Ravensworth Composting Facility | State Significant Development | Modification 3

SCOPING REPORT

Prepared for Bettergrow Pty Ltd | 17 June 2025

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Ravensworth Composting Facility

STATE SIGNIFICANT DEVELOPMENT | MODIFICATION 3 | SCOPING REPORT

Prepared for Bettergrow Pty Ltd
17 June 2025

PR425

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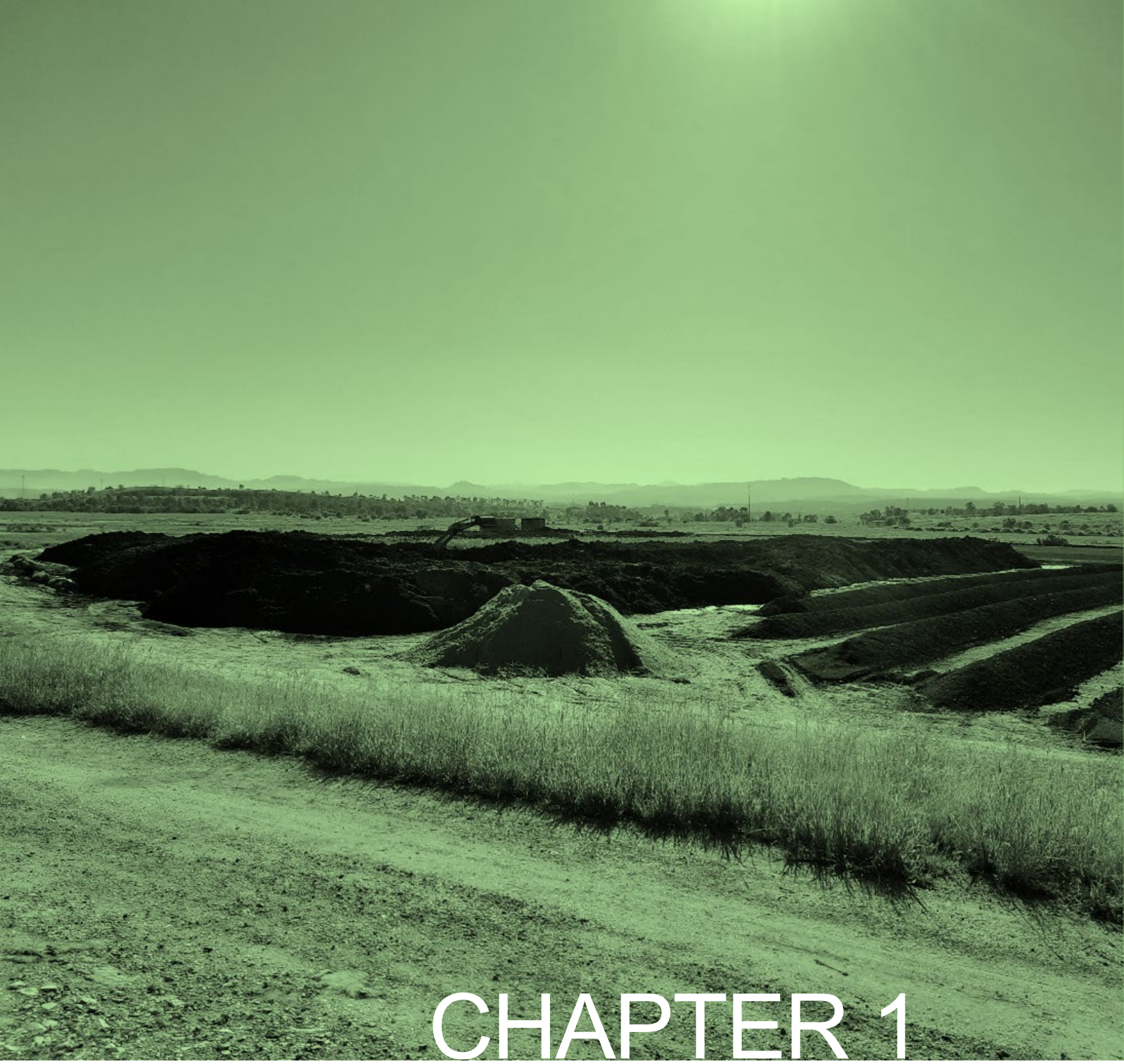

CHAPTER 1
INTRODUCTION

1 INTRODUCTION

1.1 Overview

Bettergrow Pty Ltd (Bettergrow) operates the Ravensworth Composting Facility (the 'facility') at 74 Lemington Road, Ravensworth, New South Wales (NSW) (the 'site'). The facility processes biosolids, garden organics and other organic recovered material in outdoor windrows to produce a compost product suitable for mine site rehabilitation and agricultural uses.

The site is located within the Ravensworth Operations open cut mining complex, approximately 15 kilometres (km) north of Singleton in the Singleton local government area (LGA) (refer to Figure 1.1). Other nearby towns and urban centres include Camberwell, located approximately 6 km to the south-east, Jerry's Plains, located approximately 14 km to the south-west, and Muswellbrook, located approximately 20 km to the north-west of the site.

The facility originally commenced operation under a development consent granted by Singleton Council (Council) on 25 November 2016 (DA 140/2016). A State significant development (SSD) application (SSD-9418) to increase processing capacity at the facility to 200,000 tonnes per annum (tpa) of organic recovered material was approved by the Minister for Planning and Public Spaces on 31 August 2022. Modification 1 to SSD-9418 was approved on 6 December 2023 to remove the site weighbridge and allow for the receival and processing of new resource recovered materials on-site.

Bettergrow is in the process of applying to the NSW Department of Planning, Housing and Infrastructure (DPHI) to modify SSD-9418 under Section 4.55(1A) of the EP&A Act (Modification 2). Modification 2 will allow the receival and processing of decontaminated and pasteurised FOGO and/or food recovered material, as well as the receival and blending of Virgin Excavated Natural Material (VENM) and Excavated Natural Material (ENM) with organic recovered materials, at the facility.

The facility operates six days a week (Monday to Saturday) from 6:00 am to 6:00 pm, and is supported by ancillary infrastructure, including:

- site office and staff amenities;
- workshop;
- mobile equipment;
- load inspection bay;
- processing pads;
- surface water drainage infrastructure;
- leachate control dam and sediment ('lower') basin;
- site access and parking;
- dirty water pit;
- water storage tanks; and
- truck wash.

Bettergrow is now applying to the DPHI to modify the development consent for the SSD application SSD-9418 (Modification 3) under Section 4.55(2) of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act).

The modification would allow:

- the receival and processing of Food Organics and Garden Organics (FOGO) recovered material at the facility;
- a 50,000 tpa increase in the processing capacity of the facility, from 200,000 to 250,000 tpa;
- the employment of three additional staff;
- installation of a site weighbridge; and

- up to 5 additional light vehicles and 14 additional heavy vehicles to access the site per day.

The scope of the proposed modification is hereafter referred to as 'the project'.

The project does not require an extension to the existing development footprint, clearing of native vegetation, bulk earthworks, or any changes to plant/equipment or operating hours.

The site has been operating under an Environmental Protection Licence (EPL) (NSW Environment Protection Authority (EPA) 7654, last modified on 12 August 2024) since September 2000. Variation of the EPL as a result of the project will be discussed with the EPA during consultation for the modification report.

This scoping report has been prepared by Element Environment Pty Limited (Element) on behalf of Bettergrow for submission to the DPHI.

1.2 Applicant

Bettergrow is the applicant for the modification application. The applicant's details are provided in Table 1.1.

Table 1.1 Applicant details

Item	Detail
Full name	Bettergrow Pty Ltd
Project contact	Zac Rowlandson, Chief Executive Officer
Postal address	2 Wella Way, Somersby, NSW, 2250
ABN	71 062 888 117

Bettergrow is a wholly owned subsidiary of the Borg Group. The company is a recognised pioneer in the organic recovery sector with operations spanning across various sites throughout NSW. It was first established in 1978, and over the course of the past 40 years has been at the forefront of an array of organic industries, including drilling slurries, biosolids, garden organics, food and grease trap waste.

The company is an Australian leader in the recovery and re-manufacture of organic residuals, waste and by-products to provide quality composts, fertilisers and bespoke soil rehabilitation products for beneficial use across a range of markets. It works with governments, communities and multi-national companies to progress the circular economy and preserve natural resources for a sustainable future.

1.3 Purpose of this report

This report has been prepared to:

- describe the nature, scale and extent of the project and the environmental context of the site;
- outline the planning, legislative and policy context of the project and confirm the appropriate planning approval pathway for the project;
- identify the environmental matters likely requiring further assessment in the modification report and confirm the scope for these assessments; and
- describe the proposed community and stakeholder engagement for the project.

Figure 1.1
Regional context

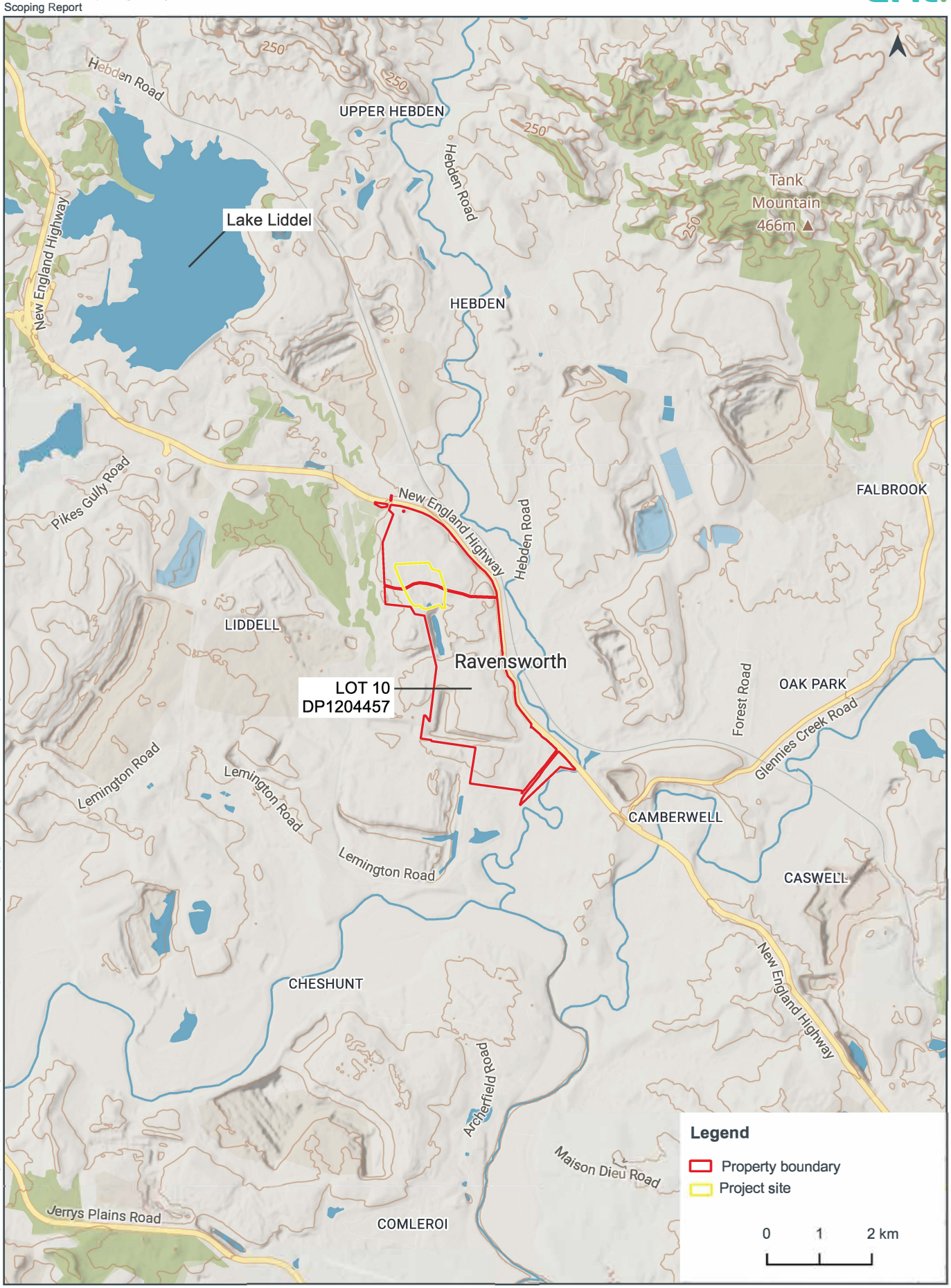

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Figure 1.2
Local context

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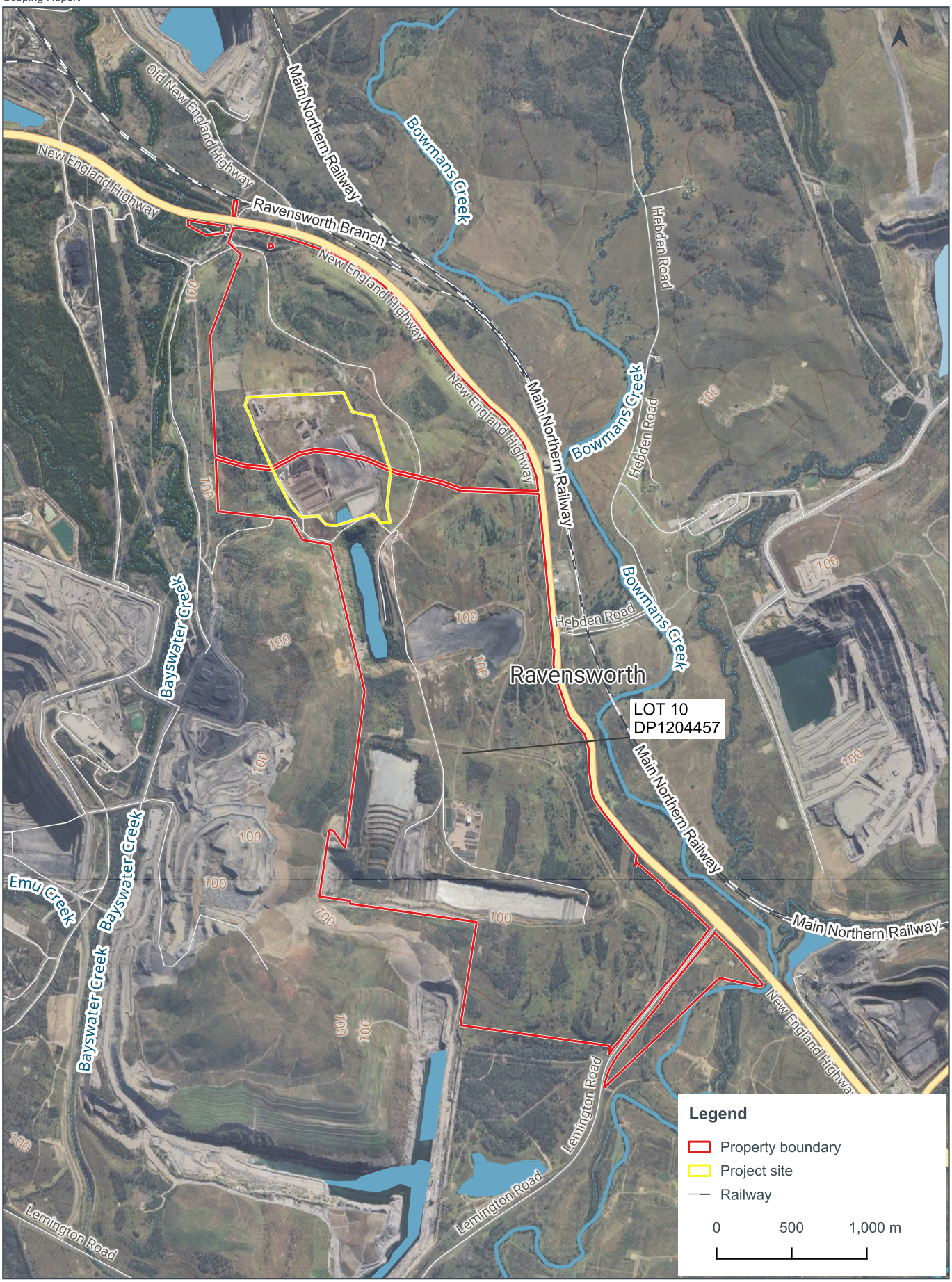

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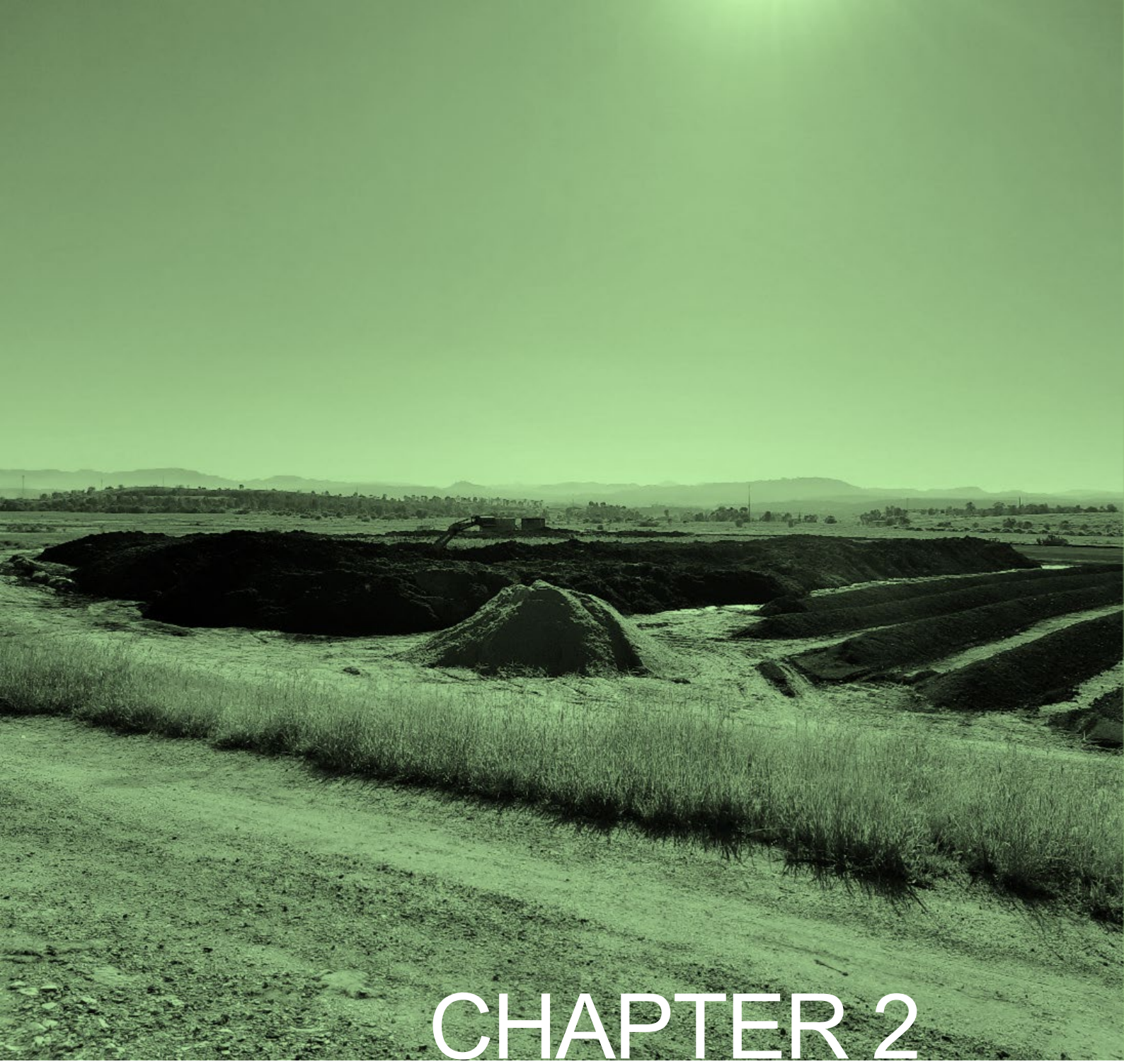


CHAPTER 2

THE APPROVED DEVELOPMENT

2 THE APPROVED DEVELOPMENT

2.1 Site context

The site is located at 74 Lemington Road, Ravensworth, on part of Lot 10 DP1204457, in the Singleton LGA, and covers an area of approximately 57 hectares (ha) (refer to Figure 1.2).

The site forms part of the Ravensworth Operations open cut mining complex, which comprises surface mining operations, coal processing plants and related infrastructure, and former mine sites that are currently being rehabilitated. The site is located on part of a rehabilitated capped open cut mining void (Void 3) which has been filled with ash from the Bayswater Power Station.

Nearby towns and urban centres include Camberwell, located approximately 6 km to the south-east, Jerry's Plains, located approximately 14 km to the south-west, Singleton, located approximately 15 km to the south-east, and Muswellbrook, located approximately 20 km to the north-west of the site (refer to Figure 1.1).

The lot on which the site is located is generally devoid of vegetation due to significant disturbance of the environment from the historical mining and power generating activities in the area. However, the land surrounding the lot has been top-soiled and planted with rehabilitated pasture grasslands and pockets of rehabilitated woodland.

Access to the facility is provided via an internal access road off Lemington Road, that connects to the New England Highway (A15) approximately 2 km south of Ravensworth village.

Details of the site, including local roads, surrounding development, and natural features, are shown in Figure 1.2.

2.2 Land use, zoning and ownership

The site is owned by AGL Macquarie (AGL) and the facility is operated by Bettergrow. Land within the site is zoned RU1 Primary Production under the Singleton Local Environmental Plan 2013 (Singleton LEP).

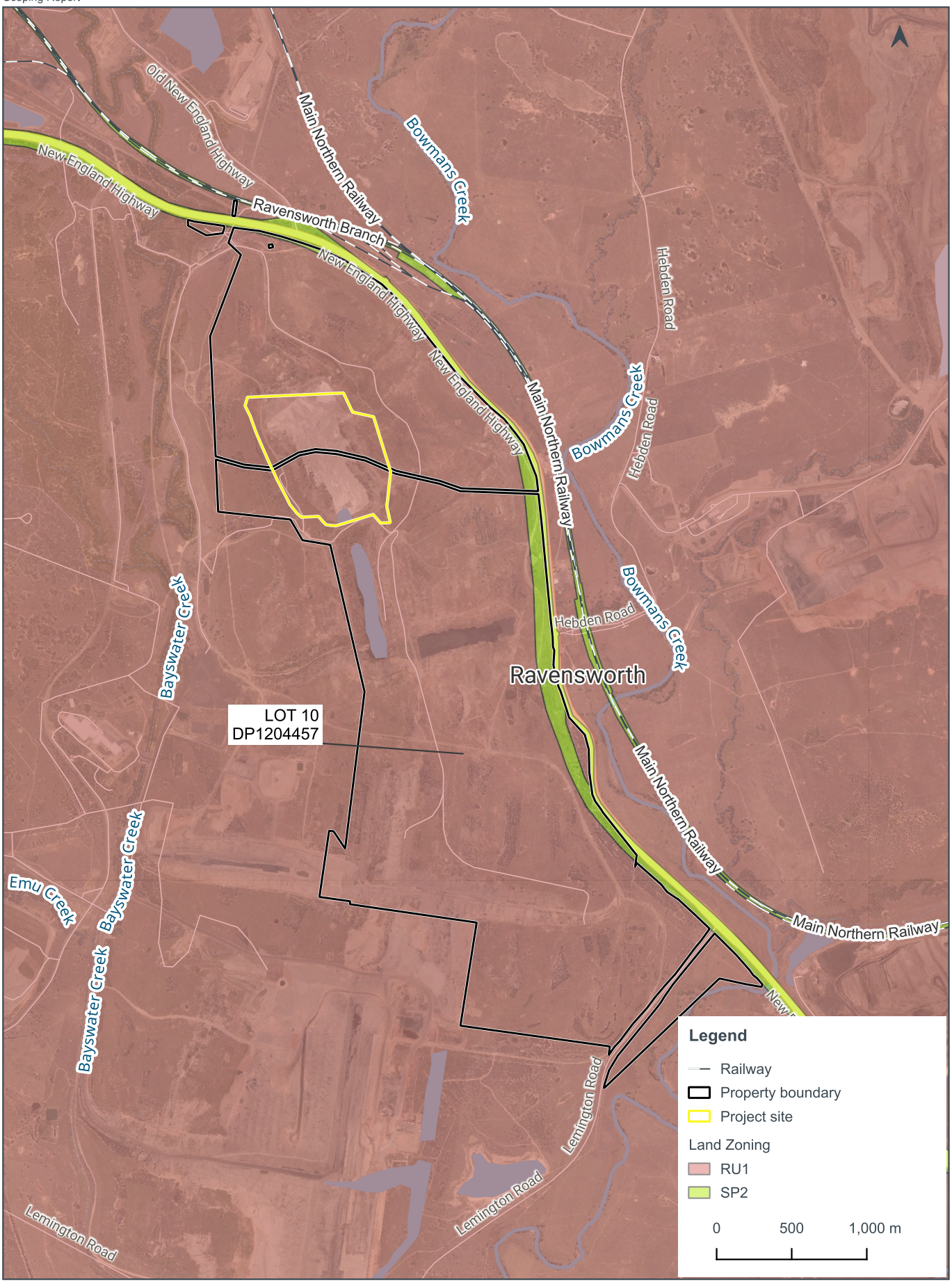
The area surrounding the facility is dominated by coal mining and other heavy industrial activities, including power generation and related activities, and grazing pastures. Land uses surrounding the site include:

- Bayswater Power Station, Lake Liddell and the decommissioned Liddell Power Station to the north-west;
- Liddell Coal Operations to the north-west;
- Ravensworth North Open Cut Coal Mine to the west;
- Integra Coal Mine to the south-east;
- Loop Organics Compost Facility to the south;
- New England Highway to the east; and
- Main North railway line to the east.

The land surrounding the site is zoned RU1 Primary Production to the north, east, south and west, and SP2 Infrastructure - Classified Road and SP2 Infrastructure - Rail Infrastructure to the north and east (refer to Figure 2.1).

Figure 2.1
Land zoning

Ravensworth Composting Facility SSD Modification 3
Scoping Report



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2.3 Planning approval history and licences

2.3.1 Related development

There is an extensive history of surface and underground coal mining operations in the Ravensworth area, with mining commencing as early as the 1950s at Liddell Colliery. Mining operations at the former Ravensworth South and Ravensworth No. 2 open cut mines, located immediately south of the facility, commenced in the early 1970's. Operations ceased at the Ravensworth No. 2 mine in 1993 and at the Ravensworth South mine in 2000.

The decommissioned Ravensworth No. 2 mine comprises five voids (referred to as Voids 1, 2, 3, 4 and 5) which are currently being rehabilitated by AGL, as the current owner of the mine. The voids are being filled with spoil and fly ash from the Bayswater Power Station, capped and rehabilitated. Voids 1, 2 and 3 have been rehabilitated. The site is located on top of the former Void 3.

Void 4 is located approximately 100 m south of the leachate control dam and is used as a water storage dam. It provides additional capacity for surface water runoff from the site during significant rainfall events. The rehabilitation of Void 5 commenced in 2014 and is expected to be completed by 2032. Fly ash is pumped as a thick slurry from the Bayswater Power Station and deposited into Void 5. As a result of this process, water from the fly ash seeps from Void 5 into Void 4 and is pumped from Void 4 back to the Bayswater Power Station for further re-use. Void 3 also seeps water into Void 4.

Rehabilitation works at Voids 1 to 5 are undertaken in accordance with the following development consents issued for the site in the 1980s and 1990s:

- Development Application (DA) 86/51 for the Ravensworth South mine, granted by the NSW Department of Planning and Environment on 16 December 1986;
- DA144/93, granted by Singleton Council (Council) on 8 December 1993 (as modified); and
- DA138/93, granted by Muswellbrook Shire Council on 13 December 1993 (as modified).

These development consents allow the use of composting material as part of the mine rehabilitation process, however, does not explicitly allow for the on-site processing of composting material.

2.3.2 Approval history and licences

The facility originally commenced operation under a development consent granted by Council on 25 November 2016 (DA140/2016). The application was assessed as integrated development (and not designated development) on the basis that the project was entirely ancillary to the existing rehabilitation works approved as part of the Bayswater Power Station and Ravensworth Operations open cut mining complex. The consent permitted the establishment and operation of on-site composting of 50,000 tpa of a mix of organic material, including garden organics, clean timber, biosolids, hydro excavation and drill slurry, paper pulp, fly ash, lime and manures, to facilitate the rehabilitation of the Ravensworth No. 2 mine and Ravensworth South mine.

On 16 April 2018, Council approved a modification to DA140/2016 to facilitate an increase in organic material received on site to 76,000 tpa. On 18 December 2018, Council approved a second modification to DA140/2016 to allow for the sale of compost material from the site to surrounding markets.

An SSD application (SSD-9418) to increase processing capacity at the facility to 200,000 tpa of organic material was approved by the Minister for Planning and Public Spaces on 31 August 2022 under Section 4.38 of the EP&A Act.

A modification to SSD-9418 (SSD-9418-MOD-1) was approved on 6 December 2023 for the removal of the site weighbridge and to allow for the receival and processing of new resource recovered materials on-site.

The site has been operating under EPL 7654 since September 2000. The EPL was last modified on 12 August 2024 (Notice number 1639204). Variation of the EPL will be sought in consultation with the EPA, subject to the approval of this modification application.

2.3.3 Approved and licensed recovered organic material

Schedule 2, Condition A6 of the development consent permits the facility to process up to 200,000 tpa of organic material, inclusive of:

a) urban wood residues for composting (as defined in 'The compost order 2016');
b) paper crumble for composting (defined as General or Specific Exempted Waste);
c) wastewater from Bayswater Power Station;
d) drilling mud process water (as defined in 'The Treated Drill Mud Order 2014');
e) natural organic fibrous composting material (as defined in Schedule 1 of the NSW *Protection of the Environment Operations Act 1997* (POEO Act));
f) biosolids (as defined in 'The Biosolids Order 2014');
g) garden waste (as defined in Schedule 1 of the POEO Act);
h) animal waste (as defined in Schedule 1 of the POEO Act); and
i) materials for the purpose of composting that are subject to a general or site specific resource recovery order and exemption as issued by the EPA from time to time.

Schedule 2, Condition A7 of the development consent specifies that the facility is not permitted to receive or process food organic waste.

Condition L3.1 of EPL 7654 permits the facility to receive up to 200,000 tpa of the following types of general solid waste (non-putrescible) and liquid waste:

- General solid waste (non-putrescible):
  - paunch (as defined in 'The Bettergrow compost order 2023' or as in force from time to time);
  - reDirect organic fraction of street sweepings (as defined in 'The Bettergrow street sweepings compost order 2024' or as in force from time to time);
  - Downer organic fraction of street sweepings (as defined in 'The Bettergrow street sweepings compost order 2024' or as in force from time to time);
  - recovered plasterboard (as defined in 'The Bettergrow compost order 2023' or as in force from time to time);
  - spent bleaching clay (as defined in 'The Bettergrow compost order 2023' or as in force from time to time);
  - paper crumble (as defined in 'The Bettergrow compost order 2023' or as in force from time to time);
  - urban wood residues (as defined in 'The compost order 2016');
  - natural organic fibrous material (as defined in Schedule 1 of the POEO Act);
  - coal ash which meets the conditions of 'The coal ash order 2014';
  - biosolids categorised as unrestricted use, or restricted use 1, 2 or 3 in accordance with criteria in the Biosolids Guidelines (EPA, 2000). Contamination and stabilisation grades A, B and C only. Biosolids classified as 'Not Suitable For Use' (Grade E) are not to be accepted at the premises; and
  - garden waste (as defined in Schedule 1 of the POEO Act).
- Liquid waste:
  - Bayswater Mine Water (as defined in 'The Bettergrow compost order 2023' or as in force from time to time).

2.4 Other modification applications

Bettergrow is in the process of applying to the DPHI to modify SSD-9418 under Section 4.55(1A) of the EP&A Act (Modification 2). Modification 2 will allow the receival and processing of decontaminated and pasteurised FOGO and/or food recovered material, as well as the receival and blending of Virgin Excavated Natural Material (VENM) and Excavated Natural Material (ENM) with organic recovered materials, at the facility.

No changes are proposed to the existing development footprint, site infrastructure, equipment/plant, traffic generated by the facility, workforce, approved recovered material volumes or operating hours under the Modification 2 application.

2.5 Existing operations

2.5.1 Compost feedstock

Approved and licensed types and volumes of recovered organic material accepted at the facility are outlined in section 2.3.

The facility receives and processes organic recovered material from the following sources:

- kerbside green waste collection from residential households (garden organics only);
- Hunter Water and Sydney Water (biosolids);
- sawmills (wood residues);
- paper processors (paper crumble);
- infrastructure projects (drill muds);
- mines (raw water);
- food processors (organic fibrous material); and
- waste resource recovery facilities.

2.5.2 Composting process

The current operations involve the composting and blending of organic material, which is then used to create a final compost layer for rehabilitated land or agricultural uses. This involves the following processes:

Receival of organic material

- Vehicles enter the site via the internal access road off Lemington Road.
- Drivers provide their weighbridge docket to the Site Coordinator or delegate who checks that the docket description is the same as what is in the load. In the unlikely event a load arrives at the facility without a weighbridge docket, the driver is instructed to attend a public weighbridge before returning to site and unloading. All delivery dockets are retained for record keeping.
- Staff inspect the trucks visually for any obvious contamination prior to tipping.
- Where contaminants are identified, the load is rejected and instructed to leave the site without unloading. Any rejected loads are recorded in the Reject Loads Register, including truck and supply company details. The supplier is contacted and advised of the contaminated load.
- Where no contaminants are identified, the truck is instructed to proceed to the correct tipping area on the load receival hardstand area.

Inspection and unloading

- Loads are tipped onto the hardstand pad and visually inspected by a staff member who has been appropriately trained in identifying any hazardous or non-conforming recovered material including physical contaminants and asbestos.
- If contaminants are found, the truck is reloaded and returned to the supplier.
- The supplier is contacted and advised of the contaminated load and the details of the rejected load are entered into the Rejected Load Register.

Processing

- Each material type is stockpiled in the designated tipping area until a sufficient volume of material has accumulated. It is then blended as instructed by the Biosolids Manager and placed into the windrows for pasteurisation and turning.
- Any contamination identified during the blending process is appropriately removed and isolated in a covered hook-lift bin. The hook-lift bin, when required, is transported to a suitably licensed landfill facility for disposal.
- Windrows will be frequently turned with either a front-end loader, or a specialised windrow turner to ensure they remain aerobic and that pasteurisation of all products is achieved. Windrows may initially be covered with previously composted material to act as an odour filter or odour neutralising agent such as BioActive may be used to aid the process. On windy days, water will be sprayed over the compost or biosolids to prevent dust generation during the turning of windrows.
- During the composting process, temperature and moisture levels for each windrow would be monitored and adjusted as needed. The internal temperature of the windrows reaches a minimum of 55 degrees Celsius (°C) for a minimum of three days and is turned at least three times to create a stabilised product in accordance with AS4454 and the Bettergrow Composting Management Plan (Bettergrow, 2023).
- Compost windrows may reach temperatures higher than 55 ºC during the initial phase of composting. When windrows reach internal temperatures greater than 62 ºC, the windrow will be turned to dissipate heat and to provide oxygen which is essential for maintaining aerobic conditions.
- Compost windrows are constructed so as to run parallel with the stormwater flows, in order to minimise the transport of leachate and gross solids to the leachate dams.
- Maturation occurs after approximately eight weeks. Compost must be dried to a moisture content of approximately 35 per cent (%) weight per weight (w/w) or less. The finished compost material is stored (and may be screened and blended with other ingredients) in a designated area to create the required final product.

Storage

- The final compost material is stockpiled in a designated area. The compost material is sampled and analysed at NATA accredited laboratories to confirm the outputs produced meet the requirements set in the EPA Biosolids Guidelines for Unrestricted Use, Restricted Use 1, Restricted Use 2 or Restricted Use 3 (EPA, 2000). The material is not released from site until the laboratory results are received to ensure the correct land application method is applied.
- The final composted material is then loaded onto trucks using a front-end loader and transported to the relevant area for rehabilitation use or sold to third parties.

Loading and transfer of material off-site

- Vehicles transporting products off-site are loaded with the composted material.
- Weights of material being transported off-site are recorded from the loader bucket electronic scales or truck electronic scales, together with other details, including material type, waste stream (where the material is a rejected load), date and time load is transported from the

facility, vehicle registration number, drivers signature, contact details for receiver site, and EPL(s) for receiver sites, if applicable.
- Vehicles are washed at the wash bay before exiting the site.
- Vehicles exit via the internal access road into Lemington Road that connects to the New England Highway (A15).
- All loads that leave the site will be tracked to the relevant customer or mine.
- Composted material is received at the receiver site under the 'The Bettergrow compost exemption 2023' (or as in force from time to time) issued by the EPA.
- All delivery dockets are retained for record keeping.

2.5.3 Site infrastructure

The following ancillary infrastructure supports the operation of the facility:

- site office and staff amenities;
- site access and parking;
- mobile equipment, including green waste shredder, trommel/stardeck screen, excavator, front end loaders, windrow turners, water carts;
- workshop;
- load inspection bay;
- processing pads;
- truck wash;
- dirty water pit;
- surface water drainage infrastructure, including:
  - diversion bunds
  - drainage channels and spillway
  - 50.2 megalitre (ML) leachate control dam, consisting of a western and eastern dam
  - 2 ML sediment ('lower') basin;
- water storage tanks, including:
  - 300,000 litre (L) AGL water storage tank
  - two 1,000 L potable water storage tanks; and
- 5,000 L diesel storage tank. Under Modification 2 (refer to section 2.4), this tank would be replaced with a 65,000 L tank.

The approved site layout is shown in Appendix A.

The processing pads consist of compacted earth to achieve low permeability ($1x10^{-9}$ metres per second (m/s)) to impede leachate generated from the composting process percolating through the capping layer into the subsoil and potentially groundwater. This ensures leachate is directed via a series of rock drains/channels to the leachate control dam.

2.5.4 Surface water drainage

Stormwater

Diversion bunds are in place around the processing pads to exclude minor upstream catchment flows from entering the processing pads. Diversion bunds along the western side of the site direct stormwater to surrounding land, and a diversion wall and channel direct stormwater from the eastern side of the site into the sediment ('lower') basin in the south-eastern corner of the site (refer to Figure 5.3). Rock structures and rip rap are provided to slow the velocity of stormwater flowing towards the lower basin.

In the exceedingly rare event that the lower basin fills, water can overflow into the former Void 4 south-west of the lower basin, which has in excess of 40 m depth of available airspace above its normal operating level (i.e. hundreds of megalitres). There is no surface water discharge from the site into local drainage lines or watercourses.

Any rainfall captured by the processing pads is considered to be leachate and managed as described below.

Leachate

Leachate generated from organic material within the processing pads enters the leachate control dam via a shotcrete lined channel at the north-western corner of the dam (refer to Figure 5.3). A concrete sedimentation fore-bay restricts gross solids entering the leachate control dam.

The leachate control dam has enough storage capacity (50.2 ML) to capture all runoff up to the 1 per cent (%) (1 in 100-year) Annual Exceedance Probability (AEP) 24-hour rainfall event. In the exceedingly rare event that the leachate control dam overflows during rainfall less frequent than the 1% AEP 24-hour rainfall event, leachate water can flow via a spillway into the lower basin.

The facility operates within a closed water cycle, as the composting process is a net user of water. Water from the leachate control dam and Void 4 is used in the composting windrows to ensure optimal moisture conditions are maintained throughout the composting cycle.

There are no direct discharges of leachate to surrounding drainage lines or watercourses.

In June 2024 there was an incident at the western leachate control dam whereby a fissure to the base of the basin caused leachate to discharge vertically downwards into the substrate. The incident report provided to the DPHI attributed the cause of the incident to mine subsidence relating to a section of an underground longwall mine which was filled by AGL in the early 2000's (Bettergrow, 2024; KPMG, 2024). AGL has undertaken geotechnical investigations to determine the corrective actions required (KPMG, 2024). The western leachate control dam was taken off-line for a period until rectification works to the base were completed. During this time, diversion swales were established to divert water from the western processing pad to the eastern processing pad, then into the eastern leachate control dam.

Even with the western dam off-line, there was not any uncontrolled discharges needed due to the reuse of leachate water on site (Bettergrow, 2024). In the exceedingly rare event that there is an uncontrolled discharge, overflow water will be captured in the lower basin.

Wastewater

Wastewater from the truck wash is captured in the dirty water pit and channelled via swale drains to the leachate control dam.

2.5.5 Services and utilities

Electricity

No site infrastructure is connected to mains power. Electricity for the existing site office and staff amenities is provided by a mobile generator.

Water

The facility does not source any water from natural water bodies, watercourses or groundwater bores. There is no water supply (potable or raw) from a mains system available at the site.

Water from the leachate control dam and Void 4 (with an approximately 500 ML capacity) is used in the composting windrows to ensure optimal moisture conditions are maintained throughout the composting cycle. Water from Void 4 is also used for dust suppression and truck washing, and is accessed via an existing storage tank located in the north-eastern corner of the site (refer to Figure 5.3). This tank is filled remotely from the former Void 4 by operators at the Bayswater Power Station. There are no other demands on water from Void 4.

Potable water for staff amenities is trucked to site and stored in two 1,000 L tanks.

Sewerage

There is no sewerage main available at the site. All liquid waste generated from staff amenities is removed by a licensed waste contractor and transported to a licensed facility when required.

Communications

There are no fixed line telecommunication services available at the site. Staff use Ultra High Frequency (UHF) 2-way radios to communicate with each other on-site. Fourth-generation (4G) mobile phone services are available at the site from all the major service providers, however mobile phones are only allowed to be used in the office and staff amenities building.

2.5.6 Site access, traffic and parking

The site is accessed via an internal access road off Lemington Road, that connects to the New England Highway (A15) approximately 2 km south of Ravensworth village (refer to Figure 1.2). There is a single designated entry/exit driveway along the southern boundary of the site and internal access roads through the site.

The internal access road off Lemington Road is approximately 2 metres (m) wide to accommodate incoming and outgoing heavy vehicle movement. The road surface allows all-weather access, and surface water drainage is installed to divert stormwater away from the roadway onto suitable areas.

Up to 54 heavy vehicles and 19 light vehicles access the site per day, generating up to 146 vehicle movements per day (73 movements in-bound and 73 movements outbound).

A parking area for staff vehicles is provided adjacent to the site office. Trucks entering the site are unloaded directly on the pad area. Parking for trucks is available adjacent to the processing pads if trucks are required onsite for an extended period.

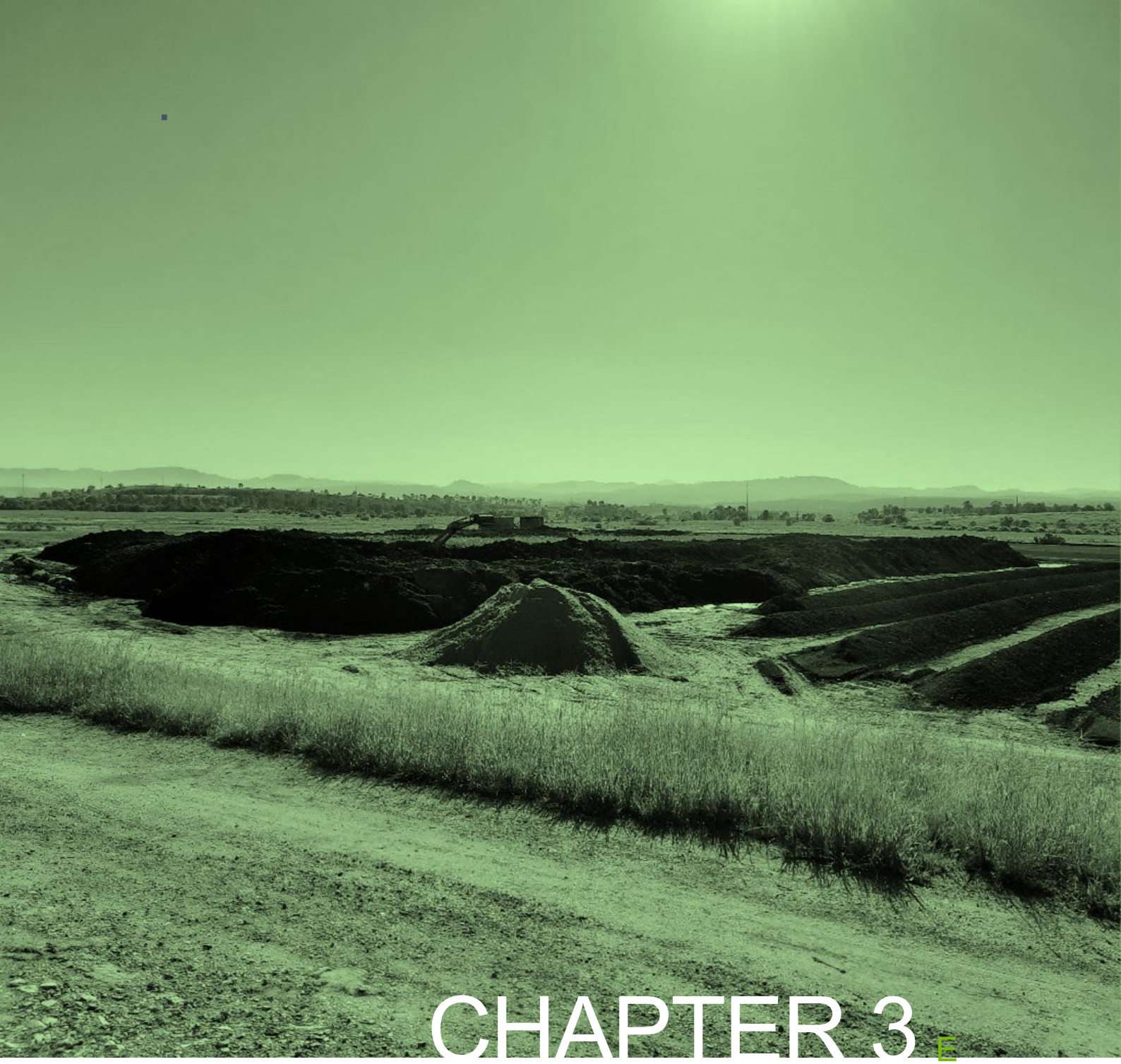
2.5.7 Workforce

Ten full time administrative and operational staff are employed at the facility.

2.5.8 Operating hours

The facility operates from Monday to Saturday from 6:00 am to 6:00 pm. No work is undertaken on Sundays or public holidays. The current consent allows works outside of these hours in the following circumstances:

- works that are inaudible at the nearest sensitive receivers;
- for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or
- where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.



CHAPTER 3 E

EXISTING ENVIRONMENT

3 EXISTING ENVIRONMENT

3.1 Sensitive receivers

The site is located within the Ravensworth Operations open cut mining complex characterised by mining operations, including blasting, drilling, excavation, hauling, crushing and grinding, and rehabilitation activities.

The nearest residences are along Hebden Road, approximately 2 km north-east of the site. However, these residences are on mining land owned by Glencore Australia, and currently experience noise, air quality, visual amenity, traffic and other environmental impacts from mining operations, and therefore are not considered as sensitive receivers for the facility.

The nearest sensitive receivers (private rural residential properties) are at Camberwell Village, approximately 6 km to the south-east of the site.

3.2 Topography, geology and soils

Topography

The landscape of the local area generally consists of undulating hills, ranging in elevation from 140 to 220 m Australian Height Datum (mAHD) and with slope gradients typically between 4% and 7%. The site is located on a ridge that runs in a north-south direction between Bayswater Creek in the west and Bowmans Creek in the east. Local relief within the site ranges from approximately 60 mAHD at the central southern end of the site to approximately 125 mAHD along the eastern border of the site (Kovac & Lawrie, 1991).

Geology

A review of the Camberwell 1:100 000 Geological Sheet 9133 (Roberts et al., 1991) indicates that the site is underlain by the Denham Formation within the Late Permian Wittingham Coal Measures, consisting of coal seams with interbedded sequences of claystone, tuff, siltstone, sandstone and conglomerate.

Soils

Soil landscapes

The Soil Landscapes of the Singleton 1:250,000 Sheet (Kovac & Lawrie, 1991) indicates that the site and its surroundings are underlain by the Liddell soil landscape. This landscape is characterised by yellow soloths on slopes and yellow solodic soils on concave slopes. Earthy and siliceous sands occur on mid to lower slopes where the parent material is more sandy. Red soloths, red solodic soils and red podzolic soils may also occur. Limitations of this soil landscape include minor to severe sheet erosion with some minor rill erosion, low to high erodibility, high to very high erosion hazards, low to high soil salinity and low to moderate flood hazard (Kovac & Lawrie, 1991).

Previous open cut mining operations across the Ravensworth Operations open cut mining complex have significantly impacted soils within the area through soil removal, erosion and degradation. The site is located on the former Ravensworth Void 3 that has been filled with spoil and fly ash from the Bayswater Power Station, capped and rehabilitated.

Acid sulfate soils

Acid sulfate soils generally occur in low lying areas in and around coastal swamps, estuaries, and other coastal water bodies. If these soils are disturbed or exposed to oxygen, they have the potential to oxidise over time, resulting in acidic water leaching from these soils and scalding vegetation or killing aquatic fauna. Acid sulfate soils can also react with concrete and steel infrastructure.

A review of the Singleton LEP did not identify any potential acid sulfate soils at the site. However, historical mining activities such as excavation and crushing of mineral deposits that accelerate the oxidation process may have resulted in the formation of acid sulfate soils within the vicinity.

Salinity

Saline soils occur naturally in many parts of Australia because of a combination of biophysical conditions, including climate, topography and geology (NSW Department of Environment and Climate Change (DECC), 2008). The erosion and transfer of saline sediments off-site has the potential to alter the water quality of receiving environments which in turn has the potential to impact upon flora and fauna that are sensitive to elevated levels of salinity.

A review of the DPHI eSPADE database (DPHI, 2025a), the Singleton LEP and spatial data from the Dryland Salinity National Assessment (Australian Bureau of Agricultural and Resource Economics and Sciences, 2016) did not identify any areas with risk of dryland salinity within or near the site. However, historical mining operations involving deep excavation and handling of mine wastes may have released salts into soil and groundwater, resulting in increased salinity within the vicinity.

Land and soil capability

The Land and Soil Capability Assessment Scheme (LSC Scheme) (Office of Environment and Heritage (OEH), 2012) classifies agricultural land based on its biophysical characteristics and subsequent limits they place on use of the land. The land and soil capability of land within the site has not been assessed as part of the LSC Scheme.

In addition to the LSC assessment scheme, the NSW government has mapped Biophysical Strategic Agricultural Land (BSAL) (OEH, 2013) and State significant agricultural land (SSAL) (in draft). The mapping of BSAL and SSAL is aimed at managing competing land uses and ensuring high value agricultural lands in NSW are preserved. BSAL is land with high quality soil and water resources capable of sustaining high levels of productivity. The biophysical attributes of SSAL represent the most capable, fertile and productive agricultural lands in the State, and can support a variety of agricultural industries operating successfully.

Draft SSAL mapping was released by the NSW Government in 2021 (NSW Department of Primary Industries (DPI), 2021). There are currently no specific requirements for the assessment of development projects in areas of draft SSAL, however the purpose was to understand the location, value and contribution to agricultural productivity in regional economics, and to assist with planning decisions on agricultural lands.

Neither BSAL nor SSAL has been mapped within the site (DPHI, 2025b; DPI, 2021).

3.3 Hydrology, flooding and water quality

Hydrology and water quality

The site is located within the lower portion of the Hunter River catchment. The Hunter River catchment is the largest coastal catchment in NSW, covering an area of approximately 21,500 square kilometres (km^2), and plays a significant role in regional hydrology. The

headwaters of the catchment are formed by runoff from the Barrington Tops and Coolah Tops National Parks in the north and the Goulburn River and Wollemi National Parks in the south. The Hunter River rises on the western slopes of the Mount Royal Range, part of the Great Dividing Range, east of Murrurundi, and flows generally south-west and then south-east for approximately 460 km before flowing into the Pacific Ocean at Newcastle.

There are no watercourses or drainage lines traversing the site. The nearest mapped drainage line (a tributary of Bowmans Creek) traverses the New England Highway approximately 620 m north-east of the site. Bayswater Creek, approximately 600 m to the west, is the nearest watercourse to the site. The creek is classified as a fifth order stream according to the Strahler stream ordering system (Strahler, 1957). Other nearby watercourses and waterbodies include Bowmans Creek, approximately 1.2 km to the east, the Hunter River, approximately 6 km to the south, and Lake Liddell, approximately 5.7 km to the north-west of the site.

Bayswater Creek and Bowmans Creek flow in a southerly direction to discharge into the Hunter River. Both creeks are highly modified due to mining and power generation activities and exhibit elevated salinity levels and generally low flows (Fifteen50, 2019a). The Hunter River flows in a south-easterly direction to drain into the Tasman Sea (a marginal sea of the South Pacific Ocean) at Newcastle.

The Ravensworth Void 4 dam is located immediately south of the facility and receives stormwater from the surrounding land (refer to section 2.5.4) and seepage from Void 5. Fly ash from the Bayswater Power Station is currently pumped as a thick slurry into Void 5 as part of the approved rehabilitation of the Ravensworth No. 2 mine. Water from the fly ash seeps from Void 5 into Void 4 and is pumped from Void 4 back to the Bayswater Power Station for further re-use. Void 3, which has also been subject to filling with fly ash, also seeps water into Void 4.

Water quality testing carried out by Bettergrow in 2018 indicated that the water within Void 4 is alkaline and brackish to saline, and has a low level of total suspended solids (Fifteen50, 2019a).

As a result of the natural topography and modification from mining and power generation activities, only a small portion of the upstream catchment drains toward the site (Fifteen50, 2019a). The on-site surface water management system prevents minor upstream catchment flows from entering the site and directs all site runoff into the leachate control dam and lower basin on-site, or into Void 4 during extreme rainfall events (refer to section 2.5.4).

Flooding

The site is located above the Probable Maximum Flood (PMF) event level (BMT, 2023) and is not identified as a flood planning area in the Singleton LEP (DPHI, 2025a).

3.4 Groundwater

Groundwater occurrence, recharge and use

The facility is located within the Hunter subregion in the Northern Sydney Basin bioregion. Aquifers in the Hunter subregion can be broadly classed into three hydrogeological types: alluvial aquifers along major rivers and creek lines, coastal aquifers in the coastal area, and Triassic-Permian fractured (including porous) rock aquifers. The facility at Ravensworth is located above fractured and porous rock across the subregion, where the deeper, more extensive aquifer systems occur. The two main water bearing systems within and near the site are the Permian coal measures and the unconsolidated alluvial sediments associated with the Hunter River, Bayswater Creek and Bowmans Creek (Jacobs, 2022b).

Groundwater recharge at the site primarily occurs as result of rainfall infiltration at the subcrop/outcrop of the coal measures, across the alluvium, across deposited spoil and ash, and

via lateral flow from the alluvium to the coal measures. The Whittingham Coal Measures are known to subcrop below the Hunter River alluvium, Bayswater Creek alluvium and Bowmans Creek alluvium. Coal seams are generally permeable horizontally, but vertical hydraulic connectivity is generally low (in the absence of subsidence induced cracking). The hydraulic connectivity between the Whittingham Coal Measures, the respective alluvium bodies and the surface waters is not precisely understood and/or varies along the river/creek lines (Jacobs, 2022b).

Rainfall leakage below the existing site is conservatively estimated at 0.1 millimetres (mm) per day (mm/day), equivalent to a seepage rate of 10^{-9} metres per second (m/s). Across the site, this results in an annual leakage of less than 4 ML. Rainfall seepage into Void 3 is contained and eventually moves into the lower Void 4, where it is captured and stored for reuse (Fifteen50, 2019a).

Groundwater extracted from aquifers in the Hunter subregion is used for a range of purposes, including domestic, stock, irrigation, town water supply and industrial purposes, with a proportion of water protected for the environment in all water sources (Commonwealth of Australia, 2019).

A review of available real time groundwater monitoring data maintained by WaterNSW identified nine groundwater bores within 2 km of the site, registered for monitoring, testing, dewatering, industrial, stock, domestic and irrigation purposes (WaterNSW, 2025). The nearest monitoring borehole (GW078054) is approximately 1.1 km east of the site. No new boreholes have been installed since the SSD EIS (RPS Australia East Pty Ltd (RPS), 2019a) was published. Glencore and AGL also regularly monitor several other bores near the site and report on these annually (Fifteen50, 2019b).

The site is located within the Sydney Basin-North Coast Groundwater Source regulated by the WSP for the North Coast Fractured and Porous Rock Groundwater Sources 2016. The facility does not extract any water from groundwater bores.

Groundwater levels and water quality

Drilled depths of bores identified within 2 km of the site range between 6.2 and 300 metres below ground level (mbgl). Groundwater was intercepted at 43 mbgl at borehole GW080725, approximately 1.8 km to the east of the site. A water bearing zone between 11.4 and 12 mbgl, with a standing water level of 6.9 mbgl, was recorded for borehole GW078054, approximately 1 km to the south-east (WaterNSW, 2025).

In 2018, groundwater levels at the nearest Glencore and AGL monitoring bores were recorded at greater than 60 mbgl and between 16 and 31 mbgl, respectively (Fifteen50, 2019b).

The groundwater impact assessment prepared for the SSD EIS (Fifteen50, 2019b) confirmed depth to groundwater to be greater than 40 mbgl at the site.

Analysis of groundwater samples taken from the Glencore and AGL monitoring bores in 2018 indicated that the pH tended to range from neutral to alkaline (pH of 7.0 - 8.3) and electrical conductivity typically ranged between 4,550 and 9,670 microsiemens per centimeter (µs/cm) (brackish to saline water) (Fifteen50, 2019b). Water of this quality is generally limited to industrial use, as salinity levels are greater than acceptable limits for stock and domestic consumption, and would be detrimental to crops and soils when used for irrigation.

Groundwater vulnerability

Groundwater vulnerability maps have been prepared by the DPHI for some catchments in NSW to indicate the vulnerability (or level of risk) of aquifers to contamination due to physical characteristics of the location, such as the depth to the water table and soil type. A groundwater vulnerability map has not been prepared for the Hunter River catchment in which the site is

located. Given that the site and surrounding areas have historically been used for open cut and underground mining, groundwater in the area is not considered to be vulnerable.

3.5 Contamination

A review of the EPA, NSW Department of Primary Industries and Regional Development and Department of Defence public registers of contaminated sites was carried out on 17 April 2025 to assess the potential sources of contamination near the site. A number of potential current and former contaminant sources have been identified near the site and are summarised in Table 3.1.

There were no former gas works, sites listed on the NSW EPA per- and polyfluoroalkyl substances (PFAS) investigation program, areas where unexploded ordinance is known to occur, liquid fuel facilities, or other waste management facilities listed in the National Waste Management Database, identified within 5 km of the site.

Table 3.1 Potential current and former contaminant sources

Item	Details
List of contaminated sites regulated by or notified to the NSW EPA	There are no sites listed in the Contaminated Land Record of Notices within 5 km of the site. Two sites within 5 km of the site have been notified to the NSW EPA under the *Contaminated Land Management Act 1997* (CLM Act): ▪ Ravensworth Operations Narama Mine, approximately 4 km south-west of the site; and ▪ Cumnock Colliery, approximately 4.5 km north-west of the site. Regulation under the CLM Act is not required for these premises.
Current NSW EPA licensed activities	Six activities licensed under the *Protection of the Environment Operations Act 1997* (POEO Act) occur within 5 km of the site: ▪ coal works and mining for coal at the Ravensworth Operations open cut mining complex, off Lemington Road, Ravensworth (approximately 1 km south-west of the site), operated by Ravensworth Operations Pty Ltd, owned and operated by Glencore Coal (EPL No. 2652); ▪ coal works and mining for coal at Liddell Coal Operations, Old New England Highway (approximately 1.8 km north of the site), operated by Liddell Coal Operations Pty Ltd, a wholly owned subsidiary of Glencore Coal (EPL No. 2094). Open cut coal mining including coal preparation plant and rail loading facilities ceased in November 2023. The mine site is now in the closure phase with closure activities consisting of bulk push, tailings dam capping, and landform rehabilitation. ▪ composting at Loop Organics, 74 Lemington Road, Ravensworth (approximately 2 km south of the site), operated by Loop Organics Pty Ltd (EPL No. 20892); ▪ coal works and mining for coal at Glendell Mine, Hebden Road, Ravensworth (approximately 2.5 km south-east of the site), operated by Glendell Tenements Pty Ltd on behalf of Glencore (EPL No. 12840); ▪ dangerous goods production at Orica Australia Pty Ltd, New England Highway, Liddell (approximately 2.7 km north-west of the site), operated by Orica Australia Pty Ltd (EPL No. 1122). The facility is a dangerous good storage depot for ammonium nitrate, ammonium nitrate emulsion and diesel to support bulk explosives delivery to mines. This plant also manufactures emulsion phase; and ▪ extractive activities, crushing, grinding or separating, coal works and mining for coal at Mount Owen Mine, Hebden Road, Ravensworth (approximately 3.8 km north-east of the site), operated by Mt Owen Pty Ltd on behalf of Glencore (EPL No. 4460).
Former licensed activities, now surrendered	Three former licensed activities, now surrendered under the POEO Act, occurred near the site: ▪ coal works at Ravensworth Coal Terminal, Liddell Station Road, Ravensworth (approximately 2.5 km north of the site), operated by Ravensworth Coal Terminal Pty Ltd (EPL No. 5585);

Item	Details
	▪ coal works and mining for coal at Ravensworth East Mine, Hebden Road, Ravensworth (approximately 3.8 km east of the site), operated by Mt Owen Pty Ltd (EPL No. 10860); and ▪ coal works and mining for coal at Cumnock No. 1 Colliery, off Old New England Highway (approximately 4.5 km north-west of the site), operated by Cumnock No. 1 Colliery Pty Ltd (EPL No. 37).

The site is located on top of the former Void 3 that has been filled with spoil and fly ash from the Bayswater Power Station, capped and rehabilitated. Previous contamination investigations carried out for the SSD EIS (RPS, 2019a) have not identified any known contamination at the site.

3.6 Air quality

The main sources of air pollutants in the area are emissions from industrial and commercial operations and other anthropogenic sources such as wood heaters and motor vehicle exhausts.

A review of the National Pollutant Inventory (NPI) identified the following facilities within 5 km that reported to the NPI during the 2023/2024 reporting year:

- Ravensworth Operations open cut mining complex, operated by Glencore Coal, at Lemington Road, Ravensworth, approximately 1 km west of the site.
- Orica Liddell Mining Services Plant, operated by Orica Australia Pty Ltd, at Pikes Gully Road, Liddell, approximately 1.2 km north-east of the site.
- Liddell Coal Operations, operated by Liddell Coal Operations Pty Ltd, at Old New England Highway, Ravensworth, approximately 1.8 km north of the site.
- Glendell Open Cut Mine, operated by Mt Owen Pty Ltd, at 246 Hebden Road, Ravensworth, approximately 3.8 km north-east of the site.

Emissions to air at the Ravensworth Operations open cut mining complex, Liddell Coal Operations and Glendell Open Cut Mine include carbon monoxide, oxides of nitrogen, sulfur dioxide, particulate matter (PM_{10} (particulate matter with a diameter of 10 micrometers (µm) or less) and $PM_{2.5}$ (particulate matter with a diameter of 2.5 µm or less)), and Volatile Organic Compounds (VOCs), among other substances. Emissions to air at the Orica Liddell Mining Services Plant include acetic acid (ethanoic acid), Cumen (1-methylethylbenzene) and VOCs.

Additional industrial and commercial activities may be present in the local area beyond those listed on the NPI database that could impact on air quality within the vicinity of the project. However, these activities would operate below the air quality thresholds specified for the relevant industry type and are not required to report under the NPI program.

Sources of odour near the site include the Loop Organics compost facility at 74 Lemington Road, Ravensworth (approximately 2 km south of the site), operated by Loop Organics Pty Ltd (Loop Organics, 2025).

The nearest air quality monitoring station to the project is located in Camberwell, around 6 km south-east of the project. Monitoring data suggest that air quality at this location is significantly impacted upon by surrounding mining operations (Advanced Environmental Dynamics Pty Ltd, 2019). Exceedances of the ambient air criterion of 50 µg/m^3 for the 24-hour average concentration of PM_{10} is a frequent occurrence at the Camberwell monitoring station with between 4 and 87 exceedance days per year recorded during the 10-year period from 2014 to 2024. No exceedances were recorded in 2022. However, it is noted that the Camberwell monitoring station is a small community monitoring station which is not suitable for assessing performance against the National Environment Protection Measure (NEPM) standards (Advanced Environmental Dynamics Pty Ltd, 2019).

Analysis of air quality data from 14 monitoring stations in the Upper Hunter region between 2011 and 2023 (NSW Department of Climate Change, Energy, the Environment and Water (NSW DCCEEW), 2024a) indicated the following:

- Hourly and annual NO_2 levels were below the NEPM benchmarks (8 parts per hundred million (pphm) and 1.5 pphm respectively) at the larger population centres of Merriwa, Muswellbrook and Singleton in all years.
- Hourly and daily SO_2 levels were generally below the NEPM benchmarks (10 pphm and 2 pphm respectively) at the larger population centres of Merriwa, Muswellbrook and Singleton in all years.
- Annual average PM_{10} and $PM_{2.5}$ levels increased at all monitoring stations throughout the region, compared to recent record low years, due to low rainfall levels, higher temperatures, drought and bushfire smoke.
- Annual average PM_{10} levels were below the NEPM benchmark (25 µg/m^3) at all stations, except one, in 2023, ranging between 14.2 µg/m^3 and 32.5 µg/m^3.
- Annual average $PM_{2.5}$ levels were below the NEPM benchmark (8 µg/m^3) at all stations in 2023, ranging between 4.7 µg/m^3 and 7.5 µg/m^3. Smoke from domestic wood heaters contributed significantly to particle levels at larger population centres.

3.7 Biodiversity

Native and non-native vegetation

Significant disturbance of the natural environment within and surrounding the site has occurred as a result of the long history of agricultural and mining activities in the area, and the site and its surrounding area were mostly cleared of vegetation prior to the construction of the facility.

Existing vegetation mostly consists of grassland and scattered shrubs or small trees in the north-western and north-eastern corners of the site and just north of the leachate control dam.

Vegetation mapping for the Upper Hunter region (NSW DCCEEW, 2024b) does not identify any native vegetation within the site. Native plant community types (PCTs) identified near the site are described in Table 3.2.

Field surveys carried out in October 2018 as part of ecological investigations for the SSD EIS (Peak Land Management, 2018) confirmed vegetation within the site consists mostly of exotic weeds, with only two native species (unnamed) recorded in very low numbers.

Table 3.2 PCTs surrounding the site

Class	PCT	Description	Location
Western Slopes Grasslands	796	Derived grassland of the NSW South Western Slopes	Approximately 500 m to the west
Coastal Valley Grassy Woodlands	1691	Narrow-leaved Ironbark - Grey Box grassy woodland of the central and upper Hunter	Approximately 500 m to the west
Coastal Swamp Forests	1731	Swamp Oak - Weeping Grass grassy riparian forest of the Hunter Valley	Approximately 500 m to the west
Coastal Valley Grassy Woodlands	1603	Narrow-leaved Ironbark - Bull Oak - Grey Box shrub - grass open forest of the central and lower Hunter	Approximately 600 m to the north-east

Threatened ecological communities

Regional vegetation mapping (NSW DCCEEW, 2024) does not identify any threatened ecological communities (TECs) within the site. Ecological investigations undertaken for the SSD EIS (Peak Land Management, 2018) confirmed that there are no TECs or TEC habitat present within the site.

PCTs in the surrounding area may correspond with the following five TECs listed as endangered or critically endangered under the *NSW Biodiversity Conservation Act 2016* (BC Act) or *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act):

- PCT 796 may correspond with the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland, listed as critically endangered under the EPBC Act.
- PCT 1603 and PCT 1691 may correspond with the Hunter Lowland Redgum Forest in the Sydney Basin and New South Wales North Coast Bioregions TEC, listed as endangered under the BC Act.
- PCT 1603 and PCT 1691 may correspond with the Central Hunter Grey Box-Ironbark Woodland in the New South Wales North Coast and Sydney Basin Bioregions TEC, listed as endangered under the BC Act.
- PCT 1691 may also correspond with the White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions TEC, listed as critically endangered under the BC Act.
- PCT 1731 may correspond with the Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions TEC, listed as endangered under the BC Act.

Threatened flora and fauna

No threatened flora or fauna species listed under the BC Act and/or EPBC Act have previously been recorded within the site (DPHI, 2025c; Peak Land Management, 2018).

Eight threatened flora species and 288 threatened fauna species, including 24 frog species, 183 bird species, 49 mammal species and 32 reptile species, listed under the BC Act and/or EPBC Act have been recorded within 10 km of the site (DPHI, 2025c).

Ecological investigations undertaken for the SSD EIS (Peak Land Management, 2018) did not identify any suitable habitat for threatened species within the site.

Areas of outstanding biodiversity value

No declared areas of outstanding biodiversity value have been identified within 10 km of the site.

Aquatic habitat

Nearby watercourses include Bayswater Creek, approximately 600 m to the west, Bowmans Creek, approximately 1.2 km to the east, and the Hunter River, approximately 6 km to the south of the site.

Ecological investigations undertaken for the SSD EIS (Peak Land Management, 2018) identified ephemeral ponds/shallow standing water over small depressions adjacent to the north-eastern corner of the site, with some local and migratory waterbirds present.

Groundwater dependent ecosystems

Groundwater Dependent Ecosystems (GDEs) are defined as ecosystems that require access to groundwater to meet all or some of their water requirements in order to maintain the communities of plants and animals, ecological processes they support, and ecosystem services they provide (NSW Department of Land and Water Conservation, 2002).

The GDE Atlas (Bureau of Meteorology (BoM), 2025a) does not identify any terrestrial or aquatic GDEs within the site. Low and high potential terrestrial GDEs are identified approximately 500 m to 600 m to the west, north and east of the site. A moderate potential aquatic GDE, Bowmans Creek, is identified approximately 1.2 km to the east of the site.

The WSP for the Hunter Unregulated and Alluvial Water Sources 2022 does not identify any high priority GDEs within or near the site.

Weeds, pests and pathogens

Weeds listed as Priority Weeds for the Hunter region under the *Biosecurity Act 2015* (Biosecurity Act) may occur within the site (Hunter Local Land Services, 2022a). Under the Biosecurity Act, Priority Weeds are weeds that have been determined as being of a high risk of causing significant negative impacts to agriculture, the environment, the community and the economy.

The Hunter region provides habitat for a range of commonly occurring pest species (Hunter Local Land Services, 2024). Exotic pests that may occur within the site include wild dogs, feral cats, European red fox, feral deers, feral horses, feral goats, feral pigs, and wild rabbits. No feral animals were observed during previous field surveys of the site (Peak Land Management, 2018).

Pathogens that have been recorded in the Hunter Interim Biogeographical Regionalisation for Australia (IBRA) subregion and have the potential to occur within the site include Myrtle rust (*Austropuccinia psidii*) and Phytophthora Root Rot Fungus (*Phytophthora cinnamomi*) (Hunter Local Land Services, 2022a).

Matters of National Environmental Significance

Matters of National Environmental Significance (MNES) listed under the EPBC Act that may occur within 10 km of the site include:

- 8 TECs;
- 49 threatened flora and fauna species; and
- 10 migratory species.

These matters are further discussed in section 7.1.1.

3.8 Heritage

Non-Aboriginal heritage

A search of the World Heritage List, National Heritage List, Australian Heritage Database, NSW State Heritage Register, State Heritage Inventory, Section 170 Heritage and Conservation Registers and heritage schedule of the Singleton LEP on 14 April 2025 did not identify any registered heritage items within 1 km of the site.

The nearest registered heritage item is a former public school along Hebden Road, Ravensworth, approximately 1.4 km south-east of the site, listed as a local heritage item under the Singleton LEP (Item ID I42). Recent satellite imagery indicates that the school has been demolished, with only the foundations and some external walls remaining.

Aboriginal heritage

The project is located within the Wanaruah Local Aboriginal Land Council (LALC) area.

Archaeological evidence suggests the Wonnarua (Wanaruah) People have occupied the Hunter Valley region for at least 35,000 years, however the majority of Aboriginal sites in the region are dated to the more recent Holocene period (less than 10,000 years ago). This may reflect Aboriginal occupation patterns but may also be influenced by the inaccessibility of potential coastal Pleistocene sites, which were inundated when sea levels rose and reached present levels approximately 6,000 years ago (RPS, 2019b).

Nearby watercourses and vegetation communities within and surrounding the site would have provided habitat for a variety of animals such as kangaroos, wallabies, possums, echidnas and birds, as well as potential food and raw material sources for Aboriginal people. However, the underlying geological formation would have provided few suitable raw stone materials for the manufacture of stone artefacts. While it is possible that mudstone could have been used in the production of lithic (stone-built) artefacts, it is likely that resources would have been procured from elsewhere (RPS, 2019b).

European settlement of the Hunter Valley commenced in 1820 as the region was pronounced open to free settlement. The site constituted farmland from 1824 until 1972, when coal mining in the Ravensworth area commenced at the Ravensworth No. 2 open cut mine.

Historical farming and mining activities included extensive land clearing, excavation, filling and levelling, resulting in a high level of successive disturbance at the site over the past 200 years (RPS, 2019b). The site formed part of the Ravensworth No. 2 open cut mine and has subsequently been filled in, capped and rehabilitated.

A search of the Aboriginal Heritage Information Management System (AHIMS) carried out in October 2018 as part of the Aboriginal Cultural Heritage Assessment (ACHA) prepared for the SSD EIS (RPS, 2019b) identified a large number of previously recorded Aboriginal sites in the Ravensworth Operations open cut mining complex, most of which have been partially or fully destroyed. No registered AHIMS sites were identified within the site. Aboriginal sites identified within the surrounding area included low-density surface artefact sites, art (pigment or engraved), grinding grooves, a modified tree, a massacre site, and potential archaeological deposits (PADs). The nearest AHIMS sites, a potential archaeological deposit (PAD) (Site ID 37-3-0591) and artefact (Site ID 37-3-0005), were identified over 300 m to the south-west and north-east of the site (respectively).

An updated search of the AHIMS on 15 April 2025 did not identify any additional registered Aboriginal sites near the facility.

The ACHA prepared for the SSD EIS (RPS, 2019b) determined that the site has no archaeological, aesthetic or historic significance. It further concluded that the site has some cultural significance when considered as part of the wider cultural landscape, however, has no specific cultural values when viewed in isolation (RPS, 2019b).

3.9 Transport infrastructure

Access to the site is via an unsealed internal access road off Lemington Road. Lemington Road is a sealed road that connects to the New England Highway (A15) approximately 3.5 km south of the site.

The Main North railway line is approximately 730 m north-east of the site and runs in a north-south direction. The nearest train station is located at Singleton.

3.10 Climate

Meteorological conditions, particularly temperature, rainfall, relative humidity, wind speed and wind direction, determine the direction and rate at which emissions from a source disperse.

The existing climatic and meteorological conditions were identified using data from the nearest BoM weather monitoring stations at Bowmans Creek (Site No. 061270), approximately 20 km north-east of the site, and Lostock Dam (Site No. 061288), approximately 40 km east of the site (BoM, 2025c). Both weather stations have been operating since 1969.

The area is characterised by a temperate climate, with cool winters and warm and wet summers (BoM, 2025b).

Long term rainfall data was obtained from the nearest BoM station at Bowmans Creek. The weather station recorded an average annual rainfall of 870 mm. Most of the annual rainfall occurs in the summer months, with the average annual rainfall ranging from 48.1 mm in August to 104 mm in January.

Long term temperate, humidity and wind speed data was obtained from the nearest BoM monitoring station at Lostock Dam, as this data is not being recorded at the BoM station at Bowmans Creek.

January is the hottest month, with a mean maximum and minimum temperature of 36ºC and 25.5ºC respectively, while July is the coldest month, with a mean maximum and minimum temperature of 19.1ºC and 14.1ºC respectively (BoM, 2025c).

Relative humidity levels exhibit variability over the day and seasonal fluctuations. Mean 9 am relative humidity ranges from 68% in October to 84% in February and March. Mean 3 pm relative humidity levels range from 43% in September to 61% in March and June.

Wind speeds exhibit seasonal variations with lower wind speed records for 9 am and higher observations for 3 pm conditions. Mean 9 am wind speeds range from 4.6 kilometres per hour (km/h) in February to 10.9 km/h in August. Mean 3 pm wind speeds range from 10.2 km/h in March to 17 km/h in August. Winds are predominantly from the south-east in summer and north-west in winter (Advanced Environmental Dynamics Pty Ltd, 2019; NSW DCCEEW, 2024a). During autumn and spring, winds are variable as they turned from south-easterly to north-westerly in autumn and vice versa in spring (NSW DCCEEW, 2024a).

3.11 Hazards

3.11.1 Bushfire

Sections of the eastern, southern and western boundaries of the site are mapped as 'Vegetation Category 3' bushfire prone land, which presents a medium risk for bushfire, and its vegetation buffer (30 m) (DPHI, 2025a). The vegetation buffer represents areas that may be impacted by ember attack, radiant heat and/or flame contact during fires in adjacent bushfire prone land.

A Bushfire Risk Management Plan was developed in 2023 for the Singleton and Muswellbrook LGAs by the Hunter Valley Bushfire Management Committee (Hunter Valley Bushfire Management Committee, 2023). The plan identifies land areas and associated community assets within the Singleton and Muswellbrook regions at risk of bushfire and recommends measures to reduce these risks. The site is not located within any of the focus areas identified as having unacceptable high fire risk.

The bushfire season in the Singleton region predominantly occurs during the hotter months of the year, from October to March. The prevailing weather conditions typically associated with the bushfire season are windy conditions accompanied by high day time temperatures and relative low humidity.

3.11.2 Hazardous substances and dangerous goods

Hazardous substances and dangerous goods are stored and used at the facility, including fuels, oils, lubricants and cleaning solvents. The quantities of dangerous goods and hazardous substances that are stored and handled on site are below the threshold quantities listed in the *Applying SEPP 33 – Hazardous and Offensive Development Application Guidelines* (NSW Department of Planning (Department of Planning), 2011).

Diesel is stored in a 5,000 litre (L) above ground portable fuel tank on a bunded hardstand area next to the workshop. Under Modification 2 (refer to section 2.4), this tank would be replaced with a 65,000 L tank.

Various other chemical substances are consumed in minor quantities and stored within secure and/or bunded areas within the workshop and office building.

Vehicles and machinery are refuelled off-site or within the bunded fuel storage area next to the diesel tank. Other maintenance of machinery on site takes place on the concrete hardstand in the workshop using drip trays. Spill kits are available in the workshop.

The facility consumes an estimated 168 kilolitres (kL) of diesel per year to operate plant and equipment on site, and to run a small generator that generates electricity for the site office. A tanker delivers diesel two to three times per week and transfers it to the on-site storage tank. Once the 65,000 L diesel tank is approved under Modification 2, these deliveries will be significantly reduced to once every two to three weeks.

3.11.3 Mine subsidence

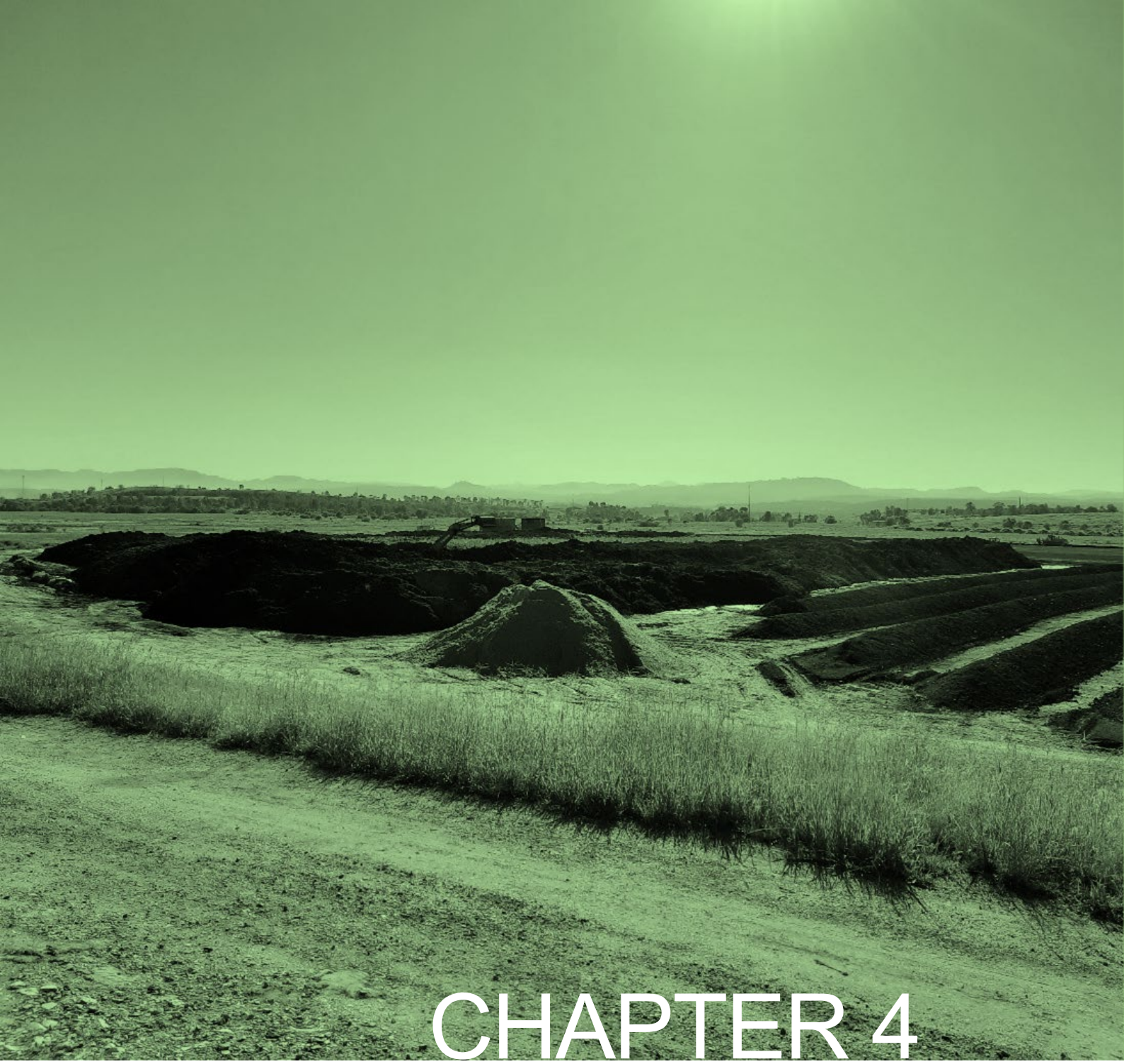
Mine subsidence is a risk in areas which have been subject to underground coal mining as the land above can sink and fill the voided mine drifts, causing tilts and strains on the ground surface. In areas where coal extraction has taken place, subsidence generally occurs within a relatively short time after extraction.

The site is located within the Patrick Plains Mine Subsidence District in an area that has been subject to open cut and underground longwall mining as part of the Ravensworth Operations mining project.

3.11.4 Public safety

All light and heavy vehicles require security clearance to access the site. A security gate, fencing and closed-circuit television (CCTV) camera, are located at the entrance to the internal access road off Lemington Road to control access to the site. AGL issue site access swipe cards to approved personnel to be able to open the security gate.

Other key roads that provide access to the site include Lemington Road and the New England Highway. Lemington Road is a sealed road that mainly carries traffic to and from the Ravensworth Operations open cut mining complex, the Hunter Valley Operations (involving black coal mining handling and preparation) in Lemington, and the site. As such, there is little risk of heavy vehicle interaction with surrounding residents or members of the public.



CHAPTER 4

NEED, JUSTIFICATION AND ALTERNATIVES

4 NEED, JUSTIFICATION AND ALTERNATIVES

4.1 Need and justification

NSW is transitioning to a circular economy over the next 20 years, as outlined in the NSW Circular Economy Policy Statement (Circular Economy Policy) (EPA, 2019). This policy supports the broader Australian Government's commitment to reduce waste disposal and treat waste as a valuable resource, in order to deliver economic, environmental, and social benefits while transitioning towards a circular economy (Commonwealth of Australia, 2018) (refer to section 6.2).

The NSW Waste and Sustainable Materials Strategy 2041 Stage 1:2021–2027 (Waste and Sustainable Materials Strategy) (NSW Department of Planning, Industry and Environment (DPIE), 2021a) outlines the actions needed over the six years leading up to 2027 to deliver on the long term objectives of the Circular Economy Policy (refer to section 6.4). These actions are backed by $356 million in funding to help deliver priority programs and policy reforms.

Waste targets that have been set for NSW in the Waste and Sustainable Materials Strategy include:

- reduce the total waste generated by 10 per cent (%) per person by 2030;
- have an 80% average recovery rate from all waste streams by 2030;
- significantly increase the use of recycled content by governments and industry; and
- halve the amount of organic waste sent to landfill by 2030.

To achieve these targets, the NSW government has passed legislation to mandate FOGO recycling in NSW (EPA, 2025), including:

- Local councils will be required to provide all NSW households who receive a residual (red lid) waste collection service with a FOGO waste service by 1 July 2030.
- Relevant premises, including supermarkets, some institutions and hospitality businesses, will be required to have a source-separated food organics waste collection service in place, starting with the largest generators from 1 July 2026 and staggered to 2030, depending on how much waste they send to landfill each week.

Implementation of these mandates to all households in NSW is predicted to result in the diversion of almost 950,000 tonnes (t) of FOGO waste each year from landfill and into circular economy products like compost (EPA, 2025). The NSW government is providing a suite of support programs for councils and businesses, including grant funding for infrastructure, education and guidance, to help communities transition to the FOGO mandates.

The Hunter Regional Plan 2041 (NSW Government, 2022) forecasts an approximate 11% growth in the region's population by 2041. It is also estimated the Hunter region will be the leading regional economy in Australia by that time. A study into the current supply and demand drivers of organics recycling in NSW (EPA, 2020) indicates there is increasing demand for recycled organics, mainly driven by the urban amenity market, which is driven by urban and industrial development. The agriculture market is the second largest end-use market, and growth in this market is accelerating (EPA, 2020).

AGL has over 700 ha of land requiring progressive rehabilitation. The project would continue to support the existing rehabilitation activities across AGL lands. The EIS for the SSD application for the facility (RPS, 2019a) noted that the successful rehabilitation of the mine voids is dependent on creating a biologically active soil to enable the establishment of robust and diverse vegetation communities. The open cut mining operations have removed the topsoil and the remaining sub-soils have limited value as a plant growth medium. The organic material produced at the site is used to improve the soil across existing rehabilitated areas and new rehabilitation areas.

The project would have minimal environmental and social impact, as it does not involve an extension to the existing development footprint, clearing of native vegetation, bulk earthworks, or any changes to plant/equipment or operating hours.

The project is justified on the basis that it would support NSW government policies and strategies, including the recent FOGO mandates, meet the increasing demand for recycled organics, and support AGL's rehabilitation activities, while having minimal environmental and social impact.

4.2 Project alternatives

The alternatives considered by Bettergrow for the ongoing composting of organic material at the Ravensworth facility are outlined in the following sections.

Option 1 - Do nothing

The 'do nothing' option consists of the composting facility continuing operations under the existing approval. The facility would continue to receive and process up to 200,000 tpa of organic material as described in section 2.5.

The 'do nothing' option is not considered feasible, as the ability of the composting facility to process an increased supply of organic material associated with the NSW government FOGO mandates (as described in section 4.1) and increasing population growth and development in the region would be severely constrained.

With the existing operation capped at current levels, the site would lack the ability to significantly contribute to the organics recycling effort in the Hunter region. As a result, there would be an increased reliance on waste disposal and alternative similar composting facilities located further away. This would increase the overall cost of waste management for relevant waste generators due to longer haulage distances or disposal costs, while also increasing greenhouse gas emissions and heavy vehicle traffic on roads.

The 'do nothing' option is therefore not considered appropriate due to the potential increased environmental, social and economic costs associated with an increased supply of FOGO waste in the region, and given the opportunity exists to increase processing volumes at the existing composting facility.

Option 2 – An alternative site

Moving the facility to an alternative site is not considered a viable option, as the existing site already comprises the infrastructure, space and plant and equipment to receive and process recovered organic material with minimal environmental and social impact.

Alternative sites have not been considered from a technical, capacity and environmental impact perspective and would be inappropriate from an economic perspective given:

- sunken costs in the existing site;
- capital expediture required for a new site; and
- challenges of finding an appropriately zoned and located area for a new site near waste sources and transport infrastructure, with minimal environmental impacts and at an appropriate distance from sensitive receivers.

Option 3 – Receive and process FOGO recovered material and increasing processing capacity

This option was considered most suitable as it involves the utilisation of existing disturbed land and infrastructure to receive and process a wider range and larger volumes of organic material,

with minimal additional environmental and social impacts. This option would also have positive flow on effects throughout the local and regional economy through the creation of jobs and increased supply of compost to the agricultural, horticultural, mining and other industry sectors in the region.

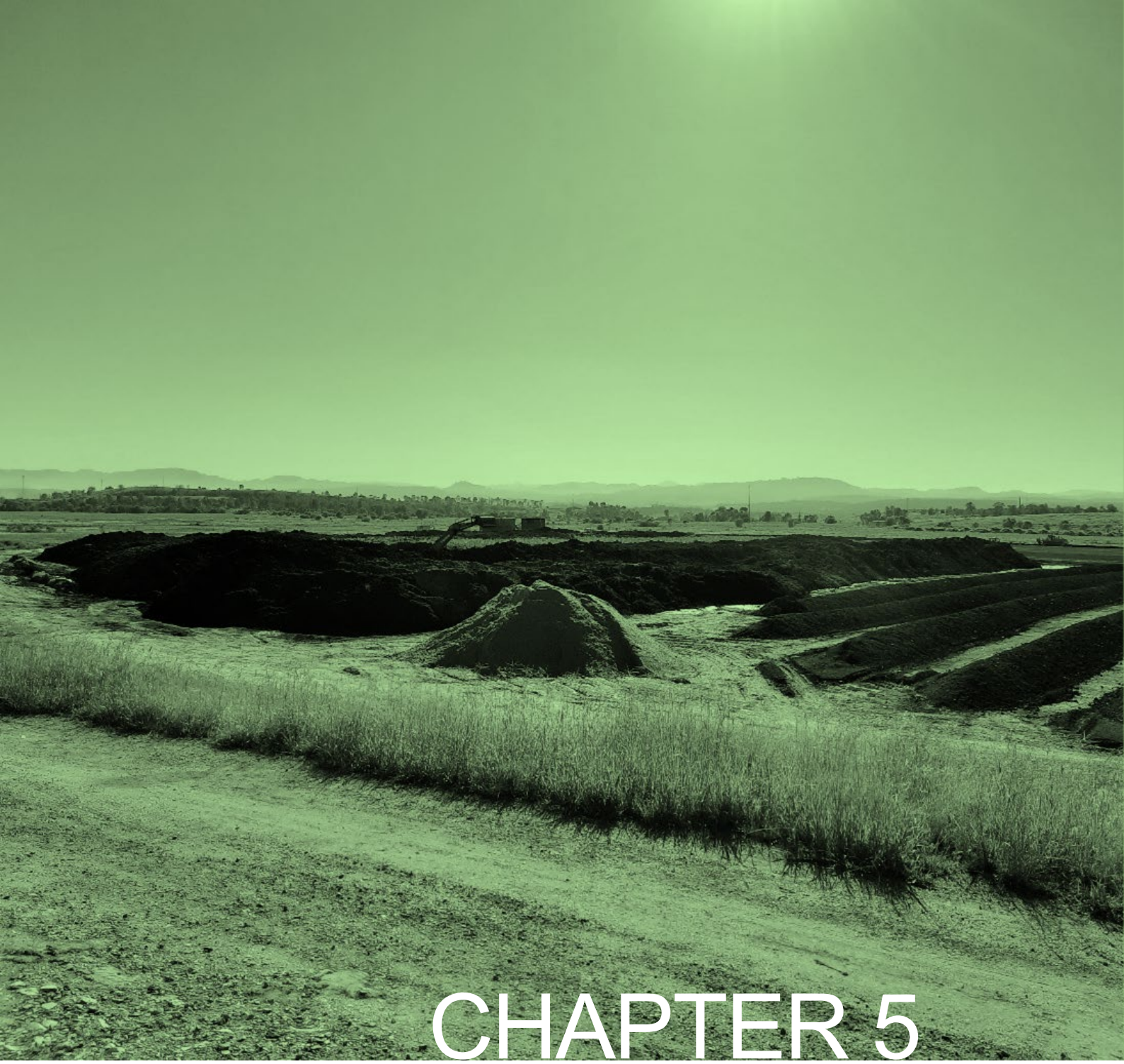
Increasing processing capacity at the facility would further contribute to the achievement of targets for increased organics recycling and landfill diversion outlined in NSW and Australian government strategic policies and plans (refer to section 4.1).

Option 3 was therefore selected as the preferred option as it would best meet the current and expected future demand for FOGO composting services in the region, and support government initiatives promoting sustainability and resource conservation.

It is noted that the receival and processing of FOGO material was originally proposed as part of the original SSD application to expand the processing capacity of the development to 200,000 tpa (RPS Australia East Pty Ltd (RPS), 2019). The original SSD application also included the installation of a product receival and blending shelter, to be a receivals area for blending various organic material prior to being integrated into the composting process on the pad area (refer to Section 3.2.2.7 of the SSD EIS (RPS, 2019a)). The receival and processing of FOGO material was later removed from the SSD application, including the product receival and blending shelter, to reduce the potential for odour impacts and allow the processing of an increased volume of garden organics from kerbside collection and greenfield sites cleared for development.

A product receival and blending shelter was not considered as part of Option 3 for the following reasons:

- The site is located in a remote location within a mining complex, with the nearest sensitive receivers outside the mining complex located approximately 6 km away.
- Any potential odour from the receival and processing of FOGO material can be minimised with the implementation of appropriate odour management and mitigation measures (refer to section 9.1.1).
- There is adequate space available at the site to expand the existing open air processing pads.
- The installation of a product receival and blending shelter is not a commercially viable option at the site, due to the high cost associated with installing an adequately sized structure.
- Several other outdoor FOGO composting facilities are operating in NSW that supply high quality compost to the agricultural and mining sectors (Loop Organics, 2025; Worm Tech, 2025; YLAD Living Soils, 2025).



CHAPTER 5

MODIFICATION DESCRIPTION

5 MODIFICATION DESCRIPTION

5.1 Project overview

The project seeks to allow the receival and processing of FOGO recovered material at the facility and increase the processing volume of the facility to 250,000 tpa over the next 10 years.

This would require the installation of a weighbridge, employment of three additional staff, and up to five additional light vehicles and 14 additional heavy vehicles accessing the site per day.

No changes are proposed to the existing development footprint, site infrastructure, equipment/plant, or approved operating hours. The project does not involve any vegetation removal, bulk earthworks or road upgrades.

The proposed site layout, including the receival area for the FOGO recovered material is shown in Figure 5.3.

5.2 Weighbridge

A prefabricated weighbridge with associated concrete approaches (ramps) is proposed to be installed in the north-western corner of the site next to the workshop. The weighbridge and its approaches would have a total length of approximately 56 m.

The installation of a weighbridge was initially approved under development consent SSD-9418. The weighbridge was consequently removed from the approved development under Modification 1 of SSD-9418 (SSD-9418-MOD-1) as the facility is not considered a 'waste facility' due to the types of materials approved for receival (refer to section 2.3.2).

The proposed location for the weighbridge along the internal access road (refer to Figure 5.3) is approximately 200 m north of the approved location for the weighbridge under development consent SSD-9418 (refer to Appendix B). The proposed location for the weighbridge allows sufficient space for light vehicles to pass while heavy vehicles are being weighed, which was not the case for the previously approved location.

The weighbridge would weigh trucks entering the site with loads of organics, and also weigh outgoing unloaded and loaded trucks.

The weighbridge would be designed to accommodate vehicles up to 27.5 m in length, with the weighbridge structure having a reinforced concrete foundation, steel sub-structure, and concrete deck (approximately 26.8 m in length and 860 mm in height) which would be raised above the surrounding ground surface. The weighbridge would be powered by solar and battery storage.

A typical weighbridge is shown in Figure 5.1 and the indicative design for the weighbridge is shown in Figure 5.2.

The construction of the weighbridge would take around five weeks to complete.

The installation of the weighbridge involves preparing the site (clearing the construction area and levelling the ground surface), installing the drainage infrastructure, laying the concrete foundation and ramps, assembling the weighbridge modules onto the foundation, installing peripheral equipment (display unit, printers etc), and electrical cabling and wiring to connect the load cells with the weighbridge's control unit. Once the weighbridge platform and load cells are installed, the system is calibrated to ensure accuracy, and safety and compliance checks are completed to ensure compliance with industry standards and regulations.

Indicative plant, equipment and workforce requirements, work hours and traffic generated during construction of the weighbridge are discussed in the following sections.

Figure 5.1 Typical weighbridge

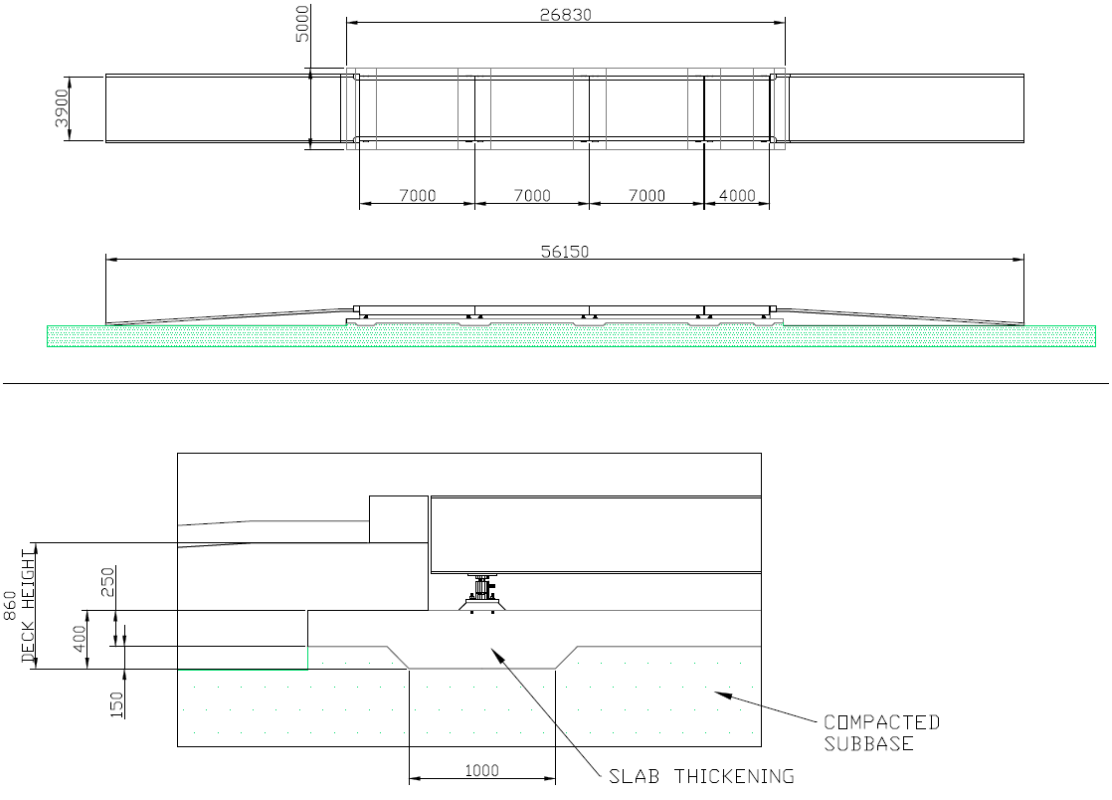


Figure 5.2 Indicative design of weighbridge

5.3 Plant and equipment

Indicative vehicles, plant and equipment used during construction of the weighbridge include:

- light vehicles;
- flatbed truck;
- roller;
- mobile crane;
- forklift;
- concrete mixer truck;
- concrete saw;
- concrete vibrator;
- concrete compactor/rammer; and
- hand tools, including power tools and welding equipment.

The mobile plant and equipment currently operated at the site (refer to section 2.5.3) would continue to be used during operation of the project. No other additional plant or equipment is required during operation.

5.4 Traffic, transport and access

Up to four additional light vehicles and one additional heavy vehicle would access the site per day during construction of the weighbridge, resulting in up to eight additional light vehicle movements (four in-bound and four out-bound) and two additional heavy vehicle movements (one in-bound and one out-bound) per day.

To facilitate transportation of the additional 50,000 tpa of organic recovered material to and from the site over the next 10 years, up to 14 additional heavy vehicles would be required to access the site per day, resulting in up to 28 additional heavy vehicle movements per day.

The project would continue to import organic recovered material along the internal access road, Lemington Road and beyond via the same transportation routes (refer to section 2.5.6).

Three additional staff are required to support increased processing capacity at the facility (refer to section 5.7). Up to five additional light vehicles (used by administrative, operational and maintenance personnel) would access the site per day, resulting in up to 10 additional light vehicle movements per day.

No changes are proposed to existing parking and access arrangements.

5.5 Hazardous substances and dangerous goods

The project would result in an estimated 20% (33.6 kL) increase in diesel consumption per year during operation, resulting in up to 201.6 kL of diesel consumed per year. Under Modification 2 (refer to section 2.4), the on-site 5,000 L above ground portable fuel tank would be replaced with a 65,000 L tank.

The project would not result in any other changes to the existing storage, handling or processing of hazardous substances or dangerous goods at the site during construction or operation.

5.6 Hours of operation

Construction work would be carried out during the recommended standard construction working hours in accordance with the *Interim Construction Noise Guideline* (DECC, 2009) (ICNG), as follows:

- Monday to Friday: 7 AM to 6 PM;
- Saturday: 8 AM to 1 PM; and
- Sunday and public holidays: no work.

No out of hours work is proposed.

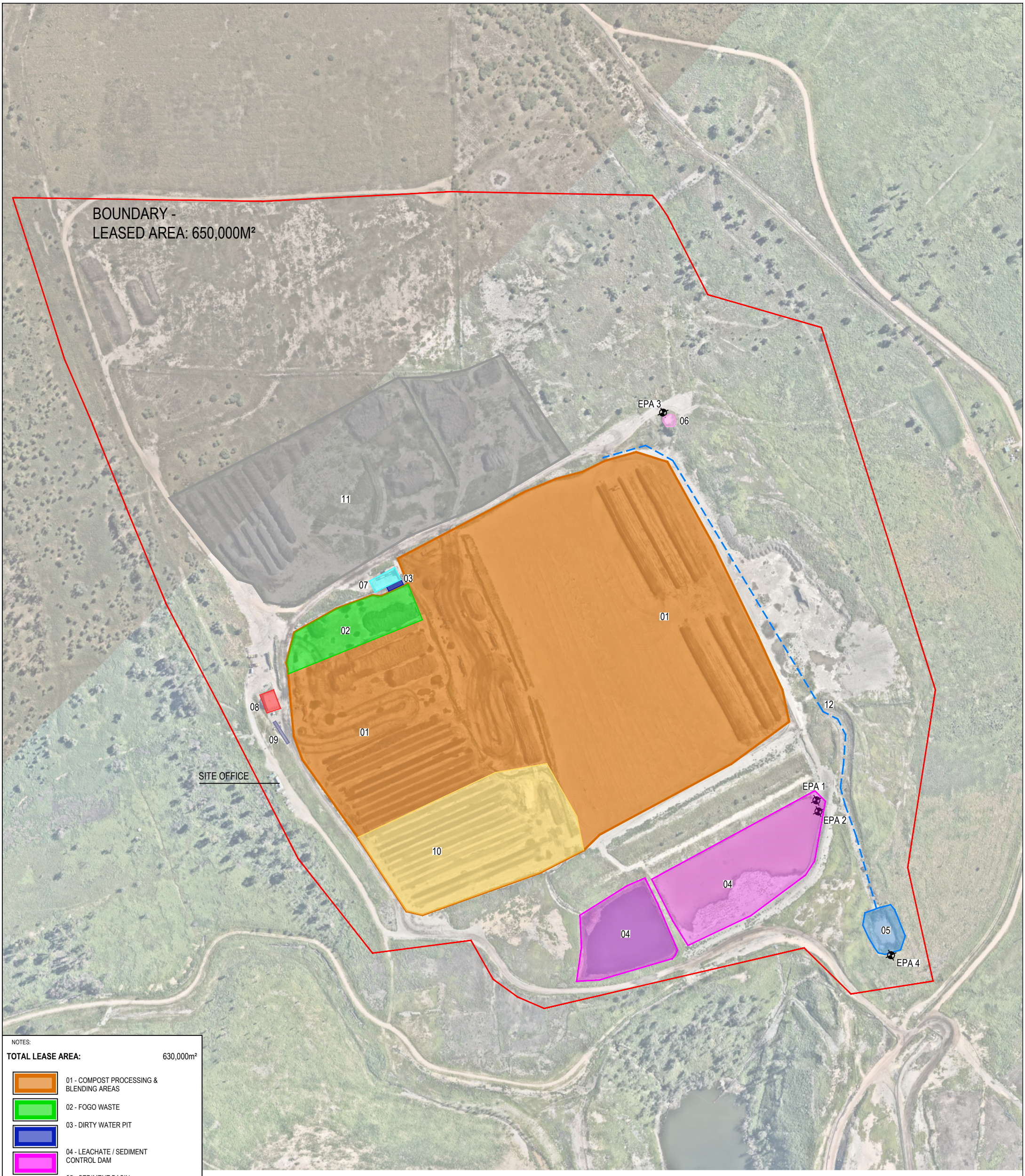
The project would continue to operate in accordance with the approved hours of operation as outlined in section 2.5.

5.7 Employment

The project would continue to provide employment for 10 full time staff.

Four additional personnel would be required to construct the weighbridge. Three additional staff, including administrative and operational staff, are required to support increased processing capacity at the facility.

Figure 5.3 Site layout



NOTES:

TOTAL LEASE AREA: 630,000m²

- 01 - COMPOST PROCESSING & BLENDING AREAS
- 02 - FOGO WASTE
- 03 - DIRTY WATER PIT
- 04 - LEACHATE / SEDIMENT CONTROL DAM
- 05 - SEDIMENT BASIN
- 06 - AGL WATER SUPPLY TANK
- 07 - TRUCK WASH
- 08 - WORKSHOP
- 09 - WEIGHBRIDGE
- 10 - PHYLLOXERA PROCESSING & BLENDING AREA
- 11 - AGL COMPOST PRODUCT
- 12 - CLEAN WATER DIVERSION
- EPA MONITORING POINT (SEE TABLE)

01 SITE PLAN
SCALE: 1:10,000 (A1)

EPA ID NO	Type of Monitoring Point	Easting	Northing	Location Description
1	Leachate Dam Characterisation	315779.30	6409811.66	South of Site
2	Leachate Dam Emergency Spillway	315777.00	6409824.20	Center of Spillway
3	Process Water Tank	315785.80	6410375.50	Center of Water Tank
4	Sediment Basin	316012.50	6409733.60	Star Picket at Basin Outlet

ISSUE	DESCRIPTION	DATE	DRAWN	AUTH
B	Development Application MOD 3	07-04-2025	DC	JB/ZR

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PROJECT: BETTERGROW COMPOSTING FACILITY
DEVELOPMENT APPLICATION MOD 3

LOCATION: 74 LEMINGTON ROAD (PART OF LOT 3 DP1193186) RAVENSWORTH NSW 2330

DRAWING: SITE PLAN

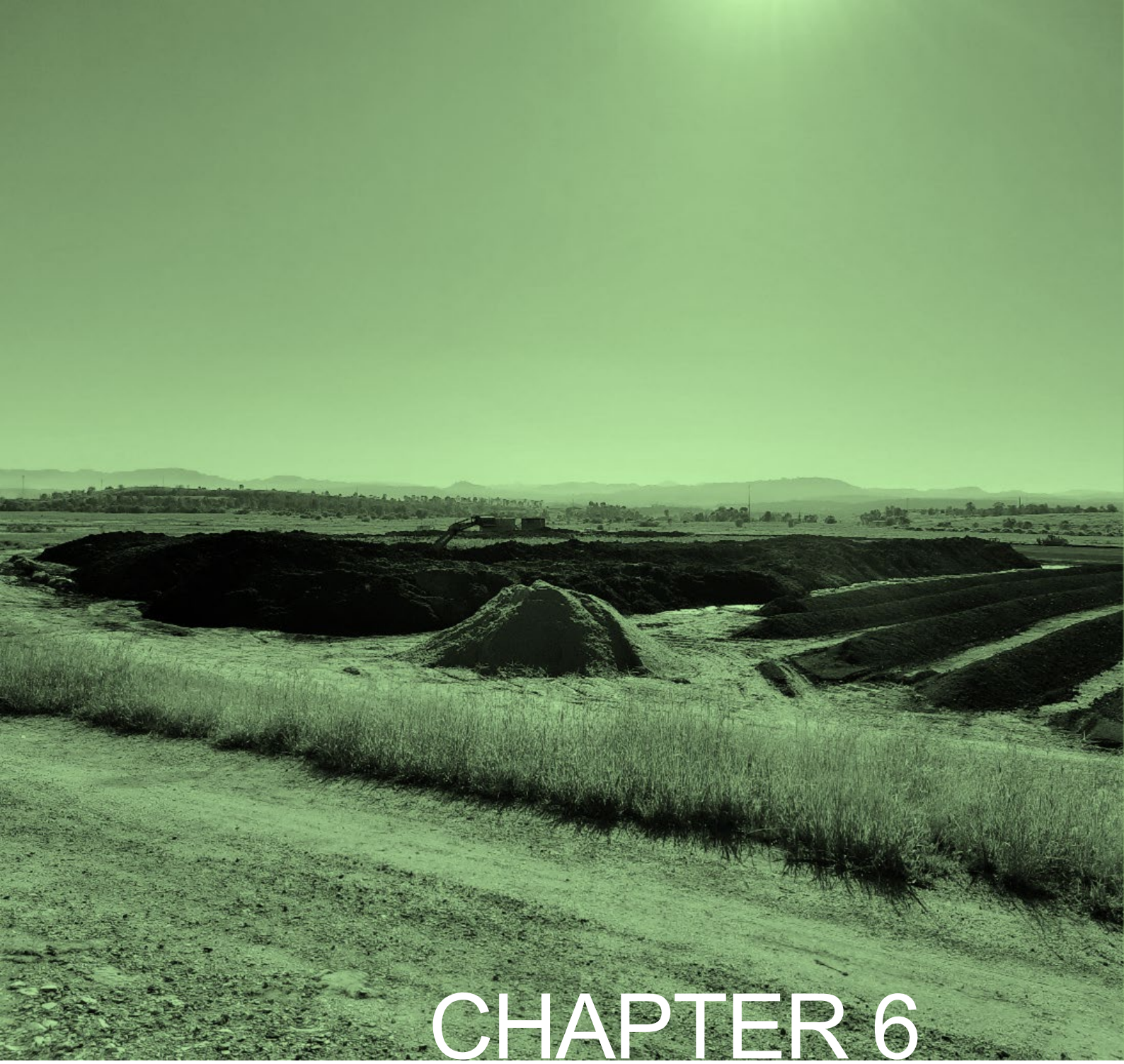
SCALE: 1:10,000 @ A1, 1:20,000 @ A3

STAGE: DA

PROJECT NUMBER: JMPI-0039 BG01

DRAWING NUMBER: DA0100

ISSUE: B



CHAPTER 6

STRATEGIC CONTEXT

6 STRATEGIC CONTEXT

The following strategic policies and plans have been considered in the assessment of the project:

- National Waste Policy: Less Waste, More Resources (National Waste Policy) (Commonwealth of Australia, 2018);
- NSW Circular Economy Policy Statement (Circular Economy Policy) (EPA, 2019);
- Net Zero Plan Stage 1: 2020–2030 (Net Zero Plan) (DPIE, 2020);
- Waste and Sustainable Materials Strategy;
- Strategic Plan 2024–29 (EPA Strategic Plan) (EPA, 2024);
- Waste Delivery Plan (EPA Waste Delivery Plan) (EPA, 2021);
- Hunter Regional Plan 2041 (Hunter Regional Plan) (NSW Department of Planning and Environment, 2022);
- Regional Circular Materials Strategy Hunter and Central Coast 2022 – 2027 (Hunter and Central Coast Regional Circular Materials Strategy) (Hunter Joint Organisation, 2022); and
- Create Singleton 2032 – Community Strategic Plan 2022 – 2032 (Singleton Community Strategic Plan) (Singleton Council, 2022).

The project's consistency with the relevant objectives and planning priorities contained within the abovementioned strategic policies and plans is discussed in the following sections.

6.1 National Waste Policy

The National Waste Policy provides a national framework for waste management, recycling and resource recovery in Australia to 2030. It focuses on reducing waste disposal and treating waste as a valuable resource, aiming to deliver economic, environmental, and social benefits while transitioning towards a circular economy.

The overarching goal of the policy is to ensure all waste is managed in alignment with Australia's international commitments, safeguarding human health and the environment. The policy also aims to identify and mitigate long-term risks associated with waste to prevent intergenerational environmental impacts.

The policy outlines a nationally coordinated approach to waste management, guided by five key principles:

- waste avoidance – prioritising waste prevention, promoting efficient resource use, and designing products to minimise waste;
- enhanced resource recovery – improving collection systems, recycling processes, and the quality of recovered materials;
- increased use of recycled materials – stimulating demand and markets for recycled products;
- better management of material flows – ensuring waste is managed to benefit human health, the environment, and the economy; and
- improved data and innovation – enhancing information systems to drive innovation, guide investment, and support informed consumer choices.

The National Waste Policy is implemented through the National Waste Policy Action Plan 2024 (National Waste Policy Action Plan) (Department of Climate Change, Energy, the Environment and Water, 2024), which includes targets and priorities to guide Australia's investment and national efforts for waste management. The seven targets outlined in this plan include:

- Target 1: Ban the export of waste plastic, paper, glass and tyres, commencing in the second half of 2020;
- Target 2: Reduce the total waste generated in Australia by 10% per person by 2030;

- Target 3: 80% average recovery rate from all waste streams following the waste hierarchy by 2030;
- Target 4: Significantly increase the use of recycled content by governments and industry;
- Target 5: Continued phase out problematic and unnecessary plastics;
- Target 6: Halve the amount of organic waste sent to landfill for disposal by 2030; and
- Target 7: Make comprehensive, economy-wide and timely data publicly available to support better consumer, investment and policy decisions.

The project supports the National Waste Policy objectives and Action Plan targets by:

- treating waste as a resource;
- reducing the amount of organic material sent to landfill and increasing the recovery of FOGO material;
- expanding industry capacity, and increasing the supply of recycled organic material (compost);
- generating economic, environmental, and social benefits by increasing processing capacity while minimising environmental impacts;
- promoting sustainability, innovation, and job creation; and
- protecting human health and the environment.

6.2 NSW Circular Economy Policy Statement

The Circular Economy Policy sets the ambition and approach for a circular economy in NSW, and provides principles to guide resource use and management. It provides a framework for implementing initiatives throughout the product life cycle, from design, manufacturing, and retail to end-of-life-disposal.

Key principles of a circular economy include:

- maximising resource value by extending the lifespan of products and materials; and
- optimising resource use to generate significant economic, social, and environmental benefits.

The Circular Economy Policy outlines seven principles that will underpin NSW Government decision making and planning:

- sustainable management of all resources – replacing raw materials with recycled products;
- value resource productivity – minimising the inefficient use of virgin materials;
- design out waste and pollution – innovating product design for longevity, re-use, remanufacture and resource recovery, and increasing service offerings and remanufacture and repair activities;
- maintain the value of products and materials – increasing the repairability of products and the recyclability of materials to allow the preservation of value;
- innovate new solutions for resource efficiency – implement innovating technologies that increase resource efficiency and prioritise higher value re-use opportunities;
- create new circular economy jobs; and
- foster behaviour change through education and engagement of communities and businesses.

The project aligns with the following five focus areas that are outlined in the policy to guide government action:

- support innovation – by assisting businesses to develop innovative solutions to accelerate the transition to a circular economy;
- sustainable procurement – by supporting sustainable procurement practices by businesses and government which would, in turn, drive demand for recovered materials and reusable products;
- high quality, consistent recycling – by increasing the generation of high quality recovered materials that can be used more easily for a greater range of purposes and for a longer time;

- mainstream product stewardship – by assisting producers to take responsibility for the management of the end of product life to improve environmental, economic and social outcomes; and
- circular design – by increasing the lifetime of organic materials and reducing their environmental impacts over their lifecycle.

6.3 NSW Net Zero Plan Stage 1: 2020 – 2030

The NSW Government is committed to achieving net zero emissions by 2050. In 2020, the NSW Government released the Net Zero Plan, which sets out how we will reduce our emissions by 35% over the next decade, in order to reach net zero emissions by 2050. Plans for the second and third decades of the net zero path will be developed in the lead-up to the 2030s and 2040s respectively.

As part of the Net Zero Plan, the NSW Government has committed to a target of net zero emissions from organic waste in landfill by 2030. Organic waste, such as food scraps and garden trimmings, makes up about 40% of red-lidded kerbside bins. When sent to landfill, the decomposing material releases methane that may not be captured. However, when this waste is managed effectively, through proper composting and recycling processes, methane emissions can be substantially reduced, soils can be regenerated to store carbon and biogas can be created to generate electricity.

In order to deliver on its goal, the NSW Government has established world-leading landfill diversion policies to apply to the waste industry. In particular, it will:

- support local councils to provide communities with best-practice food and garden waste management infrastructure;
- ensure composts or other organic soils are of the highest quality for land application;
- facilitate the development of 'waste to energy' facilities in locations that have strong community support, provided those facilities meet strict environmental standards; and
- update regulatory settings to ensure residual emissions from the organic waste industry are offset.

The project supports these landfill diversion policies by expanding operations at the facility to include the processing of FOGO material, thereby reducing the amount of FOGO that is sent to landfill. Further, the facility produces stabilised, pasteurised compost material that is of a high quality. By utilising the compost for agricultural land application and land rehabilitation, this initiative closes the loop on organic waste, while promoting circular economy principles and sustainable environmental practices.

6.4 NSW Waste and Sustainable Materials Strategy 2041

The Waste and Sustainable Materials Strategy is informed and driven by the WARR Act. It aims to encourage waste reduction and recycling as NSW transitions to a circular economy (refer to section 6.2). The strategy adopts the targets set in the National Waste Policy Action Plan (refer to section 6.1), and reaffirms the NSW Government's commitment to the goal of net zero emissions from organic waste by 2030, as set out in the Net Zero Plan (refer to section 6.3).

The strategy further outlines the actions needed over the six years leading up to 2027 (the first phase of the strategy) to deliver on the long term objectives of the Circular Economy Policy, based on the following three focus areas:

- meeting future infrastructure and service needs by ensuring critical waste infrastructure is in place, with an emphasis on co-locating businesses in precincts that promote a circular economy;

- reducing carbon emissions by improving waste and materials management, including making materials more productive by improving their durability through design, reusing or repairing them, recycling and remanufacturing them or extracting their embodied energy, to reduce reliance on emissions-intensive virgin materials; and
- protecting the environment and public health by strengthening measures to manage waste pollution, including efforts to combat illegal dumping.

The project aligns with these focus areas by:

- increasing processing capacity at an existing composting facility, and expanding operations to include the processing of FOGO material, to ensure recovery and recycling infrastructure keep pace with demand;
- diverting more organic material from landfill, including FOGO material, and processing it into compost that is returned to local soils to sequester carbon, improve soil health, increase water retention and boost crop yields, and reduce carbon emissions; and
- increasing the supply of high quality recycled organic material while minimising environmental impacts.

The project represents a significant step in meeting future waste management needs while advancing NSW's transition to a circular economy.

6.5 EPA Strategic Plan 2024 – 2029

The EPA Strategic Plan describes how the EPA, as NSW's primary environmental regulator, will protect, restore and enhance the NSW environment and human health over the next five years and beyond.

The plan outlines three strategic choices about the environmental and human health outcomes the EPA will deliver:

- care for Country – land, water, air and community;
- drive climate action; and
- enable a safe circular economy.

The project supports the following outcomes of the strategic choices:

- Licensees respond to the challenges of climate change and collectively reduce their greenhouse gas emissions, helping to meet the targets in the Net Zero Plan. By increasing the processing capacity at the facility, the project would allow more organic material to be diverted from landfill, resulting in reduced greenhouse gas emissions.
- The necessary systems, infrastructure and regulatory settings are incentivising the transition to a circular economy. The project would provide the essential infrastructure needed to increase the recycling of organic material, including FOGO material, and increase the supply of recycled organic material in the region.
- Potential harm associated with managing waste and recovered materials is minimised. The project would minimise potential environmental impacts associated with the processing of recovered materials as it does not involve extension of the existing development footprint, vegetation clearing or bulk earthworks, and is located far from sensitive receivers.
- Communities, industry and government are actively participating in the circular economy. The project would assist communities, industry and government to increase the recycling of organic material and the use of recycled organic products.

6.6 EPA Waste Delivery Plan

The EPA Waste Delivery Plan describes how the EPA will reduce the harmful impact of waste and drive behaviours that create a circular economy. It outlines how the EPA will work with

communities, industries and government to achieve their strategic waste priorities and implement the Waste and Sustainable Materials Strategy and NSW Plastics Action Plan (DPIE, 2021b).

The project aligns with the following initiatives of the plan:

- diverting organics from landfill – by providing more organics processing capacity to support the recent FOGO recycling mandates in NSW (refer to section 4.1);
- leveraging government purchasing power to stimulate a local circular economy – by assisting the industrial sector to meet the increased demand for organic recycled material; and
- building on our success: business recycling – by supporting businesses to reduce the volume of organic material sent to landfill.

6.7 Hunter Regional Plan 2041

The Hunter region is the leading regional economy in Australia, driven by the mining, energy, manufacturing and agricultural sectors. The Hunter Regional Plan is a 20-year land use plan to manage growth and change in the Hunter region. It seeks to streamline planning so that the Hunter can transition over time to an economy focussed on renewable energy and the circular economy.

The plan defines the region's long term vision and goals across areas such as economic diversification, environmental sustainability, and community wellbeing through nine objectives. Each objective is supported by performance outcomes, to guide planning decisions and assess whether local strategic plans and planning proposals are effectively contributing to the broader regional goals.

Objective 1 of the plan focuses on diversifying the Hunter's mining, energy, and industrial capacity and Objective 6 outlines the need to conserve heritage, landscapes, environmentally sensitive areas, waterways and drinking water catchments. The project supports performance outcome 5 (Circular economy industries and facilities area in appropriate sites) of Objective 1 and performance outcome 1 (Areas of high environmental value are protected to contribute to a sustainable region) of Objective 6, as it utilises a former mine site to increase organics recycling capacity, thereby avoiding impacts on environmentally sensitive areas and receivers.

Objective 7 of the plan aims to reach net zero and increase resilience and sustainable infrastructure. The project supports Objective 5 (Places are designed to support the goal of net zero emissions by 2050 and opportunities for mitigation and adaptation to a changing climate and environment) of this objective as it reduces greenhouse gas emissions by diverting more organic material from landfill, and is designed to be resilient to climate change.

6.8 Hunter and Central Coast Regional Circular Materials Strategy 2022 – 2027

The Hunter and Central Coast Regional Circular Materials Strategy represents the regional response of the Hunter and Central Coast region to the Waste and Sustainable Materials Strategy. The strategy outlines a 20-year vision to transform the Hunter and Central Coast region into Australia's leading circular materials region, as well as an Implementation Plan to deliver the Strategic Direction objectives of the strategy over the next five years.

Four regional themes are identified in the strategy to align with the Waste and Sustainable Materials Strategy themes and key priorities:

- collaboration – collaborating to solve regional problems for greatest positive impact;
- circularity – enabling and influencing the circular economy;
- resource recovery – improved infrastructure and operations for circular outcomes; and

- protect the environment – improved problem waste management and disaster resilience.

Each regional theme is associated with outcomes, success measures, strategic directions and key regional challenges.

The project aligns with the following strategic directions of the circularity and resource recovery themes:

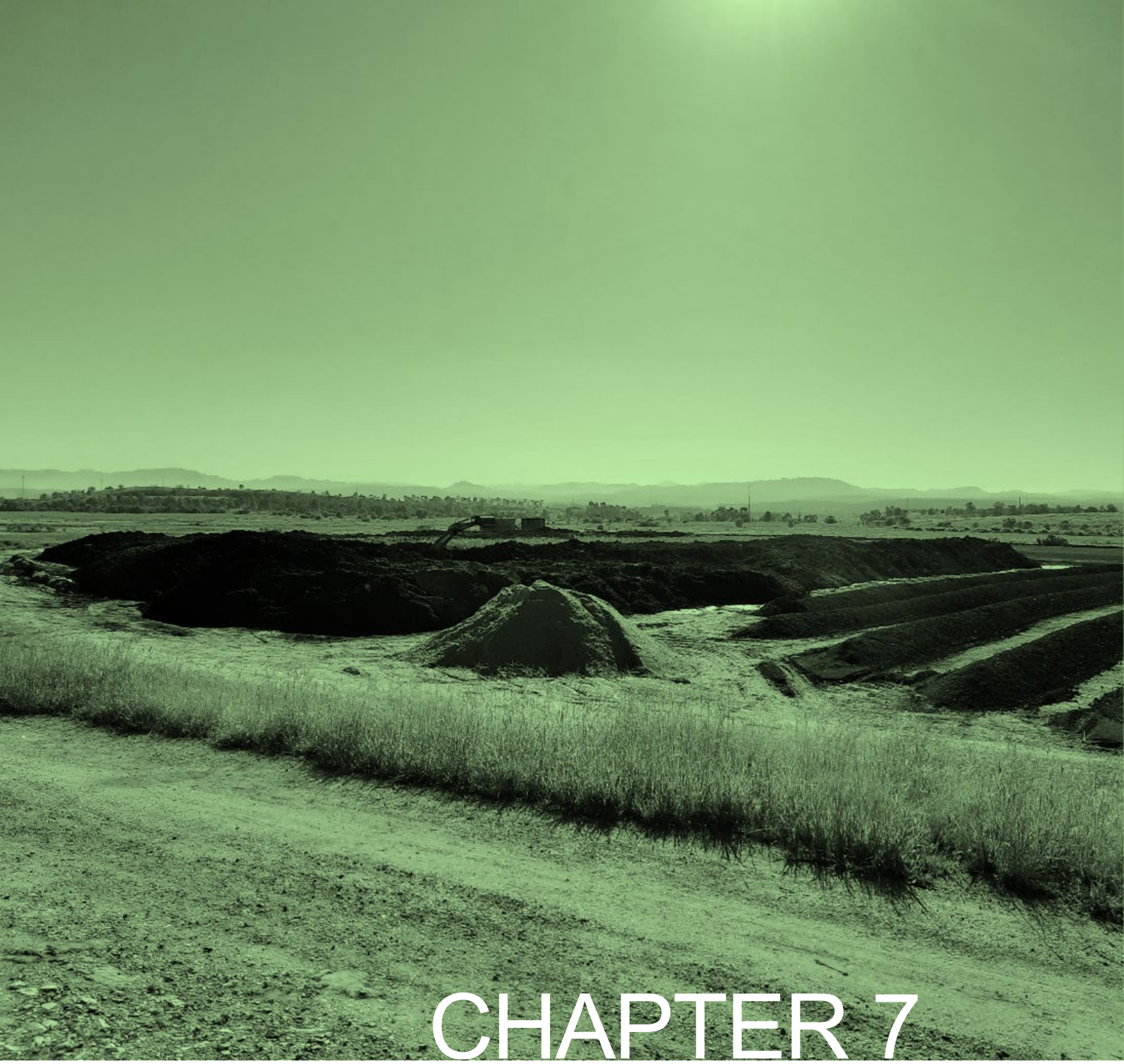
- circularity:
  - support the adoption of upstream circular economy solutions to reduce consumer waste generation – by allowing increasing volumes and a wider range of organic material to be diverted from landfill;
  - improve circular economy knowledge and embed principles into practice – by transforming organic recovered material into a valuable resource (compost), reducing greenhouse gas emissions and reducing reliance on manufactured chemical fertilizers;
- resource recovery:
  - investigate and implement solutions to increase resource recovery by improving infrastructure, operations and material quality – by increasing processing capacity at an existing composting facility and extending existing operations to include the processing of FOGO material; and
  - collaborate, conduct research and support programs to divert organic waste from landfill – by providing increased capacity in the Hunter region to divert organic recovered material from landfill.

6.9 Singleton Community Strategic Plan 2022 – 2032

The Singleton Community Strategic Plan presents the community's long term vision, goals and strategic priorities for the Singleton LGA, and provides a guiding framework for Council's actions and policies. It identifies objectives for various aspects of community development, including people, places, the environment, the economy, and leadership, and strategies to achieve these objectives.

The project supports the following objectives of the strategy:

- our places are sustainable, adaptable and inclusive – by providing safe and well-maintained recycling infrastructure and promoting sustainable practices;
- our environments are valued, preserved, respected and enhanced in a sustainable way – by promoting efficient waste management, increasing reuse and recycling, and reducing risks from environmental pollution and disease; and
- our economy will demonstrate diversity, resilience and innovation – by supporting increased recycling of organic material by businesses as waste generation increases.



CHAPTER 7

STATUTORY CONTEXT

7 STATUTORY CONTEXT

This section identifies the applicable local and regional planning instruments, the relevant State and Commonwealth environment and planning legislation, and discusses the relevant planning approval process applicable to the project.

7.1 Commonwealth legislation

7.1.1 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act is the primary environmental legislation at the Federal level. The EPBC Act is administered by the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW), and provides a legal framework to protect and manage national and international important flora, fauna, ecological communities and heritage places, defined under the EPBC Act as MNES. The EPBC Act also confers jurisdiction over actions that have a significant impact on the environment where the actions affect, or are taken on, Commonwealth land.

An action that has, will have or is likely to have a significant impact on a MNES or Commonwealth land may not be undertaken without prior approval from the Australian Minister for the Environment and Water, as provided under Part 9 of the EPBC Act.

The protected matters search tool (PMST) is managed by the DCCEEW and is used to identify MNES within the proximity of a project. A search was undertaken on 14 April 2025, with the results in Table 7.1. The project is not located on Commonwealth land.

This data, combined with local knowledge and records and further technical studies where relevant, will be used to assess whether the project will have, or is likely to have, a significant impact on a MNES or on Commonwealth land.

Table 7.1 MNES considered in the EPBC Act

MNES	Comments
World heritage properties	There are no world heritage properties within 10 km of the project.
National heritage places	There are no national heritage places within 10 km of the project.
Wetlands of international importance (listed under the Ramsar Convention)	The site is between 80 km and 100 km from two wetlands of international importance (Hunter Estuary Wetlands and Myall Lakes).
Listed threatened species and ecological communities	Eight TECs have been recorded within a 10 km radius of the site, namely: ▪ Central Hunter Valley eucalypt forest and woodland (critically endangered); ▪ Coastal Swamp Sclerophyll Forest of New South Wales and South East Queensland (endangered); ▪ Hunter Valley Weeping Myall (Acacia pendula) Woodland (critically endangered); ▪ Lowland Rainforest of Subtropical Australia (critically endangered); ▪ River-flat eucalypt forest on coastal floodplains of southern New South Wales and eastern Victoria (critically endangered); ▪ Subtropical eucalypt floodplain forest and woodland of the New South Wales North Coast and South East Queensland bioregions (endangered);

MNES	Comments
	▪ Warkworth Sands Woodland of the Hunter Valley (critically endangered); and ▪ White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland (critically endangered). A total of 49 nationally listed threatened species may occur within a 10 km radius of the site. Potential impacts of the project on these listed TECs and threatened species will be considered in the modification report.
Migratory species protected under international agreements	The PMST lists a total of 10 migratory species that may occur within 10 km of the site. Potential impacts of the project on these listed migratory species will be considered in the modification report.
Commonwealth marine area	There are no Commonwealth marine areas in the vicinity of the project.
The Great Barrier Reef Marine Park	The Great Barrier Reef Marine Park is not in the vicinity of the project.
Nuclear actions (including uranium)	There are no nuclear actions within the vicinity of the project.
A water resource, in relation to coal seam gas development and large coal mining development	This is not applicable to the project.

7.1.2 Native Title Act 1993

The *Native Title Act 1993* recognises that Aboriginal people have rights and interests to land and waters which derive from their traditional laws and customs. Native title may be recognised in places where Indigenous people continue to follow their traditional laws and customs and have maintained a link with their traditional country. It can be negotiated through a Native Title Claim, an Indigenous Land Use Agreement or future act agreements.

The National Native Title Register, Register of Native Title Claims, and Register of Indigenous Land Use Agreements were searched on 14 April 2025 for reported native title claimants in the Singleton LGA. No Native Title holders/claimants were identified for the site.

7.1.3 National Greenhouse and Energy Reporting Act 2007

The *National Greenhouse and Energy Reporting Act 2007* provides a single national framework for the reporting and dissemination of information about the greenhouse gas emissions, greenhouse gas projects, and energy use and production of corporations. It makes registration and reporting mandatory for corporations whose energy production, energy use or greenhouse gas emissions meet specified thresholds.

The modification report will need to assess whether the project triggers the threshold for reporting under the NGER Act.

7.2 NSW legislation

7.2.1 Environmental Planning and Assessment Act 1979

The EP&A Act provides the statutory framework for planning approval and environmental assessment in NSW. Implementation of the EP&A Act is the responsibility of the Minister for

Planning and Public Spaces, statutory authorities and local councils. It contains three parts that impose requirements for planning approval.

Part 4 of the EP&A Act provides for control of 'development' that requires development consent from the relevant consent authority.

Section 4.55(2) of the EP&A Act allows for a modification of a development where the consent authority 'is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which the consent was originally granted and before that consent as originally granted was modified (if at all)'.

The project is considered substantially and materially the same development as originally approved (and as modified) for the following reasons:

- The project would not materially change the nature and purpose of the approved facility as the facility already receives and processes a wide range of organic recovered material.
- The project is within the approved consent boundary and would be confined to an area previously disturbed and currently utilised by the facility operations.
- The project does not involve any changes to the approved plant and equipment or hours of operation, and involves only a minor change to site infrastructure (installation of a weighbridge).
- The project would not change any of the administrative or specific environmental conditions as described in Part A and Part B of the consolidated consent, other than to change the type and increase the volume of material received and processed at the facility (conditions A6 and A7 in Part A).
- The environmental and social impacts associated with the project are unlikely to be significantly greater than those already approved. In this event, the project would not be considered to result in a 'radical transformation' of the approved development.

As required by Section 4.55(3) of the EP&A Act, in determining an application for modification of a development consent the consent authority is to take into account those matters listed under section 4.15(1) of the EP&A Act as they are relevant to the project.

Section 4.15(1)(b) of the EP&A Act requires the consent authority to consider 'The likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality' when considering a development application.

A modification report will be prepared by Element to consider the likely impacts of the project, including environmental impacts on both the natural and built environments, and social and economic impacts on the locality in accordance with Section 4.15(1)(b) of the EP&A Act.

7.2.2 Other NSW legislation

In addition to the requirements under Part 4 of the EP&A Act discussed in section 7.2.1, the project may require additional approvals, licences and/or authorisation under various other pieces of NSW legislation.

Under Section 4.41 of the EP&A Act, the following authorisations that may be relevant to the project are not required for SSD that is authorised by a development consent and accordingly the provisions of any Act that prohibit an activity without such an authority do not apply:

- a permit under section 201, 205 or 219 of the *Fisheries Management Act 1994* (FM Act);
- an approval under Part 4, or an excavation permit under section 139, of the *Heritage Act 1977* (Heritage Act);
- an Aboriginal heritage impact permit (AHIP) under section 90 of the *National Parks and Wildlife Act 1974* (NPW Act);

- a bushfire safety authority under section 100B of the *Rural Fires Act 1997* (Rural Fires Act); and
- a water use approval under section 89, a water management work approval under section 90 or an activity approval (other than an aquifer interference approval) under section 91 of the *Water Management Act 2000* (WM Act).

Division 8 of Part 6 of the Heritage Act (controlling and restricting harm to buildings, works, relics and places not subject to interim heritage orders or State Heritage Register listing) does not apply to prevent or interfere with the carrying out of SSD that is authorised by a development consent granted after the commencement of this Division.

Under Section 4.42 of the EP&A Act an authorisation of the following kind cannot be refused if it is necessary for carrying out SSD that is authorised by a development consent and is to be substantially consistent with the consent:

- an aquaculture permit under section 144 of the FM Act;
- an approval under section 15 of the *Coal Mine Subsidence Compensation Act 2017* (CMSC Act), section 22;
- a mining lease under the *Mining Act 1992*;
- a production lease under the *Petroleum (Onshore) Act 1991*;
- an environment protection licence under Chapter 3 of the POEO Act (for any of the purposes referred to in section 43 of that Act);
- a consent under section 138 of the *Roads Act 1993* (Roads Act); and
- a licence under the *Pipelines Act 1967*.

Table 7.2 summarises the key pieces of NSW legislation relevant to the project.

Table 7.2 Summary of NSW legislation

Legislation	Overview
Aboriginal Land Rights Act 1983 (Aboriginal Land Rights Act)	The Aboriginal Land Rights Act establishes the NSW Aboriginal Land Council and LALCs and requires these bodies to: ▪ take action to protect the culture and heritage of Aboriginal persons in the LALC's area, subject to any other law ▪ promote awareness in the community of the culture and heritage of Aboriginal persons in the LALC's area. The project is located within the Wanaruah LALC area (refer to section 3.8). The facility footprint and its surroundings were previously disturbed during construction and operation of the Ravensworth No. 2 mine, with the natural ground surface impacted by blasting, bulk earthworks and importation of spoil and fly ash. No registered Aboriginal sites or objects were identified within 1 km of the site (refer to section 3.8). The project is not expected to impact on any registered Aboriginal objects or places, or previously unidentified Aboriginal objects or places. Nevertheless, consultation will be undertaken with the Aboriginal community in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (NSW Department of Environment, Climate Change and Water, 2010).
Crown Land Management Act 2016	The NSW *Crown Land Management Act 2016* provides for the administration and management of Crown land in NSW. Crown land may not be occupied, used, sold, leased, dedicated, reserved, or otherwise dealt with unless authorised by this Act. There is no Crown Land in the site, and no Crown Roads or Crown Waterways traverse the site. A Crown Waterway is approximately 590 m west of the site, however, the project is not expected to result in any impacts on this watercourse.
NPW Act	The NPW Act contains provisions for the protection and management of national parks, historic sites, nature reserves and Aboriginal heritage. The Heritage NSW Division of DPHI administers the NPW Act. The NPW Act

Legislation	Overview
	provides statutory protection for Aboriginal objects by making it illegal to move, damage, deface or destroy a relic without written permission from DPHI. Where impact to an Aboriginal object or place will occur, an AHIP may be required under Part 6, Division 2 of the NPW Act. However, under the provisions of section 4.41(1) of the EP&A Act, an AHIP is not required for the project. The facility footprint and its surroundings were previously disturbed during construction and operation of the Ravensworth No. 2 mine, with the natural ground surface impacted by blasting, bulk earthworks and importation of spoil and fly ash. No registered Aboriginal sites or objects were identified within 1 km of the site (refer to section 3.8). The project is not expected to impact on any registered Aboriginal objects or places, or previously unidentified Aboriginal objects or places.
BC Act	The BC Act provides protection for threatened plants and animals native to NSW (excluding fish and marine vegetation) and integrates the conservation of threatened species into development control processes under the EP&A Act. The project would not remove any vegetation, or result in an increased risk of injury or mortality of fauna. As most fauna species that utilise habitat within or near the site are already adapted to disturbances from existing land uses (i.e. site operations, road traffic, mining operations and other human activities), they are unlikely to be significantly impacted by increased noise from the additional vehicle movements. As such, the project is not expected to impact any species, populations and communities listed under the BC Act.
Heritage Act	Historical archaeological relics, buildings, structures, archaeological deposits and features are protected under the Heritage Act. A search of statutory heritage registers did not identify the presence of any local or State heritage listings within 1 km of the site. The site is located on a rehabilitated mine void, and the natural ground surface has been impacted by blasting, bulk earthworks and importation of spoil and fly ash during construction and operation of the Ravensworth No. 2 mine. The project is not expected to impact any registered heritage items or potential archaeological remains. Approval from the Heritage Council of NSW is not required for the project.
Roads Act	Section 138 of the Roads Act requires consent to be obtained prior to disturbing or undertaking work in, on or over a public road. Upgrades to the local road network are not likely to be required to accommodate the project. Road authority consent is not likely to be required for the project.
CLM Act	The CLM Act establishes a process for investigating and, where appropriate, remediating contaminated land that poses a risk to human health and the environment. Under section 60 of the CLM Act, a person whose activities have contaminated land or an owner of land whose land has been contaminated (whether before or during the ownership of the land) above certain levels (as outlined in the *Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997* (EPA, 2015), is required to notify the EPA in writing as soon as they become aware of the contamination. A search of the EPA's Contaminated Land Record and List of Contaminated Sites notified to the EPA on 17 April 2025 identified two sites approximately 4 km and 4.5 km from the site that have been notified to the EPA under the CLM Act (refer to section 3.5). Regulation under the CLM Act is not required for these premises. Previous contamination investigations (RPS, 2019a) have not identified any known contamination at the site. As the project would involve only very minor disturbance of the ground surface (refer to section 5.2), further contamination investigations are not considered to be required for the project.
POEO Act	The POEO Act provides the legal framework for the management of air, noise, water and waste pollution. It aims to protect, restore and enhance the quality of the environment in the context of ecologically sustainable development and to reduce risks to human health and prevent degradation of the environment.

Legislation	Overview
	Under Part 3.2 of the POEO Act, an EPL is required for scheduled activities or scheduled development work as defined in Schedule 1 of the Act. In accordance with clause 12 of Schedule 1, the composting activities carried out on the site require an EPL as it receives more than 5,000 tpa of non-putrescible organic material from an off-site source. Bettergrow holds EPL 7654 for the existing composting activities on-site. The expansion of composting operations proposed as part of the modification application would require a variation to EPL 7654 to allow for the receival and processing of up to 250,000 tpa of organic recovered material. As part of the variation, FOGO would be included as an approved waste to be received at the site in section 3 condition L3.1 of the EPL. Variation of the EPL will be sought in consultation with the EPA, subject to the approval of this modification application.
WM Act	The WM Act provides for the sustainable and integrated management of the water sources of NSW for the benefit of both present and future generations. The WM Act controls the extraction of and use of water, the construction of works such as dams and weirs, and the carrying out of activities in or near water sources in NSW. 'Water sources' are defined broadly and include the whole or any part of a river, lake, estuary, place where water occurs naturally on or below the surface of the ground, and NSW coastal waters. Water use approvals, which authorise and confer a right on the holder of the approval to use water for a particular purpose at a particular location, are dealt with in section 89 of the WM Act. Section 90 of the WM Act identifies three kinds of water management works approvals, being a water supply work approval, a drainage work approval and a flood works approval, with all three of these approvals confer a right on the holder of the approval to construct and use the specified works at a specified location. There are two kinds of activity approvals that are dealt with in section 91 of the WM Act, being a controlled activity and aquifer interference, both of which confer a right on the holder to carry out the specified activity at the specified location. Under the provisions of section 4.41(1) of the EP&A Act, a water use approval pursuant to section 89 of the WM Act, a water management work approval pursuant to section 90 of the WM Act, and an activity approval (other than an aquifer interference approval) pursuant to section 91 of the WM Act are not required and accordingly, do not apply to approved SSD projects. Section 56 of the WM Act requires a water access licence for the taking of water within a particular water management area under a water sharing plan. The site is located within the Jerrys Water Source regulated under the Water Sharing Plan (WSP) for the Hunter Unregulated and Alluvial Water Sources 2022. The facility extracts water from Void 4 for use in the composting windrows, dust suppression and truck washing (refer to section 2.5.4). In a letter to Bettergrow dated 26 July 2022, the (then) Department of Planning and Environment – Water confirmed that the Ravensworth composting facility does not require a water access licence to use the water from Void 4, as the source of the water is not groundwater, but tailings and ash dams, which are above the natural groundwater table.
Waste Avoidance and Resource Recovery Act 2001 (WARR Act)	The purpose of the WARR Act is to encourage the most efficient use of resources and to reduce environmental harm in accordance with the principles of ecological sustainable development. The WARR Act provides for the making of policies and strategies to achieve these ends. The WARR Act promotes a hierarchy of avoidance of unnecessary resource consumption; resource recovery (including reuse, reprocessing, recycling and energy recovery), and disposal (as a last resort). The project would continue to support the objectives of the WARR Act by increasing processing capacity at the facility to allow increasing volumes of organic material to be diverted from landfill.
Rural Fires Act	The NSW Rural Fire Service (NSW RFS) has an obligation under the NSW Rural Fires Act to protect life, property and the environment through fire suppression and fire prevention.

Legislation	Overview
	Section 4.14 of the EP&A Act indicates that all new development on bushfire prone land must comply with the requirements of *Planning for Bushfire Protection – A guide for councils, planners, fire authorities and developers* (PBP 2019) (NSW Rural Fire Service, 2019). PBP 2019 provides development standards and guidance for the construction, siting and design of buildings, access arrangements, water supply and utilities, emergency management arrangements and landscaping. Sections of the eastern, southern and western boundaries of the site are mapped as Vegetation Category 3 bushfire prone land and its vegetation buffer (refer to section 3.11). Although the site is located on bushfire prone land, the project does not involve any new buildings or changes to existing buildings, access, water supply and utilities, emergency management arrangements or landscaping. Existing site infrastructure would continue to comply with PBP 2019.
CMSC Act	The CMSC Act provides for the regulation of development on land potentially affected by mine subsidence. The site is located within the Patrick Plains Mine Subsidence District. Under clause 15 of the CMSC Act, approval from the Mine Subsidence Board was obtained for DA140/2016 prior to the commencement of operations at the facility. Only very minor ground disturbance would be required to install the weighbridge (refer to section 5.2). This is not expected to pose any mine subsidence risks to the project. Subsidence Advisory NSW will be consulted to determine any specific design requirements for the weighbridge.

7.3 Environmental planning instruments

EPIs such as State environmental planning policies (SEPPs), regional environmental plans (REPs) and local environmental plans (LEPs) are legal documents that regulate land use and establish requirements for development consent in NSW.

7.3.1 State environmental planning policies

State environmental planning policies deal with issues significant to NSW and the people of NSW. They are made by the Governor on the recommendation of the Minister for Planning and Public Spaces and may be exhibited in draft form for public comment before being gazetted as a legal document.

The SEPPs relevant to the project are summarised in Table 7.3.

Table 7.3 SEPPs relevant to the project

SEPP	Overview
SEPP (Planning Systems) 2021 (Planning Systems SEPP)	The existing facility currently handles up to 200,000 tpa of organic recovered material. The current development is classified as SSD under Part 4, Division 4.7 of the EP&A Act, in accordance with the categories and thresholds listed under clause 23(3) of Schedule 1 of the Planning Systems SEPP, being: '23 Waste and resource management facilities (3) Development for the purpose of resource recovery or recycling facilities that handle more than 100,000 tonnes per year of waste' The project would increase processing capacity at the facility by 50,000 tpa to 250,000 tpa of organic recovered material. Although 50,000 tpa is not SSD in its own right, approval for the project would be through a modification to the SSD consent under Section 4.55(2) of the EP&A Act.
SEPP (Resilience and Hazards) 2021 (Hazards SEPP)	**Hazardous and offensive development** Chapter 3 of the Hazards SEPP requires the consent authority to consider whether a development proposal is a potentially hazardous industry or a potentially offensive industry.

APPENDIX 1 DEVELOPMENT LAYOUT PLANS

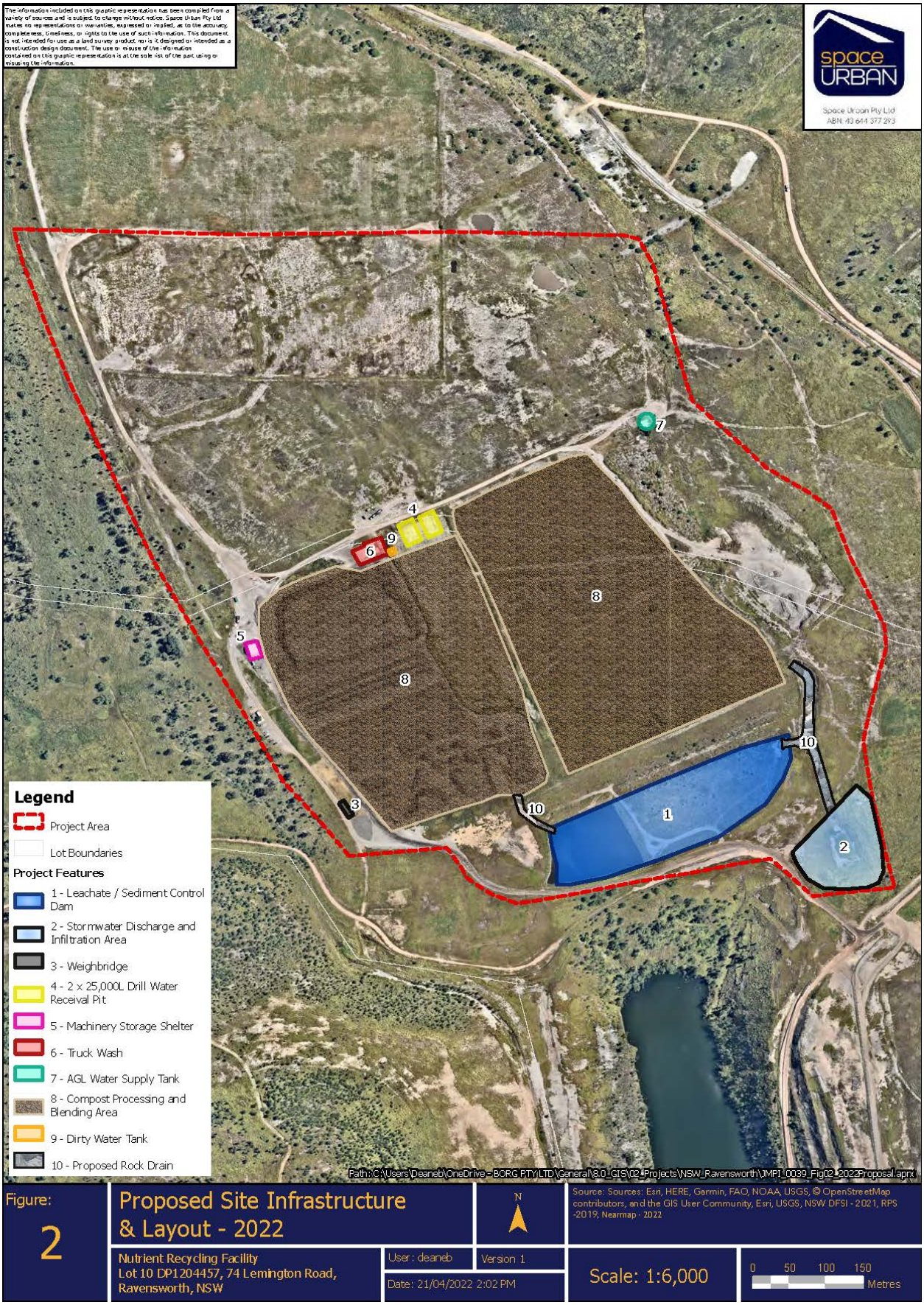


Figure 1: Site Plan

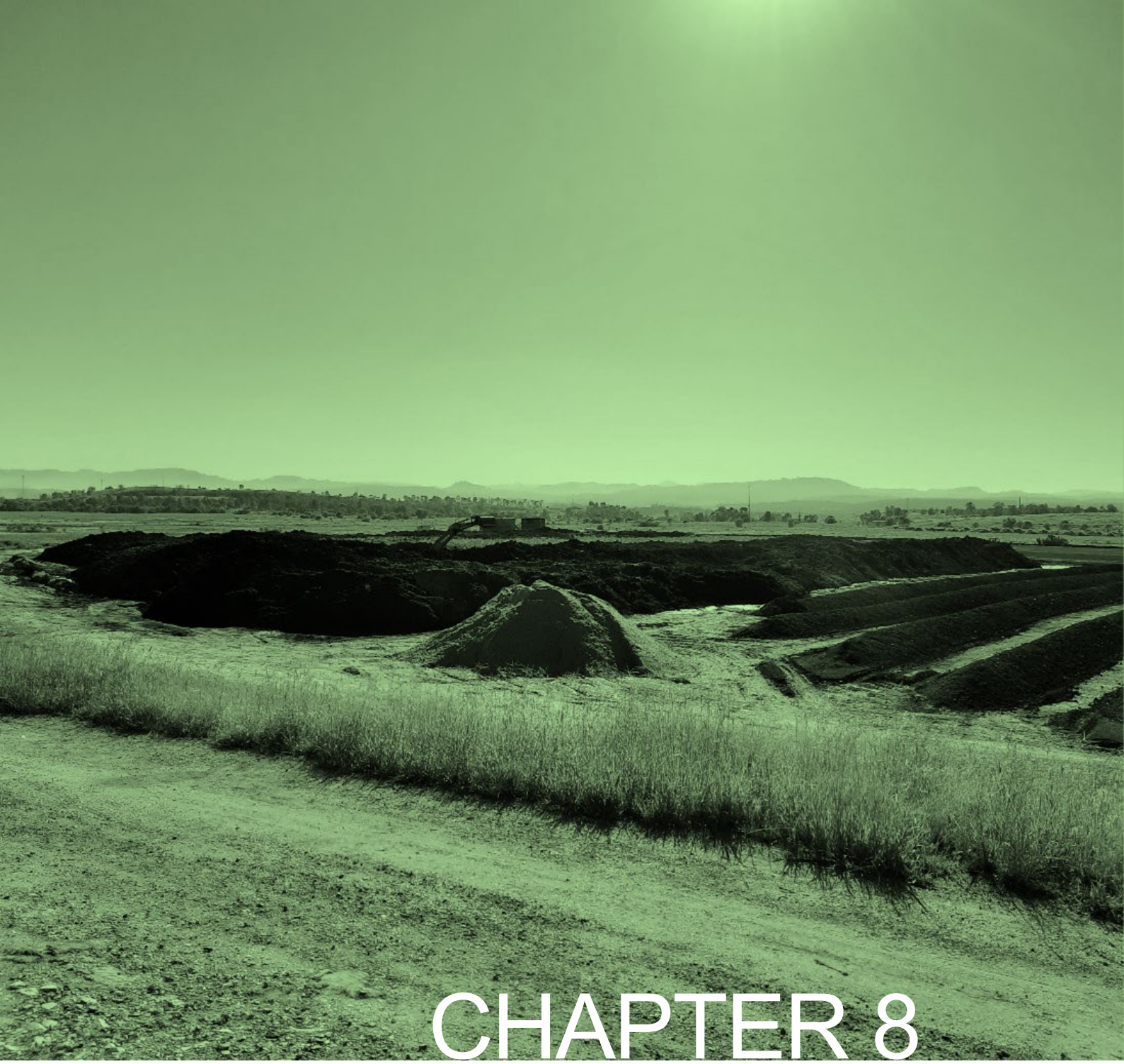
SEPP	Overview
	Potentially hazardous or offensive development is defined by the Hazards SEPP as development which poses a significant risk to, or which would have a significant adverse impact on, human health, life, existing or likely future development or the biophysical environment, when all measures proposed to reduce or minimise its impacts have been implemented. The preliminary risk screening conducted for the SSD EIS (RPS, 2019a) and Modification 1 development application (SpaceUrban, 2023) concluded that the current development is not classified as a potentially 'offensive' or 'hazardous' development in accordance with the *Applying – SEPP 33 Hazardous and Offensive Development Application Guidelines (*Department of Planning, 2011). The project would result in a 20% increase in diesel consumption during operation (refer to section 5.5). Under Modification 2 (refer to section 2.4), the on-site 5,000 L above ground portable fuel tank would be replaced with a 65,000 L tank. No other changes to the existing storage or handling of hazardous substances or dangerous goods at the site are proposed. The project does not change these preliminary screening analyses, and a Preliminary Hazard Analysis (PHA) is not required to support the modification report. **Remediation of land** Chapter 4 of the Hazards SEPP aims to provide a State-wide planning approach to the remediation of contaminated land and to reduce the risk of harm to human health and the environment by considering contaminated land as part of the planning process. Under section 4.6 of the SEPP, a consent authority must not consent to the carrying out of development on land unless it has considered potential contamination issues. Waste storage and treatment is listed in Table 1 of *Managing Land Contamination: Planning Guidelines SEPP 55 – Remediation of Land* (Department of Urban Affairs and Planning, 1998) as an activity that may cause contamination. Despite this, as described under the CLM Act above, there is no known contamination on the site and no duty to report contamination to the EPA under section 60(3) of the CLM Act. The site is located on top of the former Void 3 that has been filled with spoil and fly ash from the Bayswater Power Station, capped and rehabilitated. The project does not involve any interaction with the fly ash. If previously unidentified contaminated land is encountered during construction and operation of the project, the requirements of the Hazards SEPP will be complied with.
SEPP (Biodiversity and Conservation) 2021 (BC SEPP)	Chapter 4 of the BC SEPP provides for the protection of koala habitat by ensuring that areas subject to development proposals are considered for their value as habitat or potential habitat for koalas. Part 4.2 of the BC SEPP regulates impact on koala habitats during development assessment by councils. Section 4.4 and Schedule 2 of the BC SEPP identifies land to which Chapter 4 of the SEPP applies. The BC SEPP is applicable to the project as it is located within the Singleton LGA. Nevertheless, there is no requirement to clear native vegetation for the project. As such, the project would not impact potential Koala habitat.
SEPP (Transport and Infrastructure) 2021 (Infrastructure SEPP)	The Infrastructure SEPP provides a consistent planning regime for infrastructure and the provision of services across NSW, along with providing for consultation with relevant public authorities during the assessment process. The Infrastructure SEPP facilitates the development of State infrastructure, including telecommunication facilities, sewerage works and storm water management, and specifies when development consent is (and is not required) for such development when carried out in certain zones. A resource recovery facility is classified as a type of waste or resource management facility under Section 2.152 of the Infrastructure SEPP and the Standard Instrument, and is defined in the Standard Instrument as: 'a building or place used for the recovery of resources from waste, including works or activities such as separating and sorting, processing or treating the waste, composting, temporary storage, transfer or sale of recovered resources, energy generation from gases and water treatment,

SEPP	Overview
	but not including re-manufacture or disposal of the material by landfill or incineration.' Clause 2.153(2)(a) of the Infrastructure SEPP provides that development for the purpose of waste or resource management facilities (which includes resource recovery facilities), may be carried out by any person with consent on land in a prescribed zone. A prescribed zone includes land use zone RU1 Primary Production under clause 2.152 of the Infrastructure SEPP. Therefore, the project is permitted with consent, as the development is considered a waste or resource management facility for the purposes of the Infrastructure SEPP and is located on land zoned as RU1 Primary Production.

7.3.2 Local environmental plan

The project will be carried out on land within the Singleton LGA that is zoned RU1 (Primary Production) under the Singleton LEP. Resource recovery facilities are not defined as 'permitted without consent' or 'permitted with consent' in land use zone RU1 (Primary Production), and is thereby considered prohibited development in this land use zone.

However, since the Infrastructure SEPP prevails over the Singleton LEP where there is inconsistency between the two environmental planning instruments (under Section 2.7 of the Infrastructure SEPP), the project is deemed permissible on land zoned RU1 (Primary Production).



CHAPTER 8

COMMUNITY AND STAKEHOLDER ENGAGEMENT

8 COMMUNITY AND STAKEHOLDER ENGAGEMENT

8.1 Scoping phase engagement

Bettergrow has met with representatives from the DPHI on 10 April 2025. The purpose of the meeting was to introduce the modified project and the project team, confirm the assessment process and key issues that should be addressed.

Issues raised by the DPHI included:

- Consideration needs to be given to whether the increased processing capacity would be sufficient to meet the available supply of organic recovered material over the long term.
- Details need to be provided on how the different organic waste streams would be received and kept separate on-site to prevent cross-contamination.
- The modification report should include a detailed discussion on leachate generation and management, as this is a key environmental issue for the project.
- The current environmental performance of the facility should be discussed in the modification report as this would be a key consideration on whether an enclosure would be required for the processing of FOGO material.

8.2 Proposed engagement during preparation of the modification report

The following engagement will be implemented during the preparation of the modification report:

- Consultation with neighbours – project representatives will consult with immediate neighbours. The representatives will distribute project notification letters to property owners/tenants along Lemington Road, east of the New England Highway. The notification will invite enquires and feedback which will be addressed by Bettergrow's project team. Any concerns/issues raised by the property owners/tenants will be recorded and considered in the modification report.
- Consultation with agencies – government agencies will be consulted as required to discuss the scope of technical assessments, assessment outcomes, proposed site-specific controls/management measures to mitigate any predicted potential impacts, and submissions. The following agencies are proposed to be consulted:
    - Council – regarding all aspects of project;
    - DPHI – regarding all aspects of the project;
    - EPA – regarding air quality, noise, leachate and waste management; and
    - Transport for NSW – regarding traffic generation and impacts.
- Consultation with Subsidence Advisory NSW to determine any specific design requirements for the weighbridge.
- Consultation with the Aboriginal community – a project notification letter will be distributed to the Wanaruah LALC to invite feedback about the project. Any concerns/issues raised by the Wanaruah LALC will be recorded and considered in the modification report.
- Consultation with the local community – the nearest sensitive receivers in Camberwell are unlikely to experience any impacts from the project considering the distance from the project (approximately 6 km from the project). Project notification letters would be distributed to these receivers if the detailed assessment of matters indicates they are likely to be impacted. The notification will invite enquires and feedback which will be addressed by Bettergrow's project team. Any concerns/issues raised by these receivers will be recorded and considered in the modification report.

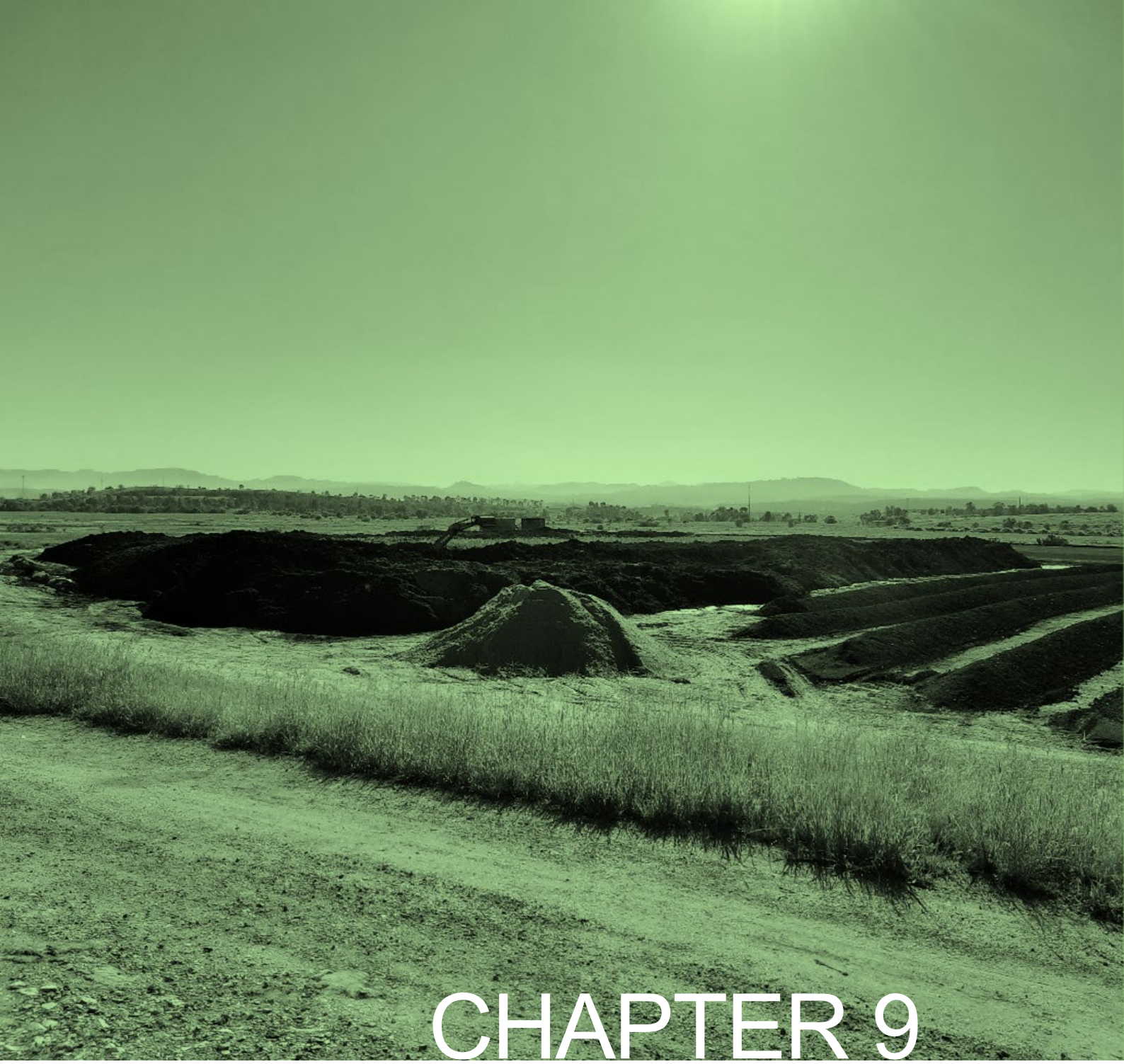
8.3 Future project stages and opportunities for engagement

The project is in the scoping stage. The next stage will be project description finalisation and preparation of the modification report, when the engagement in section 8.2 will be undertaken. Feedback received during this stage will be considered and reported in the modification report.

Following completion of the modification report, it will be publicly exhibited and government agencies and the public will have an opportunity to review the report and prepare submissions. Bettergrow's project team will be available during the exhibition period to provide any additional information and/or answer any questions from stakeholders, as required. The Bettergrow company website will also be regularly updated, as the project progresses through the assessment phase.

The final stage will be response to submissions on the modification report. The DPHI will forward public and agency submissions on the modification report to the project team, who will respond in a submissions report. The project team will engage with agencies during this stage if clarifications or negotiation on proposed changes are required.

The response to submissions report will be submitted to the DPHI, which will present an opportunity for the project team to consult further with the DPHI and agencies that have provided feedback regarding the final project description, impacts and conditions of consent.



CHAPTER 9
ENVIRONMENTAL ASSESSMENT

9 ENVIRONMENTAL ASSESSMENT

The key environmental issues associated with the approved project were assessed in detail in chapter 9 and Appendices G to O of the SSD EIS (RPS, 2019a).

Air quality, surface water, noise and traffic are the key issues potentially impacted by the modification and are considered further in the following sections.

9.1 Detailed assessment

The following key matters require detailed assessment in the modification report, based on the nature of the proposed modification and knowledge of the existing site conditions and surrounding area. Technical reports will be prepared for these key matters, which will be appended to, and summarised in the modification report.

9.1.1 Air quality

During construction of the weighbridge, local air quality may be temporarily affected by particulate (dust) emissions during minor earthworks, concrete works and the movement of plant, equipment and vehicles along unsealed areas and internal access roads, as well as exhaust emissions from construction vehicles and equipment.

The main sensitive receivers for air quality impacts are in Camberwell Village, approximately 6 km to the south-east of the site (refer to section 3.1). Weighbridge construction is unlikely to result in any air quality impacts at these receivers due to the relatively small scale of works required and the large distance from receivers (refer to section 5.2).

Local air quality may be impacted during operation of the project due to:

- a potential increase in odour emissions from unloading and composting FOGO recovered material on-site, and leachate generated by the material;
- potential increases in particulate emissions from stockpiles and windrows (especially during high wind conditions) as additional organic material is processed on-site; and
- potential cumulative odour and air quality impacts with existing and planned surrounding developments.

These impacts are not expected to be significant considering the distance from sensitive receivers and scale of the project, and providing standard environmental management and mitigation measures are implemented by the project and surrounding developments.

Operation of the project may also result in increased greenhouse gas emissions (such as carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O)), as it involves an increase in organic material composted on site and vehicles accessing the site. These emissions are expected to be low compared to the reduction in greenhouse gas emissions achieved by diverting FOGO recovered material from landfill.

Air dispersion modelling will be used to assess operational air quality impacts in accordance with the EPA's *Approved methods for the sampling and analysis of air pollutants in NSW* (EPA, 2022). The air quality impact assessment will include:

- Review of existing environmental conditions, including local topography and publicly available meteorology data to characterise existing air quality and site meteorology and determine criteria and potential constraints for the project, and current environmental performance of the facility.
- Identification of project and other sources of air emissions and odour.

- Development of an air dispersion model to determine the extent and severity of operational air quality and odour impacts.
- Quantitative analysis and assessment of operational air quality and odour, including cumulative impacts, with reference to background levels which include the emissions from other activities. Odour impacts will be assessed in accordance with the EPA's *Technical framework: Assessment and management of odour from stationary sources in NSW* (EPA, 2006).
- Quantitative analysis and assessment of greenhouse gas generation using the Clean Energy Regulator's Emissions and Energy Threshold Calculator (CER, 2023) and *Emissions and Energy Threshold Calculator User Guide* (CER, 2024), including comparison to State and National inventories.
- Qualitative assessment of particulate emissions during construction.
- Description of any additional pollution and odour control equipment and processes to be employed at the site to suppress or minimise emissions.

9.1.2 Surface water

The project does not require any extension to the existing development footprint or processing pads. Upstream catchment flows would continue to be diverted around the processing pads to surrounding land or the lower basin. The project is not expected to result in any changes to overland flows (including sediment loads) outside the processing pads or flooding risk at the site. No changes are required to the existing stormwater management infrastructure.

An increase in organic material processed at the facility would result in additional leachate being generated from the processing pads, which introduces the risk that the leachate control dam may overflow into the lower basin and Void 4, and into the surrounding environment during an extreme rainfall event. Leachate has the potential to result in water quality impacts through reduced oxygen, high nutrient levels, increased organic matter and turbidity, and associated impacts on aquatic habitats, flora and fauna.

However, the Surface Water Impact Assessment (Fifteen50, 2019a) prepared for the SSD EIS noted that the risk of discharge of leachate water from the site to the surface water environment is negligible as the combined storage capacity of the leachate control dam, stormwater discharge basin and Void 4 is over 500 ML (refer to section 2.5.5).

Leachate volumes are also managed via frequent application of leachate to the windrows to support the composting process (refer to section 2.5.2), with the facility operating within a closed water cycle. The risk of leachate being discharged into the receiving environment as a result of the project is therefore considered to be negligible.

The presence of non-compostable plastics and chemicals (from packaging materials) in FOGO material may introduce contaminants into leachate, which could impact compost product quality if concentrations of contaminants exceed typical concentrations.

A surface water impact assessment will be prepared as part of the modification report, including:

- A review of the existing environment, including topography and surface water drainage, publicly available meteorology data, and sensitive receiving environments, as well as environmental performance of the facility.
- An updated detailed site water balance, to identify water requirements for the project and the volume of leachate generated from the composting material.
- A qualitative assessment of the potential impacts of the project on wastewater/leachate management, surface water availability and leachate and water quality.
- Identification of any additional management and mitigation measures required to avoid, minimise and manage any potential impacts of the project on surface water.

9.1.3 Noise

The site is located within the Ravensworth Operations open cut mining complex and is surrounded by five open cut mines. Other land uses surrounding the site include industrial and commercial land uses, grazing land and transport infrastructure. Dominant noise sources in the local area include mining, commercial and other industrial activities, heavy vehicle traffic along Lemington Road and the New England Highway, rail traffic along the Main North railway line, and operations at the site. The nearest sensitive receivers are at Camberwell Village, approximately 6 km to the south-east of the site (refer to section 3.1).

The proposed increase in traffic to and from the site has the potential to increase operational and road traffic noise levels at sensitive receivers surrounding the site and along transportation routes. However, the number of additional light and heavy vehicle movements proposed are relatively low in relation to existing traffic generated by the facility and traffic volumes on transportation routes (refer to sections 2.5.6 and 5.4). No changes are proposed to other noise sources or factors that may impact noise levels, including plant and equipment, site infrastructure or the development footprint.

Construction of the weighbridge would generate noise from vehicle movements and the use of equipment. These impacts would be short term and will be assessed in accordance with the ICNG.

Given the separation distances between the facility and the nearest sensitive receivers, vibration impacts relating to structural damage and/or human comfort would not occur.

Based on the nature of the project and the distance to the nearest receivers, operational airborne noise will be assessed using a semi-quantitative method in accordance with the:

- NSW Noise Policy for Industry (EPA, 2017) (NPI);
- NSW Road Noise Policy (EPA, 2011);
- *Approved methods for the measurement and analysis of environmental noise in NSW* (EPA, 2022); and
- *Australian Standard (AS) 1055:2018 - Acoustics - Description and measurement of environmental noise - General Procedures* (Standards Australia, 2018).

The noise impact assessment will include:

- Characterisation of background noise in the local area through a review of previous acoustic assessments for the site and/or publicly available monitoring data.
- Identification of noise-sensitive receivers surrounding the site.
- Review of current environmental performance of the facility.
- Semi-quantitative assessment of operational noise levels due to additional on-site vehicle movements.
- Semi-quantitative assessment of road traffic noise levels, using existing traffic volumes and additional truck and employee vehicle movements.
- Semi-quantitative assessment of construction noise as per the ICNG.
- Qualitative assessment of vibration impacts during construction and operation.
- Identification of any additional management and mitigation measures required to avoid, minimise and manage any potential impacts of the project on noise and vibration.

9.1.4 Traffic and transport

Temporary minor increases in heavy and light vehicle movements are expected during construction of the weighbridge to transport staff, plant and equipment and materials (refer to section 5.4).

Additional light and heavy vehicle movements would also be required during operation to transport additional staff and organic material to and from the site along Lemington Road and beyond (refer to section 5.4). No changes are proposed to existing transportation routes, public transport infrastructure, parking or property access, and no road upgrades are required for the project.

A traffic and transport impact assessment will be prepared in accordance with the Transport for NSW's *Guide to Transport Impact Assessment* (Transport for NSW, 2024), including:

- A review of the existing road network, transport infrastructure and access provisions, including transportation routes used by the project.
- A semi-quantitative assessment of impacts on intersection performance during operation, using the traffic volume counts and intersection performance data from the Traffic Impact Assessment (Pavey Consulting Services, 2019) prepared for the SSD EIS.
- A qualitative assessment of construction and operational traffic impacts on all modes of transport (general traffic, public transport, walking and cycling, and emergency vehicles), road safety, property access and parking.
- Identification of any additional management and mitigation measures required to avoid, minimise and manage any potential impacts of the project on traffic.

9.2 Standard assessment

The following matters will not be considered via a detailed assessment as they are unlikely to be significantly impacted by the project. The modification report will qualitatively assess these matters and describe why they were not subject to detailed assessment.

- Visual amenity – the Visual Impact Assessment prepared for the SSD EIS (RPS, 2019a) concluded that the facility and its operations are mostly screened from public and private views by topographic features and vegetation. Given the dominance of mining and industrial activities in the surrounding area and the screened views and scale of the project, the project should not result in significant impacts to visual amenity.
- Biodiversity – the current design of the project is not expected to impact flora as no vegetation/habitat is proposed to be removed. Most fauna species that utilise habitat within or near the site are already adapted to periodic disturbances from existing land uses (i.e. site operations, road traffic, mining operations and other human activities), and therefore are unlikely to be significantly impacted by increased noise from additional vehicle movements.
- Heritage – there are no registered heritage items near the site and construction associated with the project involves only minor ground disturbance in previously disturbed land, the likelihood of encountering unidentified relics or Aboriginal objects is considered to be negligible. Notwithstanding, the modification report will include standard management measures for unexpected heritage finds.
- Hazards and risks:
    - Biosecurity – the project does not involve removal, transport or processing of vegetation and is not expected to result in an increased spread of weeds, pest animals or pathogens.
    - Coastal hazards – the project is not within land mapped with coastal management provisions under the Hazards SEPP and would not impact coastal processes or hazards such as erosion.
    - Dam safety – the project would not involve construction of/alterations to any dams or result in an increase in stormwater runoff to the lower basin or Void 4.
    - Environmental hazards – the project is not expected to disturb acid sulfate soils or saline soils (refer to section 3.2), however mitigation and management measures would be implemented during construction to minimise any potential impacts.
    - Bushfire – the project does not involve any changes to buildings, access, water supply and utilities, emergency management arrangements or landscaping. Existing site infrastructure would continue to comply with PBP 2019.

- Hazardous and offensive development – other than minimal increases in diesel consumption due to the use of additional vehicles during construction and operation, the project would not result in any changes to the use and storage of hazardous substances and dangerous goods at the site. The preliminary risk screening conducted for the SSD EIS (RPS, 2019a) and Modification 1 development application (SpaceUrban, 2023) concluded that the current operation is not considered a 'hazardous' or 'offensive' development in accordance with the *Applying – SEPP 33 Hazardous and Offensive Development Application Guidelines (*Department of Planning, 2011). The project does not change these preliminary screening analyses and a PHA is not required to support the modification report.
- Land movement – the project is located within the Patrick Plains Mine Subsidence District and construction of the weighbridge is classified as an improvement under the CMSC Act. The project would not involve bulk earthworks or undermining or production of steep slopes. Subsidence Advisory NSW will be consulted during the assessment process and the project will be required to satisfy development standards as per Subsidence Advisory NSW requirements.
- Waste – The project would have the beneficial impact of diverting additional organic material, including FOGO organic material, from landfill. Any waste that is generated by the project would be managed in accordance with the waste hierarchy in the WARR Act.

- Contamination – no known contamination has been identified at the site (refer to section 3.5). The processing of FOGO material may introduce new contaminants (non-compostable plastics and chemicals from packaging materials) at the site, which may impact compost product quality and leachate quality, and increase cross-contamination risks. Changes to leachate quality may impact soils and groundwater in the unlikely event that leachate is released into the surrounding environment. It is worthwhile to note that groundwater in the area is not suitable for consumptive use (apart from industrial use) and as such potential health impacts to humans and livestock are considered to be minimal (Fifteen50, 2019b).

  The current composting process includes the implementation of a wide range of mitigation and management measures to identify and manage suspected contaminated material, and to minimise, avoid and manage cross-contamination and soil and groundwater contamination (refer to section 2.5.2). These measures include separation of receival, windrow and wash-out areas on-site, designated stockpile areas for different material types, regular monitoring of the integrity of the hardstand processing pads, leachate quality and site infrastructure, procedures around the addition of material to the windrows and use of vehicles, containers, plant and equipment, and spill containment measures, among other controls. With the implementation of these measures, potential contamination risks of the project are expected to be minor.
- Land –

  - Land capability – the project is not expected to impact overall land capability as it would not result in any changes to the current use of the site or existing development footprint.
  - Soil chemistry – refer to the environmental hazards section in hazards and risk above.
  - Stability/structure – the project does not involve excavation or earthworks that would undermine land stability at the site.
  - Topography – the project would not alter existing topography or drainage patterns around the site (refer to section 9.1.2).

- Social – the generation of additional air quality, noise and traffic impacts may result in amenity and health impacts at surrounding sensitive receivers, and safety of road users. These impacts will be assessed via detailed assessments conducted by technical experts and will be minimised as far as practical by the implementation of mitigation and management measures proposed in the modification report. No impacts are expected on community services and facilities, housing availability or social cohesion.
- Water –

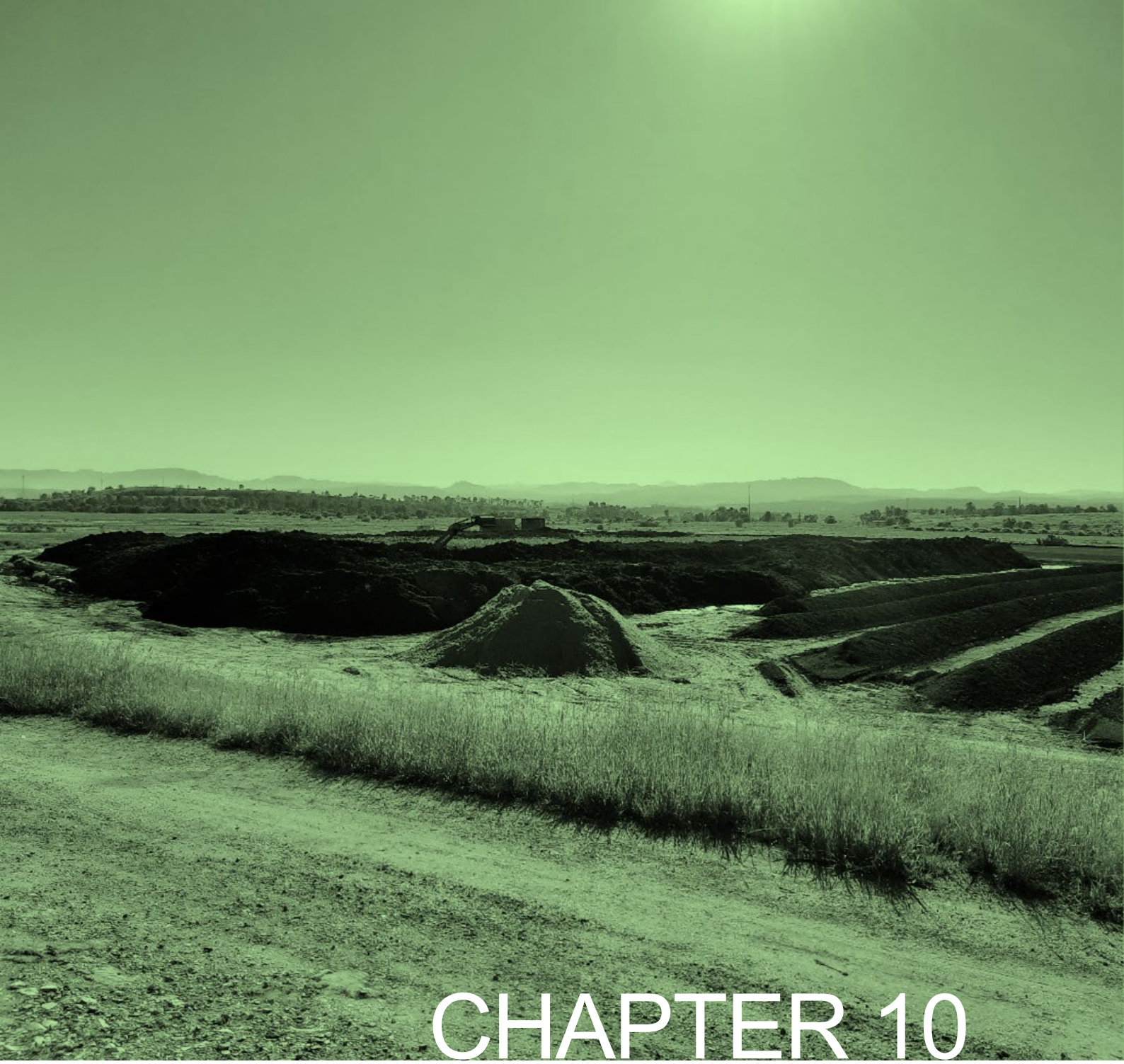
- Hydrology – the project is not expected to impact the morphology of existing hydrological features, including Bowmans Creek.
- Flooding – the project is not expected to increase potential flooding risks or result in changes to flood behaviour.
- Groundwater availability – the project does not involve deep excavation, and is unlikely to interact with groundwater. The project would not source any water from groundwater bores.
- Groundwater quality – refer to the contamination section above.

- Built environment – apart from additional offsite vehicle movements, there would be no change to structures and activities, which would be contained on the site and would not impact other private or public property or public domain.
- Economic – there would be a positive economic impact from the project through increased employment opportunities and processing capacity of the facility.

9.3 Cumulative impacts

The following matters associated with the project will need to be considered from a cumulative perspective:

- Air quality – project emissions may combine with emissions from existing and future industrial and commercial operations in the local area and result in cumulative impacts. However, the risk of significant cumulative impacts would be low as project air emissions would be mitigated using best practice measures. Additionally, thresholds for regional cumulative impacts are provided in the EPA's *Approved methods for the sampling and analysis of air pollutants in NSW* (EPA, 2022), which apply to all regional sources, not only individual projects.
- Noise – noise generated by the project could combine with noise from the surrounding environment and result in cumulative impacts. However, the risk of significant cumulative impacts would be low as project noise emissions will be mitigated using best practice measures. Noise assessments under the NPI inherently consider cumulative impacts as the noise trigger levels are derived from either the project intrusiveness or amenity noise level, whichever is lowest. The intrusiveness level seeks to not increase noise by more than 5 decibels (dB) over background noise levels and the amenity level seeks to prevent the ambient noise level of all noise sources in an area combined from exceeding a recommended level. Residual noise impacts are determined by subtracting the noise trigger level from the noise predicted to be generated by the project, and management measures applied according to the level of residual impact.
- Traffic – additional traffic generated by the project and surrounding developments may result in cumulative impacts on intersection performance at key intersections along the project's transportation routes. Potential cumulative intersection impacts are considered using the level of service (LoS) calculations in Transport for NSW's *Guide to Transport Impact Assessment* (Transport for NSW, 2024). When an intersection's LoS is unsatisfactory, the roads authority may consider upgrades to improve its performance.



CHAPTER 10

CONCLUSION

10 CONCLUSION

Development consent SSD-9418 was granted by a delegate of the Minister for Planning and Public Spaces on 31 August 2022 and permits the receival and processing of up to 200,000 tpa of organic recovered material at the Ravensworth composting facility. The development consent was modified under section 4.55(1A) of the EP& A Act (SSD-9418-MOD-1) on 6 December 2023 to remove the site weighbridge and allow for the receival and processing of new resource recovered materials on-site.

Bettergrow is in the process of applying to the DPHI to modify SSD-9418 under Section 4.55(1A) of the EP&A Act (Modification 2). Modification 2 will allow the receival and processing of decontaminated and pasteurised FOGO and/or food recovered material, as well as the receival and blending of Virgin Excavated Natural Material (VENM) and Excavated Natural Material (ENM) with organic recovered materials, at the facility. The existing on-site 5,000 L above ground portable fuel tank would also be replaced with a 65,000 L tank under Modification 2.

Bettergrow is seeking approval to further modify development consent SSD-9418, pursuant to section 4.55(2) of the EP&A Act, to permit:

- the receival and processing of FOGO recovered material at the facility
- an increase in the processing capacity up to 250,000 tpa
- necessary changes to the workforce, site infrastructure and number of vehicles accessing the facility, to accommodate the increase in processing capacity, including:
    - the employment of three additional staff;
    - installation of a site weighbridge; and
    - allowing up to five additional light vehicles and 14 additional heavy vehicles to access the site per day.

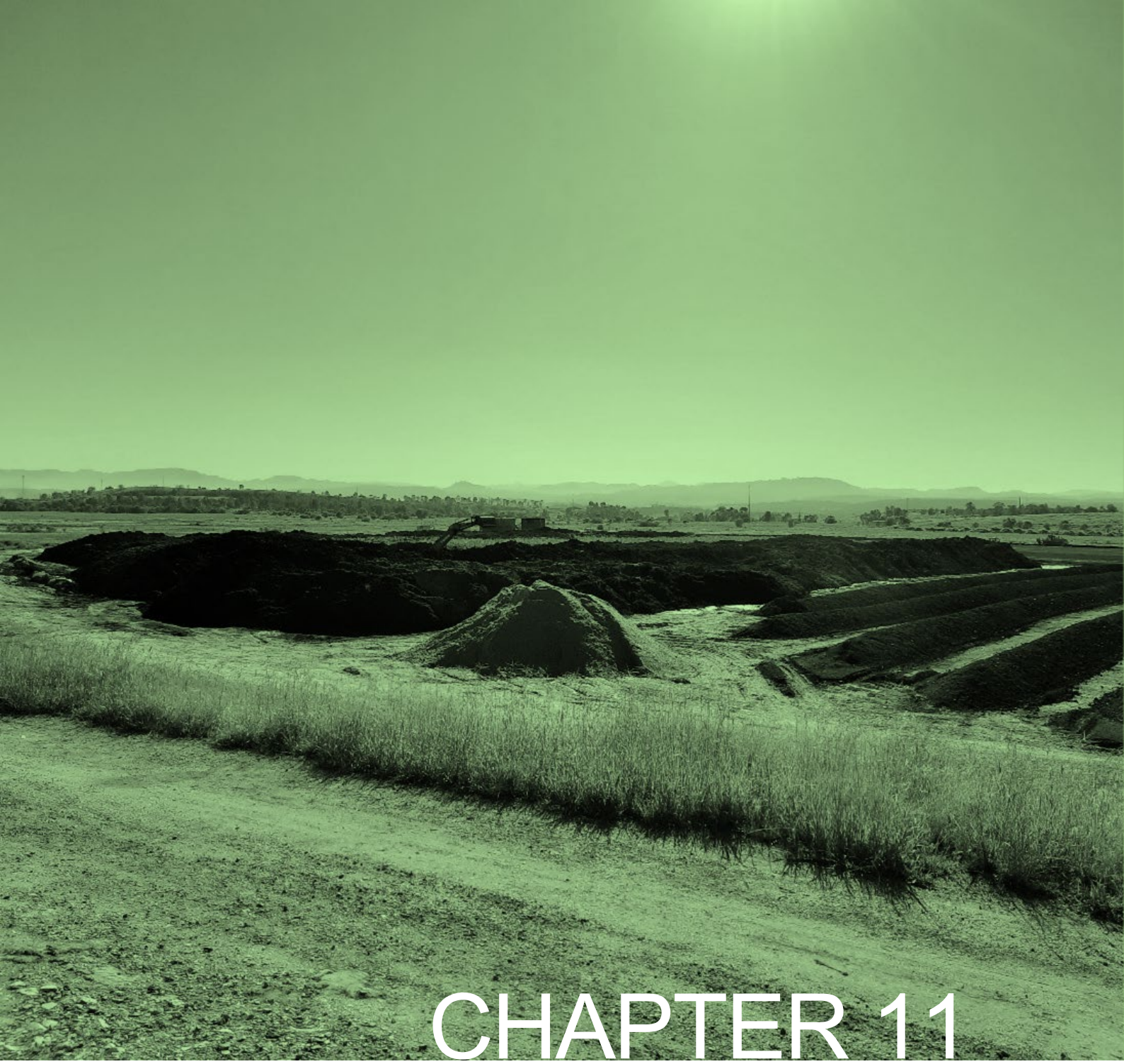
Construction of the weighbridge is expected to take around five weeks to complete.

The project has been developed to avoid impacts on important environmental, land use and social values, as described in Chapter 4. This approach will continue throughout further design development and will be detailed in the modification report.

The key environmental issues identified for the project, which will be assessed in detail during the preparation of the modification report includes air quality, surface water, noise and traffic. Other issues requiring assessment but considered to have low potential impacts are biodiversity, heritage, visual amenity, hazards and risk, land, contamination, economic, social, soils and built environment. It is considered that environmental impacts of the project can be appropriately managed with the implementation of existing and/or additional mitigation and management measures.

The development (as modified) would provide critical waste management infrastructure to service the existing and future waste management needs of the Hunter region. The proposed modified operations would provide enhanced social and economic benefits by increasing the region's processing capacity for organic recovered material, thereby reducing the amount of organic material, including FOGO, going to landfill, reducing greenhouse gas emissions and contributing to the conservation of natural resources, which is consistent with the principles of a circular economy and environmentally sustainable development.

Given the need for the project, the suitability of the site and low significance of environmental impacts, the proposed modification is considered to be justified and in the public interest and therefore appropriate for approval under section 4.55(2) of the EP&A Act.



CHAPTER 11
REFERENCES

11 REFERENCES

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APPENDIX A

APPROVED SITE PLAN – SSD-9418-MOD-1

APPENDIX 1 DEVELOPMENT LAYOUT PLANS

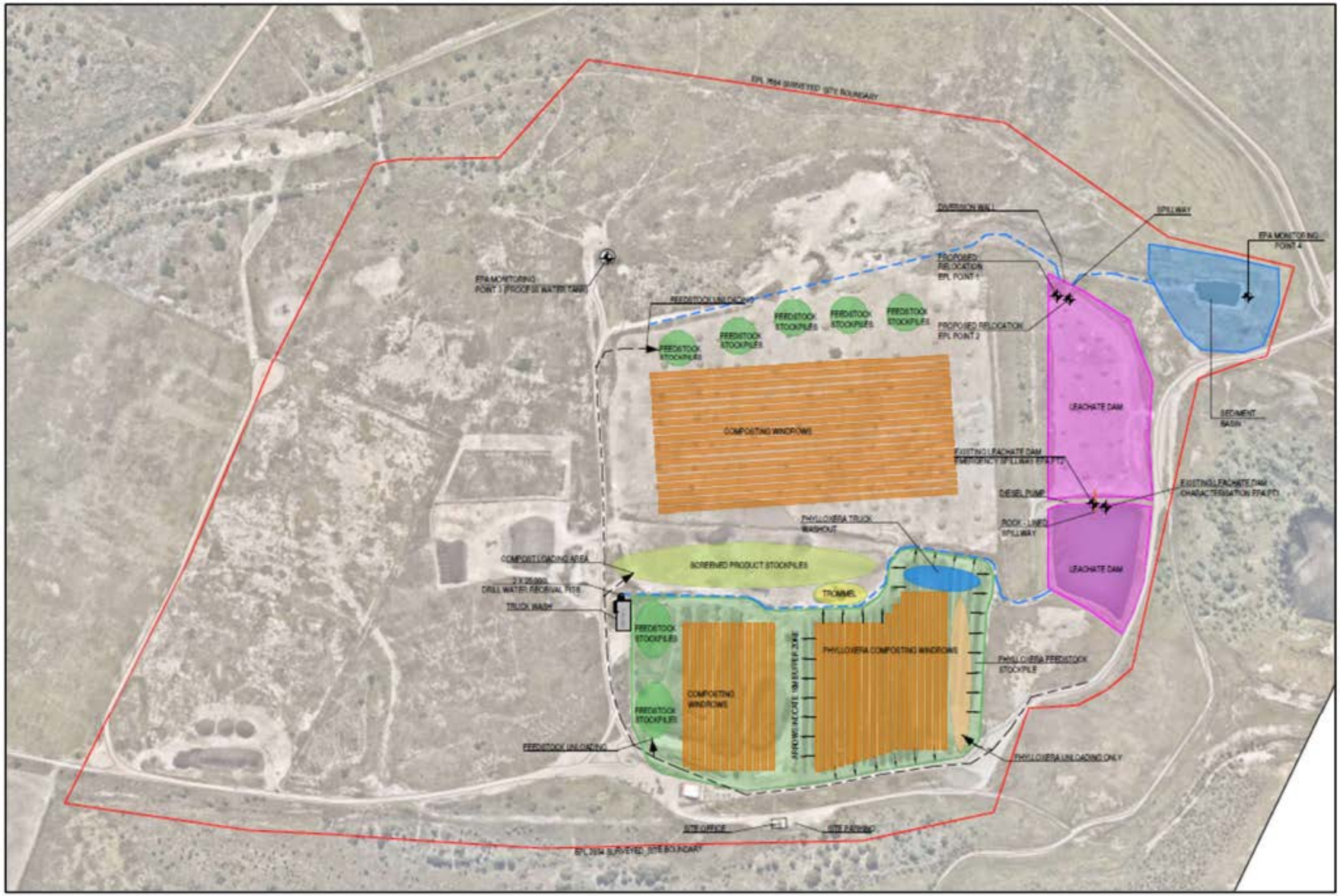

Figure 1: Site Plan

APPENDIX B

APPROVED SITE PLAN – SSD-9418

APPENDIX 1 DEVELOPMENT LAYOUT PLANS

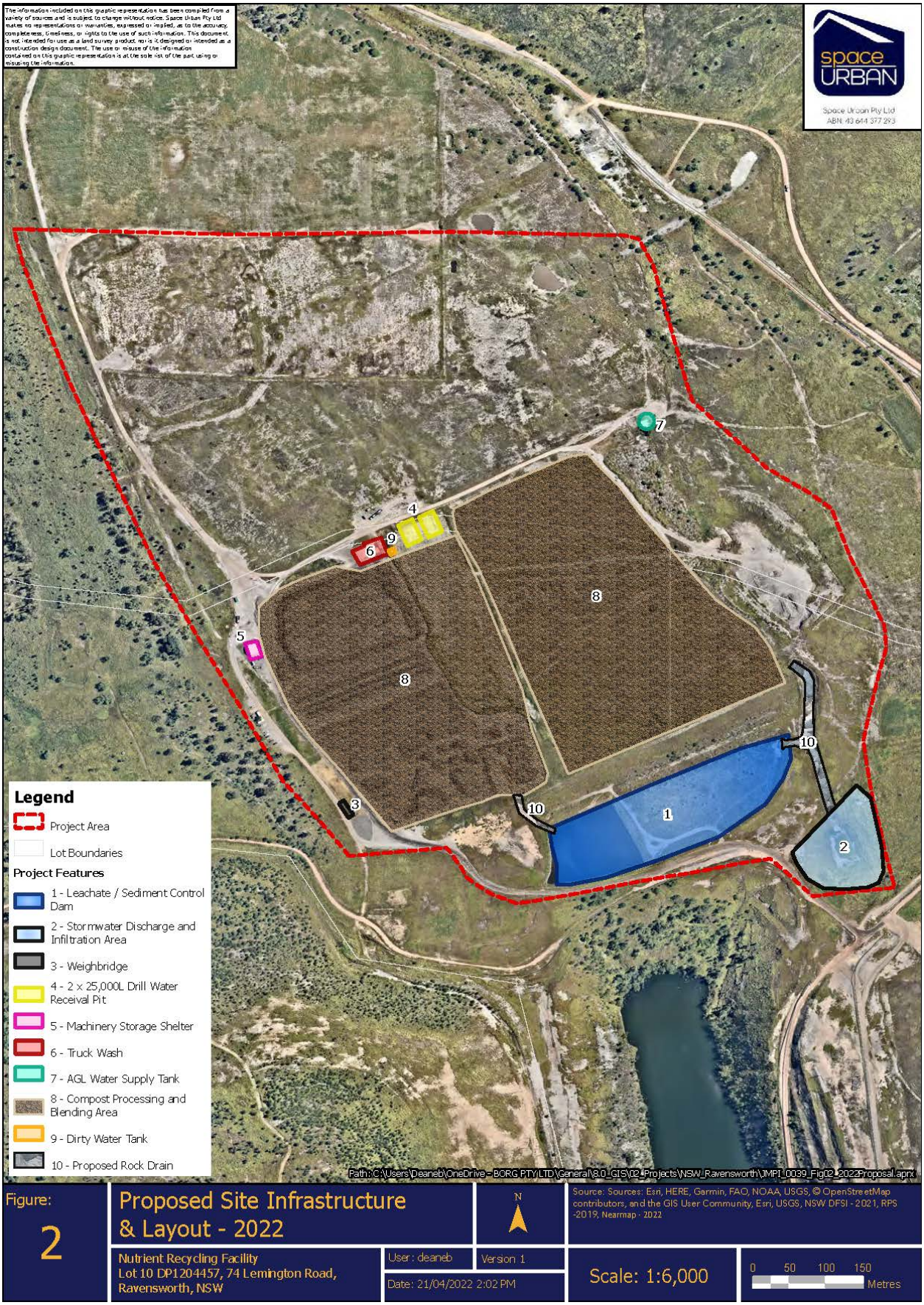

Figure 1: Site Plan

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