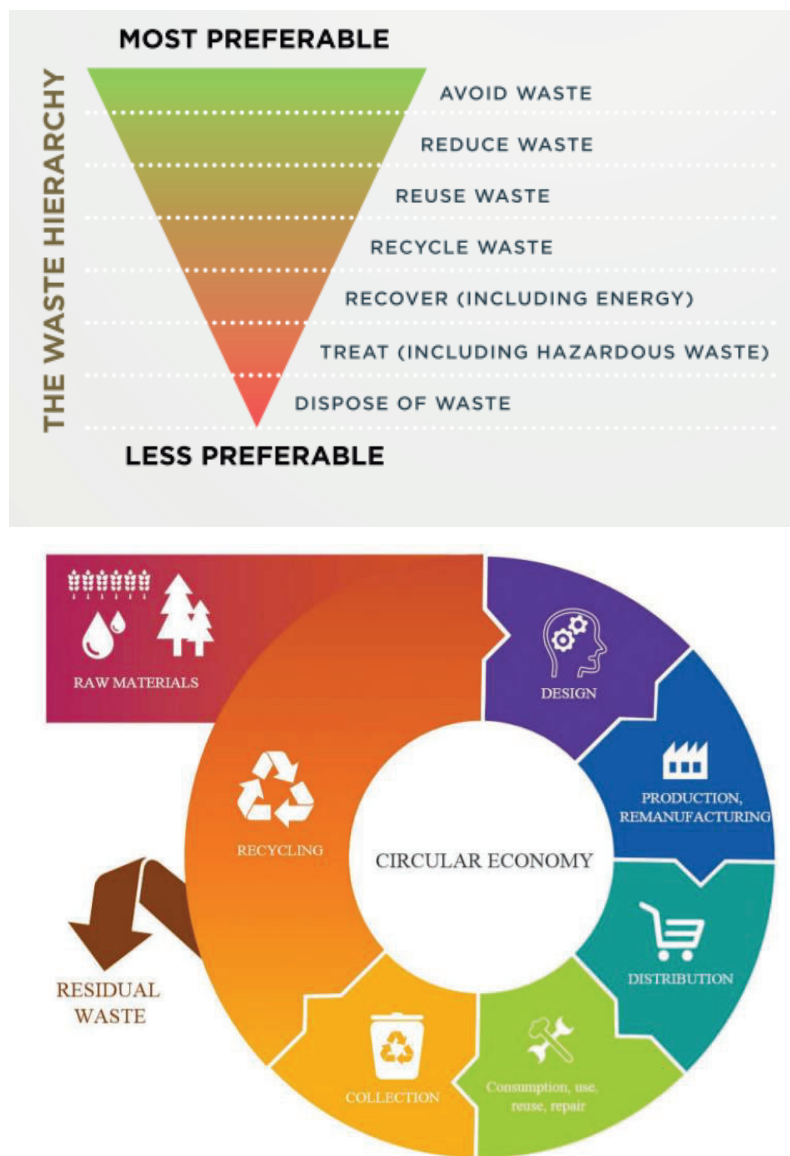


Figure 3.1 Waste hierarchy and circular economy framework (Australian Government, 2018)

3.1 Preferred waste management hierarchy

The preferred waste management hierarchy and measures to facilitate conformance are detailed in Table 3.1. The hierarchy is based on the Scenic Rim Regional Council's Planning Policy which aligns with the targets set by the *Queensland Government's Waste Management and Resource Recovery Strategy 2019 (Queensland Waste Strategy)*¹.

Table 3.1 Waste management hierarchy alignment measures

Waste management hierarchy	Description of measures to facilitate conformance
Waste avoidance and minimisation	Waste avoidance and minimisation are the two most preferred strategies in the waste hierarchy. During construction and site operations, the following measures will be implemented to minimise waste generation: – Material inflow and outflow measurement and inventory tracking via onsite weighbridge – Ensuring correct types and quantities of materials are ordered to avoid excess generation – Planning to efficiently manage procurement, delivery and storage of materials to avoid spoilage or contamination of materials, and minimise use of non-recyclable and/or single use packaging – Training of staff, contractors and operators to avoid damage to equipment and mixing or contamination of dissimilar materials and avoid or minimise wastage during procurement, construction, operation and maintenance.
Reuse and recycling	Waste generated by onsite activities, including repairs and maintenance of equipment, staff amenities, and packaging of items delivered to site will be assessed for recyclability and/or reuse potential. Material separation and recycling will be promoted on-site and dedicated bins/receptacles provided to facilitate reuse and recycling as a priority of the site waste management program in accordance with the Queensland Waste Strategy. Where possible, excess material from construction will be reused on site. Where feasible, preference will be given to refurbish and reuse of end-of-life equipment as part of ongoing operations. The purpose of the facility is to recycle organic material (including feedstock listed in Appendix A) into compost and incorporate sand or soil materials into soil amendment products. Care will be taken to only separate and dispose of residual waste material that cannot be feasibly recycled.
Disposal of waste	Disposal of residual waste will be managed be in accordance with the <i>Environmental Protection Regulation 2008</i>. Wastes that are unable to be reused or recycled will be directed to treatment and/or energy recovery at an appropriately licensed facility (as applicable) with only residual waste sent for disposal to a licensed landfill. Residual waste material removed from the organic material stream (including feedstock listed in Appendix A) due to contamination in incoming materials will be disposed of to an appropriately licenced facility. Details of waste types, volumes and final destinations are to be recorded in a Waste Management Register. The Waste Management Register is to include the following: – Type of waste and its classification <i>Environmental Protection Regulation 2019</i> – Quantities of waste, measured in tonnes – How and where the waste was reused, recycled, stockpiled or transported and disposed of – Date when the waste was reused, recycled, stockpiled or transported and disposed of – Name and waste transport licence (if applicable) of the transporter used.

¹The *Queensland Government's Waste Management and Resource Recovery Strategy 2019* is currently undergoing review.

4. Waste stream characterisation and waste generation

4.1 Construction waste generation

The construction of the proposed Compost Manufacturing Facility (CMF) is expected to generate a range of solid waste streams.

The facility will be constructed in four phases:

- Site mobilisation
- Ancillary and enabling works
- Excavation and civil works
- Infrastructure works

The waste streams anticipated to be generated during construction include:

- General solid waste (non-putrescible)
 - VENM
 - Trees, shrubs, grasses and roots
 - Construction waste – “heavy”
 - Construction waste – metal
 - Construction waste – “light”
 - Grit, sediment, litter and gross pollutants
 - Site office waste
- Hazardous waste
 - Waste oils, fuels, lubricants and chemicals
- General solid waste (putrescible)
 - Site office waste

The waste generated from the construction and demolition phases will be managed and stored in accordance with the SOILCO PR1118- Bromelton Waste Management Plan².

4.2 Operational waste generation

4.2.1 Waste characterisation and generation

SOILCO proposes to construct a new CMF in Southeast Queensland at Bromelton. The proposed development is expected to receive up to 400,000 tpa of input materials, including up to 250,000 tpa of organic waste (including garden, food and wood waste and manure), and produce finished compost, mulch and soil products utilising passive open windrow and aerated static pile (ASP) composting systems.

A range of solid waste streams are expected to be generated at the facility and waste characterisation, storage and servicing information has been described in the sections below. Solid waste is defined as any general, recyclable and commercial waste. It is noted that the waste described in this section does not include liquid waste discharges to storage, evaporation ponds, sewer or gaseous discharges to the atmosphere.

The key infrastructure at the site and the wastes expected to be generated for the associated infrastructure are listed in Table 4.1.

² Provided to GHD on 07/08/2024

Table 4.1 Waste generated at key associated infrastructure

Infrastructure	Footprint (m ²)	Expected waste streams (to be generated)
Above-ground weighbridges	2 x 27m weighbridges	None
Site office and amenities area	243.1 m ²	General waste Comingled recyclables
Maintenance and storage shed	1,200 m ²	General waste Comingled recyclables Metals Waste oil End of life solar panels (infrequent)
Receival building	2,412.6 m ²	General waste (oversized items and physical contaminants removed via manual picking and mechanical sorting) (refer to Figure 3)

Typically, the most significant waste stream is generated from the feedstock pre-processing and decontamination line and final screening process with estimates of approximately 30 tonnes per week (tpw) from the sort cabin and 56 tpw of light waste (e.g. film plastics) from the fan, when operating at capacity (250,000 tpa of organic waste including garden, food and wood wastes and manure inputs). A high-level schematic of the pre-processing/decontamination and composting process is provided in Figure 4.1.

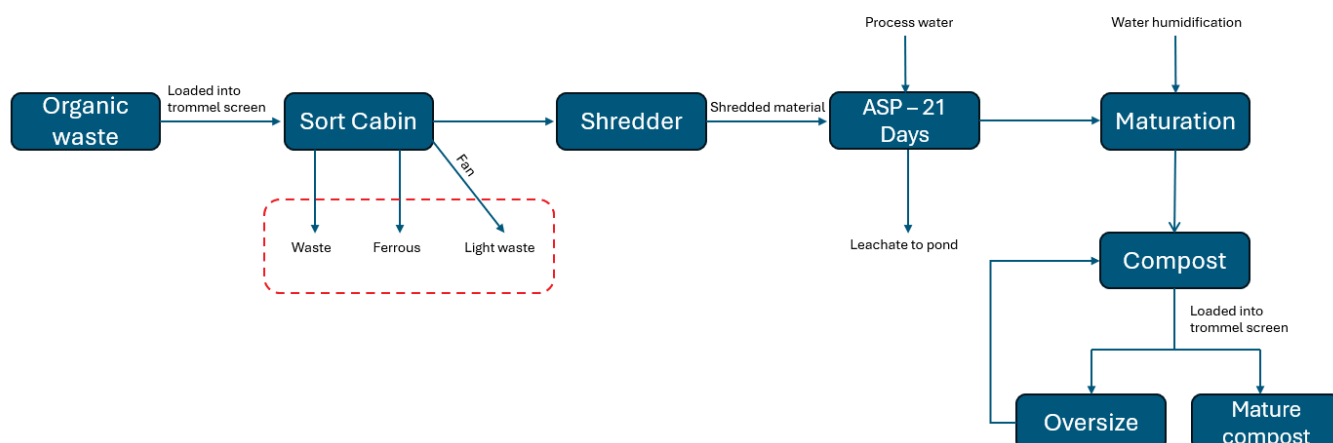
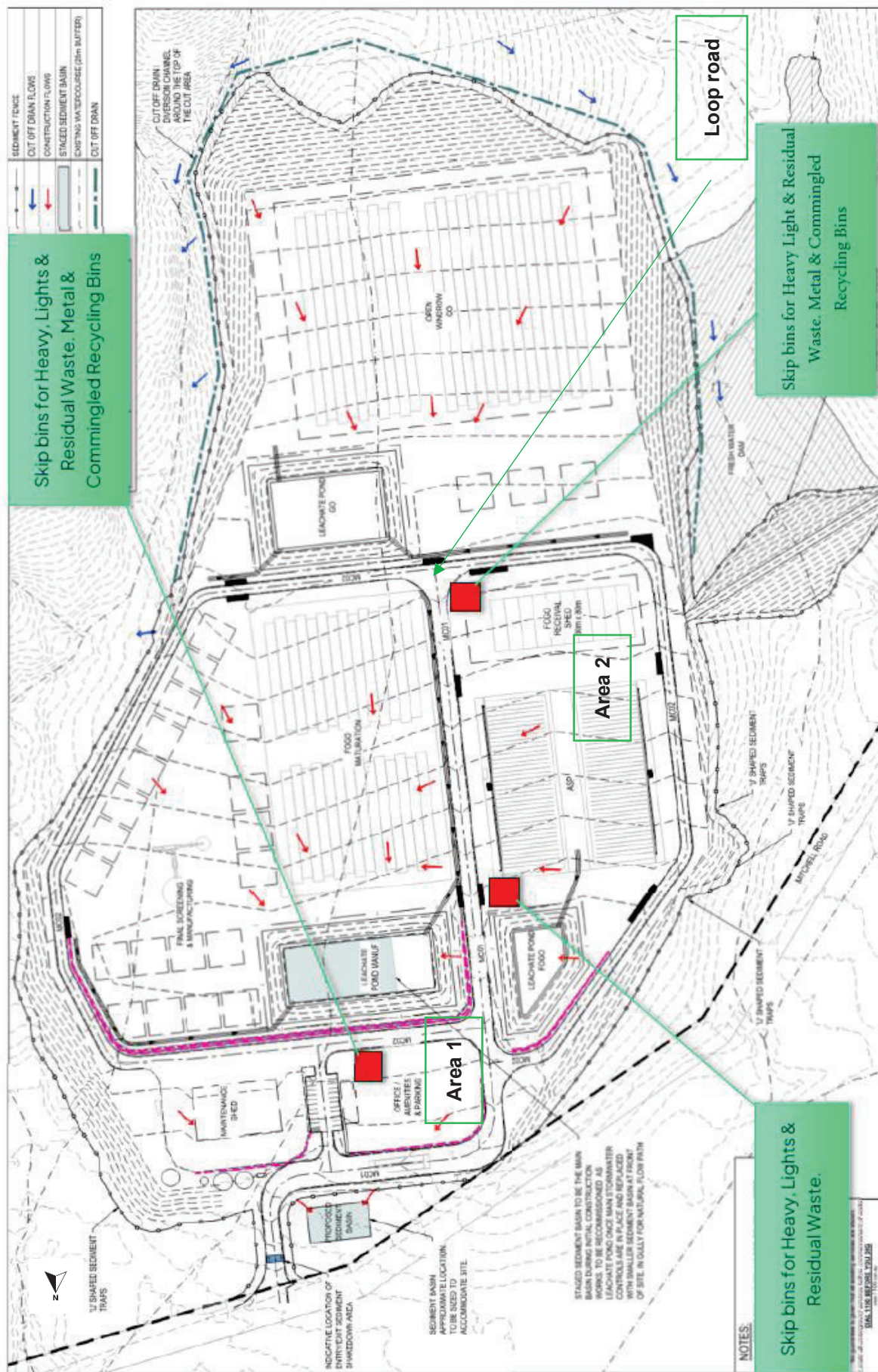


Figure 4.1 High level schematic of composting process and waste generation areas

4.2.2 Waste storage areas

The waste storage areas during construction and operational stages are identified in Figure 4.2 below and include:

- Area 1: Skips bins for heavy, light and residual waste. Metals and comingled recycling bins.
- Area 2 (near leachate pond): Skip bins for heavy, light and residual waste.
- Area 2: Skip bins for heavy, light and residual waste. Metal and comingled recycling bins.



4.2.3 Estimated waste volumes and servicing

The estimated quantity of waste generation associated with operation of the facility has been described in Table 4.2. Waste generated on the site will be stored in waste containers with sufficient capacity to store all waste generated on site. Where possible, waste will be segregated into general, co-mingled recyclables and regulated waste streams to maximise recovery. Table 4.2 outlines the storage containers proposed to be used for the wastes anticipated to be produced from the activities on the site.

Table 4.2 Estimated waste generation from operation of site infrastructure

Waste types	Estimated waste volume	Proposed container / Storage capacity	Storage location (refer to Figure 4.2)
Above ground weighbridge			
<i>No material waste streams expected to be generated.</i>			
Site office, amenities and parking area			
Paper/carboard	30L/day	1.5 m ³ front end lift recycling bins	Area 1 and 2
General waste	20L/day	1.5 m ³ front end lift general waste bins	
Food waste	N/A	1.5 m ³ front end lift general waste bins	
Amenities waste	N/A	Sanitary waste bins	Within amenity facilities
Receival building			
Contamination materials from sorting	30 tpw 14 tpw ferrous waste 56 tpw of light waste	1.5 m ³ general waste and recycling skips.	Area 1 and 2
Maintenance and storage shed			
Waste oil, petroleum and solvents	-	Stored in receptacles in a bunded area.	TBC

4.2.4 Waste collection

The entry and exit access of the site will be suitable for side-load, rear-load and front-load waste collection vehicles. Bins will be relocated from the receivals area to the loop road via forklift for the waste collection vehicles to access. Putrescible wastes will be stored in covered receptacles and emptied fortnightly, recyclable material receptacles will be serviced monthly and all other waste streams will be serviced as required³. A swept path analysis has been undertaken for a 26 m B-Double to confirm sufficient space is available to allow service vehicles to manoeuvre.

4.3 Potential environmental aspects and impacts

The potential environmental impacts associated with process inefficiency and mismanagement of waste streams include:

- Generation and or spread of contaminated waste/soil through inadequate collection and storage.
- Contamination of air, soil, surface water and or groundwater through the inappropriate storage, transport and disposal of waste.
- Excessive quantities of avoidable waste being disposed to waste facilities.
- Inappropriate disposal of waste through incorrect classification.
- Spread of insect pests, weed seeds and plant propagules, plant and animal pathogens during operation.

³ Response to RFI42 received 24/06/2024

Environmental mitigation and management measures to address these potential aspects and impacts are outlined in Section 5.

5. Environmental mitigation and management measures

5.1 Construction

Environmental measures and requirements to address waste management issues during construction are detailed in Table 5.1. All mitigation and management measures must comply with the requirements of the *Environmental Protection Act 1994* for any licensed and non-licensed waste activities that involve the storage, transport, treatment and or disposal of waste. Waste management during the construction of the facility is the responsibility of the Construction Contractor (yet to be awarded).

During construction, the following mitigation measures will be implemented to minimise waste generation and where possible, reuse and recovery of waste streams will be prioritised in line with the waste and resource management hierarchy defined in the *Waste Reduction and Recycling Act 2011*.

- Avoid – To be achieved through thorough planning and procurement of materials to prevent generation of waste.
- Reduce – To ensure that the correct amounts of materials are ordered, and packaging waste is minimised where possible, through bulk ordering of certain materials.
- Reuse – The green waste and soil surplus from earthworks generated on site will be stored and used for compost production when the CMF commences operation.
- Recycle – The waste produced that are eligible to be recycled such as concrete, timber, metal, and plastics will be segregated and transported to be recycled at an appropriately licensed facility. Organic waste that satisfies the acceptable feedstock requirements (Appendix A) will be composted at the CMF.
- Recover – Recovered materials will be sent to an appropriately licensed resource recovery facility.
- Treat – Any hazardous waste generated will be treated and transported by an appropriately licensed contractor to an appropriately licensed off site hazardous waste management facility.
- Dispose – Any non-recyclable residual waste generated will be removed and disposed of by an appropriately licensed contractor at an appropriately licensed off site facility.

Table 5.1 Waste management plan during construction

Key activities	Mitigation measure	Responsibility
Construction		
Material and resource selection and consumption during construction	– Educated planning will be implemented to efficiently manage the delivery and storage of materials, reducing spoilage of materials. – Agreements with suppliers to, where possible, use reusable or recyclable packaging in lieu of single use packaging. – Minimise procurement of excess material to reduce spoilage/waste.	Construction Manager

Key activities	Mitigation measure	Responsibility
General waste management activities	– The Waste Management Hierarchy of “avoid, reduce, reuse, recycle, recover, treat, dispose” will be followed to minimise and manage waste throughout site operations. – The Contractor will identify and maximise opportunities for supporting a circular economy that preferences waste avoidance and recycling of priority waste streams. – A site induction will be implemented for all site personnel, detailing their responsibilities under the relevant waste management legislation and guidelines in regard to the minimisation, classification, management and reporting of waste on-site, in accordance with this Plan. – Signs will be erected within the site to encourage employees to reduce, reuse or recycle where possible. – Whilst waste remains on-site, site personnel are responsible for the appropriate storage, transportation, reuse and recycling on-site using their equipment, as applicable. – Footpaths and road reserves on the site are to be maintained clear of rubbish, building materials and all other waste materials. – Implementation of street sweeping throughout the facility is recommended to collect any windblown waste before it can leave the facility or enter the environment.	Construction Manager
Waste/reuse materials handling	– If encountered or identified, hazardous waste shall be managed by appropriately qualified and licensed contractors in accordance with state legislation and this Plan. – Waste receptacles, both general and recycling, will be made available throughout the site to allow for waste segregation and replaced or emptied regularly to prevent overflow. – Liquid wastes are to be stored in appropriate containers in areas that are bunded. – Recyclable and non-recyclable wastes are to be stored in appropriate containers on-site until removed to an approved disposal or recycling facility. – All waste receptacles shall be covered and bunded where possible.	Construction Manager
Waste disposal	– Procedures will be implemented and maintained to verify licences and permits for the storage, handling, transportation and disposal of waste. All relevant information is to be recorded in a Waste Management Register. – Excess construction materials should be transported to construction and demolition (C&D) recycling facilities for recovery. – Septage from site amenities shall be directed to holding tanks and arrangements made for removal and disposal by a licensed contractor, unless a sewer connection is available.	Construction Manager
Performance criteria		
No material environmental impact on sensitive receptors.		
No complaints are received in relation to waste or litter generated from the facility.		
Litter is contained and segregated in the appropriate receptacles on the site.		
Monitoring		
Inspection of the CMF must be undertaken on a regular basis to ensure waste is stored, handled, transported and disposed of in accordance with regulations.		Construction Manager
Reporting		
Regular monitoring and inspection must be undertaken to ensure all practicable environmental management measures are being followed to minimise excess waste and energy consumption.		Construction Manager
A record of regular monitoring and inspection events shall be introduced and maintained for the entirety of construction.		Construction Manager

Key activities	Mitigation measure	Responsibility
	A Waste Management Register must be introduced and maintained until the actual completion date of construction activities which includes all waste inputs and outputs	Construction Manager
	A record of completed induction training of site personnel must be introduced and maintained for the entirety of construction activities.	Construction Manager
	Audits (both internal and external) must be undertaken to assess the effectiveness of environmental management measures, compliance with this Plan, and other relevant approvals, licences and guidelines.	Construction Manager
	All required reports shall be maintained for the entirety of construction activities in accordance with required licences and guidelines.	Construction Manager
Corrective actions		
	If loss of waste containment is a recurring issue, review bin locations and types.	Construction Manager
	Consider installation of shelters and prevailing winds.	Construction Manager
	Incident investigation of any complaints received, and appropriate mitigation measures installed or corrective actions implemented where applicable, and results recorded in a complaint register.	Construction Manager

5.2 Operations

Environmental measures and requirements to address waste management issues during operations are detailed in Table 5.2. All mitigation and management measures must comply with the requirements of the *Environmental Protection Act 1994* for any licensed and non-licensed waste activities that involve the storage, transport, treatment and/or disposal of waste.

Table 5.2 Waste management plan during operations

Key activities	Mitigation measure	Responsibility
Operations		
General waste management activities	– The Waste Management Hierarchy of “ avoid, reduce, reuse, recycle, recover, treat, dispose ” will be followed to minimise and manage waste throughout site operations. – SOILCO will identify and maximise opportunities for supporting a circular economy that preferences waste avoidance, reduction and recycling of priority waste streams. – A site induction will be implemented for all site personnel detailing their responsibilities under the relevant waste management legislation and guidelines in regard to the minimisation, classification, management and reporting of waste on-site in accordance with this Plan. – Signs will be erected within the site to encourage employees to reduce, reuse or recycle where possible. – Whilst waste remains on-site, site personnel are responsible for the appropriate storage, transportation, reuse and recycling on-site using their equipment, as applicable. – Footpaths and road reserves on the site are to be maintained clear of rubbish, building materials and all other waste materials. – Implementation of mechanical road sweeping throughout the facility is recommended to collect any windblown waste and remove accumulated organic material before it can leave the facility or enter the environment. – Litter is to be placed in available receptacles to prevent waste materials leaving the facility or entering the environment.	Plant Manager or Manager Responsible SOILCO’s staff and contractors
Waste/reuse materials handling	– If encountered or identified, hazardous waste shall be managed by appropriately qualified and licensed contractors in accordance with state legislation and this Plan. – All waste inputs and outputs will be entered into SOILCO’s database and recorded in SOILCO’s Waste Monthly Contribution Report on the Queensland Waste and Resource Reporting Portal. – Organic wastes (including feedstock listed in Appendix A) must be processed to ensure effective pasteurisation and segregation of pasteurised material from unpasteurised materials and/or leachate, in accordance with SOILCO’s composting procedures and operating protocols. – Waste receptacles, both general and recycling, shall be made available throughout the site and replaced or emptied regularly to prevent overflow. – Liquid wastes are to be stored in appropriate containers in areas that are bunded. – Recyclable and non-recyclable wastes are to be stored in appropriate containers on-site until removed to an approved recycling or disposal facility. – All waste receptacles shall be covered and bunded where possible.	Plant Manager or Manager Responsible

Key activities	Mitigation measure	Responsibility
Waste disposal	- Procedures will be implemented and maintained to verify licences and permits for the storage, handling, transportation and disposal of waste. All relevant information is to be recorded in a Waste Management Register. - Disposal of sewage from site amenities shall be directed to holding tanks and arrangements made for removal and disposal by a licenced contractor, unless a sewer is available.	Plant Manager or Manager Responsible SOILCO's staff and contractors
Performance criteria		
No material environmental impact on sensitive receptors. No complaints are received in relation to waste or litter generated from the facility. Litter is contained in the appropriate receptacles on the site.		
Monitoring		
Inspection of the CMF must be undertaken on a regular basis to ensure waste is stored, handled, transported and disposed of in accordance with regulations.		Plant Manager or Manager Responsible
Reporting		
Regular monitoring and inspection must be undertaken to ensure all practicable environmental management measures are being followed to minimise excess waste and energy consumption.		Plant Manager or Manager Responsible SOILCO's staff and contractors
A record of regular monitoring and inspection events shall be introduced and maintained for the entirety of site operations.		Plant Manager or Manager Responsible SOILCO's staff and contractors
A Waste Management Register must be introduced and maintained until the actual completion date of site operations which includes all waste inputs and outputs		Plant Manager or Manager Responsible SOILCO's staff and contractors
A record of completed induction training of site personnel must be introduced and maintained for the entirety of site operations.		Plant Manager or Manager Responsible SOILCO's staff and contractors
Audits (both internal and external) must be undertaken to assess the effectiveness of environmental management measures, compliance with this Plan, and other relevant approvals, licences and guidelines.		Plant Manager or Manager Responsible SOILCO's staff and contractors
All required reports shall be maintained for the entirety of site operations in accordance with required licences and guidelines including SOILCO's Waste Monthly Contribution Report on the Queensland Waste and Resource Reporting Portal.		Plant Manager or Manager Responsible SOILCO's staff and contractors
Corrective actions		
If loss of waste containment is a recurring issue, review bin locations and types.		Plant Manager or Manager Responsible
Consider installation of shelters and prevailing winds.		Plant Manager or Manager Responsible
Incident investigation of any complaints received, and appropriate mitigation measures installed or corrective actions implemented where applicable, and results recorded in a complaint register.		Plant Manager or Manager Responsible

6. Compliance management

6.1 Roles and responsibilities

The Construction Manager and the site Operations Manager will be responsible for ensuring the operation's ongoing compliance in regard to staff training, monitoring and inspections, auditing, record-keeping and reporting.

6.2 Training

All personnel, including employees, contractors and sub-contractors working on-site will undergo site induction training relating to waste management issues. The induction training will address the following elements:

- Assess and classify waste generated on-site.
- Waste/recycle storage requirements.
- Waste reporting requirements.
- Familiarisation with this Plan

Records of all training activities, including inductions, will be maintained. Records will include the name and role of the attendee, the name of the course and, where applicable, reference to the document-controlled version of the material presented, and a copy of the assessment completed.

6.3 Monitoring and inspections

Waste quantities, including hazardous materials, are monitored accordingly by operational staff and collection schedules are arranged as required. SOILCO managers are responsible for ensuring waste is managed in their operational areas in accordance with this Plan.

A waste management checklist provided by SOILCO's environmental team will guide waste management inspections carried out by SOILCO personnel.

SOILCO managers will conduct their own inspections on waste storage, treatment, and disposal to ensure compliance with procedures and this Plan. These facility inspections will be incorporated into existing workplace inspections and carried out by the relevant area personnel.

Additional requirements and responsibilities are documented in the Site Based Management Plan.

6.4 Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental management measures, compliance with this Plan, other relevant approvals, licences and guidelines.

6.5 Reporting

Reporting requirements include the following:

- Waste Management Register.

Additional reporting responsibilities are documented in the Site Based Management Plan.

7. Review and improvement

7.1 Continuous improvement

Continuous improvement of this Plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance.
- Determine the cause or causes of non-conformances and deficiencies.
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies.
- Document any changes in measures and procedures resulting from continuous improvement.
- Make comparisons between project objectives and targets.

7.2 Plan update and amendment

This Plan should be reviewed on an annual basis or more frequently, if required due to changes in relevant guidelines and or legislation.

Appendices

Appendix A

Acceptable feedstock

GHD has undertaken a review of potential feedstock types to be accepted at the facility with particular reference to *Best Practice Environmental Management Guideline ERA 53(a) – Organic material processing by composting* (DESI, 2024). It is important to note that feedstocks would be received and processed within the material processing building and that after this stage, all material will be well mixed and homogenised. Any feedstock with a higher odour risk rating would comprise a small fraction of the total and once mixed would have a much lower odour potential. The majority of all feedstocks accepted at the site will be green waste which has a low odour potential. The wastes to potentially be accepted and their corresponding odour rating are provided in Table 1.

No feedstock with a ‘very high’ odour rating will be accepted onsite. The only feedstocks with a ‘high’ rating accepted at the site are food organics for composting and small amounts of animal manure (up to 200 tonnes) for blending purposes only.

Table 1 *Odour rating of composting feedstock (ERA 53(a)) – Organic material processing by composting*

Feedstock	Examples	Odour rating	To be used at Bromelton CMF (y/n)
Abattoir waste	Meat processing leftovers, bone material, blood, tallow waste, abattoir waste including animal effluent and residues from meat processing, including abattoir effluent, liquid animal wastes (blood) and sludge	Very high	No
	Paunch material	High	No
Animal manure	Horse manure, chicken manure, cow manure, livestock manure, or any manure produced by animals, wastewater from holding yards	High	In small amounts for blending purposes only. No more than 200 tonnes onsite at any one time.
Animal waste and animal processing waste	Any dead animals or part/s of dead animals, remains of animals or part/s of remains of animals (e.g. chickens from poultry farms), egg waste, milk waste, mixtures of animal manure and animal bedding organics	Very high	No
Bark, lawn clippings, leaves, mulch, pruning waste, sawdust, shavings, woodchip and other waste from forest products	Cane and sorghum residues including bagasse, forest mulches, cypress chip, green waste, mill mud71, pine bark, sawmill residues non-treated (including sawdust, bark, wood chip, shavings etc.), tub ground mulch (from land clearing and forestry waste), peat, seed hulls/husks, straw, and other natural fibrous organics, wood chips (forestry waste and land clearing, household maintenance), wood waste (including untreated pallets, offcuts, boards, stumps and logs); worm castings suitable for unrestricted use	Low	Yes
Biosolids	Biosolids that are not stabilised biosolids	Very high	No
	Stabilised biosolids	Medium	Yes
Cardboard and paper waste	Paper mulch	Low	Yes
	Paper pulp effluent, paper sludge dewatered	Medium	Yes
Compostable polylactic acid (PLA) plastics	Compostable plastics produced in accordance with: (a) AS 4736:2006 (Biodegradable plastics) or the most recent or replaced version of that standard or	Low	Yes

Feedstock	Examples	Odour rating	To be used at Bromelton CMF (y/n)
	(b) AS 5810:2010 (Biodegradable plastics – Biodegradable plastics suitable for home composting) or the most recent or replaced version of that standard.		
Ammonium Nitrate, dewatered fertiliser sludge		High	No
A substance used for manufacturing fertiliser for agricultural, horticultural or garden use	Fertiliser water and fertiliser washings, stormwater from fertiliser manufacturing plants containing fertiliser washwater	Medium	No
Fish processing waste	Fish bones and other fish remains/leftovers, wastewater from fish processing	Very high	No
Food and food processing waste	Expired/past used by date non-protein-based food from supermarkets, expired beer, vegetable oil wastes and starches, vegetable waste, yeast waste, food processing effluent (wastewater) and solids (including sludges) from non-protein based food	Medium	Yes
	Food processing effluent (wastewater) and solids (including sludges) from protein-based food	Very high	No
	Food organics, expired/past used by date protein-based food from supermarkets, brewery and distillery effluent and waste	High	Yes
	Expired soft drinks, molasses waste, grain waste (hulls / waste grains), starch water waste, sugar and sugar solutions	Low	Yes
Grease trap waste	Oil and grease waste recovered from grease traps	Very high	No
Green waste	Leaves, grass clippings, prunings, tree branches from household maintenance	Low	Yes
Inorganic additives with beneficial properties	Bentonite	None	Yes
	Crusher dust	None	Yes
	Drilling muds (non-CSG and no additives)	None	No
	Gypsum	Medium	Yes
	Lime and lime slurry (inert)	None	Yes
Poultry processing waste	Feathers, meal and bone leftovers, egg waste including poultry processing poultry abattoir effluent and sludges	Very high	No
Soils	Acid sulfate soils and sludge	High	No
	Clean soil, clean mud, sand	None	Yes
Stormwater	Low level organically contaminated stormwaters or groundwaters (tested)	Low	No
Wood waste from untreated timber	Untreated pallets, offcuts, boards, stumps and logs, sawdust, shavings, timber offcuts, crates, wood packaging	Low	Yes
Mushroom compost and mushroom growing substrate		Medium	No



ghd.com

→ **The Power of Commitment**

Appendix I

**Traffic Impact Assessment for the
Construction phase**

21 August 2024

To	Jason Gaff	Contact No.	+61 7 33163931
Copy to	David Schumacher, Angela Harlen, Glenn Byrne, Emma Rothwell, Sarah Wilson, Prasanna Wijesinghe	Email	sham.handalagedon@ghd.com
From	Sham Handalage Don	Project No.	12626213
Project Name	Bromelton Compost Manufacturing Facility		
Subject	Construction traffic impact assessment		

1. Introduction

1.1 Background

The Bromelton Compost Manufacturing Facility (the Bromelton CMF Project) is an organics facility located along Mitchell Road in Bromelton, in South East Queensland. The Bromelton CMF Project will involve the construction and operation of a facility for the receipt, processing, composting, and storage of the following materials: garden, food, wood wastes, manures and soil for the sale and distribution of finished compost, mulch and soil products. SOILCO Pty Ltd (referred to as SOILCO) will design, construct and operate the Bromelton CMF Project.

This assessment encompasses the construction and operation of the Compost Manufacturing Facility, which is expected to receive, process, compost, and store approximately 250,000 tonnes per annum (tpa) of Garden organics (GO) and Food Organics & Garden Organics (FOGO), as well as 150,000 tpa of sand and soil products for manufacturing (Virgin Excavated Natural Materials or VENM). The Project is located at 260 Mitchell Road, Lot 4, Bromelton, Queensland, and will be accessed by a new priority-controlled intersection connecting Mitchell Road to Beaudesert Boonah Road.

The context of The Project and the surrounding road network is illustrated in Figure 1.

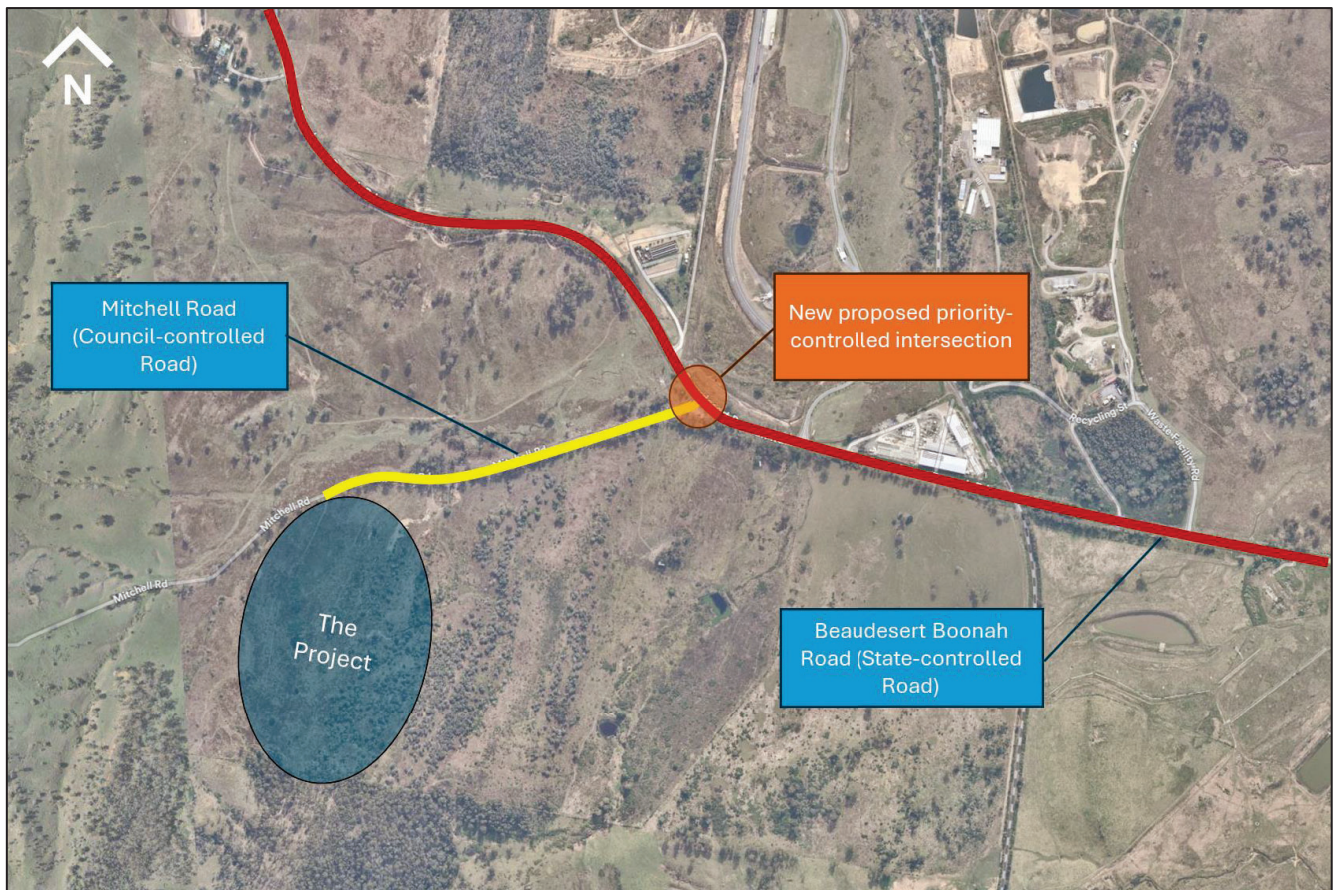


Figure 1 Surrounding road network (source:Nearmap)

1.2 Purpose of this memorandum

SOILCO has engaged GHD to prepare a construction stage traffic impact assessment for the proposed development to support the Development Application. For the purposes of the assessment, the construction stage is considered as the construction of the compost manufacturing facility only, and has excluded the traffic activities of the construction of the proposed Beaudesert Boonah Road / Mitchell Road.

This memorandum documents the findings from the impact assessment undertaken, the inputs considered, and the recommendations for future stages of the Project.

It is understood that a separate Traffic Impact Assessment, which focuses on the operational phases of the proposed development and the compliance of the internal site layout are being done by others.

1.3 Limitations

This technical memorandum has been prepared by GHD for SOILCO Pty Ltd. It is not prepared as, and is not represented to be, a deliverable suitable for reliance by any person for any purpose. It is not intended for circulation or incorporation into other documents. The matters discussed in this memorandum are limited to those specifically detailed in the memorandum and are subject to any limitations or assumptions specially set out.

Accessibility of documents

If this Technical Memorandum is required to be accessible in any other format this can be provided by GHD upon request and at an additional cost if necessary.

GHD has prepared this memorandum on the basis of information provided by the Client and others who provided information to GHD (which may also include Government authorities), which GHD has not independently verified or checked for the purpose of this memorandum. GHD does not accept liability in connection with such unverified information, including errors and omissions in the memorandum which were caused by errors or omissions in that information.

1.4 Assumptions

The following assumptions were relied upon in the preparation of the Traffic Impact Assessment (TIA):

- Background traffic volumes and growth rates are based on Department of Transport and Main Roads (TMR)'s traffic census data
- 20% of the construction traffic goes to and from the west of the site (i.e., Coulson direction), with the remaining 80% of traffic coming to and from the east of the site (i.e., Beaudesert direction)
- All light vehicles will enter the site during the AM peak hour and leave during the PM peak hour for a conservative assessment.
- The heavy vehicles will enter and exit the site throughout the day, based on a 6 AM to 6 PM working schedule.

2. Construction traffic impact assessment and mitigations

2.1 Analysis overview

The construction traffic impact assessment has followed the impact assessment criteria outlined under TMR's Guide to Traffic Impact Assessments (GTIA). The details of the impact assessment are as follows:

- Section 2.2 – assessment of existing traffic, and estimation of trip generation and distribution from the construction activities of the Project.
- Section 2.3 – assessment of the requirements for the access intersection.
- Section 2.4 – review of current road safety issues in the study area.
- Section 2.5 – assessment of traffic impacts on the capacity of the Beaudesert Boonah Road
- Section 2.6 – assessment of the intersection delay impacts on the existing traffic volumes along Beaudesert Boonah Road
- Section 2.7 – assessment of the pavement impacts from the introduction of heavy vehicles.

2.2 Forecast traffic demand estimation

2.2.1 Background traffic volumes

The background traffic has been based on the 2022 TMR AADT census data for Beaudesert Boonah Road, which provides the AADT of the light vehicles and heavy vehicles in both directions. To forecast these volumes for the construction year of 2026, the 10-year historical growth was calculated using the TMR Annual Average Daily Traffic (AADT) census data station '10012'. This found a yearly growth rate of 2.27% p.a. for the gazetted direction (towards Coulson), and a 2.25% p.a. growth rate for the against direction (towards Beaudesert).

The 2020 TMR AADT segment report (for station '10012') was also used to acquire the likely peak hourly volumes. As indicated in Figure 2, highest traffic demands are observed during midday, rather than the typical AM and PM peaks.

For the purposes of the assessment, a conservative 6% of the AADT has been assumed to be the makeup of both the AM and PM peak-hour traffic volumes, respectively.

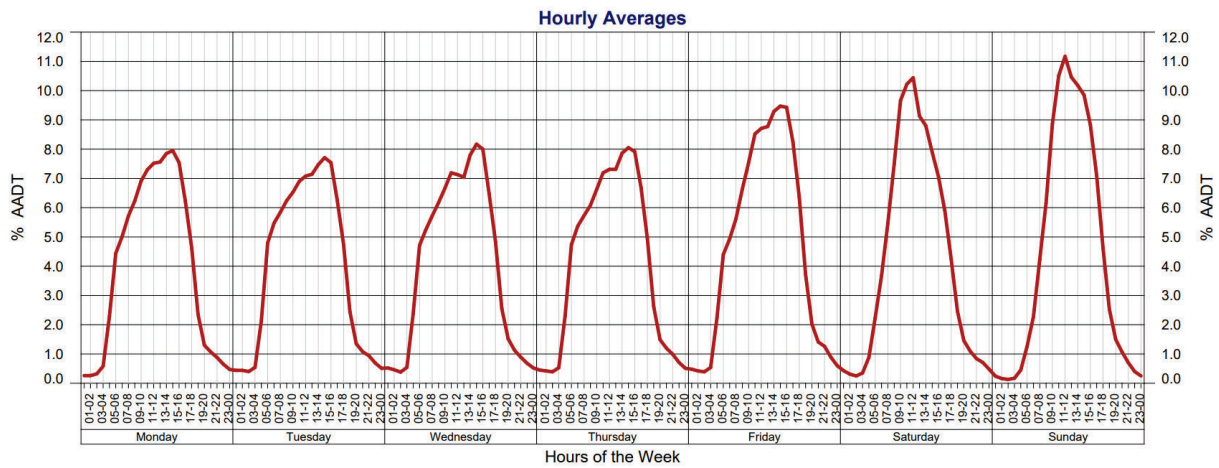


Figure 2 Hourly average of Beaudesert Boonah Road

2.2.2 Development trip generation – construction stage

The anticipated trip generation during construction stage of the proposed development is provided by SOILCO based on the likely construction activities and the program and illustrated in Figure 3.

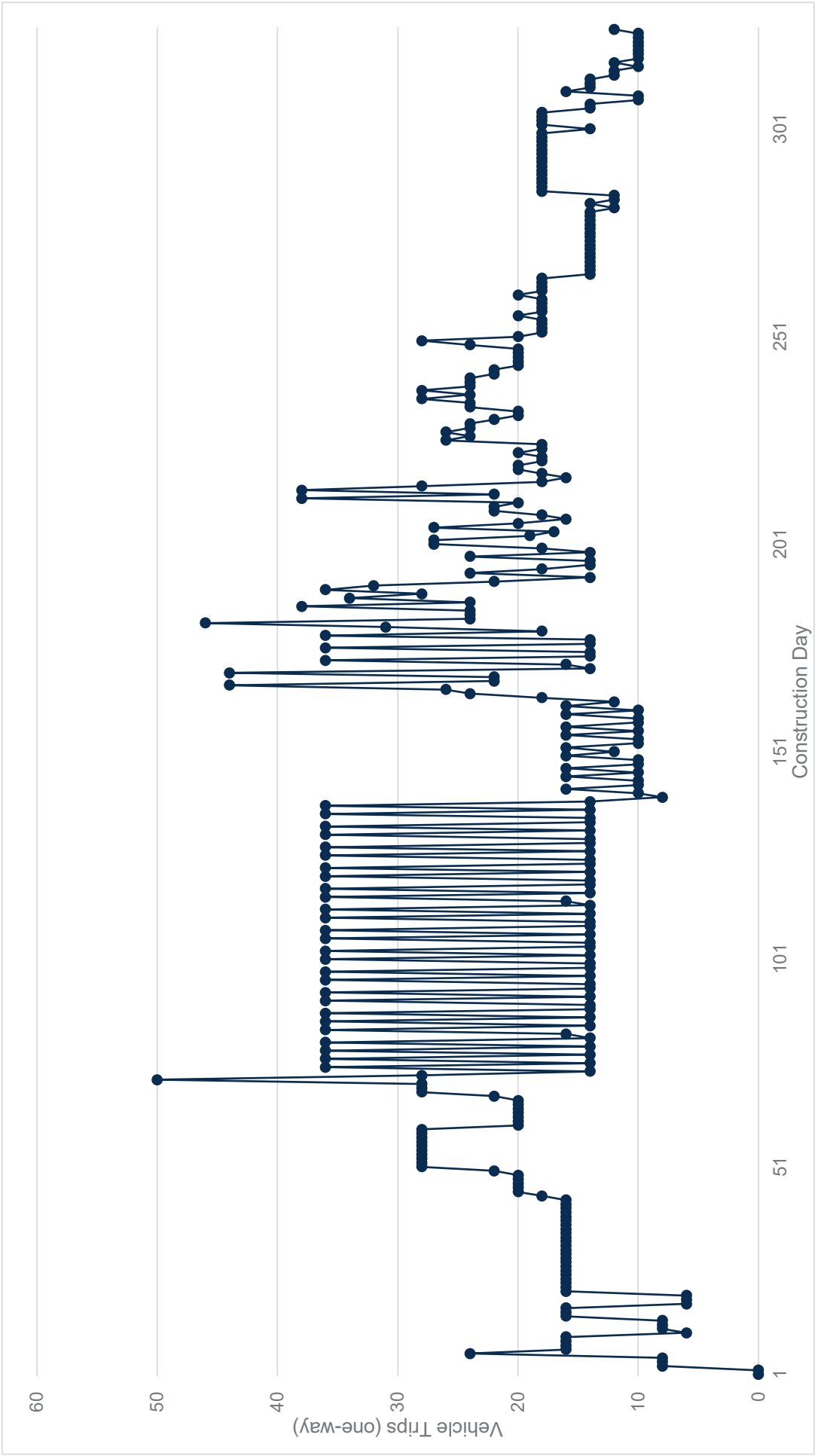


Figure 3 Daily construction trip generation

This Technical Memorandum is provided as an interim output under our agreement with SOILCO Pty Ltd. It is provided to foster discussion in relation to technical matters associated with the project and should not be relied upon in any way.

Based on the information available at the time of this analysis construction activities are expected to start in mid-2025, finishing in mid-2026. As shown in Figure 3, the daily traffic volume across the construction period is expected to vary greatly, however, for the purposes of this assessment, the peak day (rather than averaged annual daily traffic) was used for the purposes of a conservative assessment.

For the year of 2025, construction traffic peaks at 50 trips (into and out of the site), based on a total of 24 light vehicle trips, and 26 heavy vehicle trips. Another construction peak is also expected to occur in 2026, with a total of 46 vehicle trips comprising of 22 light vehicle and 24 heavy vehicle trips.

For the purposes of the peak hour assessment, all light vehicles are assumed to arrive in the AM peak hour and leave in the PM peak hour, whereas heavy vehicle traffic is assumed to be spread out over the day from 6am to 6pm.

2.2.3 Development trip distribution

As the details of construction contractors and locations have yet to be finalised at this stage, for a conservative estimate, the assignment of trips from the site onto the surrounding road network has been assumed to be 80% to and from Beaudesert, and 20% to and from the Coulson direction.

This recognises the main trip generator of Beaudesert (due to its size and proximity) however allows for some account of traffic from the Coulson direction for the potential traffic originating from other townships such as Bonnah and Ipswich.

2.2.4 Design traffic volumes

The overall design traffic volumes for assessment were calculated by adding the forecast background traffic demand to the development-generated demand. The following design traffic scenarios have been analysed:

- Peak construction year (2025) with and without development traffic
- Peak construction year (2026) with and without development traffic.

The expected traffic generation from the development during the construction years is outlined in Figure 4 to Figure 7, noting the bold & italicised values are the expected heavy vehicle movements.

2025 Dev Volumes - AM Peak					
Mitchell Road					
0	0	L	0	21	
1	0	R	2	93	
			R	T	
	L	T			
	10	90			
	1	21			
Beaudesert Boonah Road					

Figure 4 2025 Development traffic – AM Peak hour

2025 Dev Volumes - PM Peak					
Mitchell Road					
0	2	L	0	21	
1	10	R	0	93	
			R	T	
	L	T			
	0	90			
	1	21			
Beaudesert Boonah Road					

Figure 5 2025 Development traffic – PM Peak hour

2026 Dev Volumes - AM Peak					
Mitchell Road					
0	0	L	0	22	
1	0	R	2	95	
			R	T	
	L	T			
	9	92			
	1	22			
Beaudesert Boonah Road					

Figure 6 2026 Development traffic – AM Peak hour

2026 Dev Volumes - PM Peak					
Mitchell Road					
0	2	L	0	22	
1	9	R	0	95	
			R	T	
	L	T			
	0	92			
	1	22			
Beaudesert Boonah Road					

Figure 7 2026 Development traffic – PM Peak hour

2.3 Access and frontage impact assessment

While it is understood that the design of the Beaudesert Boonah Road / Mitchell Road intersection is being done by others, an assessment of the proposed intersection form against the forecast traffic during the peak construction period in 2025 and 2026 was conducted to confirm that the proposed development will not negatively impact the operation and safety of the state-controlled road of Beaudesert Boonah Road. This was done through a site visit and SIDRA intersection modelling.

2.3.1 Site inspection

A site inspection at the proposed Beaudesert Boonah Road / Mitchell Road intersection was conducted on the 26 June 2024. The site inspection aimed to provide some high level findings of potential impacts to the management of construction traffic that may not be able to be captured through a desktop review alone.

2.3.1.1 Sight distance check

A check on the available sight distance for vehicles turning left and right out of Mitchell Road into Beaudesert Boonah Road was conducted, with the typical viewing angles and distances illustrated below in Figure 8 and Figure 9.



Figure 8 *View to the left (from proposed Beaudesert Boonah Road / Mitchell Road intersection)*



Figure 9 View to the right (from proposed Beaudesert Boonah Road / Mitchell Road intersection)

Based on a design speed of 110km/h, a minimum sight distance of 285m is required. This is likely achieved when looking to the left (i.e., the north), and appears to be achieved when looking to the right (i.e., south). It is noted that the existing foliage are found to obscure (and thus reduce) sight lines to the right, and it is recommended as part of the detailed design and compliance checks of the proposed intersection, that detailed sight distance assessments are conducted to confirm adequacy.

2.3.2 SIDRA Intersection modelling

While it is understood that the site is not accessed directly off a state-controlled road, the proposed site is understood to utilise a new intersection on Beaudesert Boonah Road. An assessment of the proposed intersection form against the forecast traffic during the peak construction period in 2025 and 2026 was conducted to confirm that the proposed development will not negatively impact the operation and safety of the state-controlled road of Beaudesert Boonah Road.

Figure 10 shows the proposed intersection layout modelled under the SIDRA intersection modelling software.

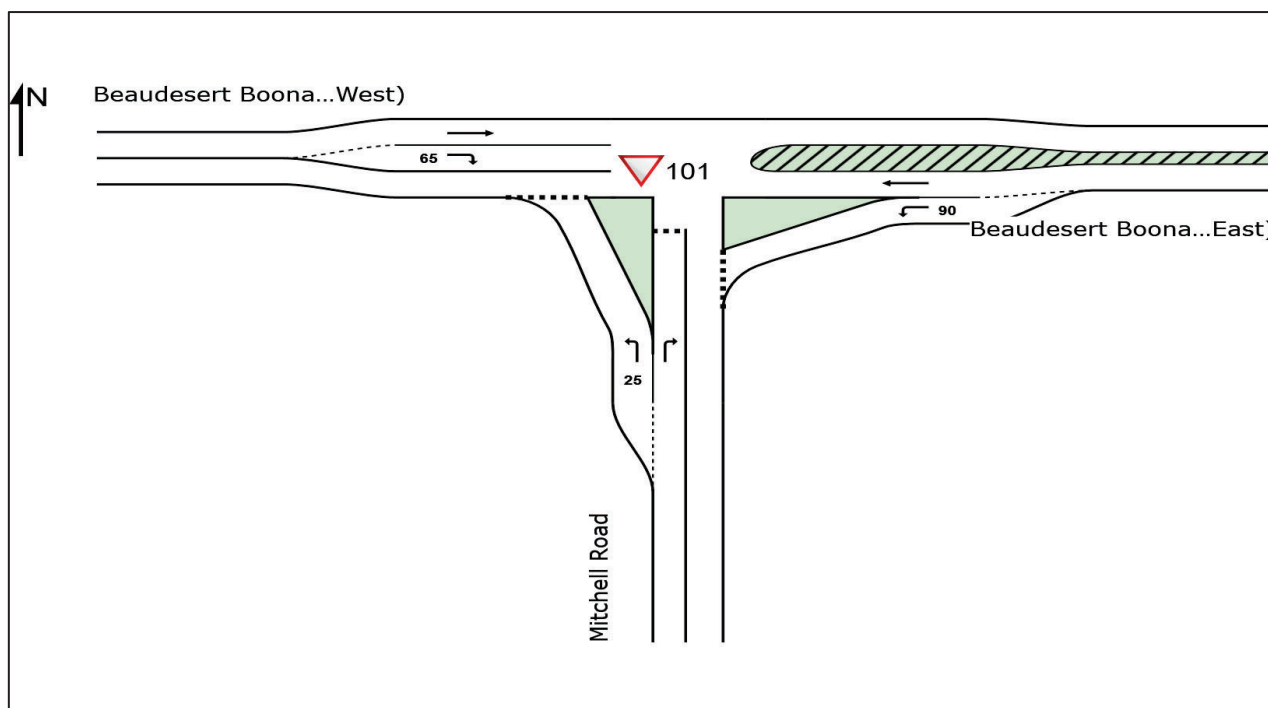


Figure 10 Proposed Beaudesert Boonah Road / Mitchell Road intersection

Table 1 summarises the intersection performance of the Bruce Highway / Dowling Road intersection for the design scenarios outlined. Refer to Attachment 1 for detailed SIDRA output reports of the access intersection analysis.

Table 1 Intersection performance

Design year	Scenario	Approach	DOS	Delay* (sec)	LOS*	95 th percentile queue (m)
2025 Construction Peak	AM	South	0.00	10	A	0
		East	0.07	9	A	0
		West	0.07	8	A	0
	PM	South	0.01	7	A	0
		East	0.07	11	B	0
		West	0.07	8	A	0
2026 Construction Peak	AM	South	0.01	10	B	0
		East	0.07	9	A	0
		West	0.07	8	A	0
	PM	South	0.01	7	A	0
		East	0.07	11	B	0
		West	0.07	8	A	0

*Worst movement for the particular approach of the intersection

From the results in Table 1, the proposed intersection form is expected to adequately cater to the construction traffic demands and forecast 2025 and 2026 background traffic volumes.

2.4 Road safety impact assessment

A road safety impact assessment has been carried out to determine if there is likely to be any significant change to the level of road safety risk on the surrounding road network attributable to the Project. The desired outcome is to

ensure no significant worsening of road safety at any location on the network as a result of the Project. "Significantly worsened" is defined within the *Guide to Traffic Impact Assessment* (GTIA) as a change to the level of safety risk.

In order to achieve the desired outcomes for safety, the road safety assessment process involved:

- Identifying the current safety risks relevant to the development impact assessment area.
- Identifying the likely new risks or modified risks resulting from the proposed development and the relevant road environment, including the safety risk rating.
- Recommending management and mitigation works to ensure the existing safety risk rating for the road is not worsened as a result of the Project and that any unacceptable safety risk is addressed.

The safety risks for all road users were identified and scored in accordance with the GTIA risk scoring matrix, as shown in Figure 11.

		Potential consequence				
		Property only (1)	Minor injury (2)	Medical treatment (3)	Hospitalisation (4)	Fatality (5)
Potential likelihood	Almost certain (5)	M	M	H	H	H
	Likely (4)	M	M	M	H	H
	Moderate (3)	L	M	M	M	H
	Unlikely (2)	L	L	M	M	M
	Rare (1)	L	L	L	M	M

L: Low risk
 M: Medium risk
 H: High risk

Figure 11 Safety risk score matrix

The findings from the road safety assessment are summarised in Table 2.

Table 2 Road safety assessment findings

Review finding	Pre-development			With development			Mitigation measures	With development and mitigations		
	Likelihood	Consequence	Risk score	Likelihood	Consequence	Risk score		Likelihood	Consequence	Risk score
Beaudesert Boonah Road north of the site features little to no clear zones and unrecoverable slopes. This results in a more unforgiving roadside environment.	2	3	M	3	3	M	No change in the risk score, however it is recommended to investigate the possibility of installing road side audio tactile line marking.			
There is no road lighting provided along Beaudesert Boonah Road, north of the SCT Logistics access intersection. This may present the risk of crashes during nighttime. While it is understood that construction is mainly limited to 6am to 6pm, the shoulder periods of this time period may have low light conditions.	2	3	M	3	3	M	No change in the risk score, however it is recommended to undertake a lighting warrant assessment as part of the development to demonstrate the requirement of street lighting along the site frontage.			
Unprotected power poles and mature trees exists along run-off area of Beaudesert Boonah Road. These point hazards may worsen the severity of run-off road type crashes.	2	4	M	3	4	M	No change in the risk score. These are not uncommon in rural road networks and the low trip generation during the Construction Stage is not expected to worsen the risks. As such, no particular mitigations are required.			
Several unprotected culverts have been identified along Beaudesert Boonah Road. While the potential vertical drop of any vehicles across the culvert is low, any potential incidents may be more severe as a result.	2	3	M	3	3	M	No change in the risk score, however it is recommended to investigate the requirement of upgrading the culvert to provide protection against errant vehicles.			

This Technical Memorandum is provided as an interim output under our agreement with SOILCO Pty Ltd. It is provided to foster discussion in relation to technical matters associated with the project and should not be relied upon in any way.

2.5 Road link capacity assessment

Table 3 outlines the expected traffic volume increase on the sections of the Beaudesert Boonah Road link as a result of the proposed construction traffic.

Table 3 Road link capacity assessment

Description	Beaudesert Boonah Road (both directions)	
	2025 scenario year	2026 scenario year
2022 AADT	3,500 vpd	3,500 vpd
Forecast AADT	3,743 vpd	3,827 vpd
Construction traffic	50 vpd	48 vpd
% Increase	1.3%	1.3%

The findings from the road link capacity assessment shows that the development is only expected to increase the typical AADT on Beaudesert Boonah Road by less than 1.3% for both the 2025 and 2026 construction year. This minimal increase is not expected to have any material worsening on the operational capacity of the state-controlled road link, with no worsening of the level of service along the links expected. As such impacts considered negligible.

2.6 Intersection delay impact assessment

As per GTIA, the impacts to adjacent intersections (excluding development access intersections) where the development traffic exceeds 5% of the base traffic for any movement in the design peak periods in the year of opening must be quantified.

Based on peak hour volumes, for the construction year of 2025, the construction traffic is expected to introduce result in an approximately 9.5% and 9.2% increase in peak hour volume traffic on the Beaudesert Boonah Road south of Mitchell Road for the AM and PM peaks respectively, and only an approximately 2.3% and 2.4% north of Mitchell Road in the AM and PM peaks respectively.

For the construction year of 2026, the construction traffic is expected to introduce result in an approximately 8.5% and 8.2% increase in peak volume traffic on the Beaudesert Boonah Road south of Mitchell Road for the AM and PM peaks respectively, and only an approximately 2.1% and 2.1% north of Mitchell Road in the AM and PM peaks respectively.

While both years trigger the 5% impact rule, it is noted that the baseline traffic is very low, with the existing base movements in the surrounding road network, typically being through movements with priority. Based on this, no material increase in delay is expected on the mainline movements along Beaudesert Boonah Road. As a result, no material delay impact is expected as a result of the introduction of the construction traffic.

2.7 Pavement impact assessment

The heavy vehicle trip generation has been based on the average daily trip generation during the calendar years of 2025 and 2026. Based on the information provided by SOILCO, an average daily heavy vehicle trip generation of 6 vehicle trips (i.e., 3 vehicles into the site, 3 vehicles out of the site) is expected to occur in 2025 and 2026.

Based on a forecast of TMR's AADT data, heavy vehicle volumes for 2025 are expected to be 705 (in both directions), and 721 vehicles in 2026 (both directions).

For both periods, this accounts for less than a 1% increase in heavy vehicle traffic. As a result, no significant impact on the state road pavements expected.

3. Summary

The assessment of the proposed construction traffic has found:

- The proposed intersection upgrade at Beaudesert Boonah Road / Mitchell Road is able to sufficiently cater for the proposed construction traffic, with acceptable levels of service, queueing and delays expected in both 2025 and 2026.
- The safety of motorists is not expected to worsen due to the introduction of construction traffic. While some safety issues have been identified within the study area, the risks associated with these are not expected to significantly worsen (change in overall risk rating) due to the additional trips generated by the construction stage of the proposed development.
- Construction traffic is not expected to impact the road link capacity of Beaudesert Boonah Road, with acceptable levels of service expected for traffic in both construction years.
- While construction traffic is expected to exceed 5% increases no material increase in delay is expected on the mainline movements along Beaudesert Boonah Road. As a result, no material delay impact is expected as a result of the introduction of the construction traffic.
- The average daily heavy vehicle trip generation during the construction stage of the development does not trigger the 5% threshold in which mitigation measures are required for both years.

Regards

Sham Handalage Don
Business Group Leader – Integrated Transport Planning

Attachments

Attachment 1

SIDRA Movement Summaries

USER REPORT FOR SITE

 Project: 12626213-Construction Traffic Impact SIDRA

Output produced by SIDRA INTERSECTION Version: 9.1.1.200

Template: Default Site User Report

 Site: 101 [Beaudesert Boonah Road / Mitchell Road - 2025 AM Peak (Site Folder: General)]

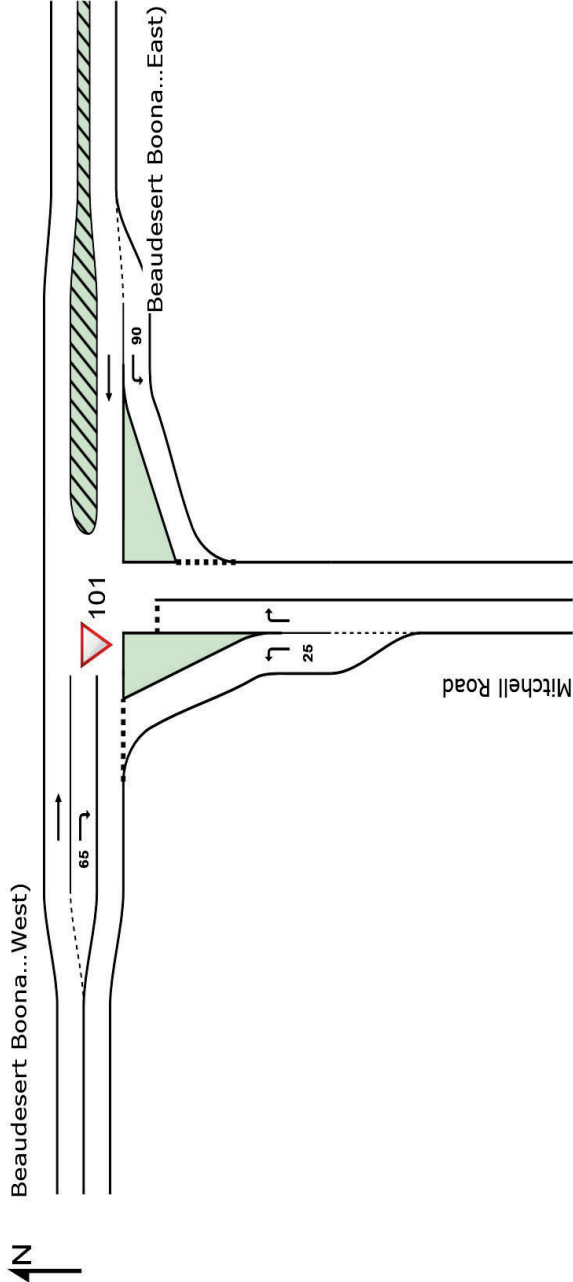
New Site

Site Category: (None)

Give-Way (Two-Way)

Site Layout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



Vehicle Movement Performance														
Mov ID	Turn	Mov Class	Demand Flows [Total HV]		Arrival Flows [Total HV]		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue [Veh. Dist]	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
			veh/h	%	veh/h	%	v/c	sec		veh	m			
South: Mitchell Road														
1	L2	All MCs	1	0.0	1	0.0	0.001	5.9	LOSA	0.0	0.0	0.21	0.49	60.8
3	R2	All MCs	1	100.0	1	100.0	0.002	10.0	LOSA	0.0	0.1	0.45	0.55	45.0
Approach			2	50.0	2	50.0	0.002	8.0	LOSA	0.0	0.1	0.33	0.52	51.8
East: Beaudesert Boonah Road (East)														
4	L2	All MCs	12	9.1	12	9.1	0.007	8.6	LOSA	0.0	0.2	0.02	0.63	61.4
5	T1	All MCs	117	18.9	117	18.9	0.067	0.0	LOSA	0.0	0.0	0.00	0.00	100.0
Approach			128	18.0	128	18.0	0.067	0.8	LOSA	0.0	0.2	0.00	0.06	94.6
West: Beaudesert Boonah Road (West)														
11	T1	All MCs	120	18.4	120	18.4	0.068	0.0	LOSA	0.0	0.0	0.00	0.00	100.0
12	R2	All MCs	2	0.0	2	0.0	0.001	8.1	LOSA	0.0	0.0	0.23	0.58	61.0
Approach			122	18.1	122	18.1	0.068	0.1	NA	0.0	0.0	0.00	0.01	98.9
All Vehicles			253	18.3	253	18.3	0.068	0.5	NA	0.0	0.2	0.01	0.04	95.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

		veh/h	%	veh/h	%	v/c	sec	veh	m	km/h			
South: Mitchell Road													
1	L2	All MCs	2	0.0	2	0.0	0.001	5.9	0.0	0.21	0.50	0.21	60.8
3	R2	All MCs	12	9.1	12	9.1	0.014	7.2	0.1	0.37	0.57	0.37	57.5
Approach			14	7.7	14	7.7	0.014	7.0	0.1	0.35	0.56	0.35	58.0
East: Beaudesert Boonah Road (East)													
4	L2	All MCs	1	100.0	1	100.0	0.001	10.8	0.0	0.02	0.62	0.02	55.1
5	T1	All MCs	117	18.9	117	18.9	0.067	0.0	0.0	0.00	0.00	0.00	100.0
Approach			118	19.6	118	19.6	0.067	0.1	0.0	0.00	0.01	0.00	99.2
West: Beaudesert Boonah Road (West)													
11	T1	All MCs	120	18.4	120	18.4	0.068	0.0	0.0	0.00	0.00	0.00	100.0
12	R2	All MCs	1	0.0	1	0.0	0.001	8.1	0.0	0.23	0.57	0.23	61.0
Approach			121	18.3	121	18.3	0.068	0.1	0.0	0.00	0.00	0.00	99.4
All Vehicles			253	18.3	253	18.3	0.068	0.5	0.1	0.4	0.02	0.02	95.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

		veh/h	%	veh/h	%	v/c	sec	veh	m	km/h				
South: Mitchell Road														
1	L2	All MCs	1	0.0	1	0.0	0.001	5.9	LOSA	0.0	0.22	0.49	0.22	60.8
3	R2	All MCs	1	100.0	1	100.0	0.002	10.1	LOS B	0.0	0.1	0.45	0.55	45.0
Approach			2	50.0	2	50.0	0.002	8.0	LOSA	0.0	0.1	0.33	0.52	51.7
East: Beaudesert Boonah Road (East)														
4	L2	All MCs	11	10.0	11	10.0	0.007	8.6	LOSA	0.0	0.2	0.02	0.63	61.4
5	T1	All MCs	120	19.3	120	19.3	0.069	0.0	LOSA	0.0	0.0	0.00	0.00	100.0
Approach			131	18.5	131	18.5	0.069	0.7	LOSA	0.0	0.2	0.00	0.05	95.1
West: Beaudesert Boonah Road (West)														
11	T1	All MCs	123	18.8	123	18.8	0.070	0.0	LOSA	0.0	0.0	0.00	0.00	100.0
12	R2	All MCs	2	0.0	2	0.0	0.001	8.1	LOSA	0.0	0.0	0.23	0.58	61.0
Approach			125	18.5	125	18.5	0.070	0.1	NA	0.0	0.0	0.00	0.01	98.9
All Vehicles			258	18.8	258	18.8	0.070	0.5	NA	0.0	0.2	0.01	0.03	96.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

		veh/h	%	veh/h	%	v/c	sec	veh	m	km/h				
South: Mitchell Road														
1	L2	All MCs	2	0.0	2	0.0	0.001	6.0	LOSA	0.0	0.22	0.50	0.22	60.8
3	R2	All MCs	11	10.0	11	10.0	0.013	7.3	LOSA	0.0	0.4	0.38	0.57	57.3
Approach			13	8.3	13	8.3	0.013	7.1	LOSA	0.0	0.4	0.35	0.56	57.9
East: Beaudesert Boonah Road (East)														
4	L2	All MCs	1	100.0	1	100.0	0.001	10.8	LOS B	0.0	0.0	0.02	0.62	55.1
5	T1	All MCs	120	19.3	120	19.3	0.069	0.0	LOSA	0.0	0.0	0.00	0.00	100.0
Approach			121	20.0	121	20.0	0.069	0.1	LOSA	0.0	0.0	0.00	0.01	99.3
West: Beaudesert Boonah Road (West)														
11	T1	All MCs	123	18.8	123	18.8	0.070	0.0	LOSA	0.0	0.0	0.00	0.00	100.0
12	R2	All MCs	1	0.0	1	0.0	0.001	8.1	LOSA	0.0	0.0	0.23	0.57	61.0
Approach			124	18.6	124	18.6	0.070	0.1	NA	0.0	0.0	0.00	0.00	99.4
All Vehicles			258	18.8	258	18.8	0.070	0.4	NA	0.0	0.4	0.02	0.03	96.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Appendix J

Traffic Impact Assessment for the Operational phase



ENGINEERS
MANAGERS
SCIENTISTS

Proposed Organics Processing and Clean Energy Facility

Mitchell Road, Bromelton

For SoilCo Developments Pty Ltd

Table of Contents

1.	Introduction.....	4
2.	Context of the Development Site	5
2.1	Development Site	5
2.2	Existing Road Network	6
2.3	Active Transport Facilities	7
2.4	Public Transport Services	7
2.5	Future Infrastructure Upgrades.....	8
2.6	Crash History.....	8
3.	Details of the Proposed Development	9
3.1	Proposed Development.....	9
3.2	Access.....	9
3.3	Servicing Arrangement	9
3.4	Car Parking Requirements	9
3.5	Road Network Upgrades	10
4.	Impact Assessment	11
4.1	Background Traffic	11
4.2	Trip Generation.....	12
4.3	Trip Distribution.....	13
4.4	Development Traffic.....	13
4.5	Design Traffic	13
4.6	Intersection Analysis	13
4.7	Net Delay Assessment	16
4.8	Turn Lane Warrant Assessment	16
4.9	Road Link Capacity Assessment	17
4.10	Risk Assessment	18
5.	Summary	19
	Appendix A – Preliminary Site Layout	20
	Appendix B – Beaudesert-Boonah Road / Mitchell Road Intersection Form	21
	Appendix C – Traffic Movement Diagrams	22
	Appendix D – SIDRA Intersection Results	23
	Appendix E – Swept Path Assessment	24

Revision	Date	Description	Author	Verifier	Approver
Draft	28/11/2023	Draft	KC	AG	
RevA	10/01/2024	Final	KC	AG	AG
RevB	16/07/2024	Final – updated year of opening	KC	AG	AG

1. Introduction

Lambert & Rehbein (SEQ) Pty Ltd has been commissioned by SoilCo Developments Pty Ltd to prepare a Traffic Impact Assessment (TIA) in support of the proposed development located on Mitchell Road, Bromelton, more formally described as Lot 4 RP85497. The development site has a total site area of approximately 119.6ha.

The proposed development is for a large-scale organics processing and clean energy facility that will include a compost facility, freshwater dam, leachate ponds, storage areas and a weighbridge. The preliminary proposed site layout is attached in **Appendix A**.

The report includes an assessment of the potential impact that the development could have on the surrounding road network and is set out as follows:

Section 2 discusses the existing land use and traffic arrangements in the vicinity of the proposed development site.

Section 3 provides details of the proposed development, including access arrangements.

Section 4 displays the calculations and assumptions used to establish the forecast generation of the proposed development traffic as well as assessment of the external road network.

Section 5 summarises the key outcomes of the traffic investigations.

Lambert & Rehbein has derived the data in this report primarily from the data provided by the Client, and a desktop site investigation.

This report has been prepared on behalf of and for the exclusive use of the Client and is subject to and issued in connection with the provisions of the agreement between Lambert & Rehbein and the Client. Lambert & Rehbein accepts no liability or responsibility whatsoever for or in respect of any use of or reliance upon this report by any third party.

2. Context of the Development Site

This section of the report describes the context of the proposed development and includes a description of the existing road network, adjacent land uses, and existing active and public transport facilities servicing the site.

2.1 Development Site

The development site is located on Mitchell Road, Bromelton, more formally described as Lot 4 on RP85497, with a total site area of approximately 119.6ha, within the Scenic Rim Regional Council area. The site is currently used for grazing and houses ancillary buildings, gaining access to the external road network via Mitchell Road that is currently unformed. Mitchell Road connects with Beaudesert-Boonah Road at the sites northern corner.

The development site is currently zoned as 'Special Industry Precinct' under the Bromelton State Development Area (BSDA) Development Scheme, December 2017. The site is immediately surrounded by Transition Precinct to the north-west, west and south-west. Special Industry Precinct zones are located to the south and east. A 'Bromelton Local Service Centre Precinct' is located to the north of the site.

Figure 2-1 shows the proposed development site in the context of the surrounding road network and the linkages to the broader network.



Figure 2-1 Development Site Location (Source: Queensland Globe)

2.2 Existing Road Network

Inspection of the land use, road condition, intersection characteristics, public transport facilities, pedestrian access, and cyclist provisions surrounding the proposed development site have been undertaken in preparation of this traffic assessment. This was completed to collect information about the road network operation, safety characteristics, public transport network and specific network / land-use factors potentially of influence on the proposed development.

2.2.1 Beaudesert-Boonah Road

The development site currently gains access to Beaudesert-Boonah Road, which is classified as a State-controlled road under jurisdiction of the Department of Transport and Main Roads (DTMR). The general form of Beaudesert-Boonah Road is shown in **Figure 2-2** and was observed to have the following characteristics at the site frontage:

- Two-way, two-lane road;
- No kerb and channel on either side of the road;
- A seal width of approximately 9.2m;
- No parking available on either side of the carriageway;
- No dedicated cycle lanes provided on either side of the road;
- No paved pedestrian footpaths provided; and
- Posted speed limit of 100 km/h.



Figure 2-2 Beaudesert-Boonah Road (Source: Nearmap)

2.2.2 Mitchell Road

Mitchell Road is an unformed road under the jurisdiction of Scenic Rim Regional Council (SRRC). The general form is shown in **Figure 2-3** and was observed to have the following characteristics at the site frontage:

- Two-way, unformed road;
- A short section of seal of approximately 50m x 7m connecting with Beaudesert-Boonah Road; and
- No posted speed limit.



Figure 2-3 Mitchell Road (Source: Nearmap)

2.3 Active Transport Facilities

There are no active transport facilities in the vicinity of the site. Beaudesert-Boonah Road and Mitchell Road does not provide active transport facilities.

2.4 Public Transport Services

The development site is not within a typical 400m walking catchment of any public transport services. The nearest bus stop is approximately 7.7km from the site on Bromelton Street, Beaudesert.

2.5 Future Infrastructure Upgrades

A review of SRRC's *Local Government Infrastructure Plan* (LGIP), DTMR's *Queensland Transport and Roads Investment Program 2022/23-2025/26* (QTRIP) and Queensland Government's *Development Assessment Mapping System* (DAMS) was undertaken to identify future transport infrastructure upgrades within close proximity of the site. As shown in **Figure 2-4**, Beaudesert-Boonah Road, between the 7km mark at the railway bridge and Bromelton House Road shows planned works. The scope and timing of these works is not provided within QTRIP.

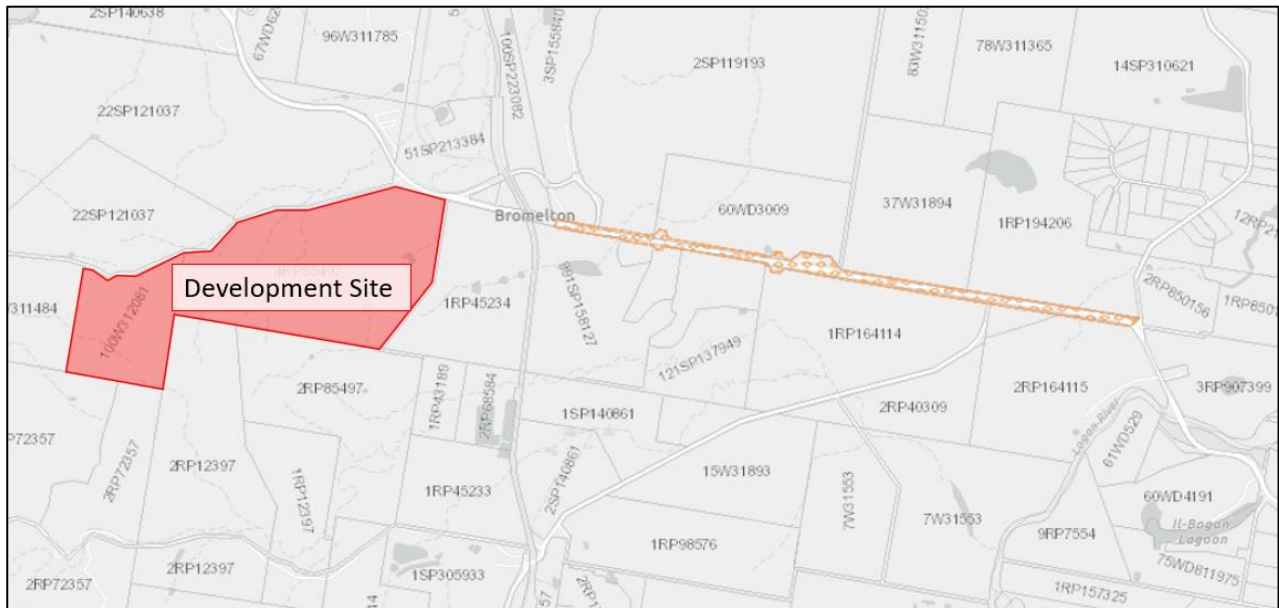


Figure 2-4 Future Infrastructure Upgrades (DAMS)

2.6 Crash History

An investigation of road crash history in the immediate vicinity of the subject site has been undertaken using publicly available crash data from the Queensland Government's mapping service *Queensland Globe*. A review of crash data found no crashes along the site's frontage on Beaudesert-Boonah Road in the last five (5) years. As such, there have not been crash incidents to identify any trend that could be exacerbated by the introduction of development traffic along the road frontage.

3. Details of the Proposed Development

This section of the report describes the nature of the proposed development and provides a review of the proposed access location and form. Traffic engineering matters related to the internal site layout including, parking, and servicing have not been included as part of this assessment.

3.1 Proposed Development

The proposed development is a large-scale organics processing and clean energy facility that will include a compost facility, freshwater dam, leachate ponds, storage areas and a weighbridge. The site will have 15 staff on site during normal operations including five (5) truck drivers, two (2) office staff, one (1) maintenance staff and seven (7) site operations staff. The preliminary proposed site layout is attached in **Appendix A**. It is understood that this will be refined further as the project progresses.

3.2 Access

The proposed development seeks to gain access via a new crossover on Mitchell Road at the site's northern frontage. The new crossover will be designed to accommodate the largest vehicle anticipated to use the site. This location will provide approximately 800m separation to the Mitchell Road / Beaudesert-Boonah Road intersection. The form of the access intersection and confirmation of appropriate sight distance can be provided as design development of the site progresses.

The Beaudesert-Boonah Road / Mitchell Road intersection and the 800m section of Mitchell Road will be upgraded to provide for safe and efficient access to and from the site, further discussed in **Section 3.5**.

3.3 Servicing Arrangement

The site is being designed to accommodate heavy vehicles associated with operation of the facility and therefore the largest service vehicle anticipated to use the site will be able to do so in a forward gear when entering and exiting. All refuse associated with the site will be collected by a private waste contractor, that can enter and exit the site in a forward gear.

3.4 Car Parking Requirements

The site will provide 20 staff spaces which will accommodate the 15 staff on-site during normal operations. Overflow car parking will be available adjacent the office amenities building to accommodate any additional parking required during peak operations. Compliance with AS2890.1 *Parking Facilities: Off-street car parking* can be confirmed as design development of the site progresses.

3.5 Road Network Upgrades

3.5.1 Mitchell Rd / Beaudesert-Boonah Rd Intersection

The intersection of Mitchell Road and Beaudesert-Boonah Road will be upgraded and formalised to facilitate access to the proposed development. A priority-controlled T-intersection will be provided with a Channelised Left (CHL) turn lane and short channelised right turn lane CHR(s) on the Beaudesert-Boonah Road approaches and a CHL turn lane on the Mitchell Road approach, as illustrated in **Figure 3-1** and shown in the detailed intersection layout plan, prepared by ACS Engineers, provided in **Appendix B**.

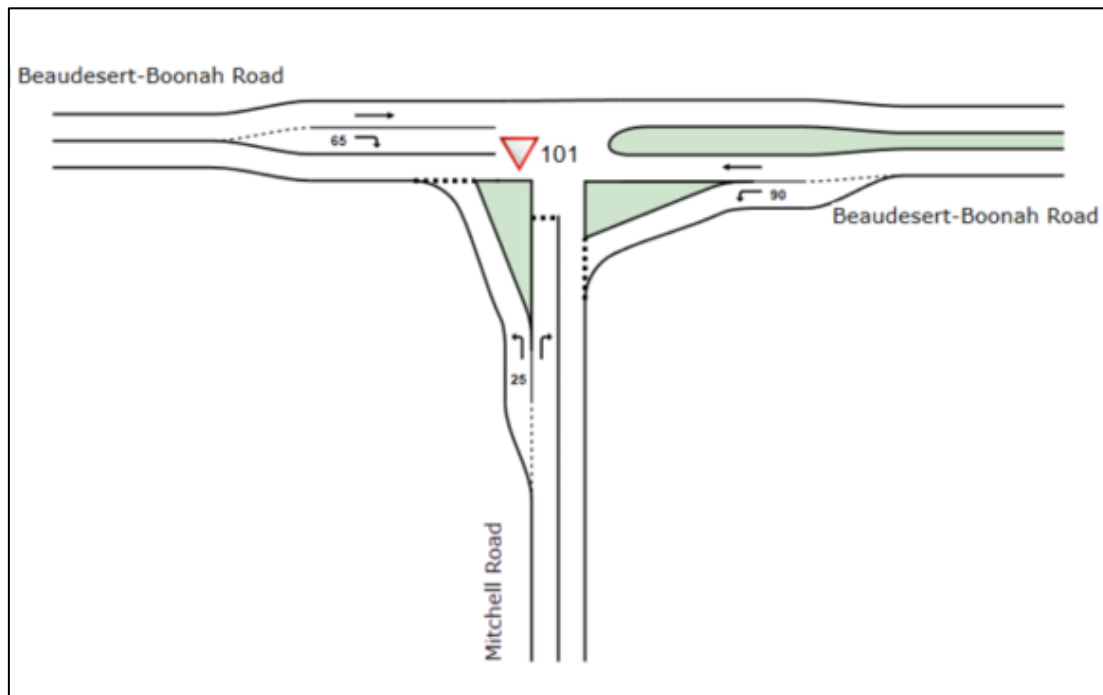


Figure 3-1 Beaudesert-Boonah Road / Mitchell Road Intersection

The proposed intersection will facilitate all movement access to-and-from Mitchell Road for the largest vehicle anticipated to enter and exit the site. Swept paths at the intersection, prepared by ACS Engineers, are provided in **Appendix E**.

3.5.2 Mitchell Road

Mitchell Road will be upgraded to provide access to the proposed development. This upgrade will be generally in accordance with the Scenic Rim Regional Council Class 4B – Rural Collector Road and will involve the construction of a sealed road with a 3.5m lane plus 0.5m sealed shoulder in each direction.

4. Impact Assessment

This section of the report provides details of the potential impact that the development generated traffic volumes could have on the operation of the surrounding road network during the AM and PM peak periods.

4.1 Background Traffic

Vehicle movement survey data was collected adjacent the site from Friday 3rd November 2023 to Thursday 9th November 2023, on Beaudesert-Boonah Road. The automatic traffic count data was collected for a weeklong period to get an understanding of the existing vehicle counts, speeds and classifications.

The peak hours for Beaudesert-Boonah Road, subsequently used in analysis of the Mitchell Road intersection were found to be as follows:

- Weekday AM – 11:00 AM to 12:00 PM; and
- Weekday PM – 4:00 PM to 5:00 PM.

Summary of traffic survey data is displayed in **Figure C1** attached in **Appendix C**.

The opening year for the development is estimated to be 2026. To assess the future background traffic, a linear growth rate of 3% per annum has been applied to the through movements along Beaudesert-Boonah Road. This is based on a review of the recent growth recorded by the TMR traffic counter at Site ID: 10012. The predicted background traffic in 2026 and 2036 has been presented in **Figure C2** and **C3** attached in **Appendix C**.

4.1.1 Adjacent Development

It is noted that that the adjacent site, formally described as Lot 1 RP45234, is owned by Cleanaway, who are planning on establishing a facility with access onto Beaudesert-Boonah Road. All traffic associated with this facility is anticipated to travel to and from the east and has therefore been excluded from future background traffic associated with the Beaudesert-Boonah Road / Mitchell Road intersection.

4.2 Trip Generation

Additional traffic associated with the proposed development has been forecasted based on vehicle movement data provided by SoilCo Developments Pty Ltd. It is understood that trips to and from the site will be made up of a mix of local deliveries, long haul transport contracts, and trips associated with manufacturing, production, and contamination.

The vehicle movement data includes daily average total movements for heavy vehicles and staff. A peak operation factor of 150% has been applied in this assessment to consider the busiest operational scenario for the site. A summary of the vehicle movement data used in the assessment is presented in **Table 4-1** below.

Table 4-1 Vehicle Movement Data

Vehicle Movement Data	In (# Trips)	Out (# Trips)
Number of daily staff movements average	15	15
Number of daily staff movements peak operation (150%)	23	23
Number of daily truck movements average	81	81
Number of daily truck movements peak operation (150%)	122	122
Number of daily trips average	96	96
Number of daily trips peak operation (150%)	144	144

It is understood that the facility will operate from 6:00am to 5:00pm, a period of 11 hours, with heavy vehicle movements spread evenly throughout the day. Based on the vehicle movement data provided above, the estimated peak hour traffic generated by the proposed development is documented in **Table 4-2**. We have conservatively assumed that all staff will arrive in the AM peak and depart in the PM peak.

Table 4-2 Development Traffic Generation

Trip Segmentation	AM PEAK (In)	AM PEAK (Out)	PM PEAK (In)	PM PEAK (Out)
Truck Movements	11	11	11	11
Staff Movements	23	0	0	23
Total Trips per Peak	45		45	

As documented above in **Table 4-2**, the proposed development is expected to generate 45 new trips (combined in and out) in the AM and PM peak periods.

4.3 Trip Distribution

It is understood that truck movements associated with deliveries and production will be from a number of areas in Southeast Queensland including the Gold Coast, Brisbane and Ipswich. The adopted distribution of trips to the surrounding road network is as follows:

- 75% of heavy vehicle trips will go to and come from the east; and
- 25% of heavy vehicle trips will go to and come from the west.

It has been assumed that all staff will reside in Beaudesert area and therefore we have adopted 100% off staff movements coming from and going to the east.

The adopted distribution is displayed in **Figure C4** attached in **Appendix C**.

4.4 Development Traffic

Based on the trip distribution outlined in **Section 4.3**, the overall trip generation (the development traffic), as distributed to the broader road network, for the site is displayed in **Figure C5** attached in **Appendix C**.

4.5 Design Traffic

The design traffic (background traffic plus the development generated traffic) in 2026 and 2036 is displayed in **Figure C6** and **C7** attached in **Appendix C** representing the 'Background + Development' traffic scenarios.

4.6 Intersection Analysis

This section details the intersection analysis undertaken as part of this assessment for the State-controlled Beaudesert-Boonah Road / Mitchell Road intersection.

As discussed in **Section 4.1.1**, it is understood that the adjacent site, formally described as Lot 1 RP45234, is owned by Cleanaway, who are planning on establishing a facility with access onto Beaudesert-Boonah Road. Furthermore, we understand that discussions with the Department of Transport and Main Roads are ongoing into the form of this access with signalisation and a fourth leg of the Beaudesert-Boonah Road / Recycling Street intersection. We have provided further commentary on the performance of this possible future intersection in **Section 4.6.3**.

4.6.1 SIDRA Model Assumptions

SIDRA Intersection software has been used to analyse the performance of the intersection within the impact assessment area. The following parameters have been applied to the SIDRA model:

- A Saturation Flow of 1,950 through car units per hour;
- A Peak Flow Period of 30 minutes, with a conservative Peak Flow Factor of 95%;
- Intersection geometry based on measurements of concept plans; and
- Given the high proportion of heavy vehicles turning into and out of Mitchell Road, associated with the site, we have adopted a gap acceptance factor of 2.0 for heavy vehicles to more accurately represent the gaps required for them to turn.

Considering the values noted above, we believe that the assessment presented herein should be considered highly conservative and the results should represent a worst-case scenario for the impacts of the proposed development.

4.6.2 Beaudesert-Boonah Road / Mitchell Road

The future form of Beaudesert-Boonah Road / Mitchell Road has been modelled in SIDRA as shown in **Figure 4-1** below.

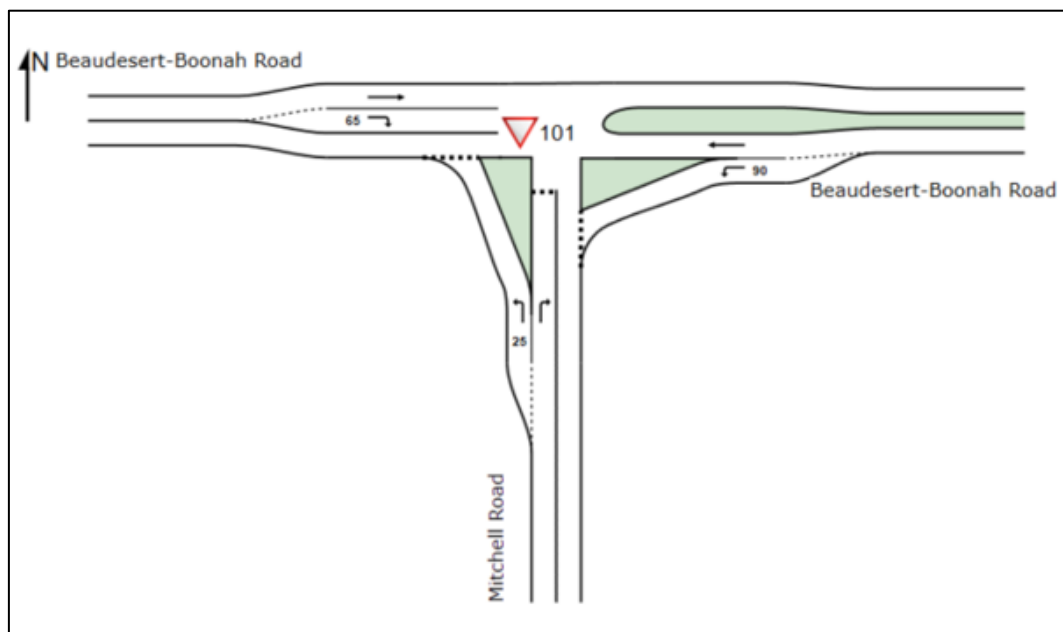


Figure 4-1 Beaudesert-Boonah Road / Mitchell Road SIDRA Layout

Table 4-3 presents the results of the SIDRA intersection analysis with detailed movement outputs attached in **Appendix D**.

Table 4-3 Beaudesert-Boonah Road / Mitchell Road SIDRA Results

SCENARIO	APPROACH	AM PEAK				PM PEAK			
		DoS	Avg Delay (s)	LoS	95% Back of Queue (m)	DoS	Avg Delay (s)	LoS	95% Back of Queue (m)
2026 Design Traffic	Mitchell Road (S)	0.044	17.4	C	2.0	0.077	12.0	B	2.1
	Beaudesert – Boonah Road (E)	0.103	0.9	A	0.9	0.116	0.3	A	0.6
	Beaudesert – Boonah Road (W)	0.091	0.2	N/A	0.3	0.101	0.2	N/A	0.3
2036 Design Traffic	Mitchell Road (S)	0.059	22.8	C	2.6	0.100	14.9	B	2.6
	Beaudesert – Boonah Road (E)	0.132	0.8	A	0.9	0.148	0.3	A	0.6
	Beaudesert – Boonah Road (W)	0.116	0.2	N/A	0.3	0.129	0.2	N/A	0.3

As indicated in **Table 4-3**, Beaudesert-Boonah Road / Mitchell Road intersection will theoretically operate below capacity during the year of opening (2026) and 10-year design horizon in all peak periods for a priority-controlled intersection. The maximum delay recorded at the intersection in the 2036 design scenario is approximately 27 seconds, well below DTMR's safety threshold. A turn lane warrant assessment has also been undertaken for this intersection, further discussed in **Section 4.8**.

4.6.3 Beaudesert-Boonah Road / Recycling Street

It is understood that the form of the Beaudesert-Boonah Road / Recycling Street intersection will be designed to accommodate the largest vehicle paths with appropriate storage provided in turn lanes.

Furthermore, we understand that the surrounding land uses will generate the majority of the heavy vehicle turning movements at the intersection in the very early morning or very late evening, thereby not conflicting with peak hours.

Given the proposed development will generate a maximum of 45 trips in each of the road network peaks, equating to less than one (1) trip through the intersection every minute, when there is a low volume of turning movements, we anticipate that there will be sufficient capacity at the intersection, and no further assessment is warranted, in our view.

4.7 Net Delay Assessment

Given the proposed form of the Beaudesert-Boonah Road / Mitchell Road intersection is priority-controlled, there will be no delay associated with background through movements and therefore a net delay assessment is not warranted.

4.8 Turn Lane Warrant Assessment

A turn lane warrant assessment has been undertaken at the intersection of Beaudesert-Boonah Road / Mitchell Road. The results of the turn lane warrant assessment are shown in **Figure 4-2** for the 2036 AM and PM peaks with design traffic volumes.

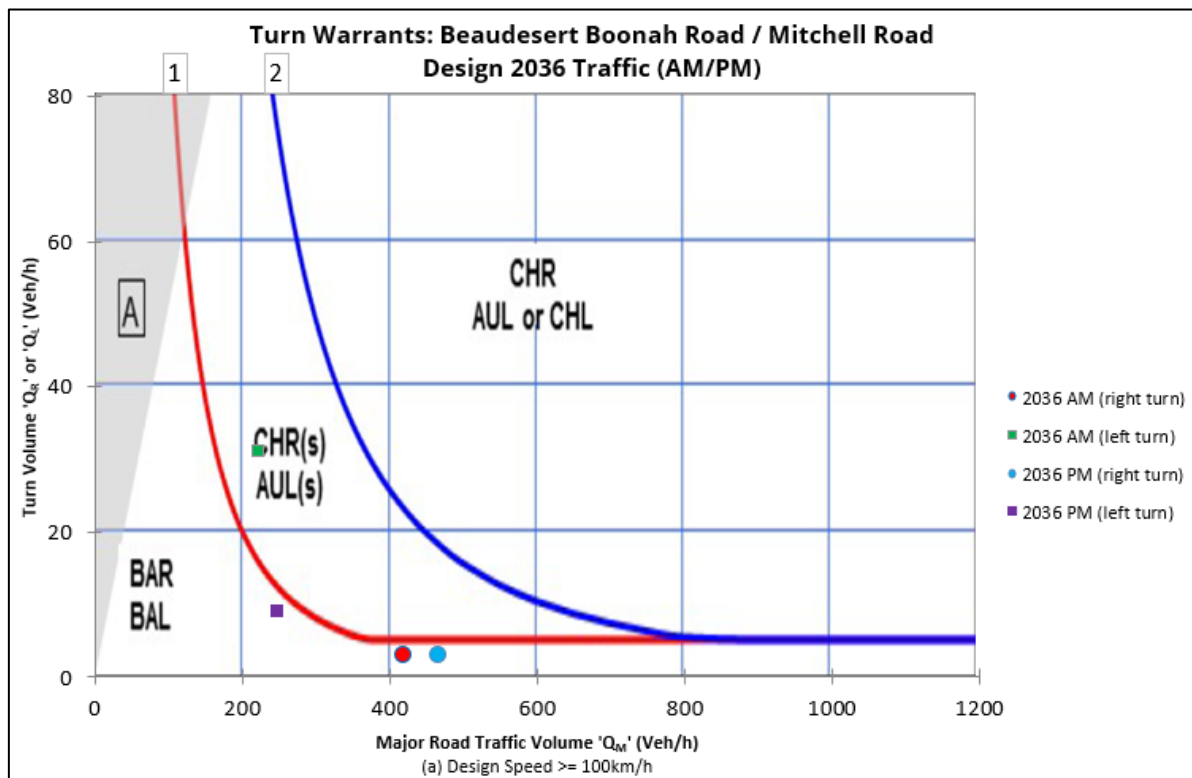


Figure 4-2 Turn Lane Warrant Assessment – Beaudesert-Boonah Road / Mitchell Road - 2036 AM & PM Peak

As seen in **Figure 4-2**, the assessment indicates that the Beaudesert-Boonah Road / Mitchell Road intersection requires a short auxiliary left turn lane (AUL (s)) in the AM peak period.

Based on the recorded 85th percentile speed of less than 100km/h, a stop condition of 3.5m/s² and a storage length of 26.0m to accommodate a B-double, the turn lane length required by Austroads *Guide to Road Design Part 4A* is 136m. The proposed intersection form includes a CHL with a turn lane length of approximately 136m (including taper), thereby meeting the Austroads requirement.

It is noted that the proposed intersection form also includes a CHR(s), despite the turn lane warrant assessment not triggering the need for this. Given the higher proportion of heavy vehicles turning into Mitchell Road, a CHR(s) is considered suitable. The CHR(s) has been designed to meet Extended Design Domain requirements with a turn lane length of approximately 78m (including taper).

4.9 Road Link Capacity Assessment

A road link capacity assessment has been completed in accordance with DTMR's *Guide to Traffic Impact Assessment* (GTIA) guidelines. The road link capacity assessment is to ensure that traffic generated by the development does not significantly worsen the operational capacity of the State-controlled road.

The 2026 background traffic on Beaudesert-Boonah Road is (presented in **Figure C2** of **Appendix C**) has been compared with the trips generated by the proposed development and is presented in **Table 4-4** below.

Table 4-4 Beaudesert-Boonah Road Midblock Volumes

Beaudesert-Boonah Road	AM PEAK (# trips)	PM PEAK (# trips)
2026 Background		
Northbound	174	196
Southbound	153	171
2026 Design (with Development)		
Development Traffic – Northbound	31	9
Development Traffic – Southbound	9	31
Northbound	205	205
Southbound	162	202

As per *Austrroads Guide to Traffic Management Part 3: Transport Student and Analysis Methods*, the 'operational capacity' of a single lane, undivided road, with interrupted flows is 900 pc/h, increasing up to 1,400pc/h where certain conditions exist.

As shown in **Table 4-4**, the 'with development' scenario results in traffic volumes well below the single lane capacity of 900 to 1,400pc/h and therefore operational capacity of Beaudesert-Boonah Road is not likely to worsen as a result of the development.

4.10 Risk Assessment

A risk assessment of the proposed Beaudesert-Boonah Road / Mitchell Road intersection has been completed in accordance with DTMR's GTIA guidelines. The risk assessment is presented in **Table 4-5**.

Table 4-5 Risk Assessment – Beaudesert-Boonah / Mitchell Road Intersection

Risk Item	Without Development			With Development			Mitigation Measures	With Development & Mitigation		
	Likelihood	Consequence	Risk Score	Likelihood	Consequence	Risk Score		Likelihood	Consequence	Risk Score
Introduction of left and right turn movements to and from Beaudesert-Boonah Road at the Mitchell Road intersection	0	2	NA	2	2	L	The intersection will provide channelised right and left turn lanes into Mitchell Road, reducing the risk of rear-end conflicts. Furthermore, the intersection has also been assessed in SIDRA in both the 2026 and 2036 (10-year design horizon) and operates below capacity with minimal queues and delays, therefore this is considered low risk.	NA	NA	NA

As summarised in **Table 4-5**, there is an increase in risk score associated with the development traffic, however this is largely due to the fact that there are no turn movements currently occurring at the intersection. The proposed form of the intersection will provide sufficient capacity and therefore, no mitigation measures are deemed necessary in our view.

5. Summary

Lambert & Rehbein (SEQ) Pty Ltd has been commissioned by SoilCo Developments Pty Ltd to prepare a Traffic Impact Assessment (TIA) in support of the proposed development located on Mitchell Road, Bromelton, more formally described as Lot 4 RP85497. The development site has a total site area of approximately 119.6ha and will accommodate a large-scale organics processing and clean energy facility.

The proposed development seeks to gain access via a new crossover on Mitchell Road at the site's northern frontage. The new crossover will be designed to accommodate the largest vehicle anticipated to use the site. This location will provide approximately 800m separation to the Mitchell Road / Beaudesert-Boonah Road intersection.

The Beaudesert-Boonah Road / Mitchell Road intersection and the 800m section of Mitchell Road will be upgraded to provide for safe and efficient access to and from the site. A priority-controlled T-intersection will be provided with a Channelised Left (CHL) turn lane and short channelised right turn lane (CHR(s)) on the Beaudesert-Boonah Road approaches and a CHL turn lane on the Mitchell Road approach while Mitchell Road will be upgraded to provide a Class 4B – Rural Collector Road with two a 3.5m lane plus 0.5m sealed shoulder in each direction.

Additional traffic associated with the proposed development has been forecasted based on vehicle movement data provided by SoilCo Developments Pty Ltd. It is understood that the facility will operate from 6:00am to 5:00pm, a period of 11 hours, with heavy vehicle movements spread evenly throughout the day. We have conservatively assumed that all staff will arrive in the AM peak and depart in the PM peak. As a result, the proposed development is expected to generate 45 new trips (combined in and out) in the AM and PM peak periods.

SIDRA Assessment of the Beaudesert-Boonah Road / Mitchell Road intersection demonstrates that the intersection will theoretically operate below capacity during the year of opening (2026) and 10-year design horizon in all peak periods for a priority-controlled intersection. The maximum delay recorded at the intersection in the 2036 design scenario is approximately 27 seconds, well below DTMR's safety threshold.

A turn lane warrant assessment at the intersection indicates that a short auxiliary left turn lane (AUL (s)) is triggered in the AM peak period. The proposed intersection form includes a CHL with a turn lane length of approximately 136m (including taper), meeting the Austroads requirement for a design speed of 100km/h, stop condition of 3.5m/s^2 and a storage length of 26.0m.

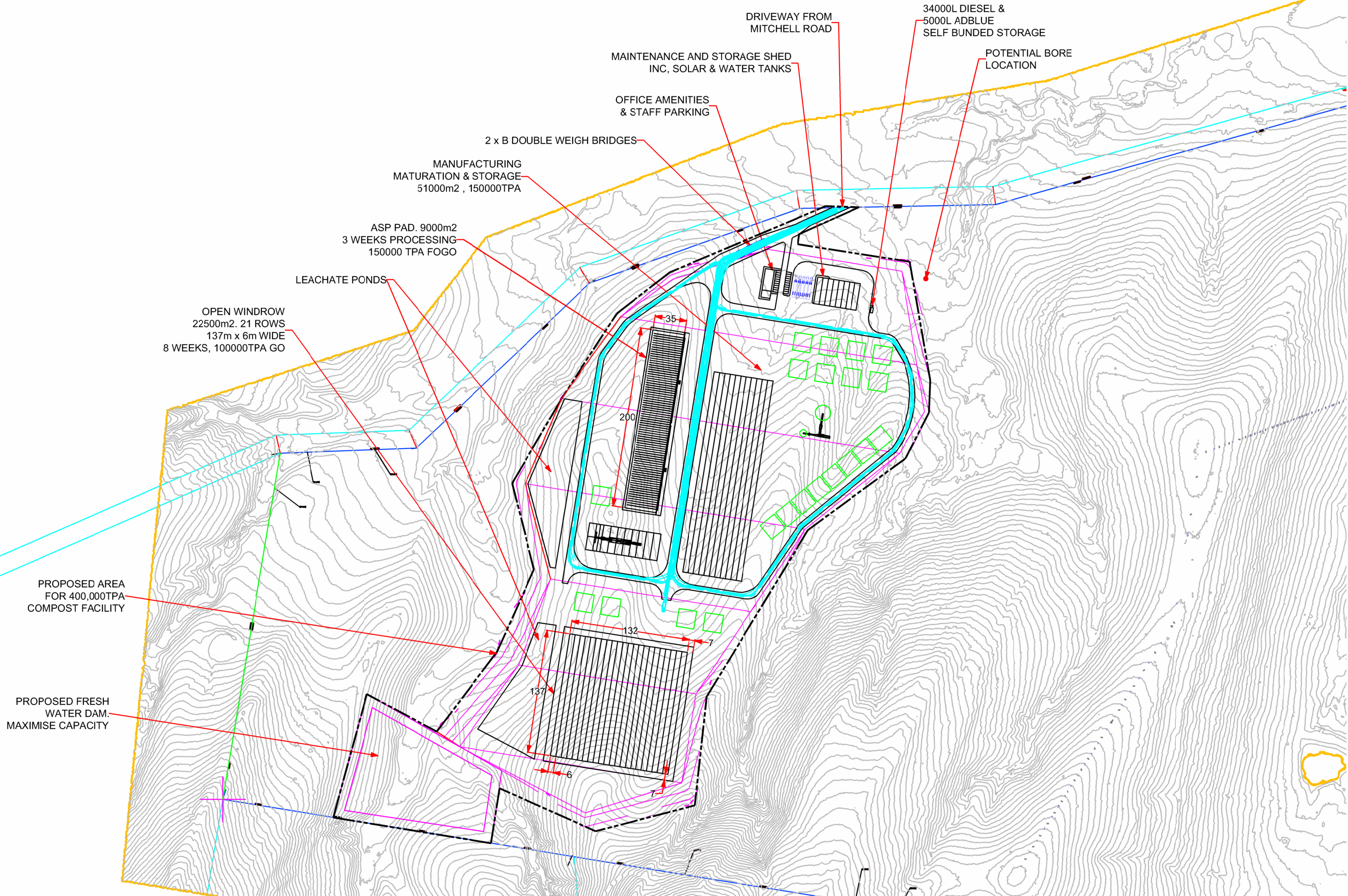
A road link capacity assessment indicates that Beaudesert-Boonah Road will operate well below the operational capacity of a two-way, two-lane corridor with the inclusion of development traffic.

Lastly, a risk assessment indicates that there is an increase in risk score associated with the development traffic, however this is largely due to the fact that there are no turn movements currently occurring at the intersection. The proposed form of the intersection will provide sufficient capacity and therefore, no mitigation measures are deemed necessary, in our view.

Based on the information contained within this report, we see no traffic engineering reason why the relevant approvals should not be granted.

Appendix A – Preliminary Site Layout

ALL DIMENSIONS IN METRES/ MILLIMETERS



NOTES - PRELIMINARY DESIGN CONCEPT

-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
A	ISSUED FOR PRELIMINARY DESIGN	10/10/23	GB	-
REV	DESCRIPTION	DATE	BY	APD



SOILCO DEVELOPMENTS

www.soilco.com.au
PH: 1300 254 443

THIS DRAWING IS THE PROPERTY OF SOILCO DEVELOPMENTS. THE DRAWING AND INFORMATION CONTAINED WITHIN MAY NOT BE USED OR COPIED IN ANY FORM WITHOUT THE WRITTEN AUTHORIZATION OF SOILCO DEVELOPMENTS.

SCALE -	A1-1:200, A3-1:400
DRAWN -	G.B.
DATE -	10/10/23
CHECKED -	A.E.
APPROVED -	-

CLIENT -

SOILCO- BROMELTON, QLD

TITLE - PROPOSED SITE LAYOUT- 400,000TPA
COMPOSTING FACILITY, MITCHELL RD
BROMELTON, QLD

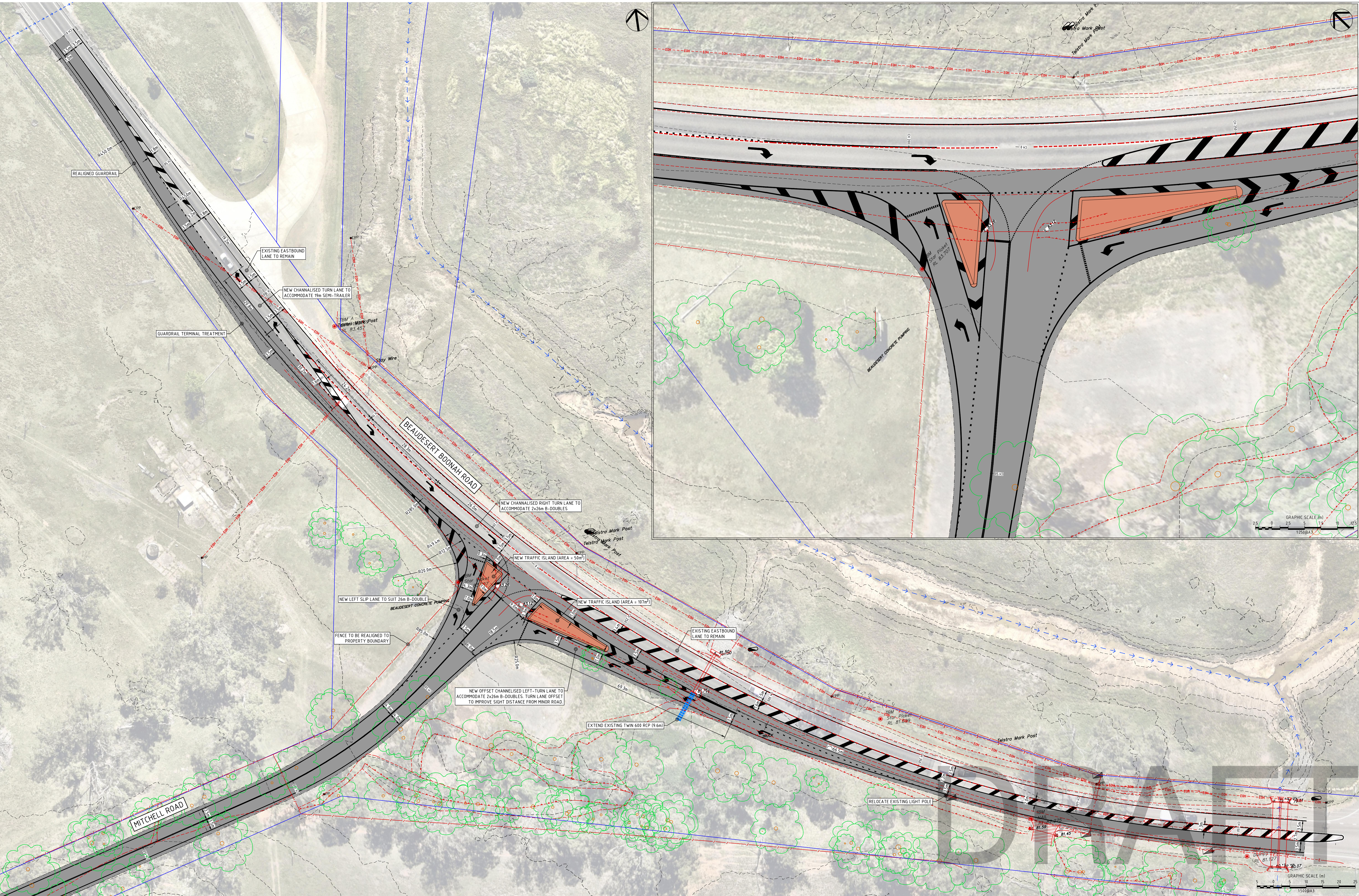
DWG NO.

PR1118-SP-001

REV.

A

Appendix B – Beaudesert-Boonah Road / Mitchell Road Intersection Form

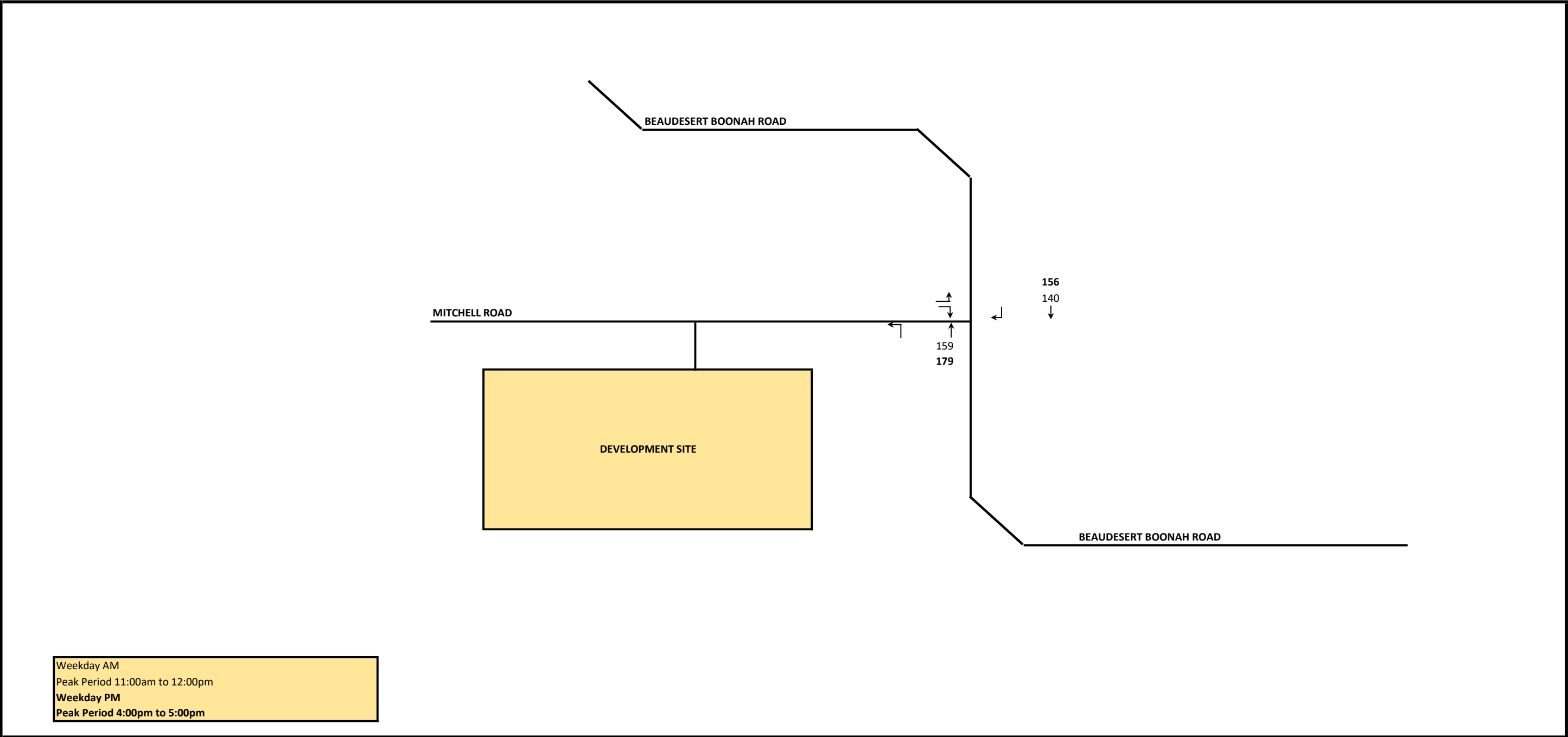


SURVEY DATA			
			DATUM
			MAP GRID
			HEIGHT ORIGIN
			SURVEY BOOKS
1	CONCEPT PLAN	MLS	11/2022
		DWN	DATE
		DES	DATE

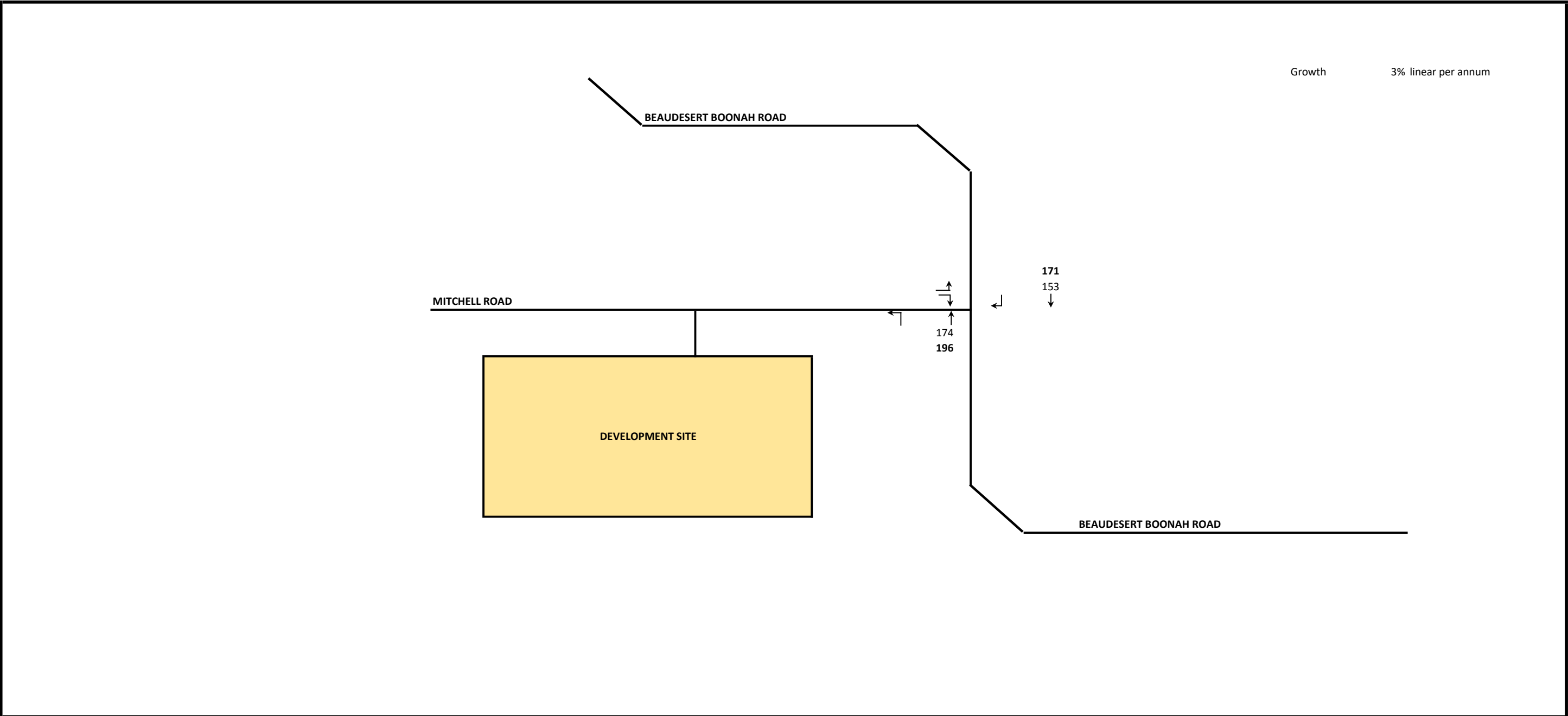
SOILCO		INTERSECTION LAYOUT DETAILED LAYOUT PLAN	
PO BOX 199, UNANDERRA NSW 2526		PO Box 554 Beaudesert QLD 4285	
BROMELTON DEVELOPMENT		260 MITCHELL ROAD, BROMELTON QLD 4285	
260 MITCHELL ROAD, BROMELTON QLD 4285		ACS Engineers	
		CIVIL ENVIRONMENTAL PROJECT MANAGEMENT	
		DRAWING NUMBER	
		ACS-220089-GEN-11	
		1	

FILE C:\GSD\DATA\ACCESS\JOB\BROMELTON DEVELOPMENT - 260 MITCHELL ROAD - 2022\DRAWING FILES\ACS-220089-GEN-11.DWG PLOT TIME: 24/11/2022 - 1:00PM BY: GSD-NWALV

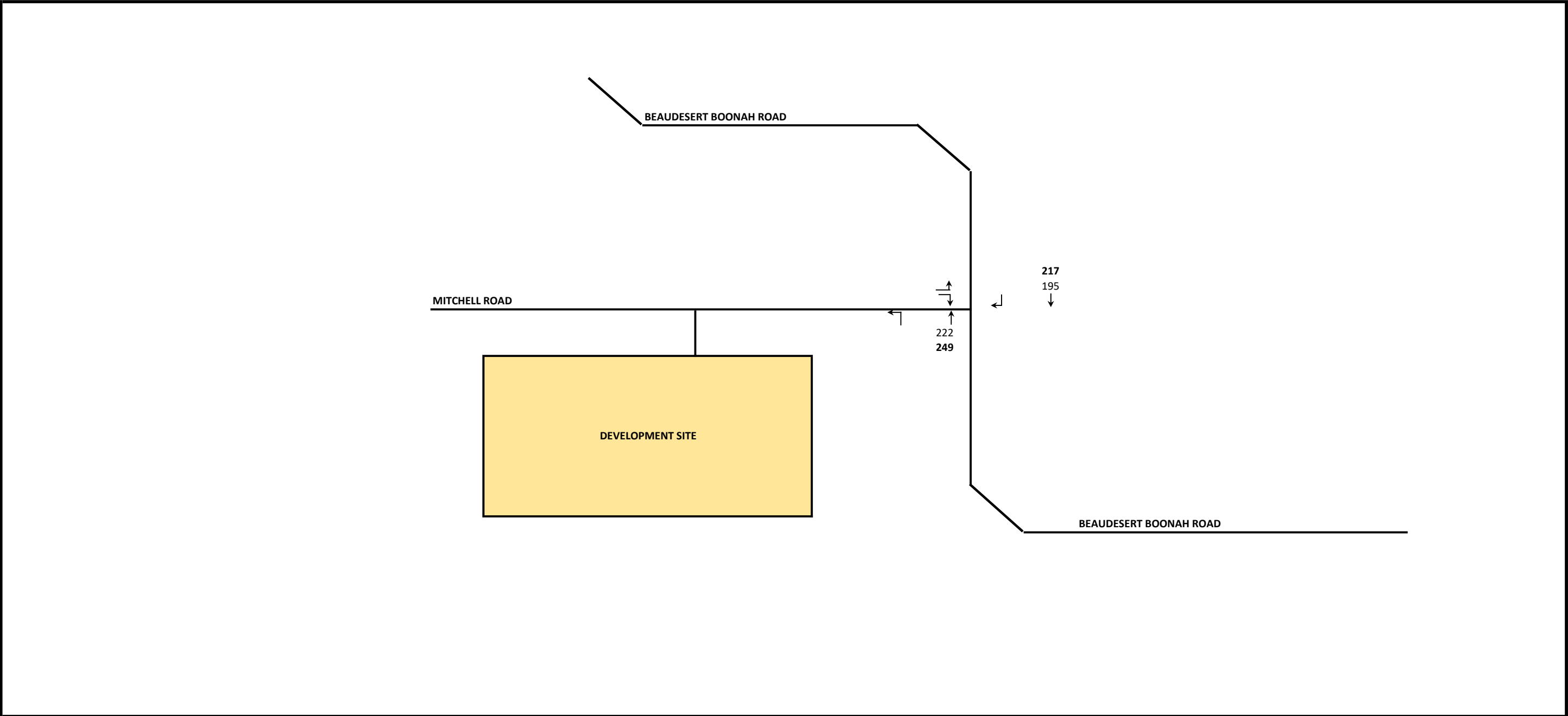
Appendix C – Traffic Movement Diagrams



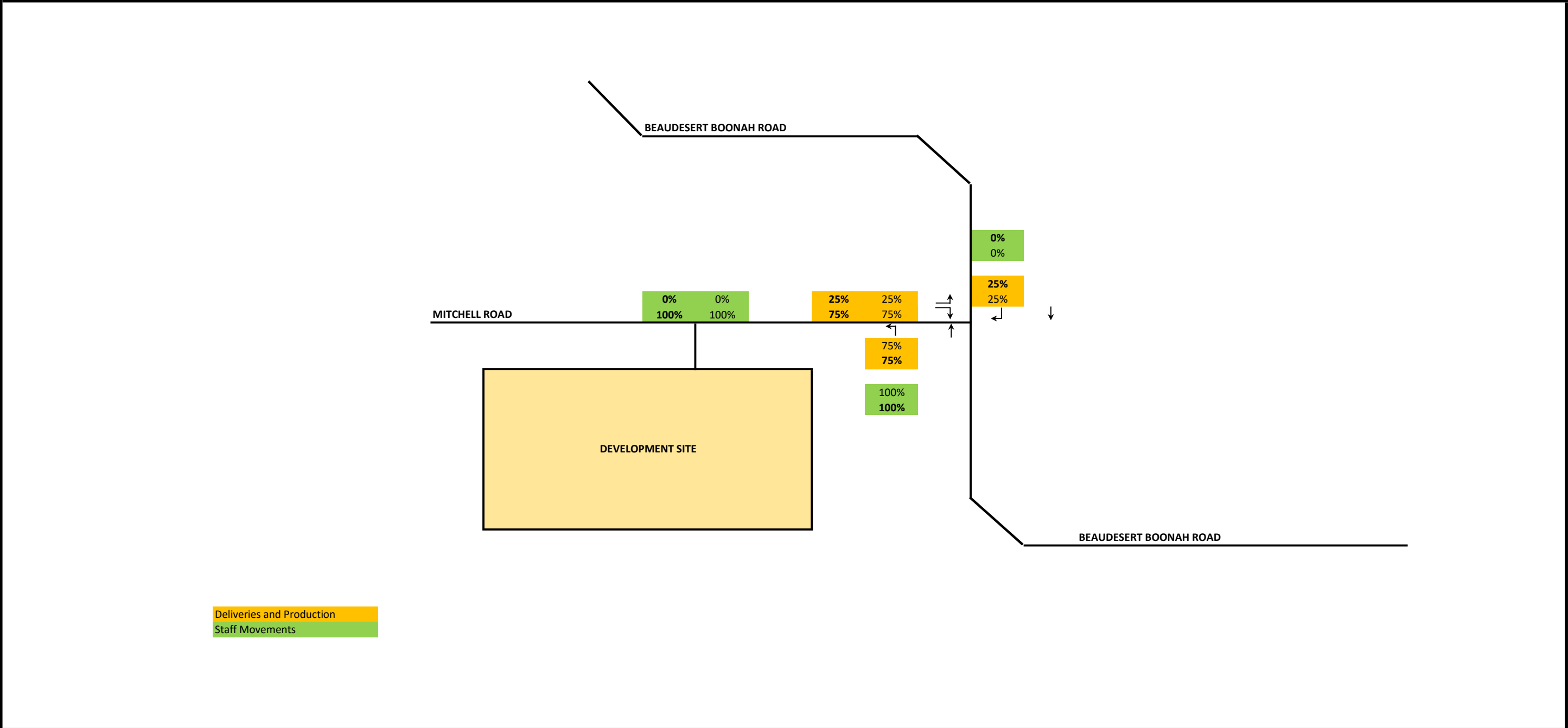
Project Number:	B23425	Title: Background Traffic - All Vehicles 2023			Figure Number:	
Project Name:	SOILCO BROMELTON ORGANIC RECYCLING FACILITY				C 1	
Address:	LOT 4 RP85497 & LOT 100 W312081		AG	DN	B	12/07/2024
Client:	SOILCO DEVELOPMENTS PTY LTD				A	16/11/2023
			Prepared	Checked	Rev:	Date:



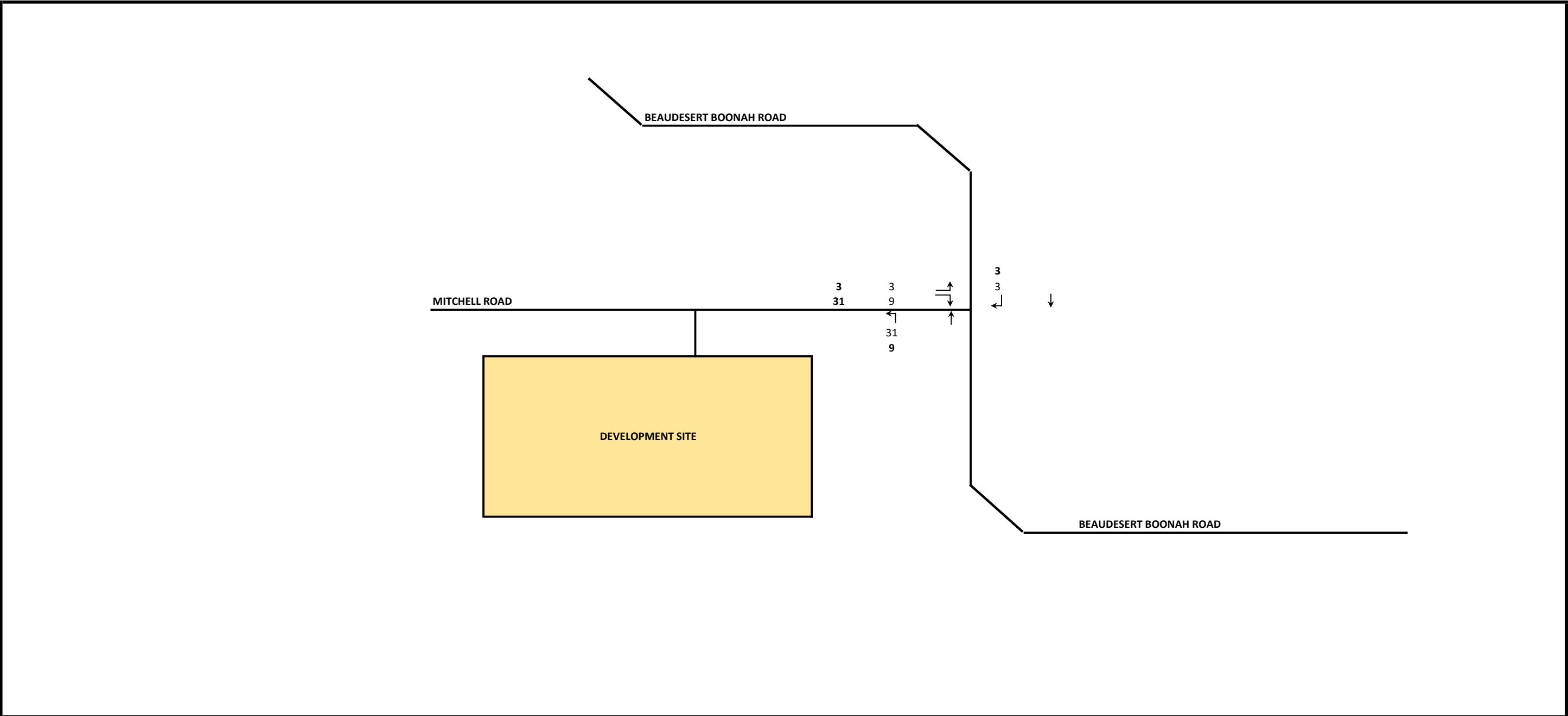
Project Number:	B23425	Title:	Background Traffic - All Vehicles		Figure Number:	
Project Name:	SOILCO BROMELTON ORGANIC RECYCLING FACILITY	2026	AG		B	12/07/2024
Address:	LOT 4 RP85497 & LOT 100 W312081		DN		A	16/11/2023
Client:	SOILCO DEVELOPMENTS PTY LTD		Prepared	Checked	Rev:	Date:



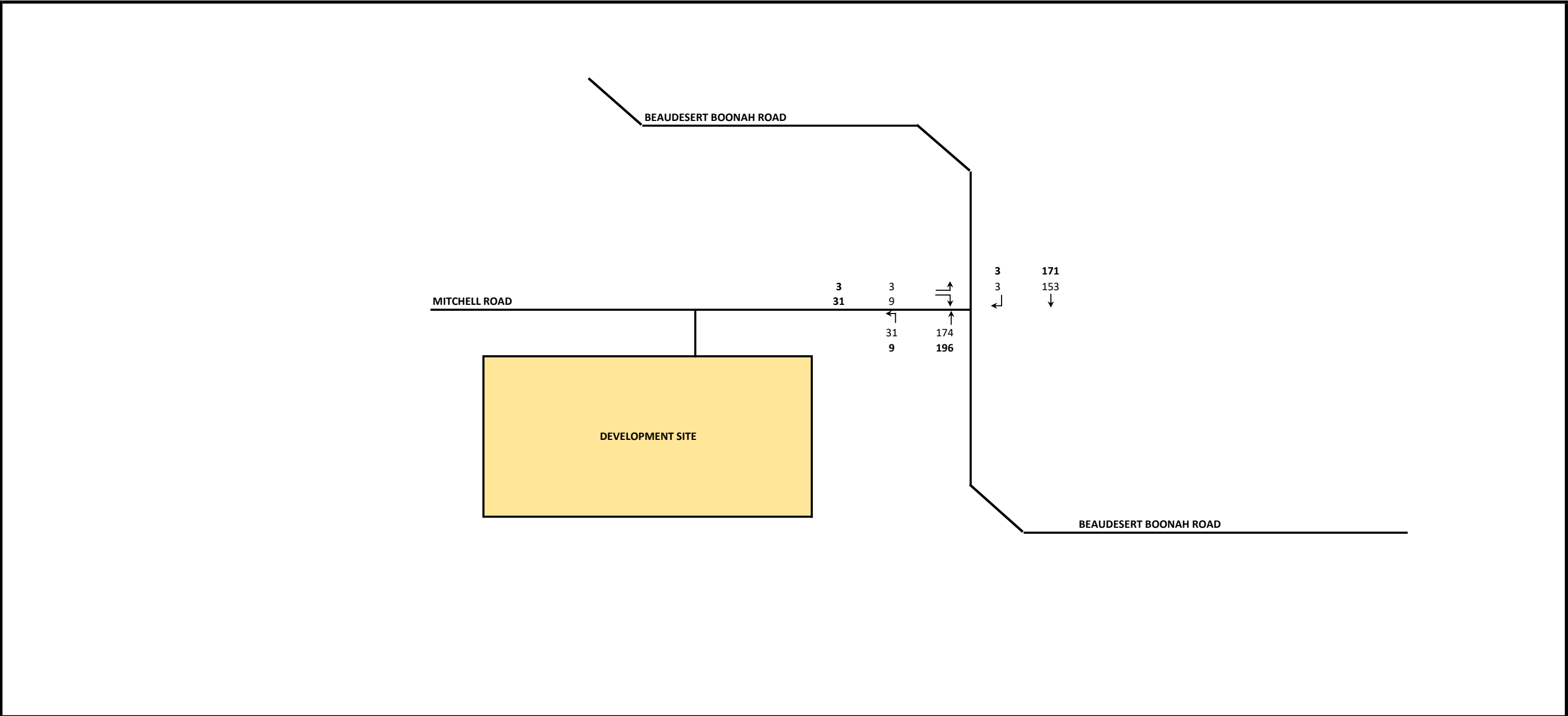
Project Number:	B23425	Title: Background Traffic - All Vehicles 2036			Figure Number:
Project Name:	SOILCO BROMELTON ORGANIC RECYCLING FACILITY				C 3
Address:	LOT 4 RP85497 & LOT 100 W312081		AG	DN	
Client:	SOILCO DEVELOPMENTS PTY LTD		Prepared	Checked	
			Rev:	Date:	



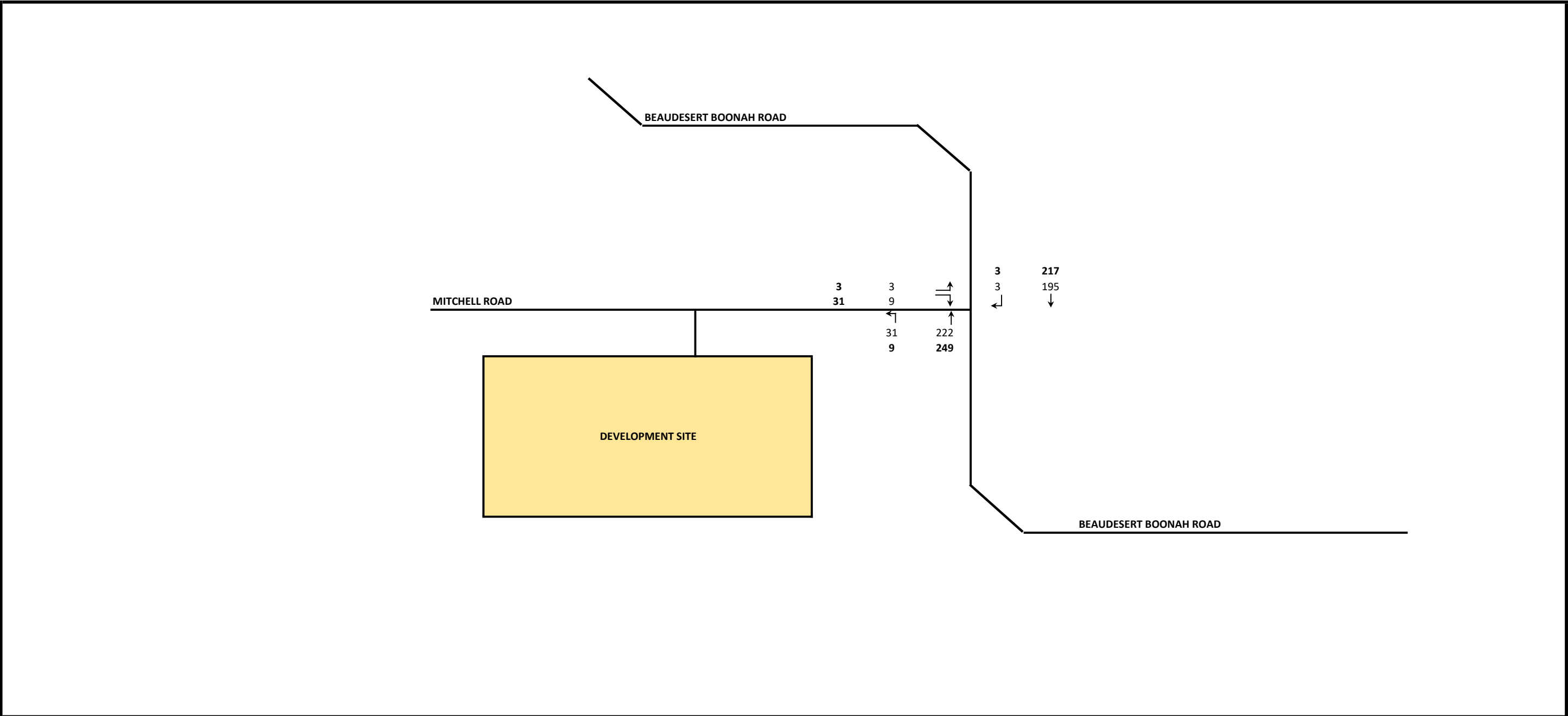
Project Number:	B23425	Title: Development Traffic Distribution			Figure Number:
Project Name:	SOILCO BROMELTON ORGANIC RECYCLING FACILITY		AG	DN	B12/07/2024
Address:	LOT 4 RP85497 & LOT 100 W312081		Prepared	Checked	A16/11/2023
Client:	SOILCO DEVELOPMENTS PTY LTD		Rev:	Date:	C 4



Project Number:	B23425	Title: Development Trips			Figure Number:
Project Name:	SOILCO BROMELTON ORGANIC RECYCLING FACILITY				C 5
Address:	LOT 4 RP85497 & LOT 100 W312081		AG	DN	
Client:	SOILCO DEVELOPMENTS PTY LTD		Prepared	Checked	
			Rev:	Date:	



Project Number:	B23425	Title: Design Traffic 2026 (Background plus Development)			Figure Number:	
Project Name:	SOILCO BROMELTON ORGANIC RECYCLING FACILITY				C 6	
Address:	LOT 4 RP85497 & LOT 100 W312081					
Client:	SOILCO DEVELOPMENTS PTY LTD					
			AG	DN	B	12/07/2024
		Prepared	Checked	A	16/11/2023	
				Rev:	Date:	



Project Number:	B23425	Title:	Design Traffic 2036 (Background plus Development)	AG	DN	B	12/07/2024	Figure Number:
Project Name:	SOILCO BROMELTON ORGANIC RECYCLING FACILITY					A	16/11/2023	C 7
Address:	LOT 4 RP85497 & LOT 100 W312081			Prepared	Checked	Rev:	Date:	
Client:	SOILCO DEVELOPMENTS PTY LTD							

Appendix D – SIDRA Intersection Results

MOVEMENT SUMMARY

Site: 101 [2026 DES AM (Site Folder: Upgraded Intersection (ACS Layout) RevB)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. Dist] veh m		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Mitchell Road															
1	L2	All MCs	3	100.0	3	100.0	0.006	9.3	LOS A	0.0	0.3	0.41	0.53	0.41	47.3
3	R2	All MCs	9	100.0	9	100.0	0.044	20.1	LOS C	0.2	2.0	0.65	0.81	0.65	41.1
Approach			13	100.0	13	100.0	0.044	17.4	LOS C	0.2	2.0	0.59	0.74	0.59	42.5
East: Beaudesert-Boonah Road															
4	L2	All MCs	33	25.0	33	25.0	0.025	5.9	LOS A	0.1	0.9	0.04	0.52	0.04	52.1
5	T1	All MCs	183	15.0	183	15.0	0.103	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			216	16.5	216	16.5	0.103	0.9	LOS A	0.1	0.9	0.01	0.08	0.01	58.6
West: Beaudesert-Boonah Road															
11	T1	All MCs	161	15.0	161	15.0	0.091	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	All MCs	3	100.0	3	100.0	0.005	9.3	LOS A	0.0	0.3	0.44	0.56	0.44	46.4
Approach			164	16.6	164	16.6	0.091	0.2	NA	0.0	0.3	0.01	0.01	0.01	59.6
All Vehicles			393	19.2	393	19.2	0.103	1.1	NA	0.2	2.0	0.03	0.07	0.03	58.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [2026 DES PM (Site Folder: Upgraded Intersection (ACS Layout) RevB)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. Dist] veh m		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Mitchell Road															
1	L2	All MCs	3	100.0	3	100.0	0.006	9.8	LOS A	0.0	0.3	0.44	0.55	0.44	47.0
3	R2	All MCs	33	25.0	33	25.0	0.077	12.2	LOS B	0.3	2.1	0.55	0.75	0.55	47.6
Approach			36	31.6	36	31.6	0.077	12.0	LOS B	0.3	2.1	0.54	0.73	0.54	47.6
East: Beaudesert-Boonah Road															
4	L2	All MCs	9	100.0	9	100.0	0.012	6.7	LOS A	0.0	0.6	0.05	0.50	0.05	48.7
5	T1	All MCs	206	15.0	206	15.0	0.116	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			216	18.7	216	18.7	0.116	0.3	LOS A	0.0	0.6	0.00	0.02	0.00	59.3
West: Beaudesert-Boonah Road															
11	T1	All MCs	180	15.0	180	15.0	0.101	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	All MCs	3	100.0	3	100.0	0.005	9.8	LOS A	0.0	0.3	0.46	0.57	0.46	46.2
Approach			183	16.5	183	16.5	0.101	0.2	NA	0.0	0.3	0.01	0.01	0.01	59.6
All Vehicles			435	18.8	435	18.8	0.116	1.2	NA	0.3	2.1	0.05	0.08	0.05	58.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akcelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [2036 DES AM (Site Folder: Upgraded Intersection (ACS Layout) RevB)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. Dist] veh m		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Mitchell Road															
1	L2	All MCs	3	100.0	3	100.0	0.006	10.3	LOS B	0.0	0.3	0.47	0.57	0.47	46.7
3	R2	All MCs	9	100.0	9	100.0	0.059	26.9	LOS D	0.2	2.6	0.75	0.89	0.75	38.1
Approach			13	100.0	13	100.0	0.059	22.8	LOS C	0.2	2.6	0.68	0.81	0.68	40.0
East: Beaudesert-Boonah Road															
4	L2	All MCs	33	25.0	33	25.0	0.025	5.9	LOS A	0.1	0.9	0.04	0.52	0.04	52.1
5	T1	All MCs	234	15.0	234	15.0	0.132	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			266	16.2	266	16.2	0.132	0.8	LOS A	0.1	0.9	0.01	0.06	0.01	58.8
West: Beaudesert-Boonah Road															
11	T1	All MCs	205	15.0	205	15.0	0.116	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
12	R2	All MCs	3	100.0	3	100.0	0.006	10.3	LOS B	0.0	0.3	0.49	0.59	0.49	45.8
Approach			208	16.3	208	16.3	0.116	0.2	NA	0.0	0.3	0.01	0.01	0.01	59.7
All Vehicles			487	18.4	487	18.4	0.132	1.1	NA	0.2	2.6	0.02	0.06	0.02	58.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [2036 DES PM (Site Folder: Upgraded Intersection (ACS Layout) RevB)]

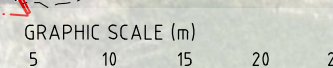
Output produced by SIDRA INTERSECTION Version: 9.1.3.210

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %		Arrival Flows [Total HV] veh/h %		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. Dist] veh m		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Mitchell Road															
1	L2	All MCs	3	100.0	3	100.0	0.007	11.0	LOS B	0.0	0.3	0.50	0.58	0.50	46.3
3	R2	All MCs	33	25.0	33	25.0	0.100	15.3	LOS C	0.3	2.6	0.62	0.83	0.62	45.8
Approach			36	31.6	36	31.6	0.100	14.9	LOS B	0.3	2.6	0.61	0.81	0.61	45.8
East: Beaudesert-Boonah Road															
4	L2	All MCs	9	100.0	9	100.0	0.012	6.7	LOS A	0.0	0.6	0.05	0.50	0.05	48.7
5	T1	All MCs	262	15.0	262	15.0	0.148	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach			272	18.0	272	18.0	0.148	0.3	LOS A	0.0	0.6	0.00	0.02	0.00	59.4
West: Beaudesert-Boonah Road															
11	T1	All MCs	228	15.0	228	15.0	0.129	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
12	R2	All MCs	3	100.0	3	100.0	0.006	11.0	LOS B	0.0	0.3	0.52	0.61	0.52	45.5
Approach			232	16.2	232	16.2	0.129	0.2	NA	0.0	0.3	0.01	0.01	0.01	59.7
All Vehicles			539	18.1	539	18.1	0.148	1.2	NA	0.3	2.6	0.04	0.07	0.04	58.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akcelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

Appendix E – Swept Path Assessment



ACS Engineers
CIVIL | ENVIRONMENTAL | PROJECT MANAGEMENT

Appendix K

Environmental Management Plan



PR1118- Bromelton CMF

Environmental Management Plan

22 August 2024

SOILCO Pty Ltd

1300 254 443 | info@soilco.com.au | soilco.com.au

PO Box 199 Unanderra NSW 2526

ABN 85 055 303 243

Bromelton CMF- Document Description

Revision Schedule

Date	Revision	Issue	Prepared By	Approved By
14/08/2024	Draft A	Draft A (GHD)	L Hughes S Wilson	E Rothwell
22/08/2024	Rev 00	Rev 00 (GHD)	G Robertson S Wilson	S Wilson
11/10/2024	Rev 01	Rev 01 (GHD)	G Robertson	S Wilson

Contents

1.	BACKGROUND	1
1.1	PURPOSE OF THIS DOCUMENT	1
1.1.1	Integrated management system	1
1.1.2	Administration and control	2
2.	PROJECT OVERVIEW.....	2
2.1	PROJECT LOCATION	4
3.	OVERVIEW OF STATUTORY FRAMEWORK.....	6
4.	EXISTING ENVIRONMENT	10
5.	ENVIRONMENTAL MANAGEMENT.....	22
5.1	ROLES AND RESPONSIBILITIES.....	22
6.	IMPACTS AND MITIGATION MEASURES.....	27
6.1	ENVIRONMENTAL FACTORS	27
6.2	RISK ASSESSMENT	27
6.2.1	Risk assessment criteria	27
6.3	INITIAL RISK ASSESSMENT.....	29
6.3.1	Construction phase	29
6.3.2	Operational phase.....	31
6.4	MITIGATION MEASURES.....	34
6.4.1	Land.....	34
6.4.2	Air	57
6.4.3	Noise and vibration	63
6.4.4	Water	67
6.5	RESIDUAL RISK ASSESSMENT	74
6.5.1	Construction phase	74
6.5.2	Operational phase.....	76
6.6	MANAGEMENT PLANS.....	78
7.	COMMUNICATION, MONITORING AND REPORTING.....	79
7.1	COMMUNICATION.....	79
7.1.1	Construction phase	79
7.1.2	Operational phase.....	79
7.2	MONITORING	79
7.3	REPORTING	80
7.3.1	Construction phase	80
7.3.2	Operational phase.....	80
7.4	REVIEW	80
7.4.1	Construction phase	80
7.4.2	Operational phase.....	80
8.	COMPLIANCE AUDITING AND MONITORING	81
8.1	EMP PROVISIONS	81
8.1.1	Construction phase	81
8.1.2	Operational phase.....	81

9. EMERGENCY PLANNING AND RESPONSE 83

9.1 CONSTRUCTION PHASE..... 83

9.1.1 Induction and training requirements 83

9.1.2 Environmental incidents 83

9.1.3 Non-conformance 84

9.2 OPERATIONAL PHASE 84

10. REFERENCES 85

11. APPENDICES..... 86

1. Background

SOILCO commenced composting operations in 1985 in Australia and has a strong distribution network in agricultural and urban markets. SOILCO are a manufacturer of quality assured compost, mulch and soil blends and specialise in the design, construction and operation of innovative organics recycling facilities in Australia. SOILCO's mission is to transform organic resources into the world's best products to regenerate and enhance the health and productivity of soil and to maximise our contribution to clean energy and sustainable communities.

SOILCO Pty Ltd (SOILCO) is a producer of organic soil improvers, manufacturing a range of soil, compost, and mulch products and specialising in the processing of organic waste through composting facilities and organics processing facilities. SOILCO currently has four approved and licensed facilities in New South Wales and is proposing to develop and operate a Compost Manufacturing Facility (CMF) in Southeast Queensland, approximately 80 km south-west of Brisbane and 62 km west of the Gold Coast (the Project).

1.1 Purpose of this document

The following Environmental Management Plan (EMP) has been prepared by SOILCO for the Compost Manufacturing Facility (CMF) located at 260 Mitchell Rd, Bromelton. The Bromelton CMF Project will involve the construction and operation of a facility for the receipt, processing, composting, and storage of the following materials: garden, food, wood wastes, manures and soil for the sale and distribution of finished compost, mulch and soil products. SOILCO will design, construct and operate the Bromelton CMF Project. This EMP details the processes that occur on-site and how any potential impacts identified during the planning, approval, construction and operational phases will be controlled, monitored and reported.

1.1.1 Integrated management system

SOILCO operates an Integrated Management System (IMS) that combines all related components of a business into one system for easier management and operations. Quality (QMS), Safety (SMS) and Environmental (EMS) management systems are combined and managed as part of this IMS. The IMS ensures SOILCO focuses on delivering best practice service to its customers, staff and the community. SOILCO is committed to third-party certification and has designed and implemented its management system accordingly. The IMS is structured upon the requirements of:

- AS/NZS 9001:2016 – Quality Management Systems
- AS/NZS 45001:2018 – Occupational Health and Safety Management Systems
- AS/NZS 14001:2016 – Environmental Management Systems
- AS 4454:2012 – Composts, Soil Conditioners and Mulches
- AS 4419:2018 – Soils for Landscaping & Garden Use
- NHVR Regulations for Mass, Maintenance & Fatigue Modules
- NSW DPI Phylloxera
- NSW EPA Environment Protection Licences
- *Mines and Petroleum Regulation 2022*
- *Protection of the Environment Operations Act 1997*.

IMS certification will be conducted by a third-party certification body, providing confidence in the commitment, application, and continual improvement of SOILCO's management systems to our staff, customers and other interested parties.

The requirements specified are aimed primarily at achieving objectives, goals and commitments stated in SOILCO's Quality, Environmental and Safety Policies. External certification ensures and confirms that the technical, administrative, and human factors are identified and controlled, and that they satisfy the internal managerial needs of SOILCO. The systems also demonstrate SOILCO's capability to meet the required standards of quality to customers, regulatory bodies and interested parties as well as meeting the organisations own objectives within business capabilities.

The management system follows the "process approach" which incorporates the "Plan-Do-Check-Act (PDCA) Cycle" and "risk-based thinking" defined and promoted by ISO 9001, whereby desired results are achieved more efficiently through planning and management as well as review and addressing of risks and opportunities that threaten or may enhance objectives. The processes herein are considered in terms of adding value to SOILCO's overall product and service provision and will be continually improved based on objective measurements over the years.

The management system has also been structured following the "system approach to management", whereby a system of interrelated processes for a given objective have been identified, which in some cases satisfy the requirements of more than one standard i.e., management review. The management system also aims at facilitating the training and induction of new staff to allow them to rapidly achieve a high level of performance, thereby allowing SOILCO to continue to operate at its peak performance always.

Continual improvement principles and the prevention of non-conformities will be objectives of SOILCO to constantly improve the effectiveness of the management systems with the aim of enhancing customer satisfaction through meeting their requirements. Improvement initiatives will be reported upon and reviewed during regular Monthly Management Meetings.

The management of SOILCO understand that our customers' opinion of us is influenced by the behaviour of our staff, our ability to meet service and product requirements, enhance customer satisfaction and maintain long term relationships. Our customers are the centre of our business so meeting and exceeding customer needs forms a core focus of our business and, therefore, forms the basis of our quality system.

SOILCO ensures customer requirements are determined in the form of a specification for all sites (Environmental Management Plan) and projects (Contract Management Plan). For each site and project, SOILCO implements a straightforward structure utilising several key staff to ensure customer service and product requirements are met.

1.1.2 Administration and control

This EMP and its associated Flowcharts, Roles and Responsibilities, Registers and Standard Forms are regularly reviewed by SOILCO management for continued compliance and relevance to the SOILCO business operation, as well as relevant standards. The EMP will be used as a reference tool to guide all staff through their day-to-day duties in a safe and efficient manner.

All SOILCO staff will have access to the relevant parts of the EMP and associated documents, procedures, and forms either electronically via the centralised SOILCO computer system or with up-to-date controlled copies on-site.

The location of all documents and records associated with the EMP are documented in the Forms Register (SOILCO001), which also serves as an archive and records register.

Revisions are scheduled and noted in the Forms Register. Minor changes are proposed and changed by the relevant divisional Manager and are approved by the Executive General Manager (EGM Finance & Operations). Changes to documentation shall be noted in the 'amendment records' tab of the Forms Register. Superseded copies of the EMP and related documents listed in the Forms Register, shall be placed in the 'Archive' electronic folder for reference. References in this EMP to accompanying documents are in italics.

2. Project overview

The Bromelton CMF Project aligns with objectives in the Queensland Government's Queensland Organics Strategy 2022–2032 by reducing the amount of organic waste going to landfill, and will offer economic and social benefits through employment and local business opportunities in South East Queensland. Table 1 below summarises the key components of the Bromelton CMF Project.

Table 1 Key Project components

Project Component	Details
Lot on Plan	Lot 4 on Plan RP85497 and Mitchell Road (local government road parcel)
Description of works	Operation of the Compost Manufacturing Facility (CMF) at 260 Mitchell Road, Bromelton for the sale and distribution of finished compost, mulch and soil products The site will be split into 3 different processing areas: Receival, decontamination and composting utilizing Forced Aeration Pad system (ASP).
Construction disturbance area within Lot 4 on RP85497	21 ha
Operational footprint within Lot 4 on RP85497	18.5 ha
The output of the CMF and type of material to be received and processed	Receipt, processing, composting, and storage of up to 250,000 tpa of the following materials: garden, food and wood wastes and manure. Receipt, processing, storage and blending of up to 150,000 tpa of sand and soil products for manufacturing (Virgin Excavated Natural Materials or VENM).
Technology used	Two composting technologies will be utilised to handle different feedstocks: – 100,000 tpa of garden organics (GO) composted by Passive Open Windrow (OW) method. – 150,000 tpa of Food Organics and Garden Organics (FOGO) is to be processed on a Forced Aeration Pad system (ASP). Wood wastes and manure will make up a small portion of the composting feedstocks and will be blended with the GO & FOGO based on onsite capacity. VENM will be received and stored as required based on demand of finished products. Due to the seasonal nature of feedstock generation, up to 15% of the total annual waste may be received in any one month. This would typically occur around spring and autumn.
Key infrastructure and structures	– Access from Mitchell Road – Weigh bridges – Internal road network – Maintenance and storage shed – Final screening and manufacturing area – Water tanks – Aeration Pad system – Office, carparking and amenities – FOGO receival area – 3x leachate ponds – 1x freshwater dam – Open windrows pad – FOGO maturation pad – Hardstand areas – Lined leachate ponds – Retaining wall – Upgrade of Mitchell Road.
Hours of operation	Monday – Friday: 6am to 6pm Saturday: 6am to 4pm Sunday and public holidays: 9am to 4pm
Operational staff required	22 employees
Access arrangements	Mitchell Road will connect the Bromelton CMF to the road network. Mitchell Road will be upgraded to accommodate the traffic from the Bromelton CMF.
Timeframe	Construction and Commissioning: 7 April 2025 – 30 January 2026

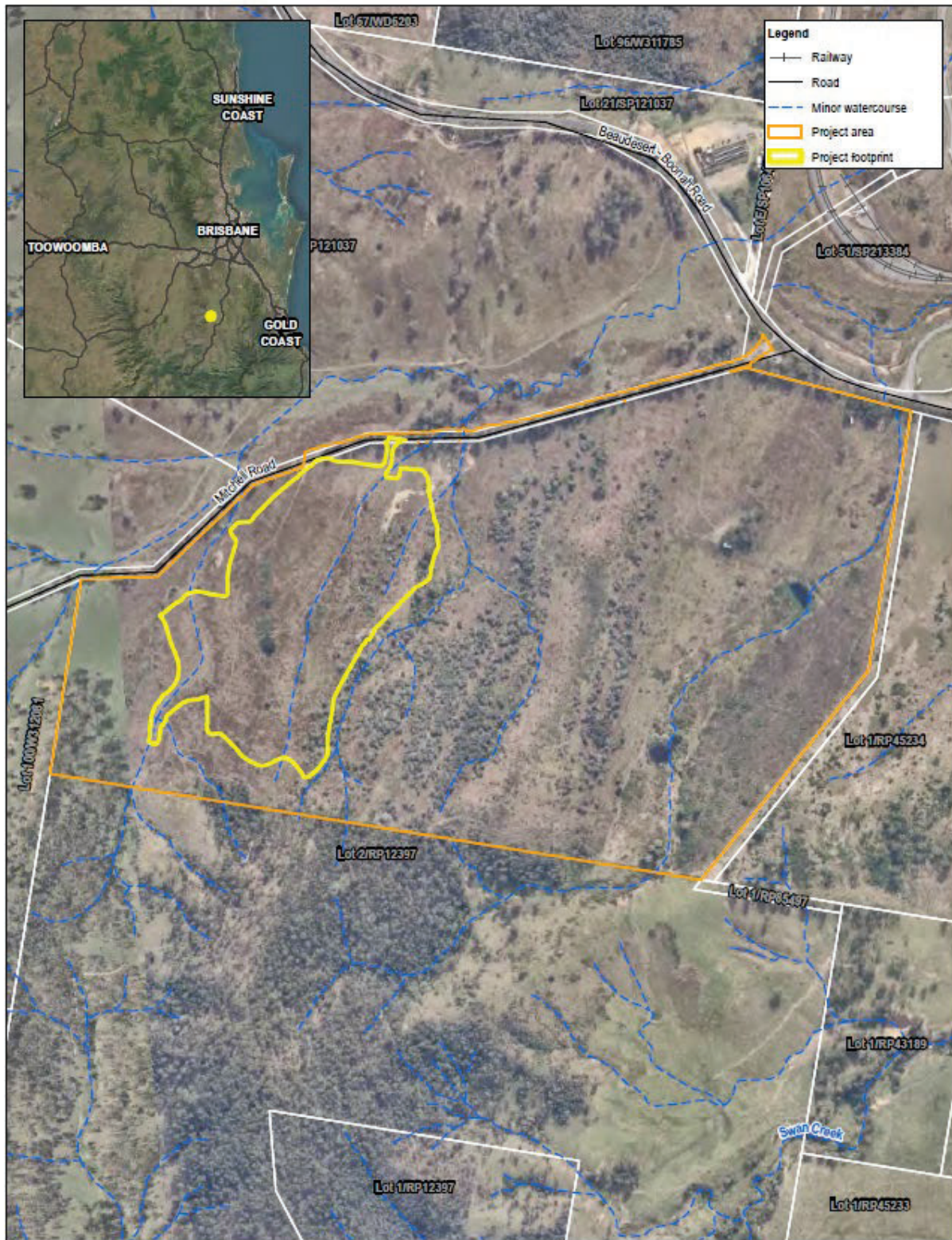
2.1 Project location

Table 2 and Figure 1-1 provides a summary of the key features of the CMF location.

Table 2 Facility location – key features

Category	Description
Street Address	260 Mitchell Road, Bromelton
Lot on Plan	Lot 4 on Plan RP85497 and Mitchell Road (road parcel)
Lot size	160 ha
Longitude and latitude (approximate central lot coordinate)	-27.97834, 152.91454
Local Government Area (LGA)	Scenic Rim Regional Council (SRRC)
Suburb	Bromelton
Tenure	Freehold
Categorising instrument	Bromelton SDA
Existing environmental conditions	Lot 4 on RP85497 Topography is a series of undulating hills and valleys, predominately cleared, previously used for grazing native vegetation. Mitchell Road Unformed road with trees.

Figure 1-1



3. Overview of statutory framework

Table 3 Overview of statutory framework for the Bromelton CMF Project

Legislation	Regulatory bodies	Description	Relevance to Project
Commonwealth			
<i>Environment Protection and Biodiversity Act 1999</i>	Department of Climate Change, Energy, the Environment and Water (DCCEEW)	The <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act) is the Australian Government's central piece of environmental legislation. The EPBC Act provides the legal framework to protect and manage Matters of National Environmental Significance (MNES). There are currently nine MNES protected under the EPBC Act: – World heritage properties – National heritage properties – Wetlands of international importance (Ramsar wetlands) – Nationally listed threatened species and ecological communities – Listed migratory species – Commonwealth marine parks – Great Barrier Reef Marine Park – Nuclear actions (including uranium mining) – A water resource, in relation to coal seam gas development and large coal mining development.	MNES that have potential or are likely to occur in the Project area being: – White-throated needletail (<i>Hirundapus caudacutus</i>) – Koala (<i>Phascolarctos cinereus</i>) – Grey-headed flying fox (<i>Pteropus poliocephalus</i>) – Yellow bellied glider (<i>Petaurus australis australis</i>) – Greater glider (<i>Petauroides volans</i>). Habitat for the five MNES species primarily occurs in the surrounding areas and not directly impacted by the Project area. The exception is the presence of dispersal habitat for the koala and very limited foraging tree species for the grey-headed flying fox within the south section of Lot 4 on Plan RP85497 and koala habitat along Mitchell Road. Provisions under the EPBC Act will be addressed for the Project.
State			
<i>State Development Public Works Organisation Act 1971</i> Bromelton State Development Area Development Scheme	Department of State Development and Infrastructure (DSDI)	The <i>State Development and Public Works Organisation Act 1971</i> (SDPWO Act) authorises the declaration of State Development Areas (SDAs) – clearly defined areas of land established by the Coordinator-General to promote economic development in Queensland.	The Project area is located within the Bromelton SDA and is subject to the Bromelton SDA Development Scheme under the SDPWO Act. It meets the preferred development intent of the Area outlined within the Bromelton SDA Development Scheme and is defined as 'medium to large scale industrial activities of regional, state and national significance'. An assessment against the provisions in the Bromelton SDA in outlined in Section 6 of the Town Planning Report. A SDA Material Change of Use (MCU) approval for works within the Bromelton SDA is being sought for the Project. Conditions of the SDA MCU approval will need to be considered in this document.

Legislation	Regulatory bodies	Description	Relevance to Project
<i>Environmental Protection Act 1994</i>	Department of Environment, Science and Innovation (DESI)	The <i>Environmental Protection Act 1994</i> (EP Act) prescribes conditions through an Environmental Authority (EA), that operators must comply with to undertake environmentally relevant activities (ERAs). ERAs are activities with the potential to release contaminants into the environment that will or may cause environmental harm.	An environmental authority (EA) under the EP Act is required for the CMF. The operation of the CMF will require the following ERAs: – ERA 33 Crushing, milling, grinding or screening – ERA 53(a) Organic material processing • Processing more than 200 t of organic material in a year by composting. – ERA 54 Mechanical waste processing • 2(c) – operating a facility for receiving and mechanically reprocessing more than 10,000 t a year of general waste. An EA for the ERAs is being sought for the Project. Conditions of the EA will need to be considered in this document
<i>Planning Act 2016</i>	Department of Housing, Local Government, Planning and Public Works (DHLGPPW)	The <i>Planning Act 2016</i> is the primary legislation governing planning and development in Queensland. It outlines the framework for creating and implementing planning instruments, policies and designations. The Act aims to achieve ecological sustainability and provides a system for plan-making and development assessment.	Part of the Project area within mapped core koala habitat area. The clearing of core koala habitat is exempted development under Schedule 10, Part 10 of the <i>Planning Act 201</i> , and does not trigger assessable development. The Project area is located within the water supply buffer area which is managed by Seqwater. Therefore, the CMF will be required to be assessed against Chapter 4 of the <i>Seqwater Development Guidelines: Water Quality Management in Drinking Water Catchments</i> (Seqwater 2017). This has been addressed in the SDA MCU approval for works within the Bromelton SDA.
<i>Aboriginal Cultural Heritage Act 2003</i>	Department of Treaty, Aboriginal and Torres Strait Islander Partnerships, Communities and the Arts (DTATSIPCA)	The <i>Aboriginal Cultural Heritage Act 2003</i> is legislation enacted by the Queensland Parliament to recognise, protect, and conserve Aboriginal cultural heritage in Queensland. It provides protection over areas and objects of traditional, customary and archaeological significance.	The Project area has been assessed as a Category 5 risk in accordance with the Cultural Heritage Duty of Care Guidelines under the <i>Aboriginal Cultural Heritage Act 2003</i> . Therefore, a cultural heritage management plan or cultural heritage agreement will be required to be developed with traditional owners under the <i>Aboriginal Cultural Heritage Act 2003</i> .
<i>Environmental Offsets Act 2014</i>	Department of Environment, Science and Innovation (DESI)	The <i>Environmental Offsets Act 2014</i> is legislation in Queensland designed to manage the environmental impacts of development. It aims to counterbalance significant residual impacts of development on environmental values by requiring offsets when unavoidable impacts occur.	Offsets under this Act may be required to counterbalance any significant residual impacts of the Bromelton CMF Project. This has been addressed in the SDA MCU approval for works within the Bromelton SDA.
<i>Land Act 1994</i>	Department of Environment,	The <i>Land Act 1994</i> is a key piece of legislation in Queensland that regulates the ownership, use and management of land. It ensures the	The Project will involve works with Mitchell Road Reserve. Mitchell Road will be upgraded to facilitate the access to the subject site. Scenic Rim Regional Council have determined that the road is to be

Legislation	Regulatory bodies	Description	Relevance to Project
	Science and Innovation (DESI) Department of Resources (DoR)	sustainable use and management of State land by providing guidelines for the allocation of land, including leasing and reservations.	upgraded to a class 4B – rural collector road and this entails an 8m formation and 7m carriageway. The upgraded will accommodate B-Double traffic. SOILCO has secured a separate development approval for operational works from Scenic Rim Regional Council for the upgrade of Mitchell Road.
<i>Vegetation Management Act 1999</i>	Department of Resources (DoR)	The <i>Vegetation Management Act 1999</i> regulates the clearing of vegetation in Queensland in a way that: – conserves remnant vegetation; – ensures clearing does not cause land degradation; and – prevents loss of biodiversity. The Act provides for five ‘Accepted development vegetation clearing codes’. Each code outlines the requirements for clearing vegetation for particular purposes and to achieve the desired environmental outcomes., offsets and voluntary declarations. – Category A — vegetation that is subject to compliance notices, offsets and voluntary declarations – Category B — remnant vegetation shown on a regional ecosystem or remnant map as an endangered regional ecosystem, an of concern regional ecosystem or a least concern regional ecosystem – Category C— high-value regrowth vegetation – Category R— regrowth watercourse area – Category X— vegetation that is generally exempt from requirements under vegetation management laws.	The project footprint within Lot 4 RP85497 for the CMF will require the clearing of 2.1 ha of Category X vegetation. The clearing of within the CMF Project area does not trigger approvals as the clearing of Category X area on freehold land is exempt development as outlined under Part 2, Schedule 21 of the Planning Regulation 2017. The project footprint within Mitchell Road will require the clearing of: - 0.5 ha of Category B Endangered and Of Concern regional ecosystems. - 0.2 ha of Category X (non-remnant) vegetation. The clearing within the Mitchell Road Reserve will be limited to 10 m wide and meets the clearing limits in Section 4.3 in Accepted Development Vegetation Clearing Code – Clearing for Infrastructure.
<i>Fisheries Act 1994</i>	Department of Agriculture and Fisheries (DAF)	The <i>Fisheries Act 1994</i> provides Queensland’s principal legislative framework for the regulation of commercial fishing, recreational fishing, indigenous fishing, coastal areas that are important as fisheries habitat and marine plants. To protect and manage fish passage and fish habitat in Queensland waterways, waterway barrier works (when barriers to fish movement, including partial barriers, are installed across waterways) are regulated under the <i>Fisheries Act 1994</i> and the <i>Planning Act 2016</i>.	Two green low risk waterway barrier works waterways traverse the Project area (referred to as ACT1 and ACT2). The waterways details include: – ACT1 – traverses outside of the CMF – ACT2 – traverses through the centre of the CMF. The two waterways (ACT1 and ACT2) are not considered to be suitable for fish passage or provide fish habitat for the following reasons: – The waterways provide no connectivity and fish passage to upstream areas. – The waterways do not provide suitable fish habitat features and there were evidence of fauna species within ACT1 and/or ACT2. – There is no evidence of aquatic species recorded in waterways ACT1 and ACT2.

Legislation	Regulatory bodies	Description	Relevance to Project
			– ACT1 and ACT2 have reasonably poor water quality. – No fish passage occurs due to absence of defined bed and banks, minimal flow and depth, no habitat features present and no upstream habitat. – ACT 1 and ACT 2 are considered to be drainage depressions that carry overland flow water during and immediately after rainfall events; and flows for only a short duration after a rainfall event, regardless of the frequency of flow events; and does not have enough continuing flow to create a riverine environment. DAF noted that ACT1 has a shallower gradient that allows for fish movement, defined bed and banks and shows evidence of fish habitats. DAF considered ACT1 to constitute a waterway as defined under the <i>Fisheries Act 1994</i> and any waterway barrier works within this waterway require authorisation. The works in this waterway include a dam could be undertaken under the Accepted Development Requirements, provided a spillway in accordance with the design requirements of work type 3.1 is included. SOILCO is seeking further clarification from DAF regarding waterway ACT1 based on the findings of the aquatic assessment.
<i>Water Act 2000</i> <i>Water Plan</i> <i>(Logan Basin)</i> 2007	Department of Regional Development, Manufacturing and Water (DRDMW)	The <i>Water Act 2000</i> provides a framework for the planning, allocation and use of surface water and groundwater in Queensland, including regulating major water impoundments (e.g. dams and weirs) and extraction through pumping for irrigation and other uses. Water plans are developed under the <i>Water Act</i> to sustainably manage and allocate water resources in Queensland.	One minor watercourse intersects the centre of the Project area (ACT2) and is classified as ‘Unmapped’ under the <i>Water Act 2000</i>. Pre-lodgement advice from DRDMW, confirmed that no approvals are triggered for the water feature. DRDMW also confirmed that no approvals under <i>Water Plan (Logan Basin) 2007</i> are required for the freshwater dam, and no authorisations are required to take/use water from the dam under this <i>Water Plan</i>.

4. Existing environment

A summary of the existing condition of key environmental aspects that have the potential to be impacted by the works associated with the construction and operational phases of the CMF is provided in Table 4 below. Potential approval triggers and additional investigations recommended for consideration in the next phase of the Project are also covered.

The existing condition of each environmental aspect and notable legislative requirements have been recorded in relation to the modifications proposed as part of the Project.

Table 4 Existing condition of key environmental aspects and notable legislative requirements

Element	Legislative trigger	Environmental aspect	Comments	Reference to mitigation measures
Land				
Bushfire hazard	State Development and Public Works Organisation Act 1971	Fire weather	The majority of the development footprint is outside the Bushfire Prone Area (BPA) and consequently avoids areas of bushfire risk. Additionally, the Project can be adequately separated from nearby hazardous vegetation and does not include significant changes to the vegetation hazard class adjacent to the development footprint, therefore it is not expected to increase the severity of bushfire hazard. The development footprint is on land that is largely cleared of vegetation and is not steeply sloping. A Bushfire Hazard Assessment and Management Plan (Appendix A) has been developed for the CMF to address the requirements in the Bromelton SDA Development Scheme. The Bushfire Hazard Assessment and Management Plan has been conducted in accordance with Part 5 of the Bushfire Resilient Communities guidance material supporting the implementation of the State Planning Policy, prepared by Queensland Fire and Emergency Services. The bushfire risk is expected to be low to moderate. There are several mitigation measures to manage bushfire risk such as asset protection zones, fencing, water supply, fire-fighting infrastructure, revegetation, and fuel load management. The Queensland Fire and Emergency Services (renamed Queensland Fire Department in July 2024) Catalyst Fire Management System includes Forest Fire Danger Index (FFDI) mapping which is climate-adjusted for a five percent annual exceedance probability (AEP) fire weather event in 2050. Vegetation can impact fire intensity. Vegetation classification is an indicator of fire intensity and fire behaviour, associated with specific types of vegetation. Vegetation communities within 150 m of the Project footprint form the basis of the assessment required as part of the Bushfire Resilient Communities Guidelines.	Section 6.4.1.1
		Vegetation (fuel load)		
		Slope and aspect		
		Ignition sources		

Element	Legislative trigger	Environmental aspect	Comments	Reference to mitigation measures
			The broad vegetation group present within 150 m of the Project footprint is Eucalypt woodlands to open forests; with a surface potential fuel load of 16.3 t/ha, and a total potential fuel load of 20.8 t/ha. The overall site slope (the slope within the development footprint itself) in proximity to the southern boundary of the site has been estimated to be approximately 6.5 degrees from the southern boundary, down toward the north. It is noted that the overall site slope within the development footprint will be subject to cut and fill to create flat pads to facilitate the development. The development footprint generally maintains a northerly and north-westerly aspect. Ignition sources in the area surrounding the Project area may include: – Accidental ignition from agricultural and extractive industry uses and other machinery and equipment – Sparking – Roadside ignition (potentially caused by cigarette butts thrown from vehicles) – Arcing powerlines – Other rural and industrial activities – Ignitions may also occur from activities on nearby rural residential properties such as lawnmowing and use of power tools. The ignition potential of the CMF, may occur from various activities on-site, including use of machinery and fuel storage. Ignition from the composting process itself may also occur.	
Landscape	<i>State Development and Public Works Organisation Act 1971</i>	Visual amenity	A Visual Impact Assessment (VIA) was completed to outline the potential visual amenity impacts of the CMF and to address the requirements in the Bromelton SDA Development Scheme. The landscape within the Project area contains the Bromelton SDA, heavy and high-impact industries, undulating farmland, recreational areas, and elevated upland and ridges. The topography of the Project area is a landscape characterised by gently undulating and rolling hills, ridges and valleys. It encompasses various major and minor creeks such as Swan Creek, Sandy Creek and Allan Creek. The Project area has a diverse array of vegetation, featuring native woodlands and forests, grasslands and revegetation native trees. The VIA was undertaken with seven representative viewpoints selected for assessment. The outcome of this process indicates that the visual impacts of	Section 6.4.1.2

Element	Legislative trigger	Environmental aspect	Comments	Reference to mitigation measures
			the Project are anticipated to be moderate-low to negligible as overall the site is well-screened by intervening landform and vegetation.	
	<i>State Development and Public Works Organisation Act 1971</i> <i>Environmental Protection Act 1994</i>	Potential and actual acid sulfate soils (ASS) (elevation ≤5 m AHD)	Acid sulfate soils generally occur in coastal areas lower than 5 m AHD and can be found at elevations below 20 m AHD. Mapping on Queensland Globe, combined with the site being located at over 100 m AHD indicates that the site is not likely to contain acid sulfate soils. Acid sulphate soils are not considered to be present within the Project area due to the Project area being located above 20m AHD. An assessment of ASS was undertaken to address the requirements in the Bromelton SDA Development Scheme.	Section 6.4.1.3 Section 6.4.1.8
	<i>State Development and Public Works Organisation Act 1971</i> <i>Environmental Protection Act 1994</i>	Dispersive soils	A review of the Australian Soil Classification mapping (Queensland Globe 2024) shows the six unique soil classifications with the Project area. The main soil types within the site are classified as chromosols, kurosols, dermosols, ferrosols, and sodosols.	
	<i>State Development and Public Works Organisation Act 1971</i> <i>Environmental Protection Act 1994</i>	Geology and topography	The Queensland Government 1:100,000 Detailed Surface Geology spatial layer (GeoRes Globe 2024) shows that, within the Project area, the surface geology is made up of three rock units; however, the Project footprint is comprised of only the Koukandowie Formation and the Heifer Creek Sandstone Member. The Project area is described as undulating terrain. The general contour of the Project area has an increasing 15 m slope from the western to the eastern extent. Within the Project area, the terrain is relatively even, with the southern extent having the highest elevation of 145 m AHD and the northern extent (Mitchell Road) having the lowest height of 100 m AHD.	
Terrestrial biodiversity	<i>Environment Protection and Biodiversity Conservation Act 1999</i>	Matters of National Environmental Significance (MNES)	Threatened ecological communities A desktop assessment indicated that six threatened ecological communities (TECs) have the potential to occur within the Project area. A field survey, undertaken on 10 and 12 April 2024, assessed the vegetation communities within the Project area to determine the presence of any TECs. The survey identified no vegetation communities within the Project area confirmed to align with any TECs. Only one type of vegetation community that could potentially align with a TEC was recorded; regrowth patches of RE 12.9-10.3, dominated by <i>Eucalyptus moluccana</i> . RE 12.9-10.3 may align with the 'Grey box-grey gum wet forest of subtropical eastern Australia' TEC (DCCCEW, 2022). This vegetation community occurs within the Project footprint along Mitchell Road.	Section 6.4.1.4

Element	Legislative trigger	Environmental aspect	Comments	Reference to mitigation measures
			Multiple patches were assessed against the relevant TEC criteria, including the key diagnostic characteristics and condition thresholds. One of the key diagnostic characteristics of this TEC is to have a canopy containing grey box (<i>Eucalyptus moluccana</i>) and grey gums (<i>E. propinqua</i>, <i>E. punctata</i>); however only grey box individuals were recorded. Due to the lack of grey gums (<i>E. propinqua</i>, <i>E. punctata</i>) and the poor quality of the habitat; the TEC criteria were not met, and this TEC was evaluated as being 'unlikely to occur' as part of the likelihood of occurrence assessment. Threatened fauna species There were no conservation significant fauna species identified during field surveys; however, a likelihood of occurrence assessment was completed based on habitat assessments undertaken during the field survey. Five MNES were assessed as 'likely to occur' or having the 'potential to occur' within the Project area. Specifically, five listed fauna species were identified, one of which is also listed as migratory: – <u>Likely to occur:</u> • White-throated needletail (<i>Hirundapus caudacutus</i>) • Koala (<i>Phascolarctos cinereus</i>) • Grey-headed flying fox (<i>Pteropus poliocephalus</i>). – <u>Potential to occur:</u> • Yellow bellied glider (<i>Petaurus australis australis</i>) • Greater glider (<i>Petauroides volans</i>).	
	<i>Environmental Protection Act 1994</i> <i>Nature Conservation Act 1992</i> <i>Vegetation Management Act 1999</i> <i>State Development and Public Works Organisation Act 1971</i>	Matters of State Environmental Significance (MSES)	– MSES conservation areas – none mapped within the Project area. – MSES wetland values– none mapped within the Project area. – MSES wildlife habitat – none mapped within Lot 4 RP85497, however a small area of MSES wildlife habitat [SEQ koala habitat - core] is mapped along Mitchell Road. – MSES vegetation and habitat - MSES regulated vegetation (essential habitat) is partly mapped within the Project area. – MSES regulated vegetation (category C- endangered or of concern) is partly mapped within the Project area. MSES regulated vegetation (category B - endangered or of concern) is mapped along Mitchell Road.	

Element	Legislative trigger	Environmental aspect	Comments	Reference to mitigation measures
	<i>Vegetation Management Act 1999</i> <i>Planning Regulation 2017</i> <i>State Development and Public Works Organisation Act 1971</i> <i>Environmental Protection Act 1994</i>	Vegetation communities	The project footprint within Lot 4 RP85497 for the CMF will require the clearing of 21 ha of Category X vegetation. The project footprint within Mitchell Road will require the clearing of: - 0.5 ha of Category B Endangered and Of Concern regional ecosystems. - 0.2 ha of Category X (non-remnant) vegetation.	
	<i>Nature Conservation Act 1999</i>	Conservation significant flora species and conservation significant fauna.	There were no protected plant trigger areas located within the Project footprint or wider Project area. No conservation significant flora species were identified during field surveys and therefore, the likelihood of occurrence assessment determined all flora species as either 'unlikely to occur' or 'highly unlikely to occur'. No flora species required a significant impact assessment. The short-beaked echidna (<i>Tachyglossus aculeatus</i>), has the 'potential to occur' within the Project area.	
	<i>Vegetation Management Act 1999</i>	Essential habitat (fauna)	Essential habitat is mapped at the southern western corner of Lot 4 on RP85497 and along Mitchell Road. During field surveys, open woodlands were observed only in the south-west of the Project area and Lot 4 on RP85497 i, as well as along Mitchell Road reserve. These vegetated areas support essential habitat for koalas (<i>Phascolarctos cinereus</i>). Microhabitats were present adjacent to the Project area; primarily hollows (generally small) present in eucalypt trees (predominantly <i>E. tereticornis</i>). These could provide breeding habitat for gliders as well as avifauna. However, all but one area containing these hollows was deemed unsuitable habitat for gliders due to the lack of connectivity.	
	<i>South East Queensland Koala Conservation Strategy 2020–2025</i> <i>Planning Act 2016</i>	Core koala habitat	Core koala habitat is mapped along Mitchell Road to the north and at the southern western corner of Lot 4 on RP85497. Field surveys have confirmed koala habitat within the Project area.	
	<i>Nature Conservation Act 1992</i>	Native animal breeding places	During field assessments conducted in April 2024, fauna breeding places were observed to be present amongst remnant vegetation patches within the	

Element	Legislative trigger	Environmental aspect	Comments	Reference to mitigation measures
			Project area; providing a range of microhabitat features for breeding, shelter and roosting habitat. Fauna breeding places were generally uncommon within the Project area owing to a lack of remnant vegetation and historical clearing. The highest value fauna habitat was found in the south-west margin of the Project area, as well as along Mitchell Road to the north outside of the Project area.	
	<i>Biosecurity Act 2014</i>	Introduced/pest flora and fauna species	Several species of fauna/flora relevant to the <i>Biosecurity Act 2014</i> were present in the field surveys. During field surveys the following introduced fauna species were observed: – Cane toad (<i>Rhinella marina</i>) was observed three times. – European fox (<i>Vulpes vulpes</i>) was captured twice on remote camera imagery. Weed species considered to be of greatest threat to natural and economic values on a national basis have been ranked as Weeds of National Significance (WONS) (Thorpe & Lynch 2000). Ten restricted flora species were recorded during the site visit, five of which are listed as WONS: – Groundsel bush (<i>Baccharis halimifolia</i>) – Mother-of-millions (<i>Bryophyllum delagoense</i>) – Chinese celtis (<i>Celtis sinensis</i>) – Lantana (<i>Lantana camara</i>) – WONS – Creeping lantana (<i>Lantana montevidensis</i>) – Prickly pear (<i>Opuntia stricta</i>) – WONS – Velvet tree pear (<i>Opuntia tomentosa</i>) – WONS – Parthenium (<i>Parthenium hysterophorus</i>) – WONS – Fireweed (<i>Senecio madagascariensis</i>) – WONS – Giant rat's tail grass (<i>Sporobolus pyramidalis</i>)	
Aquatic biodiversity	<i>Environmental Protection (Water and Wetland Biodiversity) Policy 2019</i> Logan River Environmental Values	Aquatic MSES values	An aquatic ecology assessment has been completed for the Project.	Section 6.4.1.5

Element	Legislative trigger	Environmental aspect	Comments	Reference to mitigation measures
Heritage	and Water Quality Objectives			
	<i>Environment Protection and Biodiversity Conservation Act 1999</i> <i>Nature Conservation Act 1999</i>	Conservation significant flora and fauna species	A desktop assessment identified no species of conservation significance within 1 km of the Project area. No aquatic flora or fauna species listed under the EPBC Act or NC Act were observed during field surveys. Eight different species of aquatic plants (macrophytes) were recorded across five testing points within the survey area; and no fish or turtle species were observed.	
	<i>Aboriginal Cultural Heritage Act 2003</i>	Aboriginal cultural heritage values	A Cultural Heritage and Native Title Duty of Care Assessment has been completed for the Project and found the following: – revealed two known cultural heritage values within 1 km of the Project area. – identified 18 stone artefacts inside or adjacent to the Project area. The fie Cultural Heritage and Native Title Duty of Care Assessment determined that the Project area is mapped as a Category 5 risk, under the Aboriginal Cultural Heritage Act – Duty of Care Guidelines. A Category 5 risk indicates that there is a generally high risk that an activity can harm Aboriginal cultural heritage. Particular care must be taken where it is proposed to undertake activities causing additional surface disturbance to the features likely to have cultural heritage significance.	Section 6.4.1.6
Waste	<i>Queensland Heritage Act 1992</i>	European cultural heritage values	No National, State or local heritage values were recorded within or adjacent to the Project area.	
	<i>Native Title Act 1993</i>	Native Title	Lot 4 on RP85497 is mapped as freehold land. A search of the Native Title Register indicated that no Native Title determinations currently exist over the Lot 4. One Native Title application exists over the works area: – Ted Williams & Ors on behalf of the Danggan Balum (Five Rivers) People v State of Queensland (QC2017/007)(QUD331/2017).	
	<i>Environmental Protection Act 1994</i> <i>Environmental Protection Act 1994</i>	Asbestos containing materials (ACMs) Known waste-/regulated waste	No known ACM present. No existing known or regulated waste present.	Section 6.4.1.7

Element	Legislative trigger	Environmental aspect	Comments	Reference to mitigation measures
Air				
Pollutant dispersal factors	<i>Environmental Protection Regulation 2019</i>			
	<i>State Development and Public Works Organisation Act 1971</i> <i>Environmental Protection Act 1994</i>	Climate	The greater Southeast Queensland region (encompassing the SRRG LGA) is classified as a sub-tropical climate influenced by tropical systems in the north, and fluctuations in the high pressure ridge to the south (DES 2019). Climate data was sourced from the Bureau of Meteorology (BoM) Beaudesert–Drumley Street Weather Station (ID: 040983), approximately 6.6 km east of the CMF (BoM 2024). The data, on average, indicates that January is the warmest month and July is the coolest month. January has the highest average rainfall in comparison to August, which has the lowest rainfall. August also has the lowest average of days ≥ 1 mm of rain.	Section 6.4.2.1
	<i>State Development and Public Works Organisation Act 1971</i> <i>Environmental Protection Act 1994</i>	Wind direction and speed	Key observations for the annual wind rose are as follows: – Overall, winds are predominantly from the south-west – The average wind speed is a moderate 1.3 m/s – Calms, which are defined as wind speeds less than 0.5 m/s and are associated with poor dispersion outcomes, occur 33.8 percent of the time. Seasonal wind roses show the following trends: – Relatively high prevalence of calm conditions can be observed all year round as with the highest percentage of calms being observed in winter (40.1 percent of the time) – Wind speeds are generally moderate year-round, with marginally higher wind speeds observed in spring and summer – Winds blow primarily from the south south-west in autumn and winter. Winter wind data shows weak directionality in wind directions. Summer wind directions occur primarily from the east north-east and south south-west. Diurnal wind roses show that: – Calm conditions are significantly more frequent in the nighttime period relative to the daytime period, with calm conditions occurring between 58.2 percent to 61.4 percent of the time	

Element	Legislative trigger	Environmental aspect	Comments	Reference to mitigation measures
Ambient air quality	<i>State Development and Public Works Organisation Act 1971</i> <i>Environmental Protection Act 1994</i>	Pollutants	– Wind generally occurs from a southerly direction in the nighttime periods – Wind occurs primarily from the southwest and northwest between 6:00 am and 12:00 pm, and primarily from the northeast between 12:00 pm and 6:00 pm. The nearest station to the CMF site is located in North Maclean, approximately 24.5 km north of the site, which commenced operating in February 2021. The monitoring station has recorded the following general trends for Particulate Matter (PM) pollutants between 2021 and 2023: – A reduction in the maximum 24-hour average of PM₁₀ and PM_{2.5} – An increase in the 70th percentile, 24-hour average of PM₁₀ and PM_{2.5} – An increase in the annual average of PM₁₀ and PM_{2.5}.	Section 6.4.2.2
Noise and vibration				
Noise	<i>Environmental Protection (Noise) Policy 2019</i>	Sensitive receptors	Twelve sensitive receptors were identified to be within 2.5 km of the Project area. Refer to the Noise Impact Assessment Report completed for the Project. The sensitive receptors primarily consist of rural residential and industrial properties. The existing environment consists of rural open land with residential buildings and industrial operations scattered around. The main road servicing the area is Beaudesert–Boonah Road.	Section 6.4.3.1
	<i>Environmental Protection Act 1994</i> <i>Environmental Protection Regulation 2019</i>	Background noise	In the Noise Impact Assessment Report completed for the Project, two noise loggers were deployed near the Project area to capture ambient and representative background levels near the area. The noise levels measured around the Project area were very low; below the minimum background noise levels for isolated rural areas.	
Water				
Water features	<i>Fisheries Act 1994</i>	Waterways for waterway barrier works	An aquatic ecology assessment has been completed for the Project. There are several green (low risk) waterways for waterway barrier works within the Lot boundary. These waterways flow north-west into two separate ‘amber’ (moderate risk) waterways, and then converge to a ‘red’ (major risk) waterway approximately 200 m from the Project area. This ‘red’ waterway then continues to flow north-west as a tributary to Allan Creek.	Section 6.4.4.1

Element	Legislative trigger	Environmental aspect	Comments	Reference to mitigation measures
			Allan Creek is mapped as a 'purple' (major risk) waterway, which has a confluence to the Logan River approximately 6.5 km downstream of the Project area. Two green low risk waterway barrier works waterways traverse the Project area (referred to as ACT1 and ACT2). The waterways details include: – ACT1 – traverses outside of the CMF location – ACT2 – traverses through the centre of the CMF. The two waterways (ACT1 and ACT2) are not considered to be suitable for fish passage or provide fish habitat for the following reasons: – The waterways provide no connectivity and fish passage to upstream areas. – The waterways do not provide suitable fish habitat features and there was no evidence of fauna species within ACT1 and/or ACT2. – There is no evidence of aquatic species recorded in waterways ACT1 and ACT2. – ACT1 and ACT2 have reasonably poor water quality. – No fish passage occurs due to absence of defined bed and banks, minimal flow and depth, no habitat features present and no upstream habitat. – DAF noted that ACT1 has a shallower gradient that allows for fish movement, defined bed and banks and shows evidence of fish habitats. DAF considered ACT1 to constitute a waterway as defined under the Fisheries Act 1994 and any waterway barrier works within this waterway require authorisation. The works in this waterway include a dam could be undertaken under the Accepted Development Requirements, provided a spillway in accordance with the design requirements of work type 3.1 is included. SOILCO is seeking further clarification from DAF regarding waterway ACT1 based on the findings of the aquatic assessment.	
	<i>Water Act 2000</i>	Drainage features	Within the Project area there are various drainage lines and unmapped watercourses. To gain clarity on these unmapped features, DRDMW was contacted (via email on 12/06/2024) to determine if these features will be mapped. DRDMW replied to the confirmation email and stated that all other unmapped features are classified as drainage features under the Water Act.	
Wetlands	<i>Environment Protection and Biodiversity Conservation Act 1999</i>	RAMSAR wetland/wetland Protection Area in a Great Barrier Reef catchment	A search of the EPBC Act Protected Matters Search Tool (PMST) indicated that the Project area is not located within the vicinity of any wetlands of international importance (Ramsar wetlands). The Moreton Bay Ramsar Wetland is located approximately 30-40 km downstream of the Project area.	

Element	Legislative trigger	Environmental aspect	Comments	Reference to mitigation measures
	<i>Environmental Protection Act 1994</i> <i>State Development and Public Works Organisation Act 1971</i>	Matters of State and Local Environmental Significance (MSES and MLES)	The DESI referable wetlands mapping indicates the Project area is not located in a wetland protection trigger area. However, there are natural wetlands of High Ecological Significance occurring within 5 km of the Project area. These wetlands comprise less than one percent of the desktop search extent, with the closest wetland area situated more than 3 km from the Project area boundary.	
Flood hazard	<i>State Development and Public Works Organisation Act 1971</i>	Flood hazard areas	Model simulations were undertaken for seven AEP storm events. Ten storm rainfall patterns were simulated for a range of durations, with the median flood peak identified from the ten storm patterns. The operational site is located outside the 1% AEP flood extent for the identified flow paths adjacent to the site.	
Water resource catchment	<i>Planning Act 2016</i>	Catchment area and drainage basins	Based on the Scenic Rim Regional Council Overlay mapping for water resource catchments, the Project area is located within the Logan River Catchment Area, and the Logan-Albert Drainage Sub-Basin. Major regional hydrological features include Wyaralong Dam located 4.6 km to the north-west, which impounds Teviot Brook, a direct tributary of the Logan River downstream of the Project area. Bromelton Off Stream Storage, an off-stream storage located adjacent the Logan River, is also located 4.2 km northeast of the Project area; however, it is currently out of commission. The Project area is located within a Water Supply Buffer Area which is managed by Seqwater. Therefore, the CMF will be required to be assessed against Chapter 4 of the <i>Seqwater Development Guidelines: Water Quality Management in Drinking Water Catchments</i> (Seqwater 2017).	
Groundwater	<i>Water Act 2000</i>	Groundwater values	A groundwater assessment report has been developed for the Project. It was based on desktop assessment and described the existing groundwater environment and identified potential groundwater sensitive receptors. A search of the Queensland Groundwater Database lists 28 registered groundwater bores within a 2 km radius of Lot 4 RP85497 (Queensland Globe 2024). Of the registered bores, five of them are registered as existing water supply bores, which identified as one of the sensitive receptors. There are no groundwater receptors (GDEs) or users within the Project area. The geological units underlying the construction area comprises the Koukandowie Formation and associated member Heifer Creek Sandstone, both of which have been noted to be low permeability aquifer or aquitard. Therefore, the geological units are not considered to be a regional water source.	Section 6.4.4.2

Element	Legislative trigger	Environmental aspect	Comments	Reference to mitigation measures
			The groundwater quality generally meets the aquatic ecosystem guideline values for metals and ammonia. The groundwater is considered to be brackish and not suitable for use as drinking water. There are also a number of contaminating industries to the north, east and south of the lot that could be contaminating groundwater.	
Surface water	<i>Environmental Protection (Water and Wetland Biodiversity) Policy 2019</i> Logan River Environmental Values and Water Quality Objectives	Water quality	An aquatic ecology assessment has been completed for the Project. In-situ water quality was taken at the water features intersecting and surrounding the Project area during field surveys conducted in April 2024. The parameters were compared to the Western Logan River Freshwaters - upland moderately disturbed water quality guidelines (DES 2022). Exceedances were recorded at all five sites for dissolved oxygen and turbidity. Dissolved oxygen ranged from 50.6% to 84.1%, whilst turbidity ranged from 42.11 NTU to 78.15 NTU. Exceedances for electrical conductivity were also recorded at all sites, except for one (346 µS/cm). The pH was within the water quality guideline range at each site. These results indicate the overall water quality across site was reasonably poor to support a diverse range of aquatic species.	Section 6.4.1.5

5. Environmental management

5.1 Roles and responsibilities

All SOILCO employees and contractors associated with the Project are required to abide by the legislation outlined in

Table 4 and comply with all procedures outlined in this Plan. Persons involved with the Project must not carry out any activities that may cause, or are likely to cause, environmental harm unless the person(s) involved take all reasonable and practical measures to prevent or minimise harm. Parties who have active roles in the Plan for construction and operational phases are outlined in Table 5 below and shown in Figure 1.

Table 5 *Roles and responsibilities for construction and operational phases*

Role	Responsibilities
Construction phase	
Project Manager	– Overall Project compliance with this plan. – Provision of onsite supervision via the Contractor for approved staff. – For ensuring that the Project environmental performance meets requirements and in particular is responsible for the integrity of the work and commercial performance of the Project. – Ensure all environmental requirements are implemented in accordance with the Project approvals, SOILCO requirements, the specification, the contract requirements, and legislative obligations. – Reviewing and implementing this EMP. – Communicating the requirements of this EMP to the Project team and ensuring compliance. – Ensuring Project environmental documentation records are maintained and provided to SOILCO and their representatives as necessary. – Ensuring Environmental Incidents are reported as per the Incident reporting outlined in Section 8. – For issuing controlled electronic and hard copies (where required) of the EMP. – Obtaining all the required approvals to undertake the proposed works for further information. – Engage qualified and experienced staff and provide management support to ensure all activities relating to environmental performance are undertaken by trained and competent personnel and in accordance with the contract. – Select subcontractors and suppliers based on an evaluation of their ability to meet the specified requirements including those for environmental aspects and ensure compliance.
Project Director	– Manage the construction process as the Project Proponent. – Provide readily available expertise for the construction of the Project, as required. – Receive progress reports on performance by the Principal Contractor for the purpose of acknowledging compliance with contract conditions. – Review the EMP submitted by the Principal Contractor. – Ensure that the requirements of the Conditions of Contract (environmental management) and approved EMP included in the contract documentation are implemented. – Review any revisions to the EMP as required. – Maintain a current copy of the Contract and the EMP, a record of the completion of planned actions, and monitoring records and reports, supplied by the Principal Contractor. – Initiate audits of environmental performance.
Principal Contractor	– Develop Construction Contractor's EMP in accordance with the approved EMP. – Maintain a master copy of the EMP, a record of the completion of planned actions, and monitoring records and reports, which are made available during audits. – Obtain all necessary statutory approvals and licences, and ensure that conditions of licences/approvals/permits are met. – Provide copies of the EMP to the relevant Project staff, with responsibilities clearly defined in the EMP. – Maintain a record of all training undertaken by all Project staff, detailing the type and purpose of the training. – Ensure that environmental protection measures are implemented in accordance with EMP. – Coordinate regular monitoring in relation to environmental management issues and ensure that monitoring results are made available to the Proponent.

Role	Responsibilities
	– Ensure corrective actions arising from self-assessments and external audits are completed, and in accordance with the EMP. – Notify the Proponent and any relevant agency of all environmental incidents and maintain a record of events relating to the environmental incidents, including any remedial action taken. – Ensure there is adequate and accurate identification and reporting of all non-conformances, complaints and any other environmental issues that may arise during construction. – Provide relevant and timely information about construction activities that may impact on the relevant stakeholders and as required, consult with individuals that may be directly impacted by construction activities to ensure direct Project impacts are being managed. – Undertake regular management reviews of the EMP, at scheduled intervals and on the identification of a system failure.
Principal Contractor (Construction Manager)	– Ensure all staff are trained/inducted to site (including environmental management responsibilities) and that all training/inductions are recorded in a Training and Induction Register. – Ensure appropriate waste facilities are provided on-site and that maintenance and waste disposal is conducted by a licenced contractor, where required. – All vehicles accessing the site use the designated access routes, entries/exits, and parking locations. – All equipment is maintained and 'fit for purpose' before arriving at the site. – All environmental incidents and complaints are reported to the Project Manager.
Construction Superintendent	– Ensure this CEMP, all approved plans and conditions are referred to during construction works on-site and available to all relevant personnel. – Appoint a suitably experienced, licensed fauna spotter-catcher and arborist to oversee the implementation of this Plan during site works. – Undertake works in accordance with the Plan. – Undertake compliance, incidence and/or exceedance reporting during construction. – Monitor weather conditions and water quality, as required. – Report environmental incidents to DESI, where required. – Report and monitor any non-compliance and review management procedures, where required.
Construction Contractor (Employees)	– All personnel involved in construction activities are to be fully briefed on what is permissible under law and animal welfare implications as well as emergency procedures and reporting of incidents. – Complete required inductions and training. – Comply with SOILCO and site rules, practices, management plans, procedures and protocols. – Have appropriate qualifications and licenses to undertake the activities. – Prevent and minimise environmental impacts, where possible. – Report environmental and safety incidents, non-compliances, near misses or complaints to the Supervisor or Construction Manager without delay.
Principal Contractor (Environmental Representative)	– Responsible for ensuring all contractors and operational personnel are aware of their responsibilities under the EMP and any approval/permit conditions. – Prepare relevant plans, procedures and policies to assist in compliance with relevant environmental obligations. – Develop and run awareness training sessions and visitor inductions. – Conduct regular audits. – Oversee monitoring programs. – Prepare internal and external compliance reports.
Fauna Spotter-catcher	– A person authorised under a current rehabilitation permit to take and/or keep a protected animal whose habitat is about to be destroyed by human activity in accordance with the <i>Nature Conservation (Administration) Regulation 2017</i>. – Undertake pre-clearance and post-clearance surveys. – Oversee all vegetation clearing on-site. – Manage and handle all fauna tasks onsite. – Implement fauna contingency measures, where required. – Prepare a pre-clearance and post-clearance fauna spotter-catcher report following the completion of vegetation clearing and the requirements for low risk SMP's under Section 335 of the <i>Nature Conservation (Animals) Regulation 2020</i>.

Role	Responsibilities
Wildlife Carer	– A person qualified to take and keep protected wildlife under a current rehabilitation permit in accordance with the <i>Nature Conservation (Administration) Regulation 2017</i>.
All personnel (including sub-contractors)	General Environmental Duty Under Section 319 of the <i>Environmental Protection Act 1994</i> (EP Act), everyone has a general environmental duty to not undertake an activity that causes or is likely to cause environmental harm unless all reasonable and practicable measures are taken to avoid that harm. All staff and sub-contractors will attend a site specific environmental induction and awareness training to ensure that all personnel are aware of their responsibilities in this regard. Duty to Notify The EP Act also imposes a ‘duty to notify’ (Section 320A – 320G) upon any person who becomes aware that their activities, or the activities of somebody working with them, has caused or threatens to cause material or serious environmental harm that is unlawful under the EP Act.
Operational phase	
Facility Manager	– Develop Operational Contractor’s EMP in accordance with the approved EMP. – Maintain a master copy of the EMP, a record of the completion of planned actions, and monitoring records and reports, which are made available during audits. – Obtain all necessary statutory approvals and licences, and ensure that conditions of licences/approvals/permits are met. – Provide copies of the EMP to the relevant Project staff, with responsibilities clearly defined in the EMP. – Maintain a record of all training undertaken by all Project staff, detailing the type and purpose of the training. – Ensure that environmental protection measures are implemented in accordance with EMP. – Coordinate regular monitoring in relation to environmental management issues and ensure that monitoring results are made available to the Proponent. – Ensure corrective actions arising from self-assessments and external audits are completed, and in accordance with the EMP. – Notify the Proponent and any relevant agency of all environmental incidents and maintain a record of events relating to the environmental incidents, including any remedial action taken. – Ensure there is adequate and accurate identification and reporting of all non-conformances, complaints and any other environmental issues that may arise during construction. – Provide relevant and timely information about construction activities that may impact on the relevant stakeholders and as required, consult with individuals that may be directly impacted by construction activities to ensure direct Project impacts are being managed. – Undertake regular management reviews of the EMP, at scheduled intervals and on the identification of a system failure. – Ensuring Contractor’s commitment to Safety, Health, Environment and Quality (SHEQ) are clearly understood and followed: • Providing adequate resources to achieve the objectives and targets of the Business Plan. • Effectively managing the plant as a business. • Delivering contractual, legal, technical and other performance commitments to clients. • Promoting awareness of customer and other stakeholder requirements throughout the organisation. • Managing risk within operations. • Developing a positive relationship with stakeholder groups to minimise any potential risks to the Project and provide advice as necessary. – Managing regulatory requirements and communication with government agencies.
Safety Advisor	– Ensure this EMP, all approved plans and conditions are referred to during operational works on-site and available to all relevant personnel. – Ensuring the WHS Management System is established, implemented and maintained in accordance with ISO 45001 and relevant legislation.
Asset and Projects Supervisor	– Ensuring the Asset Management System is established, implemented and maintained in accordance with Asset Management Plan and relevant legislation.

Role	Responsibilities
Principal Contractor (Environmental Representative)	– Responsible for ensuring all contractors and operational personnel are aware of their responsibilities under the EMP and any approval/permit conditions. – Prepare relevant plans, procedures and policies to assist in compliance with relevant environmental obligations. – Develop and run awareness training sessions and visitor inductions. – Conduct regular audits. – Oversee monitoring programs. – Prepare internal and external compliance reports.
All personnel (including sub-contractors)	General Environmental Duty Under Section 319 of the <i>Environmental Protection Act 1994</i> (EP Act), everyone has a general environmental duty to not undertake an activity that causes or is likely to cause environmental harm unless all reasonable and practicable measures are taken to avoid that harm. All staff and sub-contractors will attend a site specific environmental induction and awareness training to ensure that all personnel are aware of their responsibilities in this regard. Duty to Notify The EP Act also imposes a ‘duty to notify’ (Section 320A – 320G) upon any person who becomes aware that their activities, or the activities of somebody working with them, has caused or threatens to cause material or serious environmental harm that is unlawful under the EP Act.

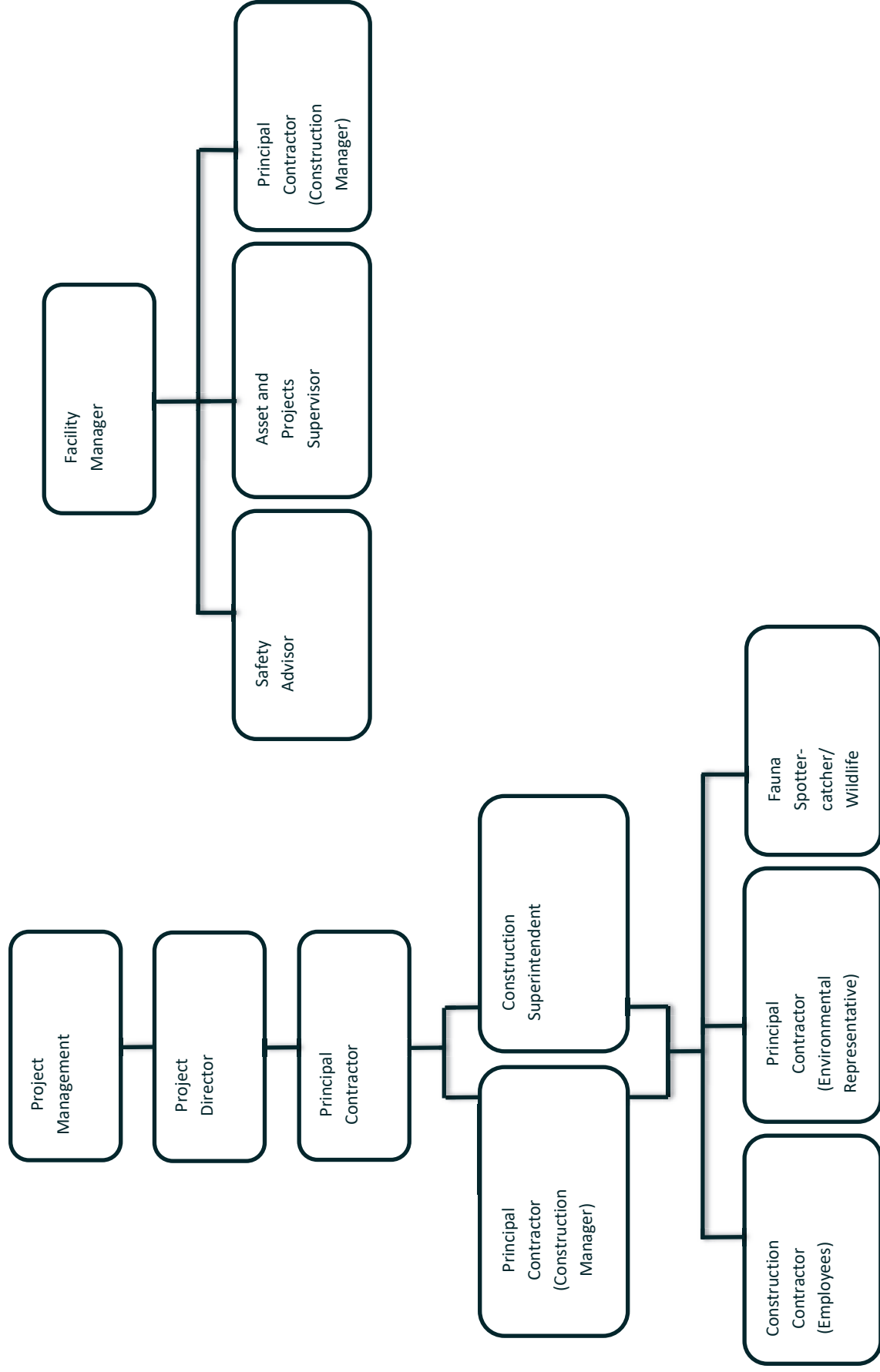


Figure 1 Construction (left) and operational (right) roles and responsibilities organisation chart

6. Impacts and mitigation measures

6.1 Environmental factors

This EMP provides a discussion of potential impacts and management measures for each of the following environmental factors that relate to the construction and operation of the CMF:

- Bushfire hazard
- Visual amenity
- Erosion and sediment control
- Terrestrial biodiversity
- Aquatic biodiversity
- Heritage
- Waste
- Public health and safety
- Climate
- Air quality
- Noise
- Surface and stormwater
- Groundwater.

To reduce the risks that the Project may have on the above-mentioned values, potential impacts have been identified, with corresponding mitigation measures to be implemented during construction and operation detailed in Section 6.4.

6.2 Risk assessment

The purpose of this section is to qualitatively determine the risk of potential impacts to environmental factors occurring during construction and/or operational activities associated with the CMF – without having any environmental controls in place. Mitigation measures for each potential impact are described with a residual risk rating then applied.

6.2.1 Risk assessment criteria

The risk rating applied to each potential impact and residual impact has been identified using the risk matrix shown in Table 6. The risk matrix applies consequence ratings (Table 7) and likelihood ratings (Table 8) to the identified environmental impacts to give an overall risk rating for each impact. The most suitable descriptor is assigned based on the information available, rather than the worst possible outcome. Consequence is assessed first, with the likelihood based on the consequence descriptor selected.

Table 6 Risk ratings matrix

Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Catastrophic
Very unlikely	Negligible	Negligible	Low	Moderate	Moderate
Unlikely	Negligible	Negligible	Low	Moderate	Significant
Possible	Negligible	Low	Moderate	Significant	Extreme
Likely	Low	Low	Moderate	Significant	Extreme
Almost certain	Low	Moderate	Significant	Extreme	Extreme

Table 7 Consequence descriptors

Descriptor	Definition
Insignificant	Negligible on-site/off-site environmental impact and of low significance
Minor	On-site/off-site environmental localised impact, immediately contained
Moderate	On-site/off-site environmental short term impact, immediately recoverable
Major	On-site/off-site environmental medium term impact or repeated non-compliance with potential in some jurisdictions for prosecution

Catastrophic	On-site/off-site environmental long-term impact or repeated non-compliance with potential in some jurisdictions for prosecution
--------------	---

Table 8 *Likelihood descriptors*

Descriptor	Definition
Very unlikely	Highly doubtful but could occur in exceptional circumstances
Unlikely	It is improbable that it may occur
Possible	It is conceivable that it may occur
Likely	Will probably occur in most circumstances
Almost certain	Will likely occur in most circumstances

6.3 Initial risk assessment

6.3.1 Construction phase

6.3.1.1 Land

Table 9 Initial risk assessment for construction – land

Impact	Initial risk rating
Bushfire hazard	
Bushfire impacts during the construction phase; including damage to equipment, buildings and staff.	Low
Visual amenity	
Impacts to the design materiality due to the construction works	Moderate
Visual modification of the area due to landscaping works	Significant
Visual modification of the area due to signage required for construction works	Low
Visual modification of the area due to construction works	Low
Erosion and sediment control	
Disturbance of in-situ soils during construction, resulting in erosion and sedimentation	Low
Terrestrial biodiversity	
Disturbance/clearing of vegetation and fauna habitat during construction; reducing native fauna in the area	Significant
Injury and mortality of wildlife, due to wildlife movement through the Project area during construction	Significant
Vegetation clearing during construction reduces habitat connectivity within and adjacent to the Project area	Moderate
Disturbance of wildlife due to increased light, noise and vibration during construction activities; resulting in injury or mortality of wildlife	Significant
Habitat degradation due to dust, run-off and sedimentation generated by construction activities reducing the abundance and diversity of habitats by: - Physically smothering vegetation - Changing nutrient levels - Decreasing water quality - Encouraging weed incursions - Altering the movement of wildlife.	Moderate
Introduction and spread of invasive species due to increased movement of vehicles and machinery during construction	Significant
Impacts to MNES from the construction of the CMF	Moderate
Aquatic biodiversity	
Loss of aquatic habitat due to construction activities	Low
Degradation of aquatic habitat and water; due to excessive sediment and release of contaminant, increase of weed and pest species and overall reduction in suitability of habitat conditions as a result of construction activities	Moderate
Disturbance of aquatic fauna due to increased light, noise and vibration during construction activities; resulting in injury or mortality of wildlife	Significant
Alteration of flow and aquatic fauna movement, as a result of construction activities	Moderate
Fauna injury or mortality, due to construction works undertaken within waterways, including the excavation and dewatering of modified dams	Moderate
Introduction and spread of invasive species due to increased movement of vehicles and machinery during construction	Moderate
Heritage	
Indigenous heritage values uncovered during construction works	Significant
Non-Indigenous heritage values uncovered during construction works	Low
Native Title claim existing over the Project area	Low

Waste	
Inappropriate/inefficient material and resource selection and consumption during construction	Low
Failure to carry out general waste management activities during construction	Moderate
Inappropriate handling of waste/reuse materials during construction	Low
Inappropriate disposal of waste during construction	Low

6.3.1.2 Air

Table 10 Initial risk assessment for construction – air

Impact	Initial risk rating
Climate	
Extreme temperatures and heatwave events during construction impacting the efficiency of electrical infrastructure, and construction activities (both personnel and rate of infrastructure renewal)	Low
Air quality	
Dust emissions produced during construction, due to the movement of trucks and other vehicles on unpaved roads, and from other sources associated with material handling on-site; wind erosion from unsealed surfaces and stockpiles; unloading and turning compost stockpiles and product screening	Low
Particulates generated during site establishment works; including delivery of site amenities, and surveying/pegging of the site	Moderate
Particulates generated during earth works, including: - Establishment of access road to work area - Grading, excavation and general movement of earth materials.	Significant
Particulates generated during road works and intersection works, including: - Removal of trees/stripping of topsoil - Box out to required levels - Subgrade and base course - Asphalting - Line marking - Signage installation - Defect inspection and cleaning.	Moderate
Particulates generated during civil works, including: - Demolition and earthworks - Civil works - Ponds and other civil structures.	Significant
Particulates generated during mechanical installation of the following: - Shredder - Drum screen - Platforms - Storage tanks/platforms - Blowers - Leachate system - Water system - Picking system - Control system and instrument mech - Odour control system - Interconnecting pipework.	Moderate
Particulates generated during electrical installation of the following: - Blowers - Pumps	Moderate

– Screens – Motor control centre works – Interconnecting cabling.	
Greenhouse gas emissions produced by machinery and equipment used during construction	TBD

6.3.1.3 Noise and vibration

Table 11 Initial risk assessment for construction – noise and vibration

Impact	Initial risk rating
Noise	
Excess generation of noise during construction activities, which may include: – Earthworks – Slab construction – Building construction – Embankment/pavement works – Sealing works.	Moderate

6.3.1.4 Water

Table 12 Initial risk assessment for construction – water

Impact	Initial risk rating
Surface and stormwater	
Excess sediment generated by ground disturbance activities being discharged into the downstream environment	Moderate
Groundwater	
Groundwater seepage into excavated areas leading to structural instability of excavation walls	Significant
Excavation activities intercepting groundwater table and/or underground springs	Low
Contamination of groundwater from unintentional leaks/spills of hazardous substances, from plant/machinery, vehicle washdowns or chemical storage during construction	Moderate
Changes to groundwater levels and recharge dynamics resulting from excavation and filling works	Moderate
Cut and fill works during construction using sulfidic rock excavated at the site, resulting in acid rock drainage (ARD)	Moderate
Contamination of imported fill material for construction leaches contaminants into the groundwater	Moderate

6.3.2 Operational phase

6.3.2.1 Land

Table 13 Initial risk assessment for operations – land

Impact	Initial risk rating
Bushfire hazard	
Increased bushfire impacts during the operational phase due to CMF materials; resulting in significant bushfire risks for adjacent properties, fire runs and disruptions to operation of the CMF	Moderate
Visual amenity	
Impacts to the design materiality during operations, as a result of the construction of the CMF	Moderate
The CMF being visible from residential areas and the state controlled road reserve.	Moderate
Visual modifications due to signage required for operational works	Low
Erosion and sediment control	
Increased erosion and sediment mobilisation due to the movement of vehicles on-site during operations	Moderate
Increased erosion and sediment mobilisation, due to wind, from materials stockpiled on-site during operations	Moderate

Terrestrial biodiversity	
Disturbance/clearing of vegetation and fauna habitat to accommodate CMF operations leading to a reduction of native fauna in the area	Moderate
Injury and mortality of wildlife, due to wildlife movement through the Project area during operations	Moderate
Vegetation clearing to accommodate CMF operations reduces habitat connectivity within and adjacent to the Project area	Low
Disturbance of wildlife due to increased light, noise and vibration during operational activities; resulting in injury or mortality of wildlife	Low
Impact surrounding native flora and fauna due to the operation of the CMF; resulting in a reduction of surrounding native populations	Moderate
Impacts to MNES from the operation of the CMF	Moderate
Aquatic biodiversity	
Degradation of aquatic habitat and water; due to storage pond runoff during high rainfall events, and rubbish entering downstream waterways via stormwater drains on-site during operational activities	Low
Heritage	
Heritage items uncovered during earthworks	Low
Waste	
Failure to carry out general waste management activities during operations	Moderate
Inappropriate handling of waste/reuse materials during operations	Low
Inappropriate waste disposal during operations	Low
Increased fire risk due to stockpiles present on-site during operations	Low
Public health and safety	
Increased risk of pathogens such as Legionella and dispersion of bioaerosols, due to operation of the CMF	Low
Inappropriate management of contaminants such as heavy metals and PFAS during operations	Low

6.3.2.2 Air

Table 14 Initial risk assessment for operations – air

Impact	Initial risk rating
Climate	
Extreme temperatures and heatwave events during operational activities impacting the efficiency of electrical infrastructure, and operational and maintenance activities (both personnel and rate of infrastructure renewal)	Low
Air quality	
Potential for odour to exceed the highest predicted 99.5 th percentile odour impact of 2.1 OU at the industrial receptor R7	Low
Potential for odour to exceed the highest predicted 99.5 th percentile odour impact of 0.6 OU at the residential receptor R6	Low
Cumulative odour impacts during operations due to the distinct odour characteristics associated with Bush's Proteins	Low
Dust emissions produced during operations, due to the movement of trucks and other vehicles on unpaved roads, and other sources associated with material handling onsite; wind erosion from unsealed surfaces and stockpiles; unloading and turning of compost stockpiles and product screening	Low
Greenhouse gas emissions produced by machinery and equipment used during operations	Moderate

6.3.2.3 Noise and Vibration

Table 15 Initial risk assessment for operations – noise and vibration

Impact	Initial risk rating
Noise	
Increased noise levels, above those of the pre-existing environment, due to operational activities	Low
Excess generation of noise, due to additional traffic during operations, impacting on sensitive receptors in the surrounding area.	Moderate

6.3.2.4 Water

Table 16 Initial risk assessment for operations – water

Impact	Initial risk rating
Surface and stormwater	
Generation of differing types of water during operations, distinguished by their respective water quality, impacting downstream environments	Moderate
Discharge of untreated runoff that has come into significant contact with organic material	Moderate
Runoff from impervious site areas, not impacted by organic material	Low
Increased site water supply required for the composting process	Moderate
Impacts of external floodwaters on operations, and the resulting water quality risks associated with site inundation	Moderate
The increase in impervious areas for the CMF, leading to an increase in the peak rate of runoff and changes flood conditions downstream	Moderate
Non-compliance with government authorities during operations	Low
Groundwater	
Changes to groundwater levels and recharge dynamics as a result of landform changes	Low
Contamination of groundwater from unintentional leaks/spills of hazardous substances, from plant/machinery, vehicle washdowns or chemical storage during operations	Low
Water from harvest water dam seeping into groundwater during operations	Low
Contaminated water from leachate dams seeping into groundwater during operations	Moderate
Contaminated leachate, seeping through the hardstand underlying the aeration pad/windrow pad/maturation, into soils and groundwater during operations	Moderate

6.4 Mitigation measures

6.4.1 Land

6.4.1.1 Bushfire hazard

Table 17 Mitigation measures for bushfire hazards

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
Bushfire impacts during the construction phase; including damage to equipment, buildings and staff. Ignition sources in the area surrounding the Project area may include: – Accidental ignition from agricultural and extractive industry uses and other machinery and equipment – Sparking – Roadside ignition (potentially caused by cigarette butts thrown from vehicles) – Arcing powerlines – Other rural and industrial activities – Ignition may also occur from activities on nearby rural residential properties such as lawnmowing and use of power tools – The ignition potential of the CMF, may occur from various activities on-site, including use of machinery and fuel storage; ignition from the composting process itself may also occur. Increased bushfire impacts during the operational phase due to CMF materials; resulting in significant bushfire risks for adjacent properties, fire runs and disruptions to operation of the CMF	– Construction will not include any Class 1, 2, 3 or selected 9 and 10 buildings. Therefore, further assessment of building provisions has not been carried out. – Recommended that materials used on-site are largely non-flammable/fire resistant in nature e.g. concrete or steel to minimise the risk of fire spreading onsite and beyond the facility. – Use of timber for construction shall be minimised. – Any fences or barriers must not be constructed from timber. – Retaining walls should be constructed of fire resistant or fire-retardant material e.g. concrete, stone, masonry. – Adequate standard to accommodate emergency access to and from site, via the upgrade of Mitchell Road. – Ignition management of the will be the subject of broader facility management plans and strategies.	✓	✓	– Principal Contractor – Construction Manager – Construction Superintendent
	Due to the surrounding landscape and slope, there is opportunity for fire to advance towards the facility at any angle. However, fire runs are more likely to occur from the south and south-west direction. Asset Protection Zones (APZ) – An APZ is an area that surrounds a building and/or structure and is to be maintained continuously in a no/low fuel condition to aid in the protection of buildings. – An APZ offers a defensible space for firefighters to work safely from radiant heat exposure. – APZ distances are calculated based on fire weather, fuel load and topography. An APZ of 10 kW/m² is proposed for the CMF as the use of industrial machinery and fuel storage may be hazardous in the context of a bushfire.			– Principal Contractor – Facility Manager – Safety Advisor

	– An APZ along the south-western boundary is not required due to the separation from the nearest hazardous vegetation by the freshwater dam. Site layout – The CMF has safe and convenient access to the road network (via upgrade of Mitchell Road) for evacuation purposes and access for emergency services. – Vulnerable components of the facility (e.g. fuel storage areas and buildings are at the northern extent of the development footprint, located outside the bushfire prone area and as far as practical from hazardous vegetation. – A one-way road for heavy vehicles is provided at the perimeter of the site, effectively separating the activities of the CMF from adjacent grass hazard. Water supply and fire-fighting infrastructure – Static water supply in form of water tanks and booster pump – Additional 45,000 L static water tank • Non-flammable construction • Medium rigid vehicle clear access within 6 m of the tank • A 50 mm male camlock fitting for emergency fire service use if required. Rehabilitation/re-vegetation and landscaping – Further assessment to be completed to ensure that rehabilitation/ revegetation areas do not affect the vegetation hazard class or increase the severity of the hazard. – Adopt landscaping principles and species in accordance with Section 8 of the <i>Bushfire Resilient Communities: Technical Reference Guide for the State Planning Policy State Interest 'Natural Hazards, Risk and Resilience – Bushfire'</i> (QFES, 2019). Including: • Low threat (flammability) species adopted • Tree specimens are smooth-barked species only and are not within 20 km of the CMF • The use of organic mulches in garden beds should be avoided. Land and Field Load Management – Ongoing land and diel load management practices; both within and beyond the APZ. – Land outside the development footprint. Operational procedures – Evacuation procedures and site emergency plans: • Where advised, watch and act or emergency warning is issued for a location within 5kms of the CMF, advice is sort from emergency services and / or the site operations are immediately ceased, and the facility evacuated.		
--	---	--	--

	- For warnings (advice, watch and act or emergency) issued for locations within 10km of the site, in the surrounding area more broadly, contact is made with the fire brigade's fire warden for status and advice, and prepare to cease operations and prepared to evacuate the site. - Fire that is ignited on the site or in immediate proximity – cease operation and evacuate the site if safe to do so. Call 000. - On 'Extreme' and 'Catastrophic' fire danger days or under 'total fire bans'. Activities that may generate an ignition threat are not conducted. Monitoring of emergency services media regularly throughout operation hours to check for local warnings.		
Performance criteria			
- No staff injured or stuck during an emergency situation, without access to safe exit routes. - No damage to the assets at the Bromelton CMF.			
Monitoring			
Undertake routine inspections to ensure the site is managed according to design specifications, and that sufficient controls are in place and remain fit-for-purpose.			
			- Principal Contractor - Construction Manager - Construction Superintendent - Facility Manager - Safety Advisor
Regularly monitor site conditions against emergency procedures and management plans to keep documentation up to date; and ensure provision of optimal exit routes for all staff, operators and machinery.			
			- Construction Manager - Construction Superintendent - Facility Manager - Safety Advisor
Reporting			
Any potential emergency situations identified are to be reported to the Construction Manager/Facility Manager as soon as practicable.			
Any reported emergency situations are to be relayed to the Principal Contractor as soon as practicable.			
			- All staff - Construction Manager - Construction Superintendent - Facility Manager
Corrective actions			
Immediately cease all site activities and proceed calmly to emergency evacuation points upon notification of an emergency evacuation.			
Follow all directions given by emergency wardens and site management during an emergency evacuation.			
Ensure that the site is inspected following the emergency evacuation procedures, to determine whether the site is safe for return to work.			
			- All staff - All staff - Construction Manager - Facility Manager - Safety Advisor - Assigned persons responsible

6.4.1.2 Visual amenity

Table 18 Mitigation measures for visual amenity risks

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
Visual modification of the area due to construction works	- Take all practical measures to ensure construction equipment, storage areas, and other visible elements are located away from key views to or from the sensitive visual receptors identified in this assessment - Ensure general tidiness of the site is maintained during construction - Avoid conducting work in evenings and nights where possible, to minimise impacts from lighting - Where construction activity cannot be located away from trees, provide tree protection to ensure they are not damaged - All areas disturbed by construction and ancillary works are to be rehabilitated to their previous condition - During construction, employ screening measures to assist the site in blending into the surrounding area. Choice of screening is to be sympathetic to the existing rural setting.	✓		- Construction Manager - Construction Superintendent
Impacts to the design materiality due to the construction of the CMF	- Ensure the Project's form, material and finishes are of high quality and are in keeping with the surrounding setting to positively contribute to existing rural landscape character values - Avoid or minimise the use of shiny or reflective materials to reduce associated visual impacts on surrounding sensitive receptors - Consider specifying neutral colours such as brown and green for the cladding of external walls and roof that complements the rural landscape setting - If required, specify boundary fencing that is sensitive to the rural aesthetic of the site and avoid large areas of opaque, metal fencing.	✓	✓	- Construction Manager - Construction Superintendent - Facility Manager
Visual modification of the area due to landscaping	- Additional screen planting using shrubs and trees along Mitchell Road will assist to preserve the landscape character of surrounding farmlands whilst minimising views from Beaudesert Boonah Road - Increasing the density of planting along the site boundaries will minimise visual impacts of the additional infrastructure and taller buildings within the CMF - Plant screening vegetation within the site boundary to minimise visual impacts experienced from Beaudesert Boonah Road, Sandy Creek Road and the railway corridor - Avoid vegetation clearing, especially mature and regulated trees, where possible, to retain existing character values - Consider planting vegetation throughout the Project area to break up the concrete expanses and hard stand areas and to aid successful blending of the Project into the surrounding rural landscape.	✓	✓	- Construction Manager - Construction Superintendent - Facility Manager
Visual modification to the area due to signage required for construction and operational activities	- Where possible, minimise visual impacts of signage by: - Minimising signage dimensions - Avoiding brightly illuminated signage - Employing high-quality signage design - Locating signage on buildings rather than freestanding.	✓	✓	- Construction Manager - Construction Superintendent - Facility Manager - Safety Advisor
Performance criteria				
No significant long-term impacts to the visual amenity of the area resulting from construction or operational activities.				
Monitoring				

Reporting		–
Maintain a complaints register, recording all complaints regarding visual amenity issues received from the surrounding community.		– – Principal Contractor – Construction Manager – Facility Manager
Corrective actions		– – Principal Contractor – Construction Manager – Facility Manager
Investigate complaints received regarding impacts to the visual amenity of the surrounding area. Identify corrective actions if required and allocate a responsible person and timeframe for completion.		– – Principal Contractor – Construction Manager – Facility Manager
Validate any complaints/reports received; and review any relevant controls currently in place, including their effectiveness.		– – Principal Contractor – Construction Manager – Facility Manager
Any additional control measures identified are to be implemented in a timely manner where excessive visual amenity impacts are identified.		– – Principal Contractor – Construction Manager – Facility Manager
All complaints/reports are to be investigated in a timely manner, using appropriate dispute resolution methods and abatement or attenuation measures.		– – Principal Contractor – Construction Manager – Facility Manager

6.4.1.3 Erosion and sediment control

Table 19 Mitigation measures for erosion and sediment control risks

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
Disturbance of in-situ soils during construction, resulting in erosion and sedimentation. Potential activities that could result in erosion and sedimentation include earthworks and excavations which could pose a risk to flora and fauna and impact on waterways.	– Routine inspection/observation of cleared land to determine flow paths of stormwater and install appropriate controls. – Install bunds and stormwater controls to divert flow to appropriate areas and discharge points. – Routine inspection/observation and cleaning of drains and stormwater control infrastructure. – Temporary stormwater ponds should be desilted and maintained to ensure operation allows for the maximum storage volume and minimal unlicensed discharges. – Stormwater quality should be inspected and tested to confirm if it meets levels appropriate for discharge. Only stormwater that meets specified license or site water quality criteria (i.e. State and local government) should be discharged from the site. – Sediment collected in stormwater infrastructure will be appropriately disposed of in a manner that will not create an erosion or pollutant hazard, or allow it to re-enter a waterway.	✓		– Construction Manager – Construction Superintendent – Environmental Representative
Increased erosion and sediment mobilisation due to the movement of vehicles on-site during operations	Implementation of an Erosion and Sediment Control Plan (ESCP).		✓	– Facility Manager

Increased erosion and sediment mobilisation, due to wind, from materials stockpiled on-site during operations	– Vehicles should be washed down off-site to prevent introducing contaminated runoff			– Environmental Representative
	– Minimise traffic and construction of additional roads	✓		– Facility Manager
	– Dust suppression systems.			– Environmental Representative
	– The internal roads will be paved with different surface materials. Refer to Project drawing No 30034146-000-114 for more details regarding roads surface material.			
	– Water from the onsite storage dam will be used for dust suppression.			
Performance criteria				
	– No environmental harm occurs as a result of disturbance of soils during construction activities			
	– No unlawful discharges of sediment.			
Monitoring				
Undertake routine inspections to ensure the site is managed according to design specifications, and that sufficient controls are in place and remain fit-for-purpose.				
				– Construction Manager
				– Facility Manager
				– Environmental Representative
Additional water quality monitoring and laboratory analysis to be carried out in response to a complaint or incident.				
				– Construction Manager
				– Facility Manager
				– Environmental Representative
Reporting				
Maintain a complaints register, recording all complaints regarding erosion and sediment control issues received from the surrounding community and/or regulatory authorities.				
				– Principal Contractor
				– Construction Manager
				– Facility Manager
				– Environmental Representative
Corrective actions				
Increase the frequency of dust suppression and/or erosion protection measures where appropriate and practical.				
				– Principal Contractor
				– Construction Manager
				– Facility Manager
Investigate complaints received regarding impacts of erosion and sedimentation on the surrounding environment. Identify corrective actions if required and allocate a responsible person and timeframe for completion.				
				– Principal Contractor
				– Construction Manager
				– Facility Manager
Validate any complaints/reports received against the performance criteria associated with the activity being undertaken at the time; and review any relevant controls currently in place, including their effectiveness.				
				– Principal Contractor
				– Construction Manager
				– Facility Manager
Any additional control measures identified are to be implemented as relevant, in a timely manner where erosion and sediment control impacts are identified.				
				– Principal Contractor
				– Construction Manager
				– Facility Manager
All complaints/reports are to be investigated in a timely manner, using appropriate dispute resolution methods and abatement or attenuation measures.				
				– Principal Contractor
				– Construction Manager

6.4.1.4 Terrestrial biodiversity

Table 20 Mitigation measures for erosion and terrestrial biodiversity risks

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
Disturbance/clearing of vegetation and fauna habitat leading to a reduction of native fauna in the area	Design: – Vegetation clearing limits around sensitive habitat (core koala habitat) to be defined within the contract documentation for Mitchell Road.	✓	✓	– Construction Manager – Construction Superintendent
Injury and mortality of wildlife, due to wildlife movement through the Project area during construction and operations	– Nominate no-go zones on the design drawings and within contract documentation to protect significant vegetation within Mitchell Road. – Including areas mapped as core koala habitat. – Require the Contractor to develop a clear staged approach to vegetation clearing to minimise the amount of clearing undertaken at one time and include an initial stage for vegetation clearing to support pioneering works such as for fence installation and establishment of erosion and sediment control devices.	✓	✓	– Fauna Spotter-catcher – Wildlife Carer – Facility Manager – Environmental Representative
Disturbance of wildlife due to increased light, noise and vibration; resulting in injury or mortality of wildlife	– Design drawings to delineate the extent of the Project area and any specific nominated no-go zones where vegetation is to be retained within the Project area.	✓	✓	
Introduction and spread of invasive species due to increased movement of vehicles and machinery during construction and operations	– Minimise the extent of clearing required for the Project, where possible. – Pre-clearance surveys to mark the locations of all potential breeding places for wildlife, disturbance of which is to be avoided as possible. These will target areas with potential to support breeding habitat for conservation significant species and breeding places identified within this report.	✓	✓	
Habitat degradation due to dust, runoff and sedimentation generated by construction activities reducing the abundance and diversity of habitats by:	– Design adverse incident response procedures to detail actions to be taken in the event of wildlife injury or mortality during clearing. – Develop a Construction ESCP (ESCP(C)) in accordance with the <i>Best Practice Erosion and Sediment Control Guidelines</i> (IECA 2008). – Prepare a low-risk Species Management Program (SMP) in accordance with the requirements of Section 335 of the <i>Nature Conservation (Animals) Regulation 2020</i> . This will outline a process to identify and minimise impact on breeding places for least concern species listed under the NC Act.	✓		
– Physically smothering vegetation – Changing nutrient levels – Decreasing water quality – Encouraging weed incursions – Altering the movement of wildlife.	– If a landscape plan is to be developed, it is recommended that this incorporates the use of endemic native species wherever possible. – Incorporate design measures that prevent or reduce the attraction of introduced fauna such as foxes, rats, cats and dogs to the Project area, such as ensuring waste areas are enclosed and secure.		✓	
Impact surrounding native flora and fauna due to the operation of the CMF; resulting in a reduction of surrounding native populations	Construction: – Prepare and adhere to a Construction EMP (EMP(C)). The EMP(C) should include protocols to limit injury and mortality to fauna including			

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
	management of risks associated with open excavations and increased traffic, and responses and reporting for roadkill and adverse incident protocols. – Restrict vegetation clearing to the minimal area required to enable safe construction, operation and maintenance of the Project. – Ensure that vegetation clearing boundaries are established with appropriate signage at regular intervals using visible and physical markings. High visibility tape, barricade webbing or similar should be utilised. Ensure that all contractors are aware of these boundaries. – Engage a suitably qualified and experienced Fauna Spotter-catcher to undertake pre-clearance surveys immediately prior to clearing and supervise all clearing activities associated with construction. This will involve searching and clearing tree hollows, habitat trees and fallen logs prior to clearing and relocating resident fauna to the nearest suitable, safe habitat outside the clearing footprint. – If a koala is encountered within the Project area, the individual must not be relocated and should be left to self-disperse on their own accord (wherever possible). – Fauna within the Project area will be encouraged to self-disperse when the works take place. Disturbances associated with construction of the facility (i.e. increased noise and human presence) are anticipated to encourage species occurring within the Project area to self-disperse. – If injuries occur, the Fauna Spotter-catcher will capture and transport the injured animal to a qualified veterinarian for treatment or euthanasia (unless suitably qualified to undertake treatment/euthanasia themselves). Prior to clearing for construction, formalise arrangements with local veterinary services to treat and care for injured animals. – Rehabilitate and revegetate temporary construction areas as soon as possible after the completion of construction. – Include weed management measures in the EMP(C) to prevent the spread or introduction of invasive plants and environmental weeds. – Reduce sources of artificial light by reducing night works and limiting site lighting to the minimum needed for safety. – Prioritise construction activities to daylight hours to reduce the need for lighting and resultant light spill into adjacent habitat and to reduce noise and vibration impacts on nocturnal fauna species. – Install erosion and sediment control devices where disturbance must be undertaken within or adjacent to wetted waterways. – Implement responsible waste management practices (e.g. not leaving out food waste and not feeding wildlife) during construction. All waste will be stored in secure temporary holding containers and transported off-site.			

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
	- Clearly demarcate areas of native vegetation to be removed so that equipment operators and supervisors are aware of clearing extents. Operations: - Utilise existing cleared areas for laydown of materials. - Reduce light spill, associated with permanent infrastructure, into retained adjacent vegetation by limiting artificial light associated with operations to the minimum needed for safety. - Limit operation and maintenance work to day light hours, as is feasible, to decrease the impacts of light and noise pollution on nocturnal organisms within adjacent retained vegetation. - Speed limits will be established and enforced on all access roads and/or internal roads to reduce the potential for vehicle fauna interactions. - If fauna injuries occur within the Project area, a fauna spotter/catcher will capture and transport the injured animal to a qualified veterinarian for treatment or euthanasia (unless suitably qualified to undertake treatment/euthanasia themselves). - Develop an ESCP(C) in accordance with the <i>Best Practice Erosion and Sediment Control Guidelines</i> (IECA 2008) to minimise impacts to water quality and adjacent habitats. - Mapping of major weed infestations identified during a pre-clearing survey and appropriate management actions to be undertaken. As a minimum, the management actions should include: - An explanation of the general biosecurity obligation under the <i>Biosecurity Act 2014</i> - Procedures for vehicle wash-downs and inspections - Procedures for reporting sightings of prohibited and restricted pest species within the works area - A requirement that weed infested vegetation is not mulched for re-use on-site, and off-site disposal for weed infested mulch at an appropriate facility. - Prohibiting the movement of restricted invasive plants, including aquatic plants, such as salvinia (<i>Salvinia molesta</i>), into areas which do not contain the restricted invasive plants.			
Impacts to MNES from the construction of the CMF	Construction: - Prepare and adhere to an EMP(C). The EMP(C) should include protocols to limit injury and mortality to fauna including management of risks associated with open excavations and increased traffic, and responses and reporting for roadkill and adverse incident protocols. - Restrict vegetation clearing to the minimal area required to enable safe construction, operation and maintenance of the Project.	✓		- Construction Manager - Construction Superintendent - Fauna Spotter-catcher - Wildlife Carer - Environmental Representative

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
	– Ensure that vegetation clearing boundaries are established with appropriate signage at regular intervals using visible and physical markings. High visibility tape, barricade webbing or similar should be utilised. Ensure that all contractors are aware of these boundaries. – Engage suitably qualified and experienced fauna spotter/catchers to undertake pre-clearance surveys immediately prior to clearing and supervise all clearing activities associated with construction. This will involve searching and clearing tree hollows, habitat trees and fallen logs prior to clearing and relocating resident fauna to the nearest suitable, safe habitat outside the clearing footprint. – Pre-clearance surveys to mark the locations of all potential breeding places for wildlife (i.e. hollows, nests, burrows etc), disturbance of which is to be avoided as possible. These will target areas with potential to support breeding habitat for conservation significant species and breeding places identified within this report. – Prepare an SMP in accordance with the requirements of Section 335 of the <i>Nature Conservation (Animals) Regulation 2020</i>. This will outline a process to identify and minimise impact on breeding places for least concern species listed under the NC Act. – If a koala is encountered within the Project area, the individual must not be relocated and should be left to self-disperse on their own accord (wherever possible). – Fauna within the Project footprint will be encouraged to self-disperse when the works take place. Disturbances associated with construction of the facility (i.e. increased noise and human presence) are anticipated to encourage species occurring within the Project footprint to self-disperse. – If injuries occur, the fauna spotter/catcher will capture and transport the injured animal to a qualified veterinarian for treatment or euthanasia (unless suitably qualified to undertake treatment/euthanasia themselves). Prior to clearing for construction, formalise arrangements with local veterinary services to treat and care for injured animals. – Inspect trenches, excavations and machinery daily for the presence of trapped fauna. – Develop adverse incident response procedures to detail actions to be taken in the event of wildlife injury or mortality during clearing. This will include procedures for capture and transport of injured wildlife to qualified veterinarian or humane on-site euthanasia and formalisation of arrangements with a local veterinarian to treat and care for wildlife injured during for the construction period. – Rehabilitate and revegetate temporary construction areas as soon as possible after the completion of construction.			

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
	– Include weed management measures in the EMP(C) to prevent the spread or introduction of invasive plants and environmental weeds. – Reduce sources of artificial light by reducing night works and limiting site lighting to the minimum needed for safety. – Prioritise construction activities to daylight hours to reduce the need for lighting and resultant light spill into adjacent habitat and to reduce noise and vibration impacts on nocturnal fauna species. – Where nightworks are required, minimise lighting impacts into retained adjacent vegetation and wetland areas by reducing light spill outside of the Project site. – All waterway crossing structures are to consider the suite of fish present in the waterway and the fish species' passage requirements. Thirty-four native freshwater fish have been recorded in the catchment, which may migrate upstream when flows occur. Fish most likely to migrate into the Project footprint are small-bodied fish that are adapted to the ephemeral conditions of the local waterways, such as gudgeon, rainbowfish, etc. – Where de-watering of waterways and/or modified dams is required, develop a Dewatering Management Plan to identify appropriate management strategies for aquatic fauna to minimise injury and death during construction, which include (as a minimum) the following: • Aquatic fauna salvage prior to and during de-watering by a suitably qualified aquatic ecologist • Translocating species to nearby waterways or wetlands of similar quality • Temporary storage and monitoring to demonstrate the water meets the reuse or discharge water quality objectives • On-site re-use of suitable water (e.g. for dust suppression) where practicable. – Contingency for on-site treatment and discharge for water that does not meet the objectives or approvals conditions – Install erosion and sediment control devices where disturbance must be undertaken within or adjacent to wetted waterways. – Implement responsible waste management practices (e.g. not leaving out food waste and not feeding wildlife) during construction. All waste will be stored in secure temporary holding containers and transported off-site. – Clearly demarcate areas of native vegetation to be removed so that equipment operators and supervisors are aware of clearing extents. – Utilise existing cleared areas for laydown of materials. – Design storage facilities and laydown areas a minimum of 50 m from any waterway, where possible. If areas cannot be located 50 m away, then bunds would need to be erected around the perimeter of the laydown area and			

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
	checked daily for failures. Any failures in the bund wall will need to be rectified prior to any additional material being stored. Design: – Vegetation clearing will be restricted to the minimum amount necessary for the construction within the Project footprint, including in riparian zones. – The extent of vegetation clearing (and no-go areas) will be clearly identified on construction plans and in the field using high visibility fencing. Clearing extent will be communicated to construction supervisors. – Require the Contractor to develop a clear staged approach to vegetation clearing to minimise the amount of clearing undertaken at one time and include an initial stage for vegetation clearing to support pioneering works such as for fence installation and establishment of erosion and sediment control devices. – Design drawings to delineate the extent of the Project area and any specific nominated no-go zones where vegetation is to be retained within the Project area. – Design adverse incident response procedures to detail actions to be taken in the event of wildlife injury or mortality during clearing. – Where reasonable and practicable, incorporate water sensitive urban design measures to minimise runoff that enters waterways. This should take into consideration the water quality objectives, level of risk, maintenance requirements and physical space within the site to accommodate treatment devices. It should also include consideration of any locations where additional scour protection may be required to minimise erosion risk and maintain watercourse stability. Measures may include wide grassed swales, rock dissipaters, gross pollutant traps, and sediment basins. Within waterways and riparian areas, erosion and sediment control measures should prioritise soft engineering measures to achieve stabilisation where possible (i.e. geofab, jute matting or planting). – Where possible, design culverts in accordance with the <i>Accepted development requirements for operational work that is constructing or raising waterway barrier works</i> (DAF 2018). – Develop a Construction Erosion and Sediment Control Plan (ESCP(C)) in accordance with the <i>Best Practice Erosion and Sediment Control Guidelines</i> (IECA 2008). – If a landscape plan is to be developed, it is recommended that this incorporates the use of endemic native species wherever possible. – Incorporate design measures that prevent or reduce the attraction of introduced fauna such as European foxes, black rats, feral cats and wild dogs to the Project area, such as ensuring waste areas are enclosed and secure. – Limit permanent exclusion fencing at site.			

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
Impacts to MNES from the operation of the CMF	– All fencing used on the Project will use fencing without barbed wire, particularly on the top strand, to minimise incidence of flying-fox entanglement. – Inspect and maintain all vehicles, machinery and plant regularly to minimise operational noise. – Restrict vehicle movements as far as practicable and minimise night driving. – Reduce light spill, associated with permanent infrastructure, into retained adjacent vegetation by limiting artificial light associated with operations to the minimum needed for safety. – Limit operation and maintenance work to day light hours, as is feasible, to decrease the impacts of light and noise pollution on nocturnal organisms within adjacent retained vegetation. – Speed limits will be established and enforced on all access roads and/or internal roads to reduce the potential for vehicle fauna interactions. – If fauna injuries occur within the Project footprint, a Fauna Spotter-catcher will capture and transport the injured animal to a qualified veterinarian for treatment or euthanasia (unless suitably qualified to undertake treatment/euthanasia themselves). – Develop an Erosion and Sediment Control Plan (ESCP) in accordance with the <i>Best Practice Erosion and Sediment Control Guidelines</i> (IECA 2008) to minimise impacts to water quality and adjacent habitats. – Mapping of major weed infestations identified during a pre-clearing survey and appropriate management actions to be undertaken. As a minimum, the management actions should include: • An explanation of the general biosecurity obligation under the <i>Biosecurity Act 2014</i> • Procedures for vehicle wash-downs and inspections • Procedures for reporting sightings of prohibited and restricted pest species within the works area • A requirement that weed infested vegetation is not mulched for re-use on-site, and off-site disposal for weed infested mulch at an appropriate facility. – Prohibiting the movement of restricted invasive plants, including aquatic plants, such as salvinia (<i>Salvinia molesta</i>), into areas which do not contain the restricted invasive plants.		✓	– Facility Manager – Environmental Representative
Performance criteria				
– No injury or death to native flora or fauna species – No existing or new pest species spread by heavy vehicles/machinery entering or exiting the site – All necessary reporting and pre-start checks are completed, and controls implemented to protect fauna during clearing and other construction activities – No vegetation cleared outside of the approved footprints.				
Monitoring				

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
Undertake weekly inspections to assess the implementation of the above measures, with records kept in an environmental checklist.				- Principal Contractor - Construction Manager - Facility Manager - Environmental Representative
Ensure all personnel on-site during construction have undertaken weed, pest and pathogen induction training.				- Construction Manager - Facility Manager - Environmental Representative
Routine inspections for weeds and pest species during and after construction activities, to ensure no establishment of new/existing species within the Project area.				- Construction Manager - Facility Manager - Environmental Representative
Reporting				
Any non-conformance regarding implemented mitigation measures is to be noted and reported to the Construction Manager.				All staff
Maintain a record of all plant/machinery washdown checks undertaken.				- Principal Contractor - Construction Manager - Facility Manager
Maintain records demonstrating that personnel associated with the construction and operational phases have undertaken weed, pest and pathogen induction training.				- Principal Contractor - Construction Manager - Facility Manager - Environmental Representative
Maintain a register of weeds, pests and pathogens observed within the Project area.				- Principal Contractor - Construction Manager - Facility Manager - Environmental Representative
Any observed weed/pest infestations are to be documented and reported to the Construction Manager.				All staff
Corrective actions				
Any works identified outside of the approved area are to be stopped immediately, and flagging/fencing checked and replaced, to avoid any accidental clearing outside the approved footprint.				- Construction Manager - Construction Superintendent
If any fauna are identified to be at risk of injury or death, the activity responsible should be stopped immediately, and appropriate authorities or suitably qualified persons engaged to determine steps for relocation.				- Principal Contractor - Construction Manager - Facility Manager - Environmental Representative - Fauna Spotter-catcher
Any reported weed/pest infestations are to be documented and reported to the appropriate regulatory authority, so they can be rectified in a timely manner.				Project Manager

6.4.1.5 Aquatic biodiversity

Table 21 Mitigation measures for aquatic biodiversity risks

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
Loss of aquatic habitat due to construction activities	Minimise the extent of all vegetation clearing wherever possible, particularly within riparian zones of waterways.	✓		Construction Manager
Degradation of aquatic habitat and water; due to excessive sediment and release of contaminant, increase of weed and pest species and overall reduction in suitability of habitat conditions as a result of construction activities	Where reasonable and practicable, incorporate water sensitive urban design measures to minimise runoff that enters waterways. This should take into consideration the water quality objectives, level of risk, maintenance requirements and physical space within the site to accommodate treatment devices. It should also include consideration of any locations where additional scour protection may be required to minimise erosion risk and maintain watercourse stability. Measures may include wide grassed swales, rock dissipaters, gross pollutant traps, and sediment basins. Within waterways and riparian areas, erosion and sediment control measures should prioritise soft engineering measures to achieve stabilisation where possible (i.e. geofab, jute matting or planting).	✓		- Construction Superintendent - Fauna Spotter-catcher - Wildlife Carer - Environmental Representative
Disturbance of aquatic fauna due to increased light, noise and vibration during construction activities; resulting in injury or mortality of wildlife	Minimise lighting impacts into retained adjacent vegetation and wetland areas by reducing light spill outside of the Project area.	✓		
Alteration of flow and aquatic fauna movement, as a result of construction activities	All waterway crossing structures are to consider the suite of fish present in the waterway and the fish species' passage requirements. Thirty-four native freshwater fish have been recorded in the catchment, which may migrate upstream when flows occur. Fish most likely to migrate into the Project area are small-bodied fish that are adapted to the ephemeral conditions of the local waterways, such as gudgeons, rainbowfish, etc.	✓		
Fauna injury or mortality, due to construction works undertaken within waterways; including the excavation and dewatering of modified dams	- Where possible, design culverts in accordance with the 'Accepted development requirements for operational work that is constructing or raising waterway barrier works' (DAF, 2018). - Develop an Erosion and Sediment Control Plan (ESCP) in accordance with the <i>Best Practice Erosion and Sediment Control Guidelines</i> (IECA 2008) to minimise impacts to water quality and aquatic habitat.	✓		
Introduction and spread of invasive species due to increased movement of vehicles and machinery during construction	- Where de-watering of waterways and/or modified dams is required, develop a Dewatering Management Plan to identify appropriate management strategies for aquatic fauna to minimise injury and death during construction, which include (as a minimum) the following: - Aquatic fauna salvage prior to and during de-watering by a suitably qualified aquatic ecologist - Translocating species to nearby waterways or wetlands of similar quality - Temporary storage and monitoring to demonstrate the water meets the reuse or discharge water quality objectives - On-site re-use of suitable water (e.g. for dust suppression) where practicable - Contingency for on-site treatment and discharge for water that does not meet the objectives or approvals conditions. - Mapping of major weed infestations identified during a pre-clearing survey and appropriate management actions to be undertaken. As a minimum, the management actions should include:	✓		

	• An explanation of the general biosecurity obligation under the <i>Biosecurity Act 2014</i> • Procedures for vehicle wash-downs and inspections • A requirement for 'weed free' certification and checks prior to vehicles entering the construction site during site establishment • Procedures for reporting sightings of prohibited and restricted pest species within the works area • A requirement for the appropriate treatment of all restricted invasive plants in the construction area before construction begins • A requirement that weed infested vegetation is not mulched for re-use on-site, and off-site disposal for weed infested mulch at an appropriate facility • The identification of no-go zones and protection areas in the construction area • Prohibiting the movement of restricted invasive plants, including aquatic plants, such as <i>salvinia</i> (<i>Salvinia molesta</i>), into areas which do not contain the restricted invasive plants. – Design storage facilities and laydown areas a minimum of 50 m from any waterway, where possible. If areas cannot be located 50 m away, then bunds would need to be erected around the perimeter of the laydown area and checked daily for failures. Any failures in the bund wall will need to be rectified prior to any additional material being stored.		
Degradation of aquatic habitat and water; due to storage pond runoff during high rainfall events, and rubbish entering downstream waterways via stormwater drains on-site during operational activities	– Minimise lighting impacts into retained adjacent vegetation and wetland areas by reducing light spill outside of the Project area. – Design storage facilities and laydown areas a minimum of 50 m from any waterway, where possible. If areas cannot be located 50 m away, then bunds would need to be erected around the perimeter of the laydown area and checked daily for failures. Any failures in the bund wall will need to be rectified prior to any additional material being stored.	✓	– Facility Manager – Environmental Representative
Performance criteria – No injury or death to native flora or fauna species – No existing or new pest species spread by heavy vehicles/machinery entering or exiting the site – All necessary reporting and pre-start checks are completed, and controls implemented to protect fauna during clearing and other construction activities – No vegetation cleared outside of the approved footprints.			
Monitoring			
Undertake weekly inspections to assess the implementation of the above measures, with records kept in an environmental checklist.			
Ensure all personnel on-site during construction have undertaken weed, pest and pathogen induction training.			
Routine inspections for weeds and pest species during and after construction activities, to ensure no establishment of new/existing species within the Project area.			
			– Construction Contractor – Construction Manager – Facility Manager – Environmental Representative – Construction Manager – Facility Manager – Environmental Representative – Construction Manager – Facility Manager

	–	Environmental Representative
Reporting		
Any non-conformance regarding implemented mitigation measures is to be noted and reported to the Construction Manager.	–	All staff
Maintain a record of all plant/machinery washdown checks undertaken.	–	Principal Contractor
	–	Construction Manager
	–	Facility Manager
Maintain records demonstrating that personnel associated with the construction and operational phases have undertaken weed, pest and pathogen induction training.	–	Principal Contractor
	–	Construction Manager
	–	Facility Manager
	–	Environmental Representative
Maintain a register of weeds, pests and pathogens observed within the Project area.	–	Principal Contractor
	–	Construction Manager
	–	Facility Manager
	–	Environmental Representative
Any observed weed/pest infestations are to be documented and reported to the Construction Manager.	–	All staff
Corrective actions		
Any works identified outside of the approved area are to be stopped immediately, and flagging/fencing checked and replaced, to avoid any accidental clearing outside the approved footprint.	–	Construction Manager
	–	Construction Superintendent
If any fauna are identified to be at risk of injury or death, the activity responsible should be stopped immediately, and appropriate authorities or suitably qualified persons engaged to determine steps for relocation.	–	Principal Contractor
	–	Construction Manager
	–	Facility Manager
	–	Environmental Representative
	–	Fauna Spotter-catcher
Any reported weed/pest infestations are to be documented and reported to the appropriate regulatory authority, so they can be rectified in a timely manner.	–	Project Manager
	–	Principal Contractor

6.4.1.6 Heritage

Table 22 Mitigation measures for heritage risks

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
Indigenous heritage values uncovered during construction works	The entirety of the site is mapped as a Category 5 risk under the ACH Act – Duty of Care Guidelines. The likelihood of other values being uncovered during construction are significantly high. - Traditional Owner consultation will be required to avoid harm to Indigenous cultural heritage under the <i>Aboriginal Cultural Heritage Act 2003</i>. Consultation may result in: - A cultural heritage management plan - A cultural heritage management agreement - A cultural heritage field agreement. Site protocols Site protocols are to be followed at all times during construction and operation. <u>Site inductions:</u> - Provide machinery and road/traffic personnel with relevant cultural heritage training to ensure they: - Understand the Duty of Care requirements under the <i>Aboriginal Cultural Heritage Act 2003</i> - Understand where machinery, stockpiles etc. should be located. - The site induction can be delivered by the responsible cultural heritage officer (Tim Menkins: 0497 259 960). During works These guidelines are developed from the Department of Environment and Science's <i>Procedural guide: Managing Indigenous Cultural Heritage</i> (DES 2015). FIND: An item of potential Cultural Heritage is found. STOP: All work at the FIND location shall cease. The item shall not be removed or disturbed and an exclusion zone must be installed around the area. NOTIFY: The Contractor shall immediately notify a 'responsible person'. MANAGE: This may include precluding access to that area and liaison with relevant Aboriginal party/parties. The Contractor shall notify all site personnel of the object and/or area and proposed treatment of the object and/or area as soon as possible, but prior to commencing work on the next working day. Please immediately notify the responsible cultural heritage officer should further historical or Indigenous heritage values be identified (Tim Menkins: 0448 119 104). <u>Archaeological Discoveries:</u> - Under Section 89 of the <i>Queensland Heritage Act 1992</i> (QHA), if values are, or could be, of State significance, a notification of discovery must be made to the Department of Environment, Science and Innovation (DESI). - Under Section 90 of the QHA, unless the chief executive gives consent, or if a person has a reasonable excuse, the archaeological artefact must not be interfered with until at least 20 business days after the giving of notice. When an archaeological discovery is reported, DESI	✓		- Construction Manager - Construction Superintendent

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
Non-Indigenous heritage values uncovered during construction works	assesses the finds to determine if it is an important source of information about Queensland's history. Discoveries may be assessed as: • Not important • Important and requiring management strategies • Important and eligible for entry in the Queensland Heritage Register. – Archaeological discoveries can occur regardless of land tenure. Site protocols Site protocols are to be followed at all times during construction and operation. <u>Site inductions:</u> – Provide machinery and road/traffic personnel with relevant cultural heritage training to ensure they: • Understand the Duty of Care requirements under the <i>Aboriginal Cultural Heritage Act 2003</i> • Understand where machinery, stockpiles etc. should be located. – The site induction can be delivered by the responsible cultural heritage officer (Tim Menkins: 0497 259 960). During works These guidelines are developed from the Department of Environment and Science's <i>Procedural guide: Managing Indigenous Cultural Heritage</i> (DES 2015). – FIND: An item of potential Cultural Heritage is found. – STOP: All work at the FIND location shall cease. The item shall not be removed or disturbed and an exclusion zone must be installed around the area. – NOTIFY: The Contractor shall immediately notify a 'responsible person'. – MANAGE: This may include precluding access to that area and liaison with relevant Aboriginal party/parties. The Contractor shall notify all site personnel of the object and/or area and proposed treatment of the object and/or area as soon as possible, but prior to commencing work on the next working day. Please immediately notify the responsible cultural heritage officer should further historical or Indigenous heritage values be identified (Tim Menkins: 0448 119 104). <u>Archaeological Discoveries:</u> – Under section 89 of the <i>Queensland Heritage Act 1992</i> (QHA), if values are, or could be, of State significance, a notification of discovery must be made to the Department of Environment, Science and Innovation (DESI) – Under section 90 of the QHA, unless the chief executive gives consent, or if a person has a reasonable excuse, the archaeological artefact must not be interfered with until at least 20 business days after the giving of notice. When an archaeological discovery is reported, DES assesses the finds to determine if it is an important source of information about Queensland's history. Discoveries may be assessed as: • Not important • Important and requiring management strategies • Important and eligible for entry in the Queensland Heritage Register. – Archaeological discoveries can occur regardless of land tenure.	✓		– Construction Manager – Construction Superintendent

Risk		Mitigation measures	Construction phase	Operational phase	Responsibility
Native Title claim existing over the Project area	Heritage items uncovered during operational works	– If it can be proven that freehold tenure was validly declared prior to 13 December 1996, then Native Title is extinguished in this area. If Native title has been validly extinguished for this reason, then it need not be considered further for the Project.	✓		– Project Manager
		– Follow the Find, Stop Notify and Manage steps in the Department of Environment and Science's <i>Procedural guide: Managing Indigenous Cultural Heritage</i> (DES 2015). • FIND: A potential Cultural Heritage item or object is found. • STOP: STOP WORK IMMEDIATELY and install an exclusion zone around the area. • NOTIFY: notify a responsible person (e.g. Project Manager). • MANAGE: This may include precluding access to that area and liaison with relevant Aboriginal party/parties. The Contractor shall notify all site personnel of the object and/or area and proposed treatment of the object and/or area as soon as possible, but prior to commencing work on the next working day. Please immediately notify the responsible cultural heritage officer should further historical or Indigenous heritage values be identified (Tim Menkens: 0448 119 104).		✓	– Facility Manager
		– Adhere to the requirements set out in the ACH Act for the development of an appropriate Environmental Management Plan (EMP).			
Performance criteria					
– All activities are to be managed in accordance with the <i>Aboriginal Cultural Heritage Act 2003</i> – No sites of cultural significance are to be disturbed, damaged, or altered in any way, shape, or form.					
Monitoring					
Undertake inspections prior to construction for sites of cultural significance.					
Any unexpected finds should be confirmed not to be sites of cultural significance before further activity occurs.					
Reporting					
Any unexpected finds that could potentially be of cultural significance must be reported to the Construction Manager as soon as reasonably practicable.					
The identification of a potential site of cultural significance must be reported to the relevant authority for confirmation on next steps.					
Corrective actions					
Immediately cease all activity within the area of a potential site of cultural significance.					
The site of cultural significance is to be reported to the relevant authority for investigation and confirmation.					
If confirmed as a site of cultural significance, actions are to be undertaken in accordance with the <i>Aboriginal Cultural Heritage Act 2003</i> and instructions given by the relevant authority.					

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
				Construction Superintendent
If deemed to not be a site of cultural significance, actions are to be undertaken in accordance with the Project's Unexpected Finds Procedure and relevant construction specification.				Construction Superintendent

6.4.1.7 Waste

Table 23 Mitigation measures for waste management risks

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
Inappropriate/inefficient material and resource selection and consumption during construction	- Educated planning shall be implemented to efficiently manage the delivery and storage of materials, reducing spoilage of materials. - Agreements with suppliers to where possible use reusable or recyclable packaging in preference of single use packaging. - Minimise procurement of material to reduce spillage.	✓		- Principal Contractor - Construction Manager - Environmental Representative
Failure to carry out general waste management activities	- The Waste Management Hierarchy of "avoidance, reuse, recycling, disposal" will be followed to manage waste throughout site operations. - The relevant persons responsible (the Contractor during construction; SOILCO during operations), will identify and maximise opportunities for supporting a circular economy that benefits waste avoidance and recycling of key priority waste streams. - A site induction shall be implemented for all site personnel detailing their responsibilities under the relevant waste management legislation and guidelines in regard to the minimisation, classification, management and reporting of waste on-site. - Signs within the site will be erected to encourage employees to reduce, reuse or recycle where possible. - Footpaths and road reserves on the site are to be maintained clear of rubbish, building materials and all other waste materials.	✓	✓	- Construction Manager - Facility Manager - Environmental Representative
Inappropriate handling of waste/reuse materials	General: - If encountered or identified, hazardous waste shall be managed by appropriately qualified and licensed contractors in accordance with State legislation. - Waste receptacles, both general and recycling, shall be made available throughout the site to allow for waste segregation and replaced or emptied regularly to prevent overflow. - Liquid wastes are to be stored in appropriate containers in areas that are banded. - Recyclables and non-recyclable wastes are to be stored in appropriate containers on-site until removed to an approved disposal or recycling facility. - All waste receptacles shall be covered and banded where possible. Operations: - All waste inputs and outputs are entered into SOILCO's database and recorded in SOILCO's Waste Monthly Contribution Report on the Queensland Waste and Resource Reporting Portal.	✓	✓	- Construction Manager - Facility Manager - Environmental Representative

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
Inappropriate disposal of waste	- Organic wastes to be processed to ensure effective pasteurisation and segregation of pasteurised material from unpasteurised materials and/or leachate, in accordance with SOILCO's composting procedures and operating protocols. General: - Procedures shall be implemented and maintained to verify licenses and permits for the handling, transportation and disposal of waste. All relevant information is to be recorded in a Waste Management Register. - Disposal of septage from site amenities shall be directed to holding tanks for licenced disposal, if a sewer connection is unavailable. Construction: - Materials should be transported to C and D recycling facilities for recovery.	✓	✓	- Principal Contractor - Construction Manager - Facility Manager - Environmental Representative
Increased fire risk due to stockpiles present on-site during operations	Measures outlined in the <i>Guideline Prevention of fires in waste stockpiles</i> (DESI 2024) are implemented across the site.	✓	✓	- Facility Manager - Safety Advisor
Performance criteria				
- No complaints are received in relation to waste generated on-site - Litter is contained in appropriate facilities on-site.				
Monitoring				
Routine inspections to ensure waste is appropriately stored, handled, transported and disposed of.				
Routine inspections to ensure all practicable environmental management measures are being followed to minimise excess waste and energy consumption.				
Reporting				
Maintain a register, recording all monitoring/inspections undertaken for the entirety of site operations.				
Introduce and maintain a Waste Management Register, which includes all waste inputs and outputs generated up until the actual completion date of site operations.				
Introduce and maintain a record of induction training completed by site personnel, for the entirety of site operations.				

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
Corrective actions				
	If failure to contain waste generated on-site is a recurring issue, review disposal facility locations and types.			Environmental Representative
	Consider shelters and prevailing winds.			- Principal Contractor - Construction Manager - Facility Manager - Principal Contractor - Construction Manager - Facility Manager

6.4.1.8 Public health and safety

Table 24 Mitigation measures for public health and safety risks

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
Increased risk of pathogens such as Legionella and dispersion of bioaerosols, due to operation of the CMF	- The risk of pathogen transmission is as low possible (Appendix A of the Environmental Assessment Report). Table 2.3 and Appendix A of the Environmental Assessment Report, outline the processing and timing for pasteurisation. For the Bromelton CMF, the feedstock is to remain on the ASP between 18 and 21 days, depending on conditions and seasonal variation.		✓	- Facility Manager - Safety Advisor
Inappropriate management of contaminants such as heavy metals and PFAS during operations	- A Hazardous Material and Waste Management Plan will be developed and implemented by the operator to describe how generated wastes are handled, stored, recycled and disposed of in accordance with applicable legislative and contractual requirements during operation of the facility. - Waste Hierarchy Principles will be adopted during the operational phase, and this involves the adoption of environmentally sensitive work practices and implementation of environmental safeguards to minimise waste and promote Ecologically Sustainable Development.		✓	- Construction Manager - Facility Manager - Safety Advisor - Environmental Representative
Performance criteria				
No adverse impacts to human health or safety as a result of construction or operational activities.				
Monitoring				
Undertake inspections/observations of the storage, use and impacts of hazardous substances on-site.				
				- Construction Manager - Facility Manager - Safety Advisor - Environmental Representative
	Undertake regular check-ins with staff, and health monitoring of staff members as required.			- Construction Manager - Facility Manager - Safety Advisor - Assigned persons responsible
Reporting				

Any observations or evidence of incorrect use of PPE, or adverse impacts to persons by hazardous chemicals, are to be reported to the Construction Manager.	–	All staff
Corrective actions		
Any reported observations or evidence of potentially hazardous substances affecting the surrounding environment, will require an investigation into the source.	–	Construction Manager
	–	Facility Manager
	–	Safety Advisor
	–	Environmental Representative
The source of contamination should be immediately remediated in accordance with safe practices outlined in the SDS.	–	Construction Manager
	–	Facility Manager
	–	Safety Advisor
	–	Environmental Representative
Any contamination discovered is to be isolated as soon as practicable and assessed to determine suitable remediation strategies.	–	Construction Manager
	–	Facility Manager
	–	Safety Advisor
	–	Environmental Representative
Any reported observations or evidence of incorrect use of PPE or handling of a hazardous substance, will require the activity responsible to be stopped while an investigation occurs.	–	All staff
Following an investigation, training will be carried out on the correct use and handling of hazardous substances in the workplace to ensure worker safety is maintained.	–	Construction Manager
	–	Facility Manager
	–	Safety Advisor

6.4.2 Air

6.4.2.1 Climate

Table 25 Mitigation measures for climate risks

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
Extreme temperatures and heatwave events during operational activities impacting the efficiency of electrical infrastructure; and construction, operational and maintenance activities (both personnel and rate of infrastructure renewal)	– Develop emergency response plans with emergency muster and access points clearly established and maintain open communications with stakeholders.	✓	✓	– Construction Manager – Facility Manager – Safety Advisor
Performance criteria				
– No adverse impacts to on-site worker health and safety due to extreme temperature events				
– Minimal unplanned downtime due to overheating of electrical infrastructure.				

Monitoring	
Undertake routine inspections to ensure the site is managed according to design specifications, and that sufficient controls are in place and remain fit-for-purpose.	- Construction Manager - Facility Manager - Safety Advisor
Regularly monitor site weather conditions and forecasts to plan for extreme temperatures/heatwave events.	Construction Superintendent
Reporting	
Any emergency situations regarding the failure of electrical infrastructure or personnel health and safety, during an extreme temperature event, are to be reported to the Construction Manager or Facility Manager as soon as practicable.	All staff
Any reported emergency situations are to be relayed to the Principal Contractor as soon as practicable.	- Construction Manager - Facility Manager - Safety Advisor
Corrective actions	
Investigate any reductions in efficiency or failure of electrical infrastructure during extreme temperature events. Identify corrective actions if required, and allocate a responsible person and timeframe for completion.	- Construction Manager - Facility Manager
Any additional control measures or maintenance activities identified are to be implemented in a timely manner.	- Construction Manager - Facility Manager

6.4.2.2 Air quality

Table 26 Mitigation measures for air quality risks

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
Dust emissions produced by the movement of trucks and other vehicles on unpaved roads, and other sources associated with material handling onsite; wind erosion from unsealed surfaces and stockpiles; unloading and turning of compost stockpiles and product screening	Construction: - A construction dust control protocol will be prepared detailing management measures including a method for recording dust complaints and monitoring requirements. - On days with forecasted and actual high winds (i.e., over 10 m/s), reduce work effort accordingly if wind-blown dust is observed to be leaving the site boundary. - Undertake dust suppression, as required, using water sprays, water extension agents, soil stabilising polymers or other media on:	✓	✓	- Construction Manager - Facility Manager - Environmental Representative
Particulates generated during site establishment works; including delivery of site amenities, and surveying/pegging of the site		✓		- Construction Manager - Construction Superintendent
Particulates generated during earth works, including: Establishment of access road to work area		✓		Construction Manager

Grading, excavation and general movement of earth materials.	- Unpaved work areas subject to traffic or wind - Spoil and aggregate stockpiles - During the loading and unloading of dust generating materials - Unpaved access tracks.		Construction Superintendent
Particulates generated during road works and intersection works, including: - Removal of trees/stripping of topsoil - Box out to required levels - Subgrade and base course - Asphalting - Line marking - Signage installation - Defect inspection and cleaning.	- Water from the onsite storage dam will be used for dust suppression for the internal roads used by heavy vehicles. - If the works are creating levels of dust which may significantly impact on public amenity, modify or stop the works until the dust hazard is reduced to an acceptable level. - Stockpile turning will be suspended during periods of high wind	✓	- Construction Manager - Construction Superintendent
Particulates generated during civil works, including: - Demolition and earthworks - Civil works - Ponds and other civil structures.	Maintain plant and equipment in good condition to minimise air emissions.	✓	- Construction Manager - Construction Superintendent
Particulates generated during mechanical installation of the following: - Shredder - Drum screen - Platforms - Storage tanks/platforms - Blowers - Leachate system - Water system - Picking system - Control system and instruments - Odour control system - Interconnecting pipework.	Operations: Dust emissions from unpaved access and site roads, as well as all composting operations are readily managed with application of watering and proactive dust controls. Water from the onsite storage dam will be used for dust suppression for the internal roads used by heavy vehicles. The pavement types of the internal roads are not expected to produce significant dust emission. The pavement types are: - unbound granular pavements - stabilised pavements - asphalt pavements and surfacing stabilised pavements - sprayed bituminous surfacing - asphalt pavements and surfacing	✓	- Construction Manager - Construction Superintendent
Particulates generated during electrical installation of the following: - Blowers - Pumps - Screens - Motor control centre works		✓	- Construction Manager - Construction Superintendent

– Interconnecting cabling.					
Greenhouse gas emissions produced by machinery and equipment used during construction and operations	Greenhouse gas emissions assessment will be completed during the detailed design phase.	✓	✓	✓	– Principal Contractor – Construction Manager – Facility Manager – Environmental Representative
Potential for odour to exceed the highest predicted 99.5 th percentile odour impact of 2.1 OU at the industrial receptor R7	– Maintain plant and equipment in good condition to minimise ignition risk of fuel or chemicals, spills, and air emissions that may cause nuisance. – Mixing putrescible feedstock materials immediately into the compost process, if not pre-treated or dried. No feedstock with a ‘very high’ odour rating will be accepted onsite. The only feedstock with a ‘high’ rating accepted at the site are food organics for composting and small amounts of animal manure (up to 200 tonnes) for blending purposes only. – Implementing a management strategy for turning open windrows to prevent anaerobic conditions which is determined by an experienced operator through site trials and measurements. – Minimising turning events for open windrows, especially during the first 7-10 days of composting, with only the minimum turning required to support pasteurisation and moisture redistribution. – Train staff (internal and contractors) on odour management strategy and all relevant procedures. Requirements to be included in the Odour Management Plan. – Install and operate as needed an aerator in the leachate pond to reduce the odour potential from the stored leachate. – Scheduling activities for times when they will have least impact (e.g. avoid undertaking odour-generating activities such as turning windrows of compost at times when it is windy, and the odour might carry to a sensitive or commercial place. – If the site activities are emitting odour concentrations which may significantly impact the nearby receptors, the works should be modified or stopped until the hazard is reduced to an acceptable level. This can include shredding of raw feedstock or turning of windrows.			✓	– Facility Manager – Environmental Representative – Assigned persons responsible
Potential for odour to exceed the highest predicted 99.5 th percentile odour impact of 0.6 OU at the residential receptor R6				✓	– Facility Manager – Environmental Representative – Assigned persons responsible

	– An Odour Management Plan to be developed prior to the activity commencing which includes: • Identification of all odour sources, and potential odour sources at the site, including odours and potential odours generated from the activity • A requirement that odour investigations be completed by an appropriately qualified person • An analysis of routine and non-routine processes and operating conditions that could potentially result in odour emissions • Measures to avoid the generation and minimise the impacts of odours • At a minimum, annual reviews of the effectiveness of the measures. – Upon receipt of a valid odour complaint, engage a suitable experienced odour professional to conduct odour surveillance (odour surveys) to determine the extent of odour from the site and investigate what site activities led to elevated odour.			
Cumulative odour impacts during operations due to the distinct odour characteristics associated with Bush's Proteins	– Not expected to occur as the odour from Bush's Proteins is not similar to that of the odour character experienced from composting, therefore cumulative impacts are not expected.	✓		– Facility Manager – Environmental Representative – Assigned persons responsible
Performance criteria				
– All construction and operational activities are managed in accordance with the <i>Environmental Protection Act 1994</i> and the <i>Environmental Protection Policy (Air) 2019</i> – No complaints are received from regulatory authorities or the surrounding community in relation to air quality issues.				
Monitoring				
Undertake air quality monitoring prior to construction commencing and during the construction phase.				
Undertake inspections/observations of air quality for fugitive dust, odour at the facility.				
Undertake air quality testing for point source emissions.				
Reporting				
Any observations or evidence of air pollution likely to cause nuisance is to be reported to the Construction Manager or Facility Manager for action.				
– All staff				

Any observations or evidence of fugitive air emissions travelling offsite that may impact surrounding receivers to be reported to the Facility Manager.	– All staff
Any emission non-compliance are to be recorded and appropriately investigated.	– Construction Manager – Facility Manager – Environmental Representative
Maintain a complaints register, recording all complaints regarding air quality issues received from the surrounding community and/or regulatory authorities.	– Principal Contractor – Construction Manager – Facility Manager – Environmental Representative
Prepare an environmental monitoring report documenting the results of the monitoring programs during the operational phase and any actions taken to address exceedances.	– Principal Contractor – Environmental Representative
Corrective actions	
Investigate any non-compliance or complaint including review of operational activity that may be source and weather conditions. Identify corrective actions if required and allocate a responsible person and timeframe for completion.	– Principal Contractor – Construction Manager – Facility Manager – Environmental Representative
Validate any complaints/reports received against the performance criteria associated with the activity being undertaken at the time; and review any relevant controls currently in place, including their effectiveness.	– Construction Manager – Facility Manager – Environmental Officer
Any additional control measures identified are to be implemented in a timely manner where excessive emissions or nuisance dust and other air quality issues are identified.	– Construction Manager – Facility Manager – Environmental Representative
All complaints/reports are to be investigated in a timely manner, using appropriate dispute resolution methods and abatement or attenuation measures.	– Construction Manager – Facility Manager – Environmental Representative

6.4.3 Noise and vibration

6.4.3.1 Noise

Table 27 Mitigation measures for noise risks

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
Excess generation of noise during construction activities, which may include: - Earthworks - Slab construction - Building construction - Embankment/pavement works - Sealing works.	Construction noise levels will be dynamic and vary based on the construction activities being undertaken. Site inductions - All employees, contractors and sub-contractors are to receive an environmental induction. The induction should include: - All relevant project-specific and standard noise and vibration mitigation measures - Relevant licence and approval conditions - Permissible hours of work - Location of nearest sensitive receivers - Construction employee parking areas - Designated loading/unloading areas and procedures - Site opening/closing times (including deliveries) - Environmental incident procedures. Behavioural practices - No swearing or unnecessary shouting or loud stereos/radios on-site - No dropping of materials from height, throwing of metal items and slamming of doors. Community consultation measures - Contact will be established with the local residents as deemed necessary and the construction program and progress communicated on a regular basis, particularly when noisy or vibration-generating activities are planned. - This may include a local community update letters for specific construction activities and a Project information line. Complaints management Complaints will be managed in accordance with the procedure outlined below. Signage at each site will clearly and visibly provide a contact number and name to receive complaints and enquiries about construction. - Potential complaints specific to these works could include: - A cluster of noise complaints	✓		- Principal Contractor - Construction Manager - Construction Superintendent - Environmental Representative

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
	– In this instance, the response would be to: • Verbally respond to complainant • Provide a written response within seven calendar days, if the complaint cannot be resolved verbally • Log the complaint, and any actions taken with regards to the complaint within a complaints register • Undertake monitoring at the complainant's residence(s), where appropriate. • Investigate the nature and reasons of the impact – Investigate and implement further mitigation measures to minimise the impact. Construction hours and scheduling – Comply with the recommended standard construction hours outlined in Section 4.1.1 of Appendix I in the Environmental Assessment Report, unless out of hours work has been approved. – For any work that would take place outside of normal construction hours: • Undertake an assessment of the potential noise and vibration impacts associated with the proposed activities and outline specific mitigation measures. • Residents potentially affected by such activities will be notified at least five days before hand, where required. • Minimise consecutive night activities in the same locality and provide periods of quiet if activities occur for extended periods during the night. • Conduct activities in a manner that eliminates or minimises the need for audible warning alarms. Equipment selection – Use quieter and less vibration emitting construction methods where reasonable and feasible. Use and siting of plant – Simultaneous operation of noisy plant within discernible range of a sensitive receiver is to be avoided. – The offset distance between noisy plant and adjacent sensitive receivers is to be in accordance with this report. – Plant used intermittently to be throttled down or shut down. Noise-emitting plant to be directed away from sensitive receivers where possible. Plan workites and activities to minimise noise and vibration – Plan traffic flow, parking and loading/unloading areas to minimise reversing movements within the site. Minimise disturbance arising from delivery of goods to construction sites – Loading and unloading of materials/deliveries is to occur during standard construction hours.			

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
Increased noise levels, above those of the pre-existing environment, due to operational activities	- Contractors are to avoid dropping materials from height where practicable, during loading and unloading. - Delivery vehicles to be fitted with straps rather than chains for unloading, wherever possible. - Clear signage should be erected at site entrances advising people that they must not generate excessive noise and leave the site in a quiet and sensible manner to minimise any potential impacts to the surrounding amenity. - Dump trucks, loaders (L90 and L150) and shredder operations should be limited to day time operations or only operated near the centre of the Project area during the start of the day (6am to 7am) to reduce noise impacts during the morning shoulder period. A Noise Management Plan (NMP) be prepared for the CMF. It should contain (but not limited to): - A noise complaints management system is to be implemented whilst the completed facility is in operation. The following process should be established to ensure all complaints are dealt with in an appropriate manner: - A staff member will be nominated to deal with complaints from the community. Contact details of nominated staff member will be displayed at entry point of the site - All complaints will be logged within a complaint register. An archive of complaints will be maintained, documenting the nature of the complaint and the actions implemented for resolving the complaint.		✓	- Facility Manager - Environmental Representative
Excess generation of noise, due to additional traffic during operations, impacting on sensitive receptors located along the road network near the site	- SOILCO will endeavour to attend to these complaints within 48 hours of receipt. - The complaint log should be reviewed at regular intervals to identify common complaints and recurring issues. The review can be used to adjust operations to reduce the number of complaints moving forward. - The complaints log will be made available to relevant regulatory authorities on request. A record of the noise mitigation measures implemented on-site. Best practice environmental management practices - All work to be within nominated hours of operation - Switch off equipment when not in use. - Select the quietest machinery and equipment available and find quieter processes or ways of performing tasks where possible (e.g. investigate whether there are suitable alternatives to reversing alarms on vehicles and select vehicles with low noise emissions). - Ensure that roads have a suitable and well-maintained surface and limit the amount, type, times and speed of vehicle movements. - Start plant and vehicles sequentially rather than all at the same time. - Use existing screens or site features to their advantage to reduce noise.		✓	- Facility Manager - Environmental Representative

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
	– If the noise is directional, point the source away from noise-sensitive locations where possible. – Ensure that equipment, vehicles and acoustic screens or other noise mitigation devices are properly maintained. – Ensure that each staff member is aware of their responsibilities to reduce noise emissions, and how this can be achieved. – Noise at the sensitive and commercial places is periodically monitored to ensure that noise mitigation strategies are effective. – Monitoring is undertaken at a sufficient frequency to demonstrate that the activity is not causing or likely to cause environmental harm. This may include background monitoring of a sufficient period to demonstrate a background level, taking into consideration natural and seasonal variations. – An environmental management system is implemented per <i>AS/NZS ISO 14001:2016</i> – <i>Environmental management systems – Requirements with guidance for use</i> (Standards Australia 2016).			
Performance criteria				
– No complaints or adverse impacts on staff or the community relating to noise.				
Monitoring				
Routine inspection of operations to identify any points of excessive noise generation outside of that which is approved under operational works approvals.				
				– Construction Manager – Facility Manager – Environmental Representative
Background noise criteria to be developed from baseline noise monitoring prior to the construction phase.				
				– Noise specialist
Environmental monitoring program to be developed for the operational phase.				
				– Principal Contractor – Environmental Representative
Reporting				
Any complaints made by staff or the community relating to noise should be recorded in a complaints register.				
				– Principal Contractor – Construction Manager – Construction Superintendent – Facility Manager – Environmental Representative

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
Environmental monitoring report documenting the results of the monitoring programs during the operational phase and any actions taken to address exceedances.				- Principal Contractor - Environmental Representative
Corrective actions				
Review the activity being undertaken at the time of the complaint/report and confirm the validity of the complaint/report received.				- Construction Manager - Facility Manager - Environmental Representative
Validate any complaints/reports received against the performance criteria associated with the activity being undertaken at the time; and review any relevant controls currently in place, including their effectiveness.				- Construction Manager - Facility Manager - Environmental Representative
Any additional control measures identified are to be implemented in a timely manner where excessive noise issues are identified.				- Construction Manager - Facility Manager - Environmental Representative
All complaints/reports are to be investigated in a timely manner, using appropriate dispute resolution methods and abatement or attenuation measures.				- Construction Manager - Facility Manager - Environmental Representative

6.4.4 Water

6.4.4.1 Surface and stormwater

Table 28 Mitigation measures for surface and stormwater risks

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
Excess sediment generated by ground disturbance activities being discharged into the downstream environment	- During detailed design, temporary sediment basins, would be sized in accordance with management of at least 80% of the annual average runoff to 50 mg/L of TSS. - Staging of the works is also to be considered during detailed design, and in particular the provision of early-stage temporary sediment basin(s) before final pad levels are reached and leachate basins cannot be used as temporary sediment basins.	✓		- Principal Contractor - Construction Manager - Construction Superintendent - Environmental Representative

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
	- Development of a Stormwater Management Plan to address surface water quality risks. A Surface Water Impact Assessment including Conceptual Surface Water Management Plan has been developed and include in Appendix B. - To minimise potential erosion and sedimentation impacts during construction of the composting manufacturing facility, a detailed Construction Erosion and Sediment Control Plan (ESCP(C)) would be developed based on relevant regulatory requirements. - This ESCP(C) would be prepared by a suitably qualified professional, as certified by the International Erosion Control Association (IECA). - The ESCP(C) would be developed as an addendum to an EMP(C) that would address risks to the environment from a multitude of sources, including water and soil resources.			
Generation of differing types of water during operations, distinguished by their respective water quality, impacting downstream environments	- Diversion of upstream run-on around the facility. - Designation of respective leachate and stormwater catchments within the operational site, with separate stormwater conveyance systems. - Preparation and regular update of a Operational Management Plan.		✓	- Facility Manager - Environmental Representative
Discharge of untreated runoff that has come into significant contact with organic material	Provision of 30 ML of contact water storage with disposal via reuse in the pasteurisation phase of the process. No proposed activities release of leachate and no overflow up to a design standard rainfall of 900 mm falling within a 6-month period.		✓	- Facility Manager - Environmental Representative
Runoff from impervious site areas, not impacted by organic material	- Runoff from impervious site areas not impacted by organic material includes a water quality risk consistent with typical urban stormwater, requiring consideration accordingly. - Provision of a typical urban stormwater treatment train including 500 m² of bio-retention filter area and a gross pollutant trap.		✓	- Facility Manager - Environmental Representative
Increased site water supply required for the composting process	Water is required for the composting process, including in the pasteurisation and maturation processes, with leachate only able to be used in the pasteurisation process - Provision of a 30 ML harvesting storage to the west of the operational area - Water delivery from appropriately licensed external water sources during dry periods to meet water supply needs.		✓	- Facility Manager - Environmental Representative
Impacts of external floodwaters on operations, and the resulting water quality risks associated with site inundation	- The operational site is located outside the 1% AEP flood impact for the identified flow paths adjacent to the site, other than for two minor locations where through detailed design extents would be altered as required to locate outside the flood extent. This would also be undertaken in consideration of waterway separation distance requirements. - The upgrade of Mitchell Road includes provision of appropriate flood protection and flow conveyance. - A Water Quality (groundwater, surface water and ponds) Monitoring Plan will be developed and implemented for the construction and operational phase.		✓	- Facility Manager - Environmental Representative
The increase in impervious areas for the CMF, leading to an increase in the peak rate of runoff and changes flood conditions downstream	3 Leachate storage ponds will be included for the CMF as shown in Drawing 30034146-000-300 - Adjustment of leachate catchment area when full processing rate is not occurring		✓	- Facility Manager - Environmental Representative

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
Non-compliance with government authorities during operations	- Preparation of a detailed water balance model based on actual site operational data and provide emergency containment bunding if required. 25 m setback from flow paths, other than the harvesting storage - Location of site operational activities above the 1% AEP.		✓	- Principal Contractor - Facility Manager - Environmental Representative
Adverse impact on fish passage / loss of fish habitats	- The CMF will setback 25 metres from the waterways - The waterways ACT1 and ACT2 do not meet Fisheries Act 1994 definition of a waterway and are not considered to provide fish passage. Pre-lodgement advice received from DAF (refer to Section 7) and DAF confirmed that ACT2 appears to be a mapping anomaly. ACT2 feature does not constitute a waterway as it does not have defined bed and banks, fish habitat and it is too steep to provide adequate flow to sustain ecological processes. - A Water Quality (groundwater, surface water and ponds) Monitoring Plan will be developed and implemented for the construction and operational phase. - DAF noted that ACT1 has a shallower gradient that allows for fish movement, defined bed and banks and shows evidence of fish habitats. DAF considered ACT1 to constitute a waterway as defined under the Fisheries Act 1994 and any waterway barrier works within this waterway require authorisation. The proposed works in this waterway include a dam could be undertaken under the Accepted Development Requirements, provided a spillway in accordance with the design requirements of work type 3.1 is included.			- Principal Contractor - Facility Manager - Environmental Representative
Performance criteria				
No unlawful discharges of contaminated or unlicensed surface water.				
Monitoring				
Routine inspection/observation of stormwater infrastructure to confirm it is clear from obstructions and maintained. Preparation of an environmental monitoring program will be required for the operational phase.				
Routine inspection/observation of flows to confirm to unlawful discharges and any controlled releases should be monitored against discharge criteria determined in a Surface Water Management Plan.				
Implement a Receiving Environmental Monitoring Program (REMP).				
A Water Quality (groundwater, surface water and ponds) Monitoring Plan will be developed and implemented for the construction and operational phase.				
Reporting				
- Construction Manager - Facility Manager - Environmental Representative - Construction Manager - Facility Manager - Environmental Representative - Principal Contractor - Environmental Representative - Principal Contractor - Environmental Representative - Facility Manager				

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
Any unscheduled discharges or flows outside of stormwater infrastructure should be reported to the Construction Manager/Facility Manager and relevant Environmental Representative.				– All staff
Any controlled releases should be recorded in a register with the accompanying test results to demonstrate compliance with licensed discharge criteria.				– Principal Contractor – Construction Manager – Facility Manager – Environmental Representative
Environmental monitoring report documenting the results of the monitoring programs during the operational phase and any actions taken to address exceedances.				– Principal Contractor – Environmental Representative
Corrective actions				
Any stormwater identified to impact on construction or operational activities, should be assessed to determine whether additional infrastructure is required to manage stormwater through appropriate controls.				– Construction Manager – Facility Manager – Environmental Representative
Stormwater not suitable for discharge should be retained on-site and treated to meet discharge quality characteristics or taken to a suitably licensed disposal facility.				– Construction Manager – Facility Manager – Environmental Representative
Following any scheduled or unscheduled discharges, an accompanying downstream inspection should be undertaken to confirm that the discharge has not created adverse impacts to the receiving environment.				– Construction Manager – Facility Manager – Environmental Representative

6.4.4.2 Groundwater

Table 29 Mitigation measures for groundwater risks

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
Groundwater seepage into excavated areas leading to structural instability of excavation walls	– If groundwater is likely to be intercepted during construction, design of the facility should include management of excavation walls and seepage controls – The Contractor must prepare a Groundwater Management Plan.	✓		– Principal Contractor – Construction Manager – Environmental Representative
Excavation activities intercepting groundwater table and/or underground springs	– The Construction Contractor must prepare a Groundwater Management Plan that details the capture, testing, treatment (if required), and disposal/discharge of seepage.	✓		– Principal Contractor – Construction Manager – Environmental Representative
Cut and fill works during construction using sulphidic rock excavated at the site, resulting in acid rock drainage (ARD)	– Conduct additional geotechnical investigations to target depth of below the proposed level of excavation to determine presence of potential acid rock drainage (ARD) materials.	✓		– Principal Contractor – Construction Manager

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
	– If during excavation coal is encountered, the material should be segregated and stockpiled for ARD testing. The stockpile should be placed on an impervious base and leachate generated from the stockpile must be captured, tested, treated if required, prior to discharge/disposal. – If the stockpile material is confirmed to produce acid, the rock must be managed in accordance with the Hazardous Material Management Plan and Waste Management Plan (Appendix C), to be prepared by the Construction Contractor.			– Environmental Representative
Contamination of imported fill material for construction leaches contaminants into the groundwater	– The Construction Contractor is required to source fill from a reputable supplier that has a quality assurance system. – All imported fill must be certified as 'clean', prior to entering the site, and is to be free of debris, weeds and potential contaminants. – A register will be kept of all fill materials imported to the site (source and destination).	✓		– Principal Contractor – Construction Manager – Environmental Representative
Changes to groundwater levels and recharge dynamics resulting from excavation and filling works	– The desktop assessment identified that groundwater is likely to be at depth, and recharge is likely low within the Project footprint, therefore changes in groundwater levels are not expected. – On-going groundwater monitoring of the proposed groundwater monitoring bores during and after construction will allow for early detection of any changes.	✓		– Construction Manager – Environmental Representative
Contamination of groundwater from unintentional leaks/spills of hazardous substances, from plant/machinery, vehicle washdowns or chemical storage	– The relevant persons responsible (the Contractor during construction; SOILCO during operations), will prepare a Hazardous Material Management Plan and Waste Management Plan (Appendix C), that will outline measures for managing fuel and chemical handling, storage, distribution, spill response and cleanup, and managing generated waste.	✓	✓	– Principal Contractor – Construction Manager – Facility Manager – Environmental Representative
Changes to the surrounding landform causing changes to groundwater recharge dynamics	– The desktop assessment identified that groundwater is likely to be at depth, and recharge is likely low within the Project footprint, therefore changes in groundwater levels are not expected in the vicinity of the facility. – Maintain environmental flows in downstream watercourses, so that recharge of alluvium in Allan Creek is not altered.		✓	– Facility Manager – Environmental Representative
Water from harvest water dam seeping into groundwater during operations	Design of the freshwater storage dam indicates that the dam will be lined to limit seepage.		✓	– Principal Contractor – Facility Manager – Environmental Representative
Contaminated water from leachate dams seeping into groundwater during operations	– Design of the leachate dam indicates that the dam will be fully lined with either: • 600 mm thick recompacted clay with a permeability of less than 10-9 m/s; or • A high-density polyethylene geomembrane liner with a minimum thickness of 1.5 mm. – The facility will have a designated leachate management system, as per the Queensland Government guidelines for <i>Model operating conditions: ERA 53(a) – Organic material processing by composting</i> (Queensland Government 2024). – Seepage may be detected through installation of spears around the dam.		✓	– Principal Contractor – Facility Manager – Environmental Representative
Contaminated leachate, seeping through the hardstand underlying the aeration	– Hardstand areas are to be constructed with a low-permeability base that prevents leachate from seeping into underlying soils and groundwater.		✓	– Principal Contractor – Facility Manager

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
pad/windrow pad/maturation, into soils and groundwater during operations	– The facility will have a designated leachate management system, as per the Queensland Government guidelines for <i>Model operating conditions: ERA 53(a) – Organic material processing by composting</i> (Queensland Government 2024). – The generation of leachate in operational areas will be minimised using drive-over culverts to separate clean and dirty water. – The leachate pond system and pipework will be regularly inspected, maintained, and repaired when necessary.			– Environmental Representative
Performance criteria				
– No unlawful discharges of contaminated or unlicensed surface water/leachate				
– No seepage of contaminated water/leachate into groundwater.				
Monitoring				
Preparation of an environmental monitoring program will be required for the operational phase.				
Routine inspection/observation of flows to confirm to unlawful discharges and any controlled releases should be monitored against discharge criteria determined in a Groundwater Management Plan.	– Principal Contractor – Environmental Representative			
	– Construction Manager – Facility Manager – Environmental Representative			
A Water Quality (groundwater, surface water and ponds) Monitoring Plan will be developed and implemented for the construction and operational phase.	– Principal Contractor – Environmental Representative – Facility Manager			
Maintain a register of all fill materials imported to the site.	– Principal Contractor – Construction Manager			
Reporting				
Any unscheduled discharges or flows outside of stormwater infrastructure should be reported to the Construction Manager/Facility Manager and relevant Environmental Representative.	– All staff			
Any unintentional spills or leaks of hazardous substances, leaks/spills from plant/machinery, vehicle washdowns or chemical storage should be reported to the Construction Manager/Facility Manager and relevant Environmental Representative.	– All staff			
Any controlled releases should be recorded in a register with the accompanying test results to demonstrate compliance with licensed discharge criteria.	– Principal Contractor – Construction Manager – Facility Manager – Environmental Representative			
Preparation of an environmental monitoring report documenting the results of the monitoring programs during the operational phase and any actions taken to address exceedances.	– Environmental Representative			
Corrective actions				
Water not suitable for discharge should be retained on-site and treated to meet discharge quality characteristics or taken to a suitably licensed disposal facility.	– Construction Manager – Facility Manager			

Risk	Mitigation measures	Construction phase	Operational phase	Responsibility
Investigate any non-compliance or incidents reported, including review of any operational activities that may have been the source. Identify corrective actions if required and allocate a responsible person and timeframe for completion.				– Environmental Representative
				–
				– Principal Contractor
				– Construction Manager
				– Facility Manager
				– Environmental Representative

6.5 Residual risk assessment

6.5.1 Construction phase

6.5.1.1 Land

Table 30 Residual risk assessment for construction – land

Impact	Residual risk rating
Bushfire hazard	
Bushfire impacts during the construction phase; including damage to equipment, buildings and staff.	Low
Visual amenity	
Impacts to the design materiality due to the construction works	Low
Visual modification of the area due to landscaping works	Moderate
Visual modification of the area due to signage required for construction works	Negligible
Visual modification of the area due to construction works	Negligible
Erosion and sediment control	
Disturbance of in-situ soils during construction, resulting in erosion and sedimentation	Negligible
Terrestrial biodiversity	
Disturbance/clearing of vegetation and fauna habitat during construction; reducing native fauna in the area	Moderate
Injury and mortality of wildlife, due to wildlife movement through the Project area during construction	Moderate
Vegetation clearing during construction reduces habitat connectivity within and adjacent to the Project area	Low
Disturbance of wildlife due to increased light, noise and vibration during construction activities; resulting in injury or mortality of wildlife	Low
Habitat degradation due to dust, run-off and sedimentation generated by construction activities reducing the abundance and diversity of habitats by: - Physically smothering vegetation - Changing nutrient levels - Decreasing water quality - Encouraging weed incursions - Altering the movement of wildlife.	Low
Introduction and spread of invasive species due to increased movement of vehicles and machinery during construction	Low
Impacts to MNES from the construction of the CMF	Low
Aquatic biodiversity	
Loss of aquatic habitat due to construction activities	Negligible
Degradation of aquatic habitat and water; due to excessive sediment and release of contaminant, increase of weed and pest species and overall reduction in suitability of habitat conditions as a result of construction activities	Low
Disturbance of aquatic fauna due to increased light, noise and vibration during construction activities; resulting in injury or mortality of wildlife	Low
Alteration of flow and aquatic fauna movement, as a result of construction activities	Low
Fauna injury or mortality, due to construction works undertaken within waterways; including the excavation and dewatering of modified dams	Low
Introduction and spread of invasive species due to increased movement of vehicles and machinery during construction	Low
Heritage	
Indigenous heritage values uncovered during construction works	Moderate

Non-Indigenous heritage values uncovered during construction works	Negligible
Native Title claim existing over the Project area	Low
Waste	
Inappropriate/inefficient material and resource selection and consumption during construction	Negligible
Failure to carry out general waste management activities during construction	Low
Inappropriate handling of waste/reuse materials during construction	Low
Inappropriate disposal of waste during construction	Low

6.5.1.2 Air

Table 31 *Residual risk assessment for construction – air*

Impact	Residual risk rating
Climate	
Extreme temperatures and heatwave events during construction impacting the efficiency of electrical infrastructure, and construction activities (both personnel and rate of infrastructure renewal)	Negligible
Air quality	
Dust emissions produced during construction, due to the movement of trucks and other vehicles on unpaved roads, and from other sources associated with material handling on-site; wind erosion from unsealed surfaces and stockpiles; unloading and turning compost stockpiles and product screening	Negligible
Particulates generated during site establishment works; including delivery of site amenities, and surveying/pegging of the site	Negligible
Particulates generated during earth works, including: - Establishment of access road to work area - Grading, excavation and general movement of earth materials.	Low
Particulates generated during road works and intersection works, including: - Removal of trees/stripping of topsoil - Box out to required levels - Subgrade and base course - Asphalting - Line marking - Signage installation - Defect inspection and cleaning.	Low
Particulates generated during civil works, including: - Demolition and earthworks - Civil works - Ponds and other civil structures.	Low
Particulates generated during mechanical installation of the following: - Shredder - Drum screen - Platforms - Storage tanks/platforms - Blowers - Leachate system - Water system - Picking system - Control system and instrument mech - Odour control system - Interconnecting pipework.	Negligible
Particulates generated during electrical installation of the following:	Negligible

– Blowers – Pumps – Screens – Motor control centre works – Interconnecting cabling.	
Greenhouse gas emissions produced by machinery and equipment used during construction	To be determined.

6.5.1.3 Noise and vibration

Table 32 Residual risk assessment for construction – noise and vibration

Impact	Residual risk rating
Noise	
Excess generation of noise during construction activities, which may include: – Earthworks – Slab construction – Building construction – Embankment/pavement works – Sealing works.	Moderate

6.5.1.4 Water

Table 33 Residual risk assessment for construction – water

Impact	Residual risk rating
Surface and stormwater	
Excess sediment generated by ground disturbance activities being discharged into the downstream environment	Low
Groundwater	
Groundwater seepage into excavated areas leading to structural instability of excavation walls	Low
Excavation activities intercepting groundwater table and/or underground springs	Negligible
Contamination of groundwater from unintentional leaks/spills of hazardous substances, from plant/machinery, vehicle washdowns or chemical storage during construction	Low
Changes to groundwater levels and recharge dynamics resulting from excavation and filling works	Negligible
Cut and fill works during construction using sulfidic rock excavated at the site, resulting in acid rock drainage (ARD)	Low
Contamination of imported fill material for construction leaches contaminants into the groundwater	Negligible

6.5.2 Operational phase

6.5.2.1 Land

Table 34 Residual risk assessment for operations – land

Impact	Residual risk rating
Bushfire hazard	
Increased bushfire impacts during the operational phase due to CMF materials; resulting in significant bushfire risks for adjacent properties, fire runs and disruptions to operation of the CMF	Low
Visual amenity	
Impacts to the design materiality during operations, as a result of the construction of the CMF	Low
Visual modifications due to landscaping	Moderate
Visual modifications due to signage required for operational works	Negligible
Erosion and sediment control	
Increased erosion and sediment mobilisation due to the movement of vehicles on-site during operations	Low

Increased erosion and sediment mobilisation, due to wind, from materials stockpiled on-site during operations	Low
Terrestrial biodiversity	
Disturbance/clearing of vegetation and fauna habitat to accommodate CMF operations leading to a reduction of native fauna in the area	Low
Injury and mortality of wildlife, due to wildlife movement through the Project area during operations	Low
Vegetation clearing to accommodate CMF operations reduces habitat connectivity within and adjacent to the Project area	Negligible
Disturbance of wildlife due to increased light, noise and vibration during operational activities; resulting in injury or mortality of wildlife	Negligible
Impact surrounding native flora and fauna due to the operation of the CMF; resulting in a reduction of surrounding native populations	Low
Impacts to MNES from the operation of the CMF	Low
Aquatic biodiversity	
Degradation of aquatic habitat and water; due to storage pond runoff during high rainfall events, and rubbish entering downstream waterways via stormwater drains on-site during operational activities	Negligible
Heritage	
Heritage items uncovered during operational works	Low
Waste	
Failure to carry out general waste management activities during operations	Low
Inappropriate handling of waste/reuse materials during operations	Negligible
Inappropriate waste disposal during operations	Negligible
Increased fire risk due to stockpiles present on-site during operations	Low
Public health and safety	
Increased risk of pathogens such as Legionella and dispersion of bioaerosols, due to operation of the CMF	Negligible
Inappropriate management of contaminants such as heavy metals and PFAS during operations	Negligible

6.5.2.2 Air

Table 35 Residual risk assessment for operations – air

Impact	Residual risk rating
Climate	
Extreme temperatures and heatwave events during operational activities impacting the efficiency of electrical infrastructure, and operational and maintenance activities (both personnel and rate of infrastructure renewal)	Negligible
Air quality	
Potential for odour to exceed highest predicted 99.5 th percentile odour impact (2.1 OU) at industrial receptor R7	Low
Potential for odour to exceed highest predicted 99.5 th percentile odour impact (0.6 OU) at residential receptor R6	Low
Cumulative odour impacts during operations due to the distinct odour characteristics associated with Bush's Proteins	Negligible
Dust emissions produced during operations, due to the movement of trucks and other vehicles on unpaved roads, and other sources associated with material handling onsite; wind erosion from unsealed surfaces and stockpiles; unloading and turning of compost stockpiles and product screening	Low
Greenhouse gas emissions produced by machinery and equipment used during operations	TBD

6.5.2.3 Noise and Vibration

Table 36 *Residual risk assessment for operations – noise and vibration*

Impact	Residual risk rating
Noise	
Increased noise levels, above those of the pre-existing environment, due to operational activities	Negligible
Excess generation of noise, due to additional traffic during operations, impacting on sensitive receptors located along the road network near the site	Low

6.5.2.4 Water

Table 37 *Residual risk assessment for operations – water*

Impact	Residual risk rating
Surface and stormwater	
Generation of differing types of water during operations, distinguished by their respective water quality, impacting downstream environments	Low
Discharge of untreated runoff that has come into significant contact with organic material	Low
Runoff from impervious site areas, not impacted by organic material	Negligible
Increased site water supply required for the composting process	Low
Impacts of external floodwaters on operations, and the resulting water quality risks associated with site inundation	Low
The increase in impervious areas for the CMF, leading to an increase in the peak rate of runoff and changes flood conditions downstream	Low
Non-compliance with government authorities during operations	Low
Groundwater	
Changes to groundwater levels and recharge dynamics as a result of landform changes	Negligible
Contamination of groundwater from unintentional leaks/spills of hazardous substances, from plant/machinery, vehicle washdowns or chemical storage during operations	Negligible
Water from harvest water dam seeping into groundwater during operations	Negligible
Contaminated water from leachate dams seeping into groundwater during operations	Low
Contaminated leachate, seeping through the hardstand underlying the aeration pad/windrow pad/maturation, into soils and groundwater during operations	Low

6.6 Management plans

The following management plans will be developed for the construction and operational phases of the Project:

- Bushfire Hazard Assessment and Management Plan (included in Appendix A)
- Surface Water Impact Assessment including Conceptual Surface Water Management Plan (included in Appendix B)
- Odour Management Plan
- Surface and Groundwater Management Plan
- Traffic Management Plan
- Hazardous Materials Management Plan
- Waste Management Plan (included in Appendix C)
- Noise Environmental Management Plan
- Flora and Fauna Management Plan.

7. Communication, monitoring and reporting

7.1 Communication

7.1.1 Construction phase

All personnel involved in the construction phase shall be required to attend a compulsory induction before commencing any work on-site. The environmental component of the induction shall include (but not be limited to) the following items:

- Guidance on the significance and sensitivity of environmental features within the Project area.
- Environmental obligations under relevant environmental legislation.
- The potential environmental impacts of construction (where relevant).
- Controls and procedures to prevent impacts.
- All staff shall be made aware of their General Environmental Duty and Duty to Notify responsibilities as per the *Environmental Protection Act 1994*, and the implications of failing to fulfil these duties.
- All staff shall be made aware of their environmental responsibilities under the EMP in relation to implementing mitigation measures, reporting environmental incidents and complaints and implementing corrective actions.
- All staff shall be given instructions on environmental emergency response procedures.

The environmental induction training should be developed prior to construction commencing.

7.1.2 Operational phase

For the operational phase, the nominated Contractor should promote the effective communication of information for both internal and external purposes. The nominated Contractor and the employees should aim to:

- Build morale, trust and encourage engagement amongst the team.
- Ensure effective discussion on health, safety and environment matters between the Contractor and the employees, and extended to sub-contractors, labour hire personnel, and any other people who work for the Contractor and are directly affected by the work health and safety matters.
- Provide open and honest external communication to key stakeholder groups and other relevant parties including surrounding community groups as applicable.
- Implement an effective complaint management procedure for all community complaints, enquiries and concerns.

7.1.2.1 Site inductions and toolbox talks

All Contractor personnel including sub-contractors will either be briefed on environmental requirements for specific construction activities or on a site-specific basis, concentrating on reinforcing practical measures. It is typical for these briefings to become a part of the Toolbox agenda. Typical topics for toolbox talks include:

- Permit conditions
- Vegetation clearing demarcations
- Refuelling plant and machinery
- Precautions to prevent sediment-laden run-off entering watercourses
- Waste management (including re-use, recycling, segregation, storage and disposal)
- Noise management measures
- Precautions for protected flora and fauna
- Wildlife care.

7.2 Monitoring

During construction and operational phases, compliance monitoring will be conducted in accordance with the requirements of EMP, as well as construction procedures, relevant legislation, licence and permit conditions and industry standards. Requirements for monitoring during the construction and operational phases of the Project are outlined in Section 6.4, and may need to be updated follow the receipt of approvals for the Project.

7.3 Reporting

7.3.1 Construction phase

Records of all environmental inspections and other relevant environmental records will be kept demonstrating environmental due diligence and compliance with this EMP. As well as conditions of approval. To demonstrate compliance the following records will be kept and provided upon request:

- Site inspections
- Non-conformance and contingency plans
- Complaints
- Environmental incidents and response actions
- Safety data sheets and chemical registers
- Waste tracking documentation
- Fauna record register
- Fauna Spotter-catcher pre-clearance and post-clearance report.

7.3.2 Operational phase

During the operational phase of the Project, records of environmental monitoring and other relevant, audits, and incidents will be kept ensuring compliance with the framework of this EMP and regulatory requirements and conditions of approval. To demonstrate compliance, the following records will be kept and provided upon request:

- All monitoring data from the site including laboratory analysis results
- Environmental incidents and response actions
- Workplace incidents and near misses and response actions
- Waste tracking documentation
- Safety data sheets and chemical registers
- Feedback and complaints received and responses
- Audits and inspections outcomes
- Operational data (quality, quantity, availability and treatment process optimisation).

7.4 Review

7.4.1 Construction phase

During the construction phase the Construction Contractor nominated by SOILCO will regularly review and (if necessary) update the EMP. The review will consider the following:

- Changes in legislative requirements (including conditions of approvals)
- Environmental performance, findings of environmental audits and inspections
- Outcomes of agency consultation
- Outcomes of consultation with communities and resolution of complaints
- Changes in external and internal policies, standards and guidelines.

7.4.2 Operational phase

Throughout the operational phase of the Project, the nominated Contractor will regularly review and (if necessary) update the EMP. The review will consider the following:

- Changes in legislative requirements (including conditions of approvals)
- Environmental performance, findings of environmental audits and inspections
- Changes in external and internal policies, standards and guidelines
- Recorded incidents and near misses
- The effectiveness of current management procedures.

8. Compliance auditing and monitoring

8.1 EMP provisions

For the environmental matters identified in Section 4, the performance and corrective actions have been outlined in Section 8.1.1 and Section 8.1.2 below. The Project Manager will be responsible for the implementation to reduce any impact to the environment. This section is broken into the construction phase and operational phase.

8.1.1 Construction phase

8.1.1.1 Inspections

The Contractor will carry out site inspections to ensure compliance with environmental obligations, task and actions outlined in this EMP. The site inspections shall be carried out by any personnel, leading hand or higher, to visually assess the compliance of the work with this EMP. The inspection shall check for each environmental element the mitigation measures which should be in place and if they are working effectively as intended. Broadly the checks should include:

- Site layout and access.
- Condition of skip bins (i.e., sufficiently covered, not over-flowing etc.).
- All materials being handled within laydown areas.
- Spill kits stocked and available.
- Management of surface water and debris within the bunded areas.

8.1.1.2 Audits

The Contractor's Environmental Representative or SOILCO Representative may conduct internal audits. The audit will focus on:

- Review of all environmental incidents and corrective actions.
- Review of inspection records.
- Implementation of this management plan.

Audit reports will be submitted to the Principal Contractor and will include the date of the audit and the timeframe that the Contractor and sub-contractors must complete any required action.

8.1.1.3 Compliance with planning and environmental approvals

During the construction phase, SOILCO will be required to comply with the relevant conditions in the planning and environmental approvals that have been secured for the Project and discussed in Section 3.

During the construction phase, SOILCO will need to consider environmental sensitive and no-go areas within the Project area as shown in Figure 2. If changes are made to the footprint of the CMF, post receipt of the planning and environmental approvals then an environmental and planning review will need to be undertaken to determine if any additional approvals and/or amendments to existing approvals are required.

8.1.2 Operational phase

8.1.2.1 Inspections

The nominated Contractor for the operational phase of the Project may undertake inspections of the plant and equipment. The inspections will focus on:

- Environmental controls
- Waste storage
- Site environmental safety
- Compliance with management strategies implemented.

8.1.2.2 Audits

The nominated Contractor for the operational phase of the Project may conduct internal audits. The audits will focus on:

- Review of all environmental incidents and corrective actions
- Review of workplace incidents and corrective actions
- Implementation of this management plan
- Review of compliance with company policies and procedures, legislation and industry standards
- Review of compliance with contractual and client requirements.

8.1.2.3 Compliance with planning and environmental approvals

During the operational phase of the Project, SOILCO will be required to comply with the relevant conditions in the planning and environmental approvals that have been secured for the Project and discussed in Section 3.

During the operational phase, SOILCO will need to consider environmental sensitive areas within the Project area as shown in the figures in following technical reports:

- Terrestrial Ecology Assessment
- Aquatic Ecology Assessment
- Cultural Heritage and Native Title Duty of Care Assessment
- Stormwater Impact Assessment

If changes are made to the footprint of the CMF, post receipt of the planning and environmental approvals then an environmental and planning review will need to be undertaken to determine if any additional approvals and/or amendments to existing approvals are required.

9. Emergency planning and response

9.1 Construction phase

Emergency and incident responses will vary and be proportional to the nature of the incident.

The Principal Contractor will be verbally notified by the Construction Manager of an incident on the day it occurs and as soon as practicable of the responsible person becoming aware of the incident, and in writing within 24 hours.

All notifications to authorities including but not limited to the Department of Environment, Science and Innovation (DESI), State emergency services (police/fire/ambulance) and Department of Transport and Main Roads will be undertaken by the Principal Contractor.

The Principal Contractor will be required to provide an Emergency Response Plan and for this plan to be thoroughly communicated to all staff members in the Construction Induction. The Emergency Response Plan should identify evacuation routes, mustering points, communication protocols and provide key contact details for local authorities and services.

When reporting environmental incidents, the following information is to be provided:

- The name and contact details of the reporting person
- The date and time the environmental incident occurred
- The activity that was being undertaken when the incident occurred
- How the incident occurred
- Any containment measures put in place to reduce or contain environmental harm
- An assessment of the amount of environmental harm that occurred
- If any other stakeholders are aware of the incident.

Environmental incidents and emergencies have been identified within Section 8. However, pro-active environmental risk management measures should be undertaken wherever possible.

Some examples of environmental risk responses are provided below in Table 38.

Table 38 Example environmental incidents and mitigation and reporting requirements

Incident	Mitigation measures	Reporting authority
Failure of erosion and sediment control devices following rainfall event or flooding	Re-instatement of erosion and sediment control devices.	SOILCO
Injury to fauna during site works	Following notification procedure as detailed in the Flora and Fauna Management Plan.	DESI
Accidental spill of fuel or hazardous chemicals	Spills are to be isolated, stopped and contained and will be cleaned up utilising onsite spill kits	DESI

9.1.1 Induction and training requirements

All personnel involved in the process shall be required to attend a compulsory site induction before commencing any work at the site. The environmental component of the induction shall include (but not be limited to) the following items:

- All staff shall be made aware of the environmental obligations and requirements, including any weeds, pests, and contamination risks
- All staff shall be made aware of waste management practices including segregation, storage, waste management and duty to report issues
- All staff shall be made aware of their environmental responsibilities under the EMP in relation to implementing mitigation measures, reporting environmental incidents and complaints, and implementing corrective actions.
- All staff to be made aware of obligations under any SOILCO procedures.
- All staff shall be given instructions on environmental emergency response procedures (i.e., spill kit locations and usage).

Task-specific training sessions covering specific topics will be undertaken on an 'as needed basis'. A training register and sign off sheets are to be maintained at the Project's office and be able to be provided to SOILCO Representatives on request.

9.1.2 Environmental incidents

An environmental incident refers to an event that has either caused or has the potential to cause damage or harm to the environment. These incidents serve as opportunities for improving or enhancing the Project's environmental performance.

For the Project, the Construction Contractor is responsible for establishing their own incident reporting and response procedure, which must be both ISO certified and compliant. When an environmental incident occurs, the following general steps should be taken:

- Notification: The Principal Contractor should be promptly notified.
- Reporting: The Contractor and all sub-contractors must complete an Environmental Reporting/Incident Form.
- Immediate Action: If environmental harm becomes evident, the Principal Contractor must immediately contact the SOILCO Representative.

This process ensures effective management of environmental incidents while adhering to established standards and protocols.

9.1.3 Non-conformance

Non-conformances managed by the EMP shall include the following:

- An incident or near-miss with potential or actual environmental impact
- Complaints regarding Project activities
- Not meeting an objective or target
- Management review not being undertaken.

The Principal Contractor shall be responsible for identifying, reporting/record and implementing any preventative and/or corrective actions in response to any non-conformance. Preventative and corrective actions shall be incorporated into the EMP as required.

9.2 Operational phase

For the operational phase, an incident and emergency management plan will be developed by the SOILCO. The plan is intended to provide guidance to the operations team on:

- The correct response to incidents that occur on, or near to the Project area
- The reporting requirements to support external but relevant plans
- The various aspects of incident management before, during and after any incident that may occur on or around the Project area
- Help reduce the impact of incidents on personnel, clients and customers, the community, the environment, sites, assets and systems.

The plan is anticipated to include the following contents:

- Incident Definition, Classification and Notification
- Incident and Emergency Management Response
- Incident Management Team
- Incident Management Actions
- Incident Communication Protocol
- Incident De-escalation and Recovery
- Incident Investigation
- Incident Prevention and Preparedness.

10. References

- Atlas of Living Australia (ALA), 2024. Search the Atlas of Living Australia. Available from: <https://www.ala.org.au/>
- Department of Agriculture and Fisheries (DAF), 2018. Accepted development requirements for operational work that is constructing or raising waterway barrier works. State of Queensland. Available from: <https://www.publications.qld.gov.au/dataset/b1259f08-152a-439e-ab6a-0ed30bab6412/resource/011a916e-30ad-4f52-87e9-f9c5a6b2532f/download/adr-waterway-barrier-works.pdf>
- Department of Climate Change, Energy, the Environment and Water (DCCEEW), 2022. Approved Conservation Advice for Grey box-grey gum wet forest of subtropical eastern Australia. Canberra: Department of Climate Change, Energy, the Environment and Water. Available from: <http://www.environment.gov.au/biodiversity/threatened/communities/pubs/181-conservation-advice.pdf>
- Department of Environment and Science (DES), 2015. Procedural guide: Managing Indigenous Cultural Heritage. Queensland Government. Available from: https://www.desi.qld.gov.au/policies?a=272936:policy_registry/pg-pk-crp-managing-indigenous-cultural-heritage.pdf
- Department of Environment and Science (DES), 2019. Climate Change in Southeast Queensland Region. State of Queensland. Available from: https://www.qld.gov.au/data/assets/pdf_file/0023/67631/seq-climate-change-impact-summary.pdf
- Department of Environment and Science (DES), 2022. Logan River Environmental Values and Water Quality Objectives – Part of Basin 145. State of Queensland. Available from: https://environment.des.qld.gov.au/data/assets/pdf_file/0023/273632/logan-river-ev-wqo.pdf
- Department of Environment, Science and Innovation (DESI), 2024. Guideline – Environmental Services and Regulation: Prevention of fires in waste stockpiles. Queensland Government. Available from: https://www.des.qld.gov.au/policies?a=272936:policy_registry/cm-gl-waste-stockpile-fire-external.pdf
- Bureau of Meteorology (BoM), 2024. Climate statistics for Australian locations: Summary statistics for Beaudesert Drumley Street. Commonwealth of Australia. Available from: http://www.bom.gov.au/climate/averages/tables/cw_040983.shtml
- GeoRes Globe, 2024. GeoRes Globe. State of Queensland. Available from: <https://georesglobe.information.qld.gov.au/>
- International Erosion Control Association (IECA), 2008. Best Practice Erosion & Sediment Control Manual. International Erosion Control Association (Australasian Chapter). Available from: <https://www.austieca.com.au/documents/item/1021>
- Queensland Fire and Emergency Services (QFES), 2019. Bushfire Resilient Communities: Technical Reference Guide for the State Planning Policy State Interest 'Natural Hazards, Risk and Resilience – Bushfire'. State of Queensland. Available from: <https://www.fire.qld.gov.au/sites/default/files/2021-05/Bushfire-Resilient-Communities.pdf>
- Queensland Globe, 2024. Queensland Globe. State of Queensland. Available from: <https://qldglobe.information.qld.gov.au/>
- Queensland Government, 2024. Model operating conditions: ERA 53(a) – Organic material processing by composting. ESR/2015/1665, Version 4.04. Available from: https://www.des.qld.gov.au/policies?a=272936:policy_registry/era-gl-bpem-composting.pdf
- Redleaf, 2024. Cultural Heritage and Native Title Duty of Care Assessment – at Compost Manufacturing Facility, Lot 4, 260 Mitchell Road, Bromelton Queensland, Red Leaf Projects Pty Ltd.
- Standards Australia, 2016. AS/NZS ISO 14001:2016 – Environmental management systems – Requirements with guidance for use. Available from: <https://store.standards.org.au/product/as-nzs-iso-14001-2016>
- Thorp, J.R. & Lynch, R. 2000. The Determination of weeds of national significance. Launceston, Tasmania. Available from: <http://www.weeds.org.au/docs/WONS/>

11. Appendices

Appendix A Bushfire Hazard Assessment and Management Plan

Already included in Town Planning Report.

Appendix B Surface Water Impact Assessment including Conceptual Surface Water Management Plan

Already included in Town Planning Report.

