Inkerman Resource Recovery Centre

Masterplan

Cleanaway Ltd

Inkerman, SA

July 2021

PROJECT NAME:	Inkerman Masterplan
JOB ID:	0127CWY
DOCUMENT CONTROL NUMBER	0127CWYR006
PREPARED FOR:	Cleanaway Ltd
APPROVED FOR RELEASE BY:	Dr Ben Dearman

DOCUMENT CONTROL				
VERSION	**DATE**	**COMMENT**	**PREPARED BY**	**REVIEWED BY**
A	02 July 2021	For Approval	AW / JH	BD

Contents

Tables

Figures

Appendices

Disclaimer and Limitations

DBD Environmental acts in all professional matters as a faithful advisor to the Client and exercises all reasonable skill and care in the provision of its professional services.

Reports are commissioned by and prepared for the exclusive use of the Client. They are subject to and issued in accordance with the agreement between the Client and DBD Environmental. DBD Environmental is not responsible for any liability and accepts no responsibility arising from the misapplication or misinterpretation by third parties of the contents of its reports.

Except where expressly stated, DBD Environmental does not attempt to verify the accuracy, validity or comprehensiveness of any information supplied to DBD Environmental for its reports.

Reports cannot be copied or reproduced in whole or part for any purpose without the prior written agreement of DBD Environmental. This report is to be treated as Commercial in confidence.

Where site inspections, testing or fieldwork have taken place, the report is based on the information made available by the client or their nominees during the visit, as well as visual observations and any subsequent discussions with regulatory authorities by DBD Environmental. The validity and comprehensiveness of information supplied has not been independently verified and, for the purposes of this report, it is assumed that the information provided to DBD Environmental is both complete and accurate. It is further assumed that normal activities were being undertaken at the site on the day(s) of the site visit(s), unless explicitly stated otherwise.

1 Introduction

1.1 Background

The Inkerman landfill site is located 85 km north-west of Adelaide and has been owned and operated by Cleanaway Ltd (Cleanaway)since 2004. The site acts as a disposal facility for Adelaide's inert and putrescible waste and receives approximately 200,000-300,000 tonnes of waste per annum and the final stage of filling is expected to conclude in approximately 50-60 years from the present. In 2020, there was a reported available airspace of approximately 25 million cubic metres for waste disposal in the active and future cells[1].

In the forthcoming document a masterplan for the Inkerman Resource Recovery Centre (RRC) is provided, setting out a roadmap for the development of the site into the future with the key objective of maximizing the potential of the site to divert waste from landfill and optimise the beneficial reuse of incoming waste material – an objective which aligns with the framework set out in the current National Waste Policy, 2018 and the South Australia Waste Strategy 2020-25 (Green Industries SA, 2020).

1.2 Masterplan Scope

The potential for the Inkerman landfill site to be developed into a waste management precinct that facilitates several waste processing and resource recovery activities in the future has been identified. Cleanaway currently processes Commercial and Industrial (C&I) and Construction and Demolition (C&D) waste at its Wingfield Waste Transfer Station site for use as Alternative Daily Cover (ADC) at the Inkerman Landfill and intends to process clean Construction and Demolition (C&D) wastes at the Liston Road and Inkerman Landfill sites in the future. These operations seek to provide Cleanaway with valuable product streams that can be applied to a variety of end uses and diverted from Landfill.

In consultation with Cleanaway, further future opportunities for resource recovery at the Inkerman landfill site have been identified. The Masterplan covers a nominal period of 10 years and articulates the strategic plans for the development/operation of resource recovery activities for the processing of MSW, C&D, C&I, and organics at the site, to increase diversion from landfill and produce beneficial products either for reuse on-site or resale into commercial markets. The identified opportunities discussed and proposed in this Masterplan have been carefully evaluated (through collaboration with Cleanaway and a detailed Multi-Criteria Decision Analysis (MCDA) matrix) to ensure the Masterplan proposal and the future operations at the Inkerman site coincide with the growing push towards a circular economy in South Australia and alignment with the National Waste Policy 2018 and the South Australia Waste Strategy 2020-25 while providing

[1] Tonkin (2020). Cleanaway Solid Waste Inkerman Landfill, SA Package 2 Aerial Budget Model, ref: 201019, Drawing P201 – P211, Rev 0, dated: 18/12/2020, Adelaide, SA.

economic benefit to Cleanaway. Concept Plans showing the Masterplan layout for the proposed resource recovery operations are included in Appendix A.

1.3 Objectives

The Masterplan has been developed to guide Cleanaway towards achieving their social, environmental, and financial objectives. According to Cleanaway's existing Environmental policy, Cleanaway achieves their objectives through *"Developing ways to reduce, recover, recycle, or re-use waste in all aspects of our business, including considering and integrating environmental factors in our decision-making process."* To continue to satisfy such policy objectives and meet the growing demand for a circular economy in South Australia, a key focus of the proposed Inkerman Masterplan is to improve waste diversion from landfill and increase resource recovery efficiency whilst simultaneously demonstrating the potential for financial gain for Cleanaway. Through doing so, Cleanaway's sustainability, corporate social responsibility, and environmental objectives are met while demonstrating the improved value of incoming waste streams and moving towards a circular economy – a core objective of the National Waste Policy 2018.

1.4 Policy Framework and Legislation

As indicated, The National Waste Policy 2018[2] (the policy) sets out a framework which reflects a global shift towards a circular economy. The policy reflects the need for better resource-efficient systems, products, and services to avoid, minimise and reuse waste and combat increasing annual waste volumes in Australia. The policy acknowledges the need to improve our capacity to better design, reuse, repair and recycle the goods we use whilst providing a framework for businesses to embrace innovation and develop technologies that create new opportunities.

According to the policy, creating a circular economy may be achieved through the following five principles:

1. Avoid waste.
2. Improve resource recovery.
3. Increase use of recycled material and build demand and markets for recycled products.
4. Better manage material flows to benefit human health, the environment, and the economy.
5. Improve information to support innovation, guide investment and enable informed consumer decisions.

Whilst avoiding waste may be the most effective action in creating a circular economy, waste generation is inevitable and therefore systems and technologies related to resource recovery are needed to be improved to move towards a circular economy. Specifically, material collection systems and processes for recycling should be improved whilst the quality of recycled material

[2] Department of Agriculture, Water, and the Environment (2018). National Waste Policy, Less Waste More Resources, Canberra, ACT.

produced should be enhanced. Based on the recommendations provided in the National Waste Policy, the Masterplan proposes an expansion in the resource recovery operations at the Inkerman site. The resource recovery activities have been proposed in a bid to divert waste from landfill to more sustainable end uses in accordance with the waste hierarchy shown in Figure 1 and set out in the *Environmental Protection Act, 1993*, the National Waste Policy 2018 and the South Australia Waste Strategy 2020-25.

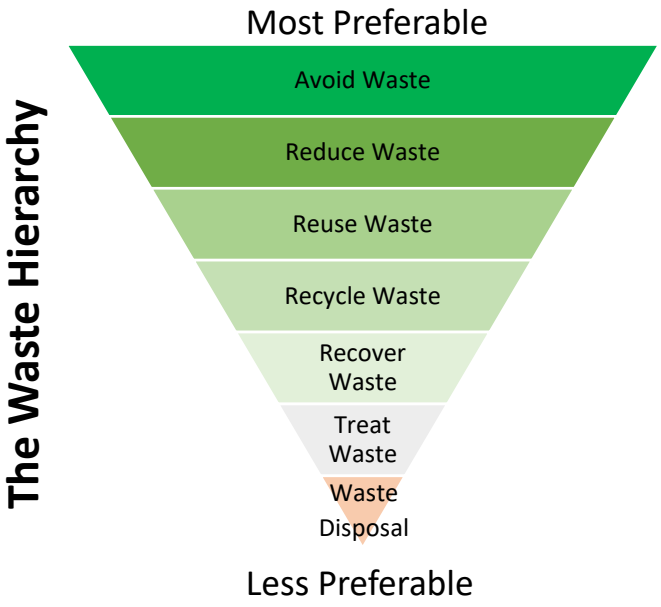


Figure 1 - The Waste Hierarchy According to Green Industries SA and The Waste Policy 2018

Similar to the National Waste Policy 2018, the South Australia Waste Strategy 2020-25 (Green Industries SA, 2020)[3] provides a framework for the State to work towards a circular economy. In fact, by 2030 it is planned that zero avoidable waste is sent to landfill in South Australia. Therefore, reducing, reusing, recycling, recovering, and treating waste as a means of diverting waste from landfill is increasingly becoming a core requirement of operating landfill sites in South Australia as the State Government strictly pushes a move towards a circular economy.

The circular economy is a conceptual closed system which involves the reprocessing or reuse of waste materials to minimise disposal of waste and the use of raw materials. Transitioning from a use-and-dispose economy to a circular economy is the key focus of South Australia's 2020-2025 Waste Strategy.

[3] Green Industries SA (2020). Supporting the Circular Economy, South Australia's Waste Strategy 2020-25, dated: December 2020, Adelaide, SA.

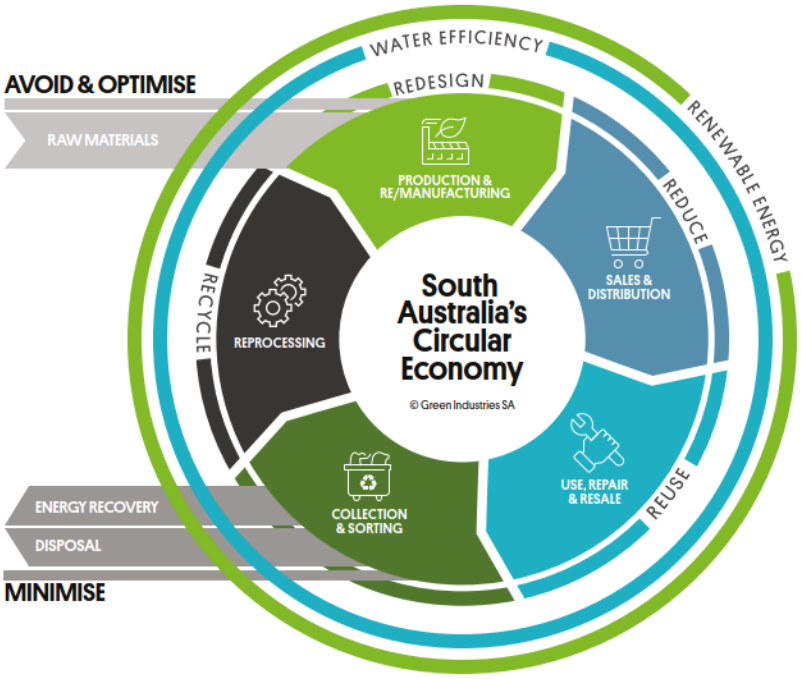


Figure 2 - The Circular Economy in South Australia (ref: Green Industries SA, SA Waste Strategy 2020-25)

1.4.1 South Australia Environment Protection Act 1993

The Environment Protection Act, 1993 (The Act) provides the legislation to protect South Australia's environment, including land, air, and water. The Act has been acknowledged and considered in developing the Masterplan for the site. For all proposed resource recovery activities undertaken by Cleanaway, recovered products plans (RPPs) in line with the Act have been developed and sent for approval by the EPA as attachments to the Resource Recovery Centre Environmental Management Plan[4] (RRCEMP) (DBD Environmental, 2021) which accompanies this Masterplan. Where applicable (i.e., for waste derived fill (WDF) applications), the RPP will be developed in accordance with the South Australian EPA guidelines *'Standard for the production and use of Waste Derived Fill'*, *'Standard for the production and use of Waste Derived Soil Enhancer'* and *'Compost Guideline'*.

1.4.2 South Australian Landfill Guidelines

The South Australian EPA Guidelines '*Environmental management of landfill facilities'* (The Guidelines)[5] provides the regulatory framework for landfill design and management in South Australia. The Masterplan has been developed considering the requirements set out in the Guidelines. Residual waste which forms an output from the proposed resource recovery activities will be monitored and assessed to ensure appropriate waste classifications and disposal pathways are provided in line with the Guidelines.

[4] DBD Environmental (2021). Inkerman Resource Recovery Centre Environmental Management Plan, ref: 0127CWYR008A, dated: 1 June 2021, Norwood, SA.
[5] SA EPA (2019). Environmental management of landfill facilities – solid waste disposal, dated: April 2019, Adelaide, SA.

1.5 Regulatory Approvals Schedule

The information shown in Table 1-1 is a summary of the regulatory approval pathway for the proposed development of the Inkerman Landfill site to a Resource Recovery Centre.

Table 1-1 - Regulatory approval pathway

Item	Documentation
EPA Approval	Masterplan, Updated Landfill Environmental Management Plan (LEMP), Recovered Products Plans, Amendment Environmental Impact Statement (EIS)
Planning Approval	Masterplan, Amendment EIS
Development Approval including Building Rules Consent (when required)	Design Documentation and Private Certifiers Report for site structures.

2 Current Site Operations

2.1 General

The Inkerman landfill site has been actively landfilling waste since 2004. There are a projected 19 stages of landfill operations at the site with Stage 1 and Stage 2 having been finalised where final capping has been applied. The current key site operations are as follows:

- Landfilling of Municipal Solid Waste (MSW) in Stages 3-6.
- Landfilling of Low-Level Contaminated Waste (LLCW) in Stage 4, Cell 1.
- Management of leachate collection systems.
- Management of landfill gas collection systems.

The site is not open to the public for waste deposition and most of the waste received at the site typically passes through an offsite waste transfer station beforehand, meaning some degree of segregation, classification and aggregation of waste has occurred prior to arrival on site.

2.2 Existing Approvals and Licensing

2.2.1 General

The Inkerman landfill site is a licensed landfill facility operating under EPA licence No. 14463. The site is licenced to received and dispose of a range of waste streams as listed in Section 2.3.

The development of the site as a solid waste landfill was approved by the Governor under Section 48 of the Development Act 1993 and published in the South Australian Government Gazette on 21 January 1999. The development was subject to an Environmental Impact Statement (EIS) and an Assessment Report under Section 46 and 46B of the Development Act.

Various applications have been made throughout the life of the site to amend the development authorisation and EIS under Section 47 of the Development Act. These include for the alteration of operating conditions on site, addition of new infrastructure and to amend the final landform height for the site. A further amendment to the EIS for the site has been completed to capture the changes proposed in this Masterplan.

A Landfill Environmental Management Plan[6] (LEMP) was prepared for the site and has been subject to several revisions throughout the site history. The LEMP, now termed the RRCEMP, has been further updated in conjunction with this Masterplan[7].

[6] Tonkin Consulting (2010). Northward Fill, Landfill Environmental Management Plan, Volume 1, ref: 20040614RA1 Rev G, dated: 26 June 2010, Kent Town, SA.
[7] DBD Environmental (2021). Inkerman Resource Recovery Centre Environmental Management Plan, ref: 0127CWYR008A, dated: 1 June 2021, Norwood, SA.

2.2.2 Environmental Impact Assessment

An Environmental Impact Statement (EIS) was prepared by Maunsell in 1998 during the approvals and establishment phase for the construction of the Inkerman Landfill site. The EIS found that with appropriate management measures the impact on the environment as a result of landfilling operations at the Inkerman landfill would be low. Since, two amendments have been completed to the EIS. The relevant EIS documentation history that aligns to key milestones for the site is summarised in Table 2-1 and can be referred to for further information around the environmental impact and associated management measures for the existing site and the Masterplan development.

Table 2-1 - Environmental Impact Statement Documentation History

Author	Description
Maunsell (1998)	Maunsell prepared an Environmental Impact Statement[8] (EIS) for the Inkerman Landfill (Northward Fill) site development in 1998.
Tonkin (2018)	In 2018 Tonkin[9] prepared an amendment to the EIS to assess the impact of increasing the final landform height of the landfill.
DBD Environmental (2021)	DBD Environmental[10] has prepared an amendment to the EIS to assess the impact of the proposed resource recovery operations set out in the Masterplan.

2.2.3 Previous liaison regarding resource recovery

Cleanaway have previously sought clarification from the Department of Planning, Transport, and Infrastructure (DPTI) regarding the addition of resource recovery activities at the site. In accordance with correspondence DPTI dated 22 May 2021 included in Appendix B, additional resource recovery activities proposed at the site that do not involve design changes to the landfill, changes in the land use or building work (structures) are not expected to require a variation to the development authorisation and can be managed via an updated of the Landfill Environment Management Plan (LEMP).

2.3 Incoming Waste

The Inkerman landfill site is currently licensed (EPA Licence No. 14463) to receive and dispose of the following waste streams:

- Non-friable Asbestos
- Commercial and Industrial (C&I) Waste (General)

[8] Maunsell (1998). Additional Investigation, Design and Documentation, Northward Fill, Final EIS Report, EIS for construction of the Northward Fill, Revision H, dated: 18 June 1998, Adelaide, SA.
[9] Tonkin Consulting (2018). Northward Fill Landfill, Increase in Finished Landform Height Amendment Environmental Impact Statement, ref: 20160166R006B, dated: 8 June 2018, Kent Town, SA.
[10] DBD Environmental (2021). Inkerman Landfill, Resource Recovery Centre Amendment Environmental Impact Statement, ref: 0127CWYR009A, Dated: 1 June 2021, Norwood, SA.

- Compostable Organic Waste
- Construction and Demolition (C&D) Waste (Inert)
- Construction and Demolition (C&D) Waste (Mixed)
- Domestic Waste
- Green Waste
- Inert Waste
- Municipal Solid Waste (MSW) – Kerbside Bin Collected
- Putrescible Waste
- Quarantine Waste
- Shredded Tyres
- Waste Fill
- Copper Chrome Arsenate (CCA) Timbers
- Intermediate Waste Soil (IWS)
- Intermediate Waste
- Low Level Contaminated Waste (LLCW) Soil
- Low Level Contaminated Waste (LLCW)
- Treatment Plant Residues
- Used Foundry Sand

The following waste streams can be received at the site:

- E-Waste
- Scrap Metal

Wastes that will not be received or disposed of at the Inkerman site include but are not limited to listed waste (excluding non-friable asbestos), liquid wastes and sludges, soluble chemical waste, triple interceptor waste, grease trap waste and automotive batteries.

2.4 Waste Characteristics

A summary of the characteristics of the waste materials received at the site in accordance with the SA EPA Waste Definitions (SA EPA, 2019)[11], the SA EPA Waste Tyres Guideline (SA EPA, 2010)[12] and SA EPA Waste Classification Criteria[13] is included in Table 2-2.

[11] SA EPA (2019). Waste definitions: Guidelines, ref: EPA 842/19, dated: April 2019, South Australia.
[12] SA EPA (2010). Waste tyres: Guidelines, ref: EPA 183/10, dated: September 2010, South Australia.
[13] SA EPA (2010). Waste disposal Information Sheet: Current Criteria for classification of waste – including Industrial and Commercial Waste (Listed) and Waste Soil, ref: EPA 889/10, dated: March 2010, South Australia.

Table 2-2 - Incoming Waste Characteristics

Material Type	Characteristics
Non-friable asbestos	The fibrous form of mineral silicates belonging to the serpentine and amphibole groups of rock forming minerals, including actinolite, amosite (brown asbestos), anthophyllite, chrysotile (white asbestos), crocidolite (blue asbestos), tremolite, or any mixture containing one or more of the mineral silicates belonging to the serpentine and amphibole groups. Non-friable asbestos means asbestos-containing material in which the asbestos fibres are bonded by cement, vinyl, resin, or other similar material, e.g., asbestos cement.
Commercial and Industrial Waste (General)	The solid component of the waste stream arising from commercial, industrial, government, public or domestic premises (not collected as Municipal Solid Waste), but does not contain Listed Waste, Hazardous Waste or Radioactive Waste.
Compostable Organic Waste	The biodegradable component of the waste stream that is of biological origin but does not contain any Listed Waste, Radioactive Waste or Hazardous Waste. Notes: These organic materials may be processed through composting works to formulate valuable recycled organic products. Suitability of compostable organic waste as feedstock is dependent on the location, site design, processes, and potential to cause environmental harm
Construction and Demolition Waste (inert)	The solid inert component of the waste stream arising from the construction, demolition or refurbishment of buildings or infrastructure but does not contain Municipal Solid Waste, Commercial and Industrial Waste (General), Listed Waste, Hazardous Waste or Radioactive Waste. Notes: C&D waste (Inert) should be such that the entire composition of the C&D materials is Inert Waste with no contamination by foreign material. As such it is acknowledged that - with the aim of no contamination - there may be some negligible components of foreign material contained in the waste (as a guide, 0–5% maximum by volume per load). C&D waste (Inert) includes bricks, concrete, Iles and ceramics, steel, and inert soils. Foreign material includes green waste, plastics, electrical wiring, timber, paper, insulation, tins, packaging, and other waste associated with construction or demolition of a building or other infrastructure. Foreign material must not be Municipal Solid Waste, Liquid, Listed, Hazardous or Radioactive Waste.
Construction and Demolition (C&D) Waste (Mixed)	The solid component of waste stream arising from the construction, demolition or refurbishment of buildings or infrastructure which contains some foreign material (as set out below), but does not contain Municipal Solid Waste, Commercial and Industrial Waste (General), Listed Waste, Hazardous Waste or Radioactive Waste.

Material Type	Characteristics
	Notes: C&D Waste is considered C&D Waste (Mixed) if it contains significant foreign materials from construction and demolition activities that would render the load of waste no longer inert (as a guide, 5–25% maximum by volume per load). Foreign material includes green waste, plastics, electrical wiring, timber, paper, insulation, tins, packaging, and other waste associated with construction or demolition of a building or other infrastructure. Foreign material must not be Municipal Solid Waste, Liquid, Listed, Hazardous or Radioactive Waste. Where waste from construction and demolition sites contains predominantly foreign materials or domestic waste, such as waste from household clean ups collected by commercial skip bins, this is defined as Commercial and Industrial Waste (General).
Domestic Waste	The waste produced in the course of a domestic activity.
Green Waste	The vegetative portion of the waste stream arising from various sources including waste from domestic and commercial premises and municipal operations.
Inert Waste	The inert portion of the waste stream arising from various sources including waste from domestic, commercial premises and municipal operations.
Municipal Solid Waste (Non-Putrescible)	The solid component of the waste stream arising from mainly domestic but also commercial, industrial, government and public premises including waste from council operations, services and facilities that is collected by or on behalf of the council via kerbside collection but does not contain Commercial and Industrial Waste (General), Listed Waste, Hazardous Waste or Radioactive Waste. The non-putrescible component relates to the component of the waste stream unlikely to become putrid.
Municipal Solid Waste (Putrescible)	The solid component of the waste stream arising from mainly domestic but also commercial, industrial, government and public premises including waste from council operations, services and facilities that is collected by or on behalf of the council via kerbside collection but does not contain Commercial and Industrial Waste (General), Listed Waste, Hazardous Waste or Radioactive Waste. The putrescible component relates to the component of the waste stream liable to become putrid. For example: organic matter that has the potential to decompose with the formation of malodorous substances, usually refers to vegetative, food and animal products
Quarantine Waste	Quarantine Waste means material or goods of quarantine concern as determined by the Australian Quarantine and Inspection Service (AQIS) and which is subject to and or identified under Commonwealth Legislation (Biosecurity Act 2015) and associated regulations and proclamations. This includes:

Material Type	Characteristics
	1) (a) material used to pack and stabilise imported goods 2) (b) galley food and other waste from overseas vessels 3) (c) human, animal or plant waste brought into Australia 4) (d) refuse or sweepings from a hold of an overseas vessel 5) () any other waste or other material, which comes into contact with Quarantine Waste. 6) (f) contents of AQIS airport amnesty bins 7) (g) articles seized by AQIS and/or not collected by clients. Biosecurity Act 2015: https://www.legislation.gov.au/Details/C2017C00303
Shredded Tyres	Used tyres shredded to ensure pieces do not exceed 250 mm in any dimension.
Waste Fill	As defined in the Environment Protection Regulations 2009 waste fill means: waste consisting of clay, concrete, rock, sand, soil, or other inert mineralogical matter in pieces not exceeding 100 mm in length and containing chemical substances in concentrations (calculated in a manner determined by the Authority) less than the concentrations for those substances set out in Schedule 6 but does not include waste consisting of or containing asbestos or bitumen. The Waste Fill chemical criteria are specified in Schedule 6 of the Environment Protection Regulations 2009: https://www.legislation.sa.gov.au/LZ/C/R/Environment%20Protection%20Regulations%202009. Aspx
Intermediate Waste Soil (IWS)	Waste soil that does not meet the criteria for waste fill and is classified as IWS in accordance with Table 1 in the Current criteria for the classification of waste – including Industrial and Commercial Waste (Listed) and Waste Soil.
Intermediate Waste (IW)	Waste containing concentrations of chemical substances such that it is classified as IW in accordance with Table 1 in the Current criteria for the classification of waste – including Industrial and Commercial Waste (Listed) and Waste Soil.
Low Level Contaminated Waste (LLCW) Soil	Waste soil that does not meet the criteria for IWS and is classified as LLCW in accordance with Table 1 in the Current criteria for the classification of waste – including Industrial and Commercial Waste (Listed) and Waste Soil.

Material Type	Characteristics
Low Level Contaminated Waste (LLCW)	Waste containing concentrations of chemical substances such that it does not meet the criteria for IW and is classified as LLCW in accordance with Table 1 in the Current criteria for the classification of waste – including Industrial and Commercial Waste (Listed) and Waste Soil.
Treatment Plant Residues	Means all waste residues generated during the treatment of wastes, which are received from sites regulated under Environmental Authorisations including Liquid Treatment plants in South Australia or from any other sites approved in writing by the EPA.

2.4.1 Waste Composition

Incoming waste data for the 2020 calendar year was obtained from Cleanaway and used to assess the amount and types of waste being received at Inkerman (Table 2-3) and inform the development of the Masterplan. In 2020, 73.6% of the waste received at the site was mixed waste, highlighting the importance and potential for waste sorting / processing at the site. Further, the site receives a large volume of LLCW (approximately 13,000 tonnes per annum) reinforcing the need for an on-site contaminated soil/ hazardous waste treatment facility. The incoming volumes of the various waste streams have been used as one method of evaluating the feasibility of a variety of resource recovery activities. Cleanaway will continue to assess the potential opportunities for receipt of larger quantities of waste streams with high resource recovery potential. As a result, the waste diversion and economic potential for resource recovery at the site is not limited to the 2020 waste tonnages shown in Table 2-3.

Table 2-3 - Current Incoming Waste Composition (Inkerman)

Waste Type	Weight (t)	Percentage of Total (%)
Mixed Waste (Regional & Metro)	233,757	73.64
Liquid Treatment Plant Residue	24,858	7.83
Floc Waste	16,454	5.18
Comingled Recyclables*	13,071	4.12
LLCW	12,927	4.07
Intermediate Landfill Cover & Waste Fill	10,248	3.23
Fire Affected Waste	1,620	0.51
Non-friable Asbestos	1,282	0.40
Green Waste	877	0.28
Quarantine/Secure Destruction Waste	489	0.15
CCA Treated Timber	381	0.12
Construction & Demolition Waste	337	0.11

* Degraded material ex SKM not suitable for recycling

2.5 Site Infrastructure

The existing site infrastructure is summarised as follows:

- Active landfilling areas.
- Capped landfill areas – Stages 1 and 2.
- Inactive uncapped areas (with interim cover applied).
- Weighbridge and gatehouse.
- Site entrance from Prime Road (sealed road) which is secured by lockable access gates.
- Site office with carparking.
- Existing site road network (unsealed)
- Site lunchroom facilities.
- Trailer transfer area.
- Maintenance workshop and storage area.
- Wheel wash facility.
- Firefighting water tanks
- Services including:
    - Power
    - Mains Water
    - Sewer
    - Communications
- Leachate collection system.
- Leachate ponds:
    - LLCW Leachate Pond
    - Southern Leachate Ponds (two of)
- Surface Water Management Ponds:
    - Southern pond
    - Eastern Pond
- Landfill gas extraction system and flare.
- Landfill gas perimeter monitoring wells.
- Groundwater monitoring wells.
- Litter prevention fencing.

2.6 Surrounding Land Uses

Currently, land at the site which is not utilised for landfill and associated site operations is routinely subject to broadacre farming by a local share farmer. Areas not used for landfilling or resource recovery activities in the future will continue to be farmed. Moreover, surrounding the site, the adjacent land use is dominated by agricultural activities. The nearest sensitive receptors are summarised in Section 2.8. Adjacent land uses to the landfill site include livestock grazing, cereal cropping, and intensive animal farming and the Defence Department's Proof and Experimental Range. An existing mineral lease is located along the northern property boundary.

2.7 Site Opportunities

The key opportunities that exist at the Inkerman RRC are as follows:

- Existing Unused Area – The site is situated across Lots 390, 391 and 392 Primes Road, Inkerman, SA which can be identified in the concept plans in Appendix A. There is a substantial amount of unused area at the site and the intent of the Masterplan is to optimise its use as far as practicable.
- Diversion of waste from landfill and reuse of recovered products – A key focus of the Masterplan is the potential for the diversion of waste from landfill and the reuse of recovered products on site for existing and future site operations and development. The site has substantial infrastructure requirements moving forward including site roads, pavements, liner and capping construction, environmental screening, and daily cover.
- Optimisation of the sustainability potential for the site in accordance with Cleanaway's sustainability goals and Green Industries South Australia's 2020-2025 strategic objectives.

2.8 Site Considerations

The site possesses nearby sensitive receptors as listed in Table 2-4. Strategic planning of the site expansion is required to ensure appropriate buffer distances in accordance with the landfill guidelines and the EPA Evaluation Distance Guideline[14].

Table 2-4 – Nearby Sensitive Receptors (clarification that active area e.g., active filling)

Sensitive Receptor	Distance to nearest active activity (Landfill Area or Resource Recovery Facility)
Residence/Structure to North of Site	600 m
Residence / Structure to Southeast of Site	850 m
Residence / Structure to Northwest of Site	1,800 m
Industrial Structure to Northwest of Site	1,400 m

[14] SA EPA (2016). Evaluation distances for effective air quality and noise management, dated: August 2016, South Australia.

Sensitive Receptor	Distance to nearest active activity (Landfill Area or Resource Recovery Facility)
Residences to West of Site (x2)	1,100 m
Port Wakefield Road	1,050 m
Intertidal Zone, West of Site	850 m

The preparation of the Masterplan and any associated proposed site development considers the minimum separation distances required between any waste processing or treatment activities and nearby sensitive receptors. Perimeter screening will also be utilised to reduce the impact of the site and its operations on the amenity of the area for neighbouring residents, land users and the community. This may potentially include existing native vegetation, planting of additional native vegetative screening or the construction of earthen mounds for screening purposes.

Other key site constraints are summarised as follows:

- Native vegetation – There are areas of significant native vegetation on site which will be maintained as far as practicable when undertaking future development of the site.
- Existing landfill footprint constraints – landfilling is limited to the approved landfill footprint.
- Designated borrow areas – There are substantial borrow areas in multiple locations across the site that are relied upon for liner and capping soil material and topsoil.
- Wind conditions – the wind conditions on site will impact the siting of various infrastructure items such as new leachate ponds or waste processing activities that have the potential for dust, odour, and litter generation.
- Cultural heritage – we understand that there are cultural heritage requirements pertaining to Stage 7 of the landfill operations.

2.9 Solid Waste Landfill Operations

Municipal solid waste is currently co-disposed with C&I waste, building and demolition material (that does not contain recyclable material) and treated timber waste into lined landfill cells designed to receive MSW. The lining system for each existing solid MSW cell consists of a one metre thick, low permeability clay liner and a 300 mm gravel drainage layer leading to a leachate collection system equipped with collection sumps and leachate pumps.

2.10 Low Level Contaminated Waste Landfill Operations

LLCW which is received at the site is deposited into an engineered LLCW cell (currently Stage 4 Cell 1). The LLCW cell is equipped with a secondary clay layer overlain by a primary composite liner separated by a geo-composite drainage layer (for leak detection). The geo-composite lining system is overlain by a cushion geotextile protection layer and leachate collection system. The leachate

collection system is of similar specification to the MSW cells. Leachate generated from the LLCW cell is disposed of via evaporation in a leachate pond on the western side of the site which exclusively receives leachate generated from the LLCW cell.

2.11 Stormwater Management

Stormwater runoff from the landfill areas is managed via a series of intermediate capping stormwater controls (earthen drains), earthen perimeter drains around the toe of the landfill and stormwater basins. Please refer to the Stormwater Management Concept (DBD Environmental, 2021)[15] for further information. This document details the stormwater management measures to service the landfill operations. Additionally, the future and existing stormwater basins are shown on Sheet 002 of the Concept Plans in Appendix A.

2.12 Leachate Management

All cells at the Inkerman landfill site are lined and include a leachate management system consisting of a leachate drainage layer, perforated leachate collection pipes and leachate sumps with risers and submersible pumps. All leachate on site is pumped from the cell sumps to dedicated leachate basins and disposed of via evaporation. Please refer to the Leachate Management Concept (DBD Environmental, 2021)[16] for further information. Additionally, existing, and future leachate management basins are shown on Sheet 002 of the Concept Plans in Appendix A.

2.13 Stockpile Management

Stockpiles are managed through a Stockpile Management Plan (SMP). Please refer to the Stockpile management plan in the appendices of the RCC LEMP Resource Recovery Centre Landfill Environmental Management Plan (RCC LEMP) (DBD Environmental, 2021)[17] for further information. The document details the onsite management and handling of pre- and post- treated material. The document has been prepared to incorporate stockpile management procedures which will result from masterplan developments.

2.14 Environmental Management

The management of operation and environmental risks associated with the current landfilling activities at the Inkerman Landfill site are managed under the Landfill Environmental Management Plan[18] (LEMP). The LEMP includes a range of environmental management measures with the aim

[15] DBD Environmental (2021). Stormwater Management Concept, ref: 0127CWYR004B, dated: 18 April 2021, South Australia.
[16] DBD Environmental (2021). Leachate Management Concept, ref: 0127CWYR005A, dated: 21 May 2021, South Australia.
[17] DBD Environmental (2021). Inkerman Resource Recovery Centre Landfill Environmental Management Plan, ref: 0127CWYR008A, dated: 4 June 2021, South Australia.
[18] Tonkin Consulting (2010). Northward Fill, Landfill Environmental Management Plan, Volume 1, ref: 20040614RA1 Rev G, dated: 26 June 2010, Kent Town, SA.

of managing key environmental risks associated with landfilling operations including the following: dust; odour; vermin; litter; leachate; landfill gas; stormwater management; groundwater; and fire. For further information please refer to the LEMP.

3 Resource Recovery Assessment

3.1 Overview

The Inkerman Landfill site currently operates solely as a landfill with no existing large scale resource recovery operations, although all waste which is to be disposed of to landfill at the site must either pass through an EPA approved resource recovery centre/ waste transfer station and/or undergo a three-bin kerbside recycling system. In collaboration with Cleanaway and considering their strategic goals and sustainability and environmental policies, a range of resource recovery activities were assessed as potential future development options for the site. These are summarised in Table 3-1.

Table 3-1 – Considered Resource Recovery Activities

ID	Activity	Description
0	Baseline – Do nothing	Continuation of ongoing landfill operations.
1	Soil Recycling	Acceptance and reuse of inert soils, classified waste fill, residential soils, and Intermediate Waste Soils (IWS)
2	Contaminated Soil / Hazardous Waste Management	Treatment of contaminated soils and other hazardous waste via a combination of the following: Bioremediation; Chemical fixation; Chemical oxidation; Thermal treatment, and Soil washing.
3	C&D Waste Processing	Crushing and screening of C&D waste material to create reusable aggregate materials and extract other valuable waste streams.
4	Green Waste Processing	Mulching, screening, or pasteurisation of green waste material to produce mulch, raw mulch, and soil additives.
5	Composting	Composting of the biodegradable components of incoming waste streams to create compost, soil conditioners, mulches
6	Material Recovery Facility (MRF) - Recyclables	Process, separate and aggregate commingled recyclable at the site.
7	Material Recovery Facility (MRF) – MSW and C&I Wastes	Process, separate and aggregate MSW and C&I waste at the site. Outputs (such as Compost like Organics and Soil like Fines) will feed into other processes
8	Processing of C&I Waste	Processing of C&I to produce soil like material and compost like inputs. This may also be accommodated in Option 7.
9	Waste Transfer Station	Provide a drop-off point for an array of waste streams for both public and commercial customers. Promotes

ID	Activity	Description
		aggregation and separation of waste streams. Outputs will feed into other processes.
10	Prescribed Waste Management Compound	Provide a drop-off point for prescribed waste streams for both public and commercial customers. Promotes aggregation, separation, and disposal at appropriate locations.

3.2 Scope of Assessment

Each resource recovery activity was assessed in consultation with Cleanaway against the following key factors:

- Available incoming waste feedstocks.
- Additional potential waste sources.
- Potential for waste diversion from landfill.
- End uses for recovered products.
- Financial performance for Cleanaway.

A Multi-Criteria Decision Analysis (MCDA) was performed to evaluate each activity against a range of environmental, social, and financial factors and allow Cleanaway to make informed decisions regarding the future development of the site.

3.2.1 Future Waste Inflows Summary

Available Waste from Nearby Additional Catchment Areas

Cleanaway currently provides waste management services to several nearby regional areas including Port Augusta, Port Pirie, Copper Coast, the Yorke Peninsula, and the Riverland. As a result, Cleanaway have potential access to additional waste volumes from these catchment areas in addition to the waste volumes currently disposed of at the Inkerman Landfill. A summary of the current locally available waste tonnages for the key recoverable waste streams is summarised in Table 3-2.

Table 3-2 - Current available waste tonnages for key waste streams (Inkerman and nearby areas)

	Mixed Waste (t)	Organics / Green Waste (t)	C&D Waste (t)	Waste Fill (t)	LLCW (t)
TOTAL	**299,662**	**11,724**	**10,342**	**10,919**	**12,928**

Future waste streams that Cleanaway would like to receive and process on site that the site is currently not licensed to receive are summarised in Table 3-3. Potential tonnages for these waste streams are unclear at this time.

Table 3-3 - Additional target waste streams

Material Type	Characteristics
High Level Contaminated Waste (HLCW)*	Waste containing concentrations of chemical substances such that it does not meet the criteria for LLCW in accordance with Table 1 in the *Current criteria for the classification of waste – including Industrial and Commercial Waste (Listed) and Waste Soil.*
*Cleanaway will seek all relevant approvals before commencing receipt of these wastes and note that it is known to require a purpose built and designed structure for receipt and management.	

Impacts of Population growth

As the Inkerman landfill receives waste from a variety of metropolitan and regional sources, population change statistics[19] (DPTI, 2019) for South Australia have been used to estimate the impact of population growth on incoming waste tonnages at the site. We note that these are estimates based on the 'medium projection series' which is considered by DPTI to be the most likely scenario to occur.

It is important to consider that population change projections vary based on both growth scenario and region. For the purpose of assessing future waste volumes several combinations were assessed to determine a reasonable estimate. Figure 3 shows the estimated incoming waste (in tonnes) based on population growth projections for both South Australia as a whole and the Northern Adelaide region. These values may differ slightly from regional growth statistics in the vicinity of the site; however, we believe they are a reasonable estimate given the broad catchment from which the site receives waste.

[19] Department of Planning, Transport, and Infrastructure (2019). Ages-Sex Population predictions for South Australia and Regions, 2016-2041, accessed on: 11 May 2021, Adelaide, South Australia.

1.

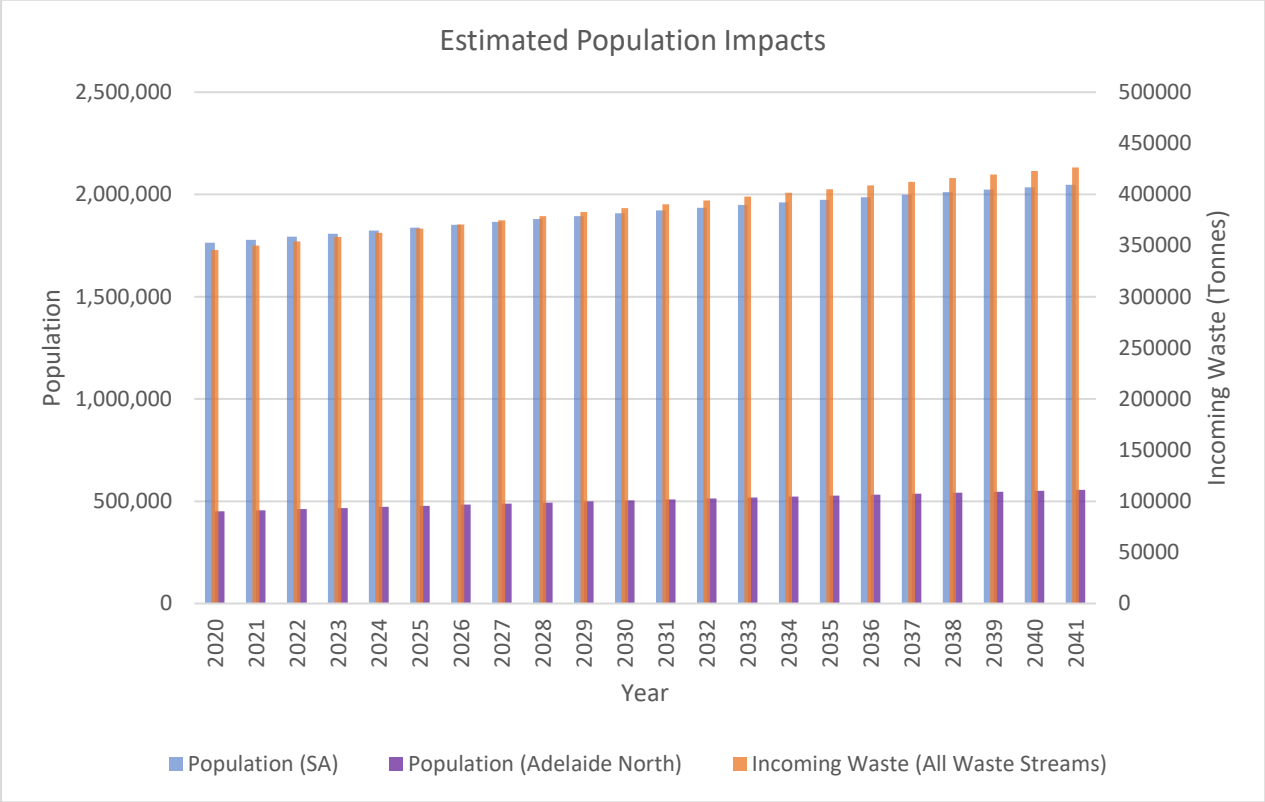


Figure 3 – Estimated population impacts on incoming waste.

The estimates shown in Figure 3 consider current incoming waste volumes, waste management practices and community behaviour. They do not consider the impacts of changes in community behaviour or operations within the waste industry because of improved education or changes in waste management policy. These are discussed at a high level in the following section.

Impacts of Waste Management Policy and Strategic Direction

Key objectives of both the National Waste Policy and SA Waste Strategy 2020-2025 target increased diversion of waste from landfill with particular emphasis on organics, construction and demolition waste and soils.

As a result, the demand for waste processing will only increase into the future. Additionally, after the validity periods of the above strategic documents are exhausted future targets are expected to continue to be ambitious. While education and improved waste avoidance may yield some positive results, overall waste tonnages are expected to continue to rise based on the factors discussed in the preceding sections. Consequently, greater reliance will be placed on resource recovery operations to allow improved diversion targets to be achieved.

3.3 Proposed Resource Recovery Activities

Based on the evaluation of the various resource recovery activities considering the incoming waste streams/volumes to Inkerman, the resource recovery potential, and the alignment with Cleanaway's objectives, two primary options were proposed, as summarised in Table 3-4.

Table 3-4 - Proposed Resource Recovery Activities

Feature	Proposed Development
Resource recovery facilities/services	Soil recycling facility
	Green waste processing/ composting facility
	C&D processing facility
	Contaminated soil/ hazardous waste treatment facility
	Material Recovery Facility (MRF) – MSW and C&I Processing
Additional supporting infrastructure	Stormwater basin to receive and manage runoff from the resource recovery areas.

The proposed Masterplan includes the preferred waste processing options from the MCDA; soil recycling, C&D processing, contaminated soil/ hazardous waste treatment, green waste processing/ composting facility and a Material Recovery Facility (MRF).

3.3.1 Soil Recycling Facility

A soil recycling facility will be the first operational resource recovery activity implemented at the site. Incoming soil materials will be accepted, processed (if required), temporarily stockpiled, and reused on site. There exist several applications for waste fill on site ensuring that stockpile retention times will be minimal. As shown in Table 3-2, Cleanaway have access to approximately 11,000 tonnes of waste fill annually being deposited at Inkerman and nearby areas. A significant portion of this material will be suitable for beneficial reuse with minimal processing.

3.3.2 Green Waste Processing/Composting Facility

Stage 2 of the proposed redevelopment of the site will include green waste processing and composting operations. As shown in Table 3-2, Cleanaway currently receives approximately 11,750 tonnes of green waste and organics at the site and nearby areas annually. What more, Cleanaway receive close to 300,000 tonnes of MSW, and C&I wastes annually with the medium to long-term goal of recovering organics from these waste streams in Stage 5 of the Masterplan to provide additional feedstocks for the composting process.

The intent is for the facility to process a selection of suitable material from the following waste streams:

- Green waste
- Clean timber
- Domestic and commercial organics
- Organics from processed MSW (Compost like Organics)
- C&I trommel fines (Soil like Fines)

- Soils

The facility will promote the reuse and potential resale of recoverable organic material and minimised the landfilling of organics on site.

3.3.3 C&D Processing Facility

As shown in Table 3-2, Cleanaway receives approximately 10,350 tonnes of construction and demolition waste annually, a significant portion of which is concrete, masonry, bricks, or similar materials. Cleanaway also occasionally accepts large, consolidated amounts of concrete and other C&D wastes because of natural disasters or other sources which are not captured in the current data. Stage 3 of the Masterplan development includes a C&D processing facility that will utilise a combination of crushing and screening processes to create aggregates to a variety of specifications. The intent is for these aggregates to be reused on site (e.g., as road base for site roads or granular pavements constructed by Cleanaway) or for resale into the local market and the processing and required quality assurance will be tailored to the intended end use for the product.

The National Waste Policy 2018 (pg. 6) documents a principal reuse application for C&D material to be in road base material. The availability of appropriate waste streams and the significant demand for road base material at the site will potentially allow for large volumes of C&D material to be diverted from landfill. Through the addition of such a facility, the operations at Inkerman are expected comply with South Australia's 2020-2025 Waste Strategy target of 95% of C&D material diverted from landfill.

3.3.4 Contaminated Soil/Hazardous Waste Treatment Facility

The 2020 incoming waste data provided by Cleanaway indicates that approximately 13,000 tonnes of LLCW and 25,000 tonnes of treatment plant residues are received at the Inkerman Landfill site annually. This represents a substantial portion of the waste received at the site (4-5% and 8% respectively) and a significant opportunity for contaminated waste treatment.

As itemised in Table 3-3, Cleanaway intend to seek EPA and Development approval to receive and treat HLCW at the site via a range of treatment processes. This is an area of the waste management industry in South Australia which Cleanaway believe they will be able to provide additional value to the industry and the community.

Prior to the establishment of Stage 4 of the proposed development, Cleanaway wish to seek approval from the EPA for a storage licence to store unclassified material on an isolated portion of the LLCW cell with appropriate environmental management measures.

3.3.5 Material Recovery Facility

In 2020, approximately 87% of waste received by Cleanaway at the Inkerman landfill and the nearby areas was classified as mixed waste (e.g., a combination of MSW and C&I wastes). Accordingly, a significant opportunity exists to implement processes to divert recoverable waste streams within the incoming mixed waste from landfill.

The South Australian Waste Strategy 2020-2025 nominates the key objective of diverting at least 75% of metropolitan MSW and 90% of C&I waste from landfill by 2025. The large portion of the effort required to meet this target will need to be focused on extraction of organics and other recoverable materials from the waste streams. The objectives of the SA Waste Strategy align with Cleanaway's strategic goals and highlight the need for an additional processing facility on site to process mixed waste and maximise diversion from landfill. Where suitable, the outputs from this facility will feed into the downstream resource recovery operations at the site.

3.3.6 Potential for Future Small Scale EFW / Solar Farm Development

As mentioned in Section 2.6, there is a substantial area of 'unused' space at the site that is currently utilised for broadacre farming. In the future, Cleanaway may elect to explore the installation of a solar farm and/or small to medium scale energy from waste facility for power generation purposes and to better use the available space at the site. No detailed assessment of the viability of such an option have been undertaken as part of the scope of this Masterplan, however, we believe that it warrants further investigation given the large mixed waste tonnages received at the site.

4 Masterplan

4.1 Guidance Documentation

The Masterplan was developed in accordance with the reference and guidance documentation listed in Table 4-1. Consideration was given to the nature of the development, the activities intended to occur in each nominated area and the impacts of such activities.

Table 4-1 - Masterplan Reference and Guidance Documentation

Resource Recovery Aspect	Legislation & Regulations	Guidelines and Relevant Australian Standards
Occupational Health, Safety and Welfare	Work Health and Safety Act, 2012	Code of Practice - Managing risks of hazardous chemicals in the workplace, July 2020
Resource Recovery (across multiple waste streams)	Environment Protection Act 1993 Environment Protection Regulations 2009 Environment Protection (Waste to Resources) Policy 2010 Development Act 1993	SA EPA Guidelines for Disposal of Used Hydrocarbon Absorbent Materials (EPA 378/13). SA EPA, Wastes containing asbestos – removal, transport and disposal, EPA Guideline 414/17, February 2017 SA EPA Guidelines for Waste Transport Certificate (EPA 415/10). SA EPA Standard for the production and use of Waste Derived Fill (2013). SA EPA Standard for the Production and use of Waste Derived Soil Enhancer (2010). SA EPA Compost Guideline (2019). AS4419 (2018) Soils for Landscaping and garden use. AS4454 (2012) Composts, soil conditioners and mulches.
Litter Control	Local Nuisance and Litter Control Act 2016	Review of the Local Nuisance and Litter Control Act 2016 discussion paper Issued June 2019 (EPA 1115/19)
Dust and Odour	Environment Protection Act 1993 Environment Protection (Air Quality) Policy 2016.	SA EPA Industry Guideline – Concrete Batching (EPA 427/16)
Stockpile Management	Environment Protection Act 1993 Environment Protection (Air Quality) Policy 2016.	SA EPA Guideline for Stockpile Management: Waste and Waste derived products for recycling and reuse (updated October 2020)

Resource Recovery Aspect	Legislation & Regulations	Guidelines and Relevant Australian Standards
Asbestos Management	Environment Protection Act 1993 Occupational Health, Safety and Welfare (Asbestos) Regulations 1995. Occupational Health, Safety and Welfare (Asbestos) Variation Regulations 2004	SA EPA, Wastes containing asbestos – removal, transport and disposal, EPA Guideline 414/17, February 2017 National Occupational Health and Safety Council, Code of Practice for the Safe Removal of Asbestos, Second Edition, 2005, NOHSC: 2002(2005). Asbestos Code of Practice for the Management and Control of Asbestos in the Workplace [NOHSC: 2018 (2005)]. enHeath Council, Management of asbestos in the non-occupational environment, 2005 National Environment Protection Council, National Environment Protection (Assessment of Site Contamination) Measure 1999 - Schedule B (9) Guideline on Protection of Health and the Environment during the Assessment of Site Contamination
Noise and Vibration	Environment Protection Act 1993 Environment Protection (Noise) Policy 2007.	SA EPA Information Sheet – Construction Noise (EPA 425/01)
Site contamination prevention	Environment Protection Act 1993 Environment Protection (Water Quality) Policy 2015	National Environmental Protection (Assessment of Site Contamination) Measure 1999, as amended (2013), (ASC NEPM). SA EPA Guidelines for the Assessment and Remediation of groundwater contamination (2019)
Erosion and sediment control	Environment Protection Act 1993. Environment Protection (Water Quality) Policy 2015. Landscape South Australia Act 2019	SA EPA, Stormwater Pollution Prevention – Code of Practice for the Building and Construction Industry, March 1999.
Management of Landfill Facility	Environment Protection Act 1993	SA EPA Environmental management of landfill facilities Solid waste disposal 2019.

4.2 Proposed Site Layout

The proposed layout for the development of the Inkerman Resource Recovery Centre is shown on the Concept Plans included in Appendix A. As itemised in the preceding section, the development will include a soil recycling facility, green waste and composting facility, a C&D processing facility, a contaminated soil/hazardous waste treatment facility and an MRF. All of these are planned to be situated to the west of the existing landfill footprint and to the north of the existing weighbridge and site office.

The intention is for the facilities to be developed in stages, moving progressively to the north and immediately adjacent to one another to optimise the usage of the available space on site. New access roads are proposed in the locations shown on Sheet 002 (Appendix A) and will be progressively constructed as the staged development progresses. All facilities will connect to a future access/haulage road at the facility's entrance and exit to maintain a clear right-of-way traffic system. The location of each facility is chronologically positioned in line with the staging plan (presented subsequently in Section 4.3).

During development of the Masterplan Concept Plans for the proposed developments the following key factors were considered:

- The nearby sensitive receptors and appropriate buffer distances to the various waste processing activities.
- Ensuring no disruption to onsite or offsite traffic.
- The need for a right-of-way traffic system is facilitate that minimises the potential for vehicle conflicts.
- Assessing the spatial requirements for the storage of feedstock, processing areas and plant requirements, finished product storage bays and vehicle movements for all required design vehicles.
- Ensuring the design, construction, and operation of the proposed resource recovery facilities does not disrupt the existing site operations.
- Linear material flows throughout (and in between) the facilities as far as practicable.
- Minimising the impact on existing site facilities and infrastructure (e.g., weighbridge, site offices and lunchroom, wheel washing facilities and the site entrance / exit).
- Optimising the potential for the site to achieve both Cleanaway's strategic objectives and those set out in the National Waste Policy 2018 and the South Australia Waste Strategy 2020-25.
- Potential stormwater and leachate management requirements.
- Minimising any potential disturbance to native vegetation throughout the site.

4.3 Design and Function of Facilities

4.3.1 Resource Recovery Facilities

Concept layouts for each of the resource recovery facility are shown on the Concept Plans in Appendix A (refer to Sheets 003 to 008). Each facility has been sized in accordance with the intended future operations, the estimated throughput of waste and the required design vehicles in collaboration with Cleanaway. AutoTURN assessments were completed for site vehicles and plant, drop-off vehicle movements and the loading out of materials. A summary of the features of each of the proposed facilities is included in Table 4-2. The SMP was developed based on the specifications of each facility (See Stockpile Management Plan in the appendices of the RCC LEMP).

Table 4-2 - Proposed Resource Recovery Infrastructure

Facility	Drawing Reference	Approximate dimensions (m x m)	Features
Soil recycling facility	0127CWY.01, SHT 003	195 x 85	• Dedicated heavy vehicle unloading area. • Dedicated heavy vehicle entrance and exit. • Feedstock storage areas. • Processing area – including trommel, screens and other associated plant. • Finished product storage areas.
Green waste processing & composting	0127CWY.01, SHT 004	195 x 170	• Dedicated heavy vehicle unloading area. • Dedicated heavy vehicle entrance and exit. • Feedstock storage areas equipped with mass concrete blocks or push-up walls. • Pre-processing area with shredding plant. • Lined composting pad. • Post-processing area – including trommel/screens to delineate the material into fractions for reuse. • Finished product storage area.
C&D processing facility	0127CWY.01, SHT 005 & SHT 007	195 x 85	• Dedicated heavy vehicle unloading area. • Dedicated heavy vehicle entrance and exit. • Feedstock storage areas. • Processing area – including crushing plant, screens, and other associated plant. • Processing shed structure (future item). • Finished product storage areas.
Contaminated soil / hazardous waste treatment	0127CWY.01, SHT 006	195 x 85	• Dedicated heavy vehicle unloading area. • Dedicated heavy vehicle entrance and exit. • Concrete apron for waste soil drop-off. • Processing shed (nominally 50m x 40m). • Finished product storage areas.

Facility	Drawing Reference	Approximate dimensions (m x m)	Features
Material Recovery Facility (MRF)	0127CWY.01, SHT 008	195 x 167.5	• Dedicated heavy vehicle unloading area. • Dedicated heavy vehicle entrance and exit. • Feedstock waste drop-off, floor sorting and temporary storage areas. • MRF shed with concrete floor. • Plant area – including a selection of: shredders, trommels, screens, optical sorting, eddy-current separator, magnetic separator, air separators, vibration/ballistic separators, and conveyor systems. • Residual MSW temporary storage area. • Finished product storage areas. • Additional area for plant laydown, additional product storage and/or to facilitate future developments.

4.3.2 Supporting Infrastructure and Works

Site Roads

As highlighted in Section 0, access to the site is gained from Prime Road (sealed). Currently, an unsealed haulage road adjacent to the active and capped landfill is existing. The access road will be augmented to provide a perimeter road around the proposed facilities for access, with secondary internal unsealed roads as required. After passing the weighbridge and wheel wash station, vehicles will enter from the westernmost points of the resource recovery facilities and leave through the easternmost points, providing a clear clockwise right-of-way traffic system. On Sheet 002 of the Concept Plans provided in Appendix A, a conceptual layout of the proposed access road network is provided.

Rehabilitation of Borrow Pits

Several existing materials borrow pits exist on site with indicative locations shown on Concept Plan, Sheet 002 in Appendix A. These borrow pits have been relied upon as sources of clayey soil material for use as lining material for new cells, leachate, and stormwater ponds and for landfill rehabilitation. The Masterplan has considered that rehabilitation of these areas is required and that the western most borrow area will be progressively rehabilitated with geotechnically sound material to allow the construction of the resource recovery facilities across a portion of the footprint.

Environmental Mounds

Vegetated earthen mounds will be constructed bounding the resource recovery operations and sections of the landfill as shown on the Concept Plans Sheet 002. The function of these mounds is to assist with management of environmental risks associated with litter, noise, dust, odour, and visual amenity associated with the resource recovery and landfill operations.

Stormwater Management

A new stormwater pond is proposed to service the future resource recovery operations as shown on Concept Plan, Sheet 002 included in Appendix A. The intended stormwater management methodology is for stormwater to be managed via overland flow and a combination of gravity stormwater management measures from the proposed facilities and to be controlled in the stormwater basin to the southwest of the development. Detailed design of this infrastructure will be undertaken prior to construction.

Leachate Management

Any leachate generated from the proposed resource recovery facilities will be managed in accordance industry best practice. Waste processing activities with leachate generating potential (i.e., the Soil Treatment Facility or MRF) will be covered with roof structures to minimise stormwater ingress as far as practicable. Leachate sumps with holding capacity will be installed as required to allow for washdown, spills or any unexpected stormwater ingress. Leachate collected by these sumps will be routinely pumped to the existing leachate ponds. Refer to Sheet 002 of the Concept Plans included in Appendix A for information regarding the locations of the existing and proposed leachate ponds.

4.4 Staging Plan

4.4.1 General

A summary of the proposed staging plan for the Masterplan development for the Inkerman Resource Recovery Centre is included in Table 4-3.

Table 4-3 - Proposed Staging Plan for the Masterplan Implementation

Stage	Activity	Estimated Timeframe from Approval Date
Stage 1	Soil Recycling	1 year
Stage 2	Green Waste Processing and Composting	1-2 years
Stage 3	C&D Processing	1-2 years
Stage 4	Contaminated Soil / Hazardous Waste Treatment	4 years
Stage 3a	Installation of C&D Processing Shed	5-6 years

Stage	Activity	Estimated Timeframe from Approval Date
Stage 5	Material Recovery Facility – MSW and C&I Waste	7-10 years

4.4.2 Short Term (1-2 Years)

The soil recycling facility (Stage 1), green waste processing and composting facility (Stage 2) and C&D processing treatment facility (Stage 3) have all been identified as short-term developments in the Masterplan. The recovered products which eventuate from these facilities have pre-existing and immediate demands onsite. That is, recycled soil, processed C&D material and recovered organics are anticipated to be used, where appropriate, assisting to meet the existing onsite material demand, as discussed further in Section 5.4.

4.4.3 Medium Term (3 – 6 Years)

The contaminated soil and hazardous waste treatment facility (Stage 4) has been identified as a medium-term development. It is recommended this facility be established as soon as practical to maximise beneficial reuse and the diversion of waste from landfill. Outputs from this facility will be re-used on site where appropriate and form inputs to other resource recovery activities such as composting where suitable.

4.4.4 Long Term (Ultimate)

The final facility proposed as part of the Masterplan is a Material Recovery Facility (MRF) to process mixed waste on site. The MRF will recover organics and other valuable materials from the mixed waste stream which will be re-used as feedstock for the other resource recover activities where appropriate or sent offsite for appropriate reuse or recycling.

4.5 Operational Plan

In conjunction with the development of the Masterplan for the Inkerman RRC an updated Landfill Environmental Management Plan (LEMP)[20] has been prepared for the site that sets out the operational and environmental management measures and procedures relevant to the proposed Masterplan development.

4.6 Environmental Management

The intended measures for managing the environmental risk associated with the operation of the Inkerman Resource Recovery Centre is documented in the updated EMP for the site as discussed in Section 4.6. DBD Environmental have also prepared an amendment to the EIS for the site which includes a risk assessment identifying potential environmental risks associated with the facility and appropriate management measures to mitigate them. The key risks identified for the

[20] DBD Environmental (2021). Inkerman Resource Recovery Centre Landfill Environmental Management Plan, ref: 0127CWYR008A, dated: June 2021, Adelaide, SA.

management of the facility are summarised in the proceeding sections and appropriate management measures ensure that the associated residual risk of the development is low.

4.6.1 Odour

Some of the waste streams proposed to be processed at the resource recovery facilities have odour generating potential. As such an array of odour management measures will be implemented including the following:

- Adequate separation distances between potentially odour generating activities and sensitive receptors.
- Undercover waste processing areas where appropriate.
- Environmental screening to minimise transport of odour by wind.
- Limiting the ingress of surface water and rainfall to any stockpiled waste.

4.6.2 Dust

A potential by-product of material processing/crushing/screening is dust generation. Additionally, an increase in traffic moving around the site is expected as the masterplan proposes an expansion of the services offered. Where dust generation is considered a potential environmental impact, dust suppression measures will be implemented. A wheel wash facility and an acceptable speed limit along all unsealed roads leading towards the material recovery/processing facilities will be implemented and monitored to minimise dust generation. Further, the site is equipped with an onsite water cart which will be utilised when required to actively manage dust emissions.

4.6.3 Leachate Management

Refer to Section 4.3.2 for a description of the proposed leachate management methodology for the proposed resource recovery operations. The leachate generating potential of the waste is low given the infrastructure management measures proposed. If leachate is generated at the facilities, it will be appropriately disposed.

4.6.4 Traffic Management

The facility currently accommodates large traffic volumes of various vehicle types up to Road Train configuration. The additional recycling activities are likely to have negligible or minor impact on traffic volume and vehicle type as the intent is to process the same materials currently received on site (disposed direct into landfill). As a result, changes associated with the proposed development will be the nature of vehicle movements internally on the site rather than through significant changes to waste volumes or material types received. The incoming waste materials will be managed through resource recovery to extract the recyclable content and minimise landfill.

4.6.5 Fire Management

Fire management systems currently employed at the facility for the landfilling operation are applicable to the mitigation of fire risks for the additional resource recovery activities. The following fire management controls are in place at the site:

- Burning of waste is not permitted at the facility.
- Site fire management is in accordance with all CFS requirements and advice.
- Fire mitigation infrastructure including fire breaks and firefighting tanks, machine mounted fire extinguishers and a fully laden water cart is provided.
- The stormwater ponds are available as a supplementary water supply.
- Stockpiles of daily cover are located adjacent to the tip face to smother flames in the event of a fire.
- Stockpile management plan with specific controls for management of stockpiles to mitigate fire risks (frequency of turnover of materials, aeration, stockpile height controls)
- Availability of earthmoving equipment to isolate and smother fire impacted waste (a mobile water tanker and front-end loader will be available on site to control the spread of fire).
- Ongoing observations and site communications.
- In the event of a fire on site or increased risk of fire:
    - Rapid contact with firefighting authorities is available through the site's communication system.
    - All site staff will follow advice from emergency management authorities in relation to bushfire emergencies and response to catastrophic fire days.
    - All site staff will follow Cleanaway's internal emergency management and fire mitigation plan.
- All staff are provided training concerning the above requirements. The relevant information is also included in the site induction for visitors and contractors.
- Cleanaway ensures hot works permitting requirements are followed when relevant works are to be undertaken (e.g., grinding, welding etc.). During relevant works, a fire spotter is implemented to monitor works and manage the risk of fire.
- An appropriate emergency management and evacuation plan has been developed for the site which includes provisions for incidents of fire at or in the vicinity of the site.

Additionally, during the detailed design and approvals process for future built infrastructure (i.e., sheds) appropriate allowance will be made for the relevant building codes for the infrastructure design including fire suppression systems and emergency evacuation.

5 Resource Management

5.1 General

In accordance with the Masterplan concept detailed above, this Section will present the operational resource management elements of the proposed development and the underpinning planning and design basis. The resource recovery facilities will extract and process recoverable portions of the various waste streams that are received at the site for beneficial reuse on site or otherwise. The following sections detail the recovery processes, the recovered products plans, the flow and management of materials on site and the relevant validation and quality assurance (QA) requirements to facilitate the beneficial reuse of the recovered products.

5.2 Recovered Product Processes

The acceptance and initial processing of potential recovered products will involve initial written communications between Cleanaway and the source sites. The source sites are likely to include internal Cleanaway operations such as kerbside collections, C&D collections, regional waste transfer stations, major projects with soil disposal requirements, the Wingfield Waste Transfer Station and Wingfield Liquid Waste Treatment Plant and potentially other waste service providers. The flow of materials from incoming waste to recovered products are outlined in Figure 4 below. A detailed breakdown of the processes, QA and QC requirements are provided in the recovered products plans for each product as summarised in Section 5.2.1 below.

Outputs from the initial segregation processes may undergo additional processing steps as outlined in the RPPs, the recyclables are transported off site for processing by third parties and the non-confirming materials are disposed to landfill.

5.2.1 Quality Assurance and Quality Control

Quality Assurance (QA) of these materials is documented in each of the (See RCC LEMP). Quality Control (QC) requires evidence in the form of material tracking from cradle to grave in accordance with the SA EPA Environmental management of landfill facilities, Solid Waste Disposal, 2019. In this instance the initial documentation is provided by suppliers (source), reviewed by the Inkerman RRC, weighed at the weighbridge and volumes tracked to final placement (landfill, off-site Recycling, RPPs and Auditor approved uses).

Where the product exceeds the QA requirements (for unrestricted use) the Auditor approval process is assigned to products that exceed the ‘Waste Fill’ criteria. The Auditor is also considered to be a suitable person to endorse products and proposals under the WDSE and WDF. These sampling and analytical plans are to be endorsed by the appointed Auditor prior to placement of products at the site.

The products generated for use on-site will be tracked through waste tracking QC documentation and in the case of Auditor (restricted) reuse will be surveyed in place to reduce the risk to the surrounding environment.

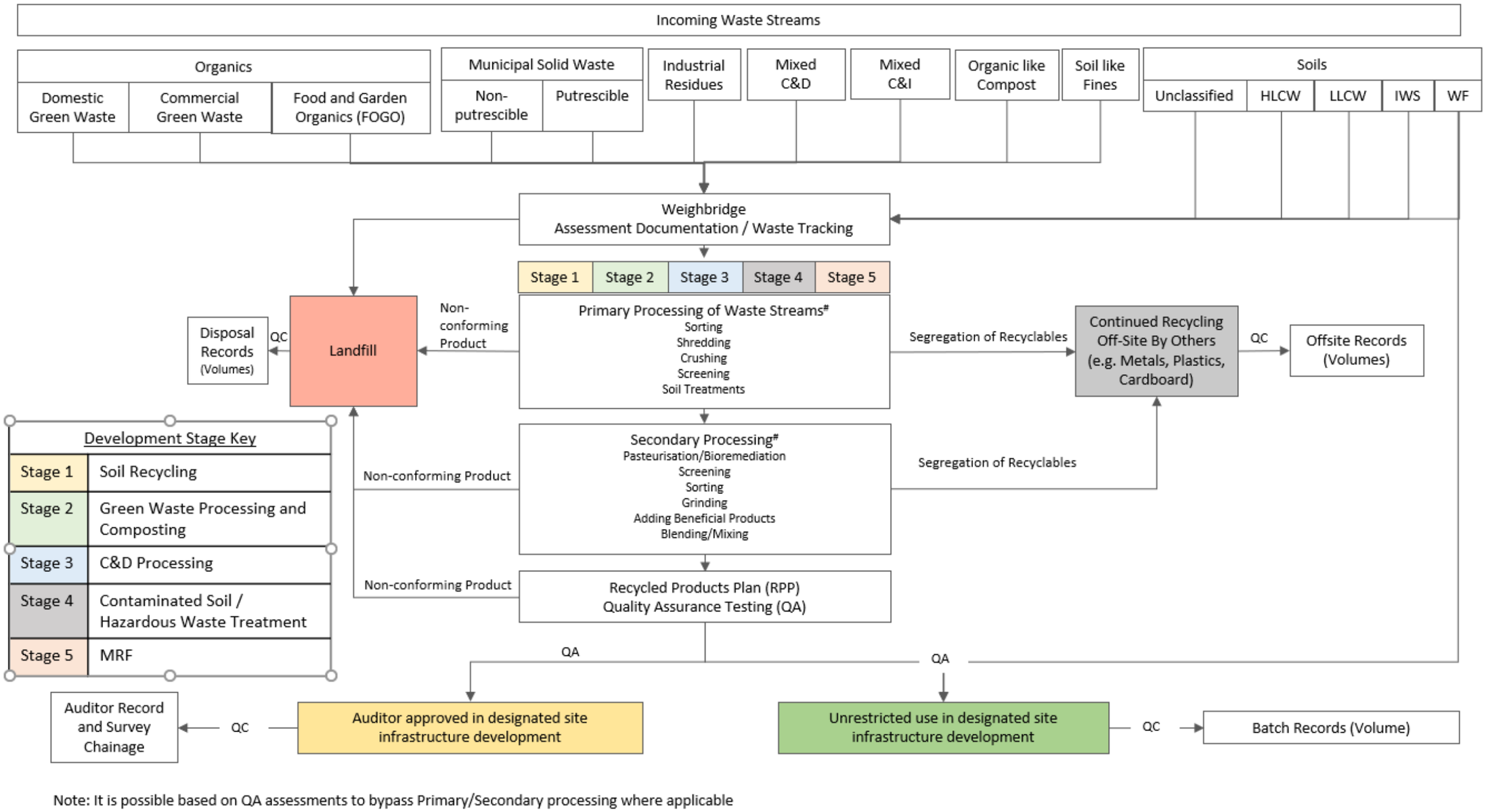


Figure 4 - Management of Incoming Waste Streams - Receipt, Tracking and Processing Flow Chart

#Refer to the RPP's included in Appendix F of the Inkerman RCC EMP.

5.2.2 Recovered Products Plans

The RPPs will identify the compliance to the relevant Waste Derived Fill (WDF) and Waste Derived Soil Enhancer (WDSE) Guidelines and achievement of RPP requirements. To demonstrate the importance of conformance to these Guidelines, specific roles and responsibilities are assigned across the Cleanaway business and the identification of product specific checklists employed to ensure all criteria are met (including QA/QC). The following RPPs have been developed to assist in the achievement of Cleanaway's strategic goals related to waste diversion from landfill and the objectives set out in the National Waste Policy (2018) and the SA Waste Strategy 2020-25. The RRPs are provided in the Inkerman appendices of the RRC LEMP and include the following:

- Growing Medium.
- Soil Enhancer / Compost /Mulch.
- Raw Mulch.
- Aggregates.
- Bulk Fill.

5.2.3 Material Flow On-Site

The Masterplan has been developed considering the existing and future site requirements, Cleanaway's strategic goals, the targets set out by the National Waste Policy and the SA Waste Strategy 2020-25. As detailed in Section 4.2, a key operational objective of the Masterplan is to ensure that the proposed resource recovery facilities are easy to operate with clear, linear movement of materials and vehicles that minimises the potential for vehicle conflicts, rework, or cross contamination. These factors have all be considered when planning the siting and staging of the facilities. The overall concept methodology is to achieve a linear materials flow from south to north and a linear vehicle movement pattern from west to east. This methodology aims to reduce vehicle movements that could cause cross contamination of waste streams from the feedstocks and final products, reversing movements and traffic conflicts but also considers safety of operators, truck drivers and pedestrians on the site.

The Concept Plans provided in Appendix A (Sheet 002 to 008) provide the concept layouts for the proposed resource recovery facilities and high-level mapping of the materials flow within each stage of the development.

The flow of material into and through each stage, the final re-use applications, and the interaction between them is outlined in the flow chart in Figure 5 below and further detailed in the RPPs in the Inkerman RRC LEMP.

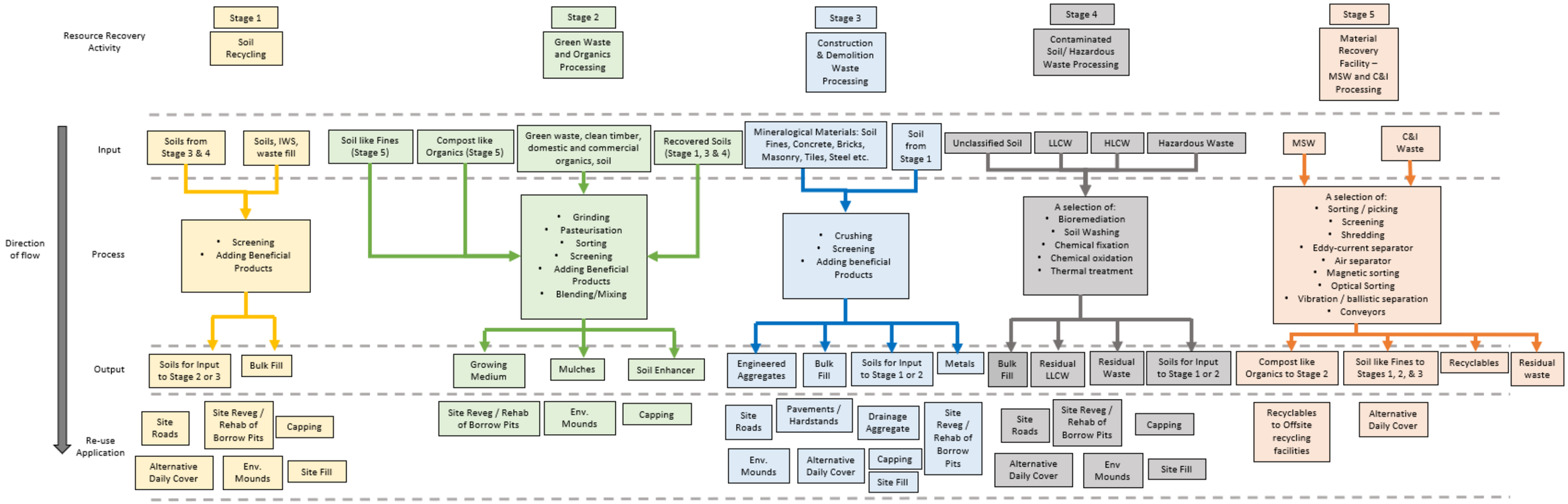


Figure 5 - Inkerman Resource Recovery Centre Material Flows

5.3 Waste Processing

Further to the information provide in Figure 5 above, Table 5-1 provides a summary of the waste processing activities to be undertaken on site at the various resource recovery facilities. The table details the waste streams and their definitions and relevant feedstocks, the waste processing activities to be undertaken, the validation requirements and the re-use applications.

Table 5-1 - Waste Processing Activities Summary

Activity	Waste Stream	Definition	Feedstock	Processing Activity	Interim Products / Final Products Applicable	Re-use Application
1	Soils	<u>Intermediate Waste Soil:</u> Waste soil that does not meet the criteria for waste fill and is classified as IWS in accordance with Table 1 in the Current criteria for the classification of waste – including Industrial and Commercial Waste (Listed) and Waste Soil. <u>Waste Fill:</u> As defined in the Environment Protection Regulations 2009 waste fill means: waste consisting of clay, concrete, rock, sand, soil, or other inert mineralogical matter in pieces not exceeding 100 mm in length and containing chemical substances in concentrations (calculated in a manner determined by the Authority) less than the concentrations for those substances set out in Schedule 6 but does not include waste consisting of or containing asbestos or bitumen. The Waste Fill chemical criteria are specified in Schedule 6 of the Environment Protection Regulations 2009: https://www.legislation.sa.gov.au/LZ/C/R/Environment%20Protection%20Regulations%202009.Aspx	• Inert Soils • Intermediate Waste Soil (IWS) • Waste fill	• Screening • Adding beneficial Products	• Soils for Input to Organics Processing • Soils for Input to C&D Processing • Bulk Fill. Refer to Recovered Products Plans (in RCC LEMP Document)	• Site Roads • Site Revegetation /Rehab of Borrow Pits • Capping • Environmental Mounds • Site Fill • Alternative Daily Cover
2	Green Waste, Compostable Organic Waste	<u>Green Waste:</u> The vegetative portion of the waste stream arising from various sources including waste from domestic and commercial premises and municipal operations. <u>Compostable Organic Waste:</u> The biodegradable component of the waste stream that is of biological origin but does not contain any Listed Waste, Radioactive Waste or Hazardous Waste. Notes: These organic materials may be processed through composting works to formulate valuable recycled organic products. Suitability of compostable organic waste as feedstock is dependent on the location, site design, processes, and potential to cause environmental harm	• Green waste • Street sweepings • Grass clippings • Soils • Clean timber • Chipboard • Domestic and commercial organics • Compost like Organics/ Soil like Fines from Activity 5.	• Shredding • Pasteurisation • Sorting • Screening • Grinding • Blending/Mixing • Adding Beneficial Products	• Growing Medium. • Soil Enhancer / Compost /Mulch. • Raw Mulch. Refer to Recovered Products Plans (in RCC LEMP Document)	• Site Revegetation /Rehab of Borrow Pits • Capping • Environmental Mounds
3	C&D Waste (inert)	The solid inert component of the waste stream arising from the construction, demolition or refurbishment of buildings or infrastructure but does not contain Municipal Solid Waste, Commercial and Industrial Waste (General), Listed Waste, Hazardous Waste or Radioactive Waste. Notes: C&D waste (Inert) should be such that the entire composition of the C&D materials is Inert Waste with no contamination by foreign material. As such it is acknowledged that - with the aim of no contamination - there may be some negligible components of foreign material contained in the waste (as a guide, 0–5% maximum by volume per load). C&D waste (Inert) includes bricks, concrete, Iles and ceramics, steel, and inert soils. Foreign material includes green waste, plastics, electrical wiring, timber, paper, insulation, tins, packaging, and other	• Mineralogical Materials • Concrete • Bricks • Masonry • Tiles / ceramics • Scrap metals	• Screening (pre and/or post) • Crushing • Adding beneficial Products	• Soils for Input to Organics Processing • Soils for Input to Soil Recycling • Aggregates • Bulk Fill	• Site Roads • Pavements / Hardstands • Capping • Environmental Mounds • Site Fill • Site Revegetation/Rehab of Borrow Pits

		waste associated with construction or demolition of a building or other infrastructure. Foreign material must not be Municipal Solid Waste, Liquid, Listed, Hazardous or Radioactive Waste.	• Soil fines		Refer to Recovered Products Plans (in RCC LEMP Document)	• Alternative Daily Cover • Drainage Aggregate
4	Contaminated Soil and Hazardous Waste	<u>Unclassified Soil:</u> Waste that has not been classified in accordance with Current criteria for the classification of waste – including Industrial and Commercial Waste (Listed) and Waste Soil. <u>LLCW:</u> Waste containing concentrations of chemical substances such that it does not meet the criteria for IW and is classified as LLCW in accordance with Table 1 in the Current criteria for the classification of waste – including Industrial and Commercial Waste (Listed) and Waste Soil. <u>HLCW:</u> Waste containing concentrations of chemical substances such that it does not meet the criteria for LLCW in accordance with Table 1 in the *Current criteria for the classification of waste – including Industrial and Commercial Waste (Listed) and Waste Soil.* <u>Hazardous Waste:</u> Hazardous waste means listed waste having a characteristic described in schedule A list 2 of the National Environment Protection (Movement of controlled waste between States and Territories) Measure, as amended from time to time. <u>Treatment Plant Residues:</u> Means all waste residues generated during the treatment of wastes, which are received from sites regulated under Environmental Authorisation No. 2897 & 2672 (Veolia Environmental Services (Australia) Pty Ltd) and Environmental Authorisation No. 15195 (Cleanaway Operations Pty Ltd), or from any other sites approved in writing by the EPA.	• Unclassified Soil • LLCW • HLCW • Hazardous Waste • Treatment Plant Residues	A Selection of the following: • Bioremediation • Soil washing • Chemical fixation • Chemical oxidation • Thermal treatment	• Growing Medium • Bulk Fill Refer to Recovered Products Plans (in RCC LEMP Document)	• Site Roads • Capping • Environmental Mounds • Site Fill • Site Revegetation/Rehab of Borrow Pits • Alternative Daily Cover
5	MSW and C&I Waste	<u>MSW</u>: The solid component of the waste stream arising from mainly domestic but also commercial, industrial, government and public premises including waste from council operations, services and facilities that is collected by or on behalf of the council via kerbside collection but does not contain Commercial and Industrial Waste (General), Listed Waste, Hazardous Waste or Radioactive Waste. The non-putrescible component relates to the component of the waste stream unlikely to become putrid. The putrescible component relates to the component of the waste stream liable to become putrid. For example: organic matter that has the potential to decompose with the formation of malodorous substances, usually refers to vegetative, food and animal products. <u>C&I Waste</u>: The solid component of the waste stream arising from commercial, industrial, government, public or domestic premises (not collected as Municipal Solid Waste), but does not contain Listed Waste, Hazardous Waste or Radioactive Waste.	• MSW • C&I wastes	Processing using the following plant / practices: • Sorting / picking • Shredding • Screening • Eddy-current separator • Air separator • Magnetic sorting • Optical sorting • Vibration / ballistic separation • Conveyors	• Compost like Organics • Soil like Fines Refer to Recovered Products Plans (in RCC LEMP Document)	• Compost like Organics to feed into Activity 2. • Soil like Fines to feed into Activity 1, 2 & 3. • Alternative Daily Cover • Recyclables: – Scrap metals – Paper and cardboard – Soft plastics – Hard plastics – Glass

5.4 Material Demand

The resource recovery operations described in the Masterplan will create a range of recovered products which would otherwise have been disposed of to landfill. These products have beneficial uses both on site and off site. Based on the proposed future developments at the site, the indicative site materials demand is detailed in Table 5-2. Indicative concept details for infrastructure including site roads, pavements and environmental mounds are included in the Concept Plans in Appendix A.

Other recovered products which have not been factored into the indicative onsite materials demand include alternative daily cover and drainage aggregate. Although, both materials will be recovered on site and will be in continual demand for the maintenance and construction of onsite landfill cells. In the coming years, on site construction will facilitate a further 25,000,000m^3 of landfill airspace and therefore a large demand for landfill-oriented material, e.g., cover and drainage aggregate is expected to be in constant demand. Further, the opportunity exists to provide such material to other Cleanaway-operated landfill sites.

Table 5-2 - Indicative Site Material Demand

Material Demand Category	Area (m^2)	Volume (m^3)
1) SITE ROADS AND PAVEMENTS - AGGREGATE		
Haul road unsealed - road base	18,900	5,670
Internal road unsealed - road base	13,680	4,104
Internal road sealed - road base	1,250	450
Granular Hardstand - road base	46,000	57,603
Sealed pavement - road base	19,520	11,712
SUB-TOTAL		**79,539**
3) FILL - GROWING MEDIUM		
Borrow area 1	25,000	30,000
Borrow area 2	20,200	14,544
Borrow area 3	100,000	102,000
Vegetated mounds	-	278,208
Landfill capping	1,409,871	2,537,768
Local depression 1	32,500	23,400
SUB-TOTAL		**2,985,920**
3) FILL - BULK FILL		
Surface water basins - subgrade	20,000	7,200

Material Demand Category	Area (m^2)	Volume (m^3)
Leachate basins - subgrade	8000	2,880
Site roads - fill / subgrade (max)	47,712	14,723
Pavements - fill / subgrade (max)	115,525	41,589
Landfill capping - subgrade / IC	1,409,871	507,554
SUB-TOTAL		**573,946**
4) TOPSOIL / MULCH		
Borrow area 1	25,000	6,000
Borrow area 2	20,200	4,848
Borrow area 3	100,000	24,000
Vegetated mounds	-	28,512
Local depression 1	32,500	7,800
Landfill capping	1,409,871	507,554
SUB-TOTAL		**578,714**
TOTAL		**4,218,119**

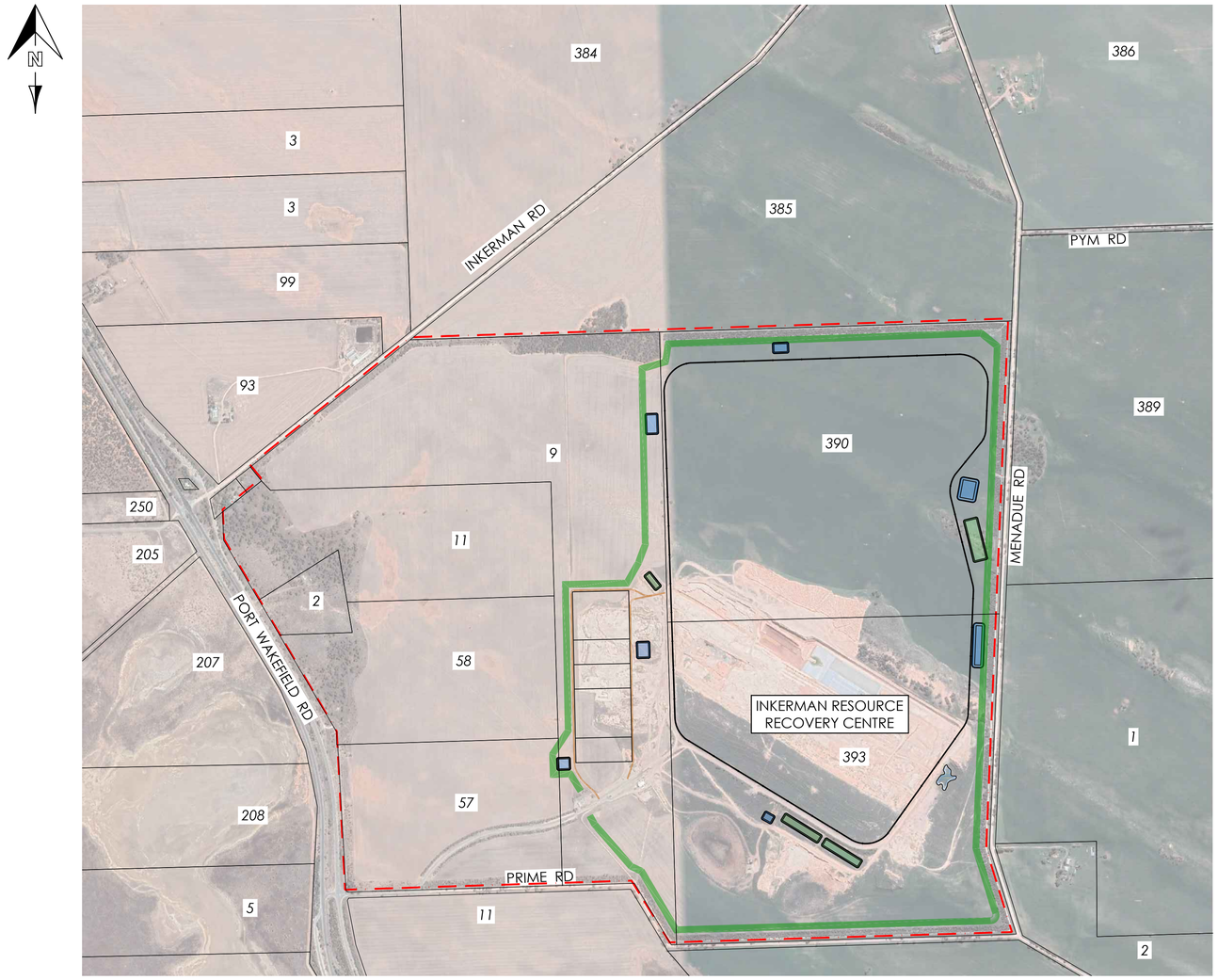
Appendix A

Masterplan Concept Plans

CLEANAWAY

INKERMAN RESOURCE RECOVERY CENTRE

MASTERPLAN



0 100 200 500 1000

1:10000m

DRAWING SCHEDULE

SHEET No.	DRAWING TITLE
001	SITE OVERVIEW AND DRAWING SCHEDULE
002	SITE LAYOUT PLAN
003	STAGE 1 - SOIL RECYCLING FACILITY
004	STAGE 2 - GREEN WASTE PROCESSING AND COMPOSTING
005	STAGE 3 - C&D PROCESSING FACILITY
006	STAGE 4 - CONTAMINATED SOIL & WASTE TREATMENT
007	STAGE 3a - C&D PROCESSING FACILITY
008	STAGE 5 - MRF PROCESSING FACILITY
009	TYPICAL SECTIONS AND DETAILS

NOT FOR CONSTRUCTION

REV	DATE	AMENDMENT DESCRIPTION	DES	DRN	CHK	APPR
2	11.06.21	ISSUED AS FINAL	AW	PS	BD	AW
1	26.03.21	ISSUED FOR COMMENT	AW	PS		

DBD environmental

ISO9001 QUALITY ISO14001 ENVIRONMENT ISO45001 OH&S

100mm ON ORIGINAL PRINT. DO NOT SCALE

SCALE: 1:10000	SHEET SIZE: A1
SURVEYED: Surveyed	DATE: Survey_date
COORDINATES: MGA2020 ZONE 54	DATUM: mAHD

NOTE:
THIS DRAWING TO BE VIEWED AND PRINTED IN COLOUR.
LOCATION OF ALL SERVICES SHOWN SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

CLEANAWAY

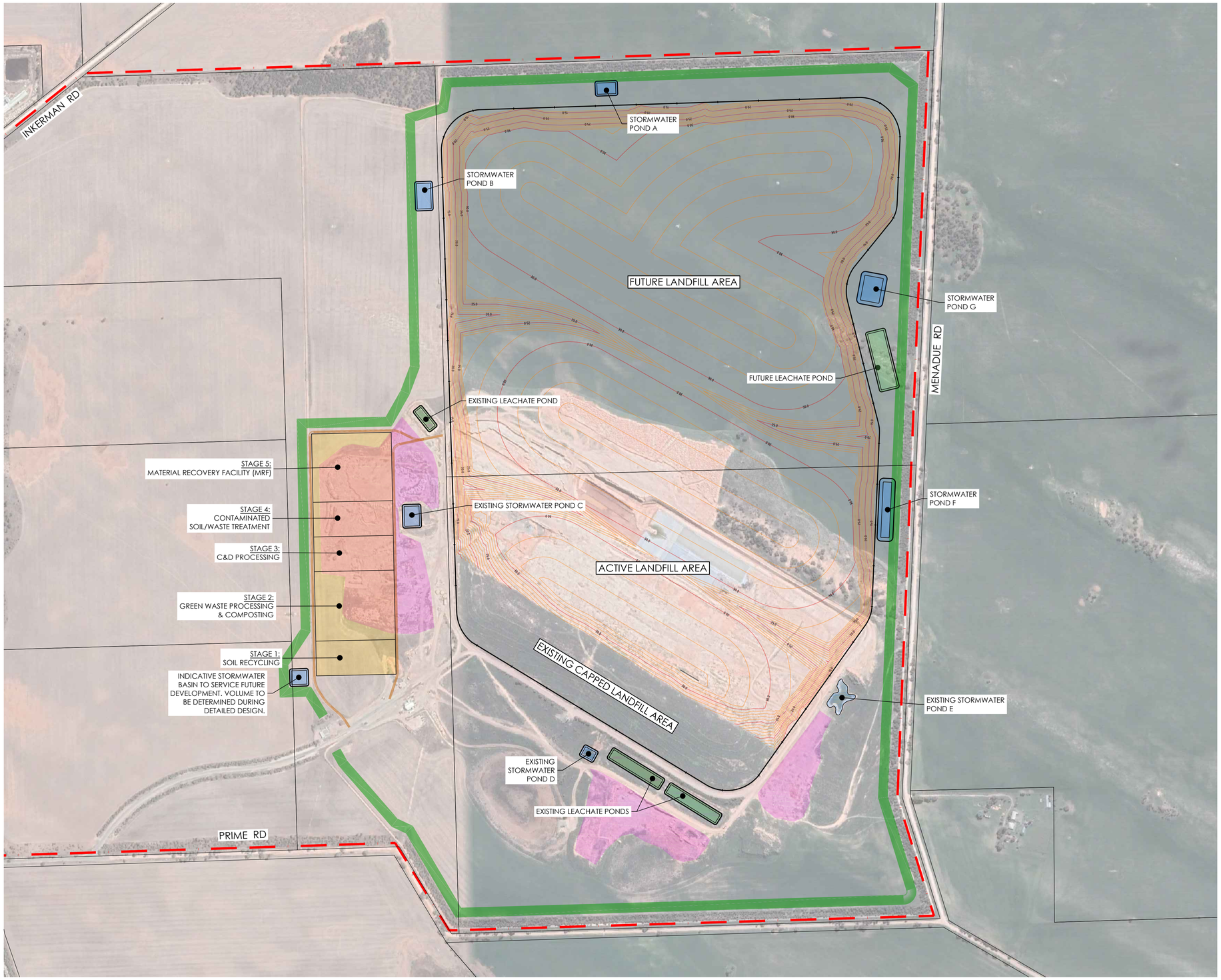
INKERMAN RESOURCE RECOVERY CENTRE

MASTERPLAN

SITE OVERVIEW AND DRAWING SCHEDULE

PROJECT No.	SHEET No.	REVISION
0127CWY.01	001	2

drawing file: 0127CWY_001_Index_Masterplan-Op1.dwg Plot Date: 7/1/2021 4:54 PM



LEGEND

- 1.0m DESIGN CONTOUR (BY OTHERS)
- 25.0 — 5.0m DESIGN CONTOUR (BY OTHERS)
- SITE BOUNDARY
- STORMWATER BASIN
- LEACHATE POND
- EXISTING BORROW AREA FOR REHABILITATION
- PROPOSED ACCESS ROAD
- 24m WIDE VEGETATED SOIL BUND

N

0 50 100 250 500

1:5000m

NOT FOR CONSTRUCTION

REV	DATE	AMENDMENT DESCRIPTION	DES	DRN	CHK	APPR
2	11.06.21	ISSUED AS FINAL	AW	PS	BD	AW
1	26.03.21	ISSUED FOR COMMENT	AW	PS		

DBD environmental

BEST PRACTICE CERTIFICATION ISO 9001 QUALITY MANAGEMENT SYSTEM
BEST PRACTICE CERTIFICATION ISO 14001 ENVIRONMENT MANAGEMENT SYSTEM
BEST PRACTICE CERTIFICATION ISO 45001 OH&S MANAGEMENT SYSTEM

100mm ON ORIGINAL PRINT. DO NOT SCALE

SCALE: 1:5000	SHEET SIZE: A1
SURVEYED: Surveyed	DATE: Survey_date
COORDINATES: MGA2020 ZONE 54	DATUM: mAHD

NOTE:
THIS DRAWING TO BE VIEWED AND PRINTED IN COLOUR.
LOCATION OF ALL SERVICES SHOWN SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

CLEANAWAY

INKERMAN RESOURCE RECOVERY CENTRE

MASTERPLAN

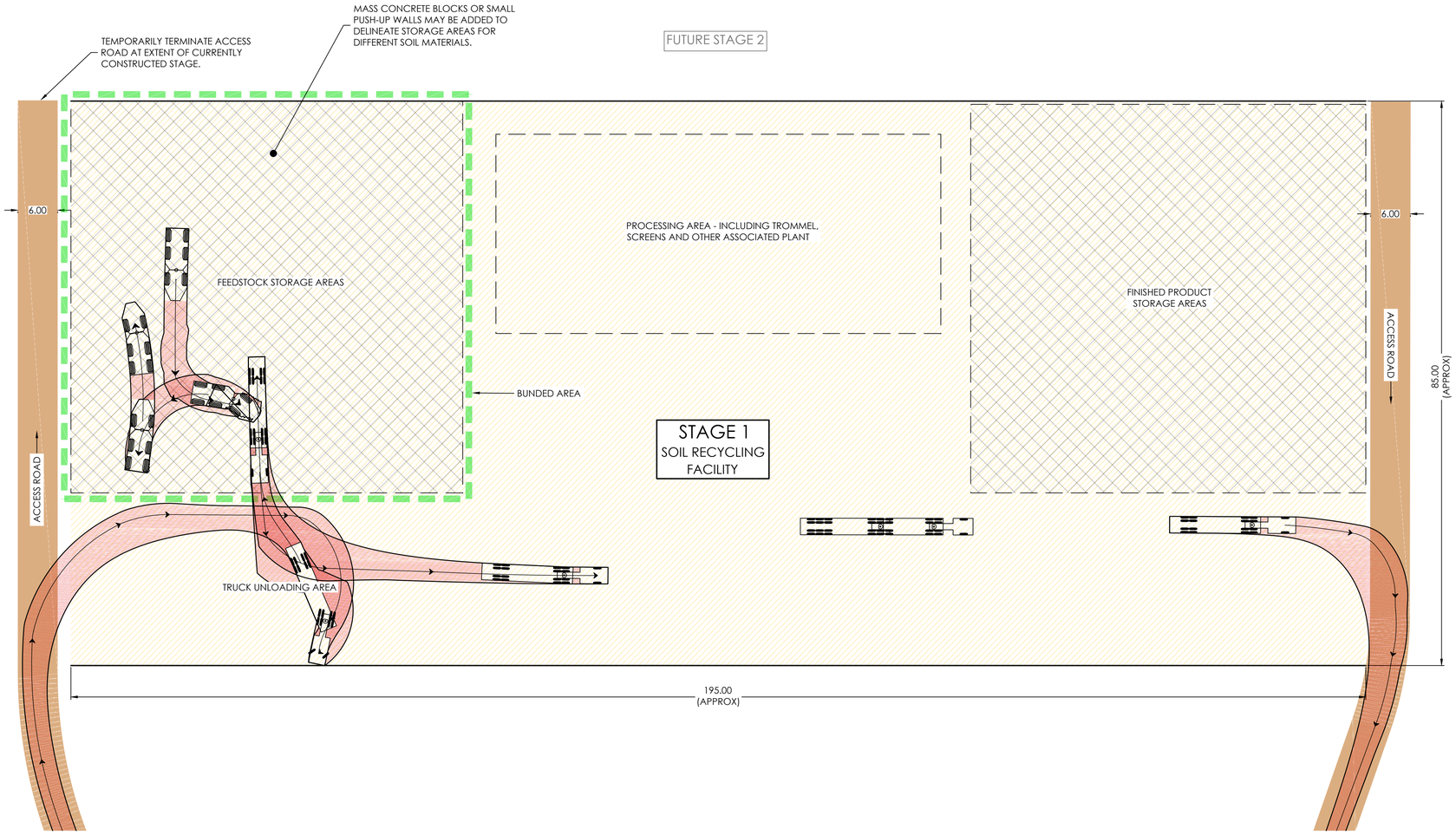
SITE LAYOUT PLAN

PROJECT No.	SHEET No.	REVISION
0127CWY.01	002	2

drawing file: 0127CWY_002_SitePlan_Masterplan-Op1.dwg Plot Date: 7/1/2021 4:54 PM

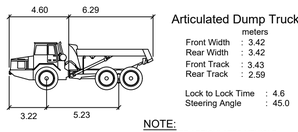
STAGING

SCALE 1:5000



PLAN

SCALE 1:400

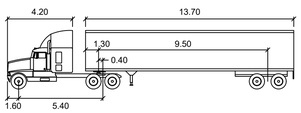


Articulated Dump Truck

meters

Front Width	: 3.42
Rear Width	: 3.42
Front Track	: 3.43
Rear Track	: 2.59
Lock to Lock Time	: 4.6
Steering Angle	: 45.0

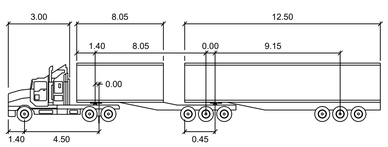
NOTE:
ALTERNATE ARTICULATED VEHICLE USED IN PLACE OF UNAVAILABLE FRONT END LOADER PROFILE



SEM1

meters

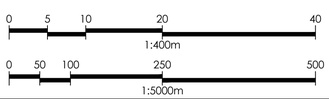
Tractor Width	: 2.50
Trailer Width	: 2.50
Tractor Track	: 2.50
Trailer Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 28.4
Articulating Angle	: 70.0



B-DOUBLE 26M

meters

Tractor Width	: 2.50
Trailer Width	: 2.50
Tractor Track	: 2.50
Trailer Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 23.4
Articulating Angle	: 70.0



NOT FOR CONSTRUCTION

REV	DATE	AMENDMENT DESCRIPTION	DES	DRN	CHK	APPR
2	11.06.21	ISSUED AS FINAL	AW	PS	BD	AW
1	26.03.21	ISSUED FOR COMMENT	AW	PS		

DBD environmental

ISO9001 QUALITY MANAGEMENT SYSTEM · ISO14001 ENVIRONMENT MANAGEMENT SYSTEM · ISO45001 OH&S MANAGEMENT SYSTEM

100mm ON ORIGINAL PRINT. DO NOT SCALE

SCALE: 1:400	SHEET SIZE: A1
SURVEYED: Surveyed	DATE: Survey_date
COORDINATES: MGA2020 ZONE 54	DATUM: mAHD

NOTE:
THIS DRAWING TO BE VIEWED AND PRINTED IN COLOUR.
LOCATION OF ALL SERVICES SHOWN SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

CLEANAWAY

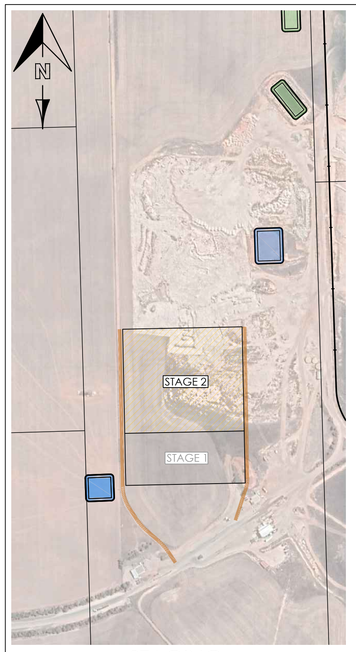
INKERMAN RESOURCE RECOVERY CENTRE

MASTERPLAN

STAGE 1 - SOIL RECYCLING FACILITY

PROJECT No.	SHEET No.	REVISION
0127CWY.01	003	2

drawing file: 0127CWY_003_Stage1_Masterplan-Op1.dwg Plot Date: 7/1/2021 4:54 PM

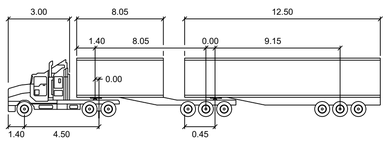


STAGING
SCALE 1:5000

SEM1

meters

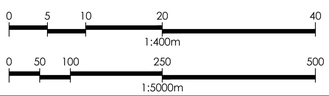
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 28.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

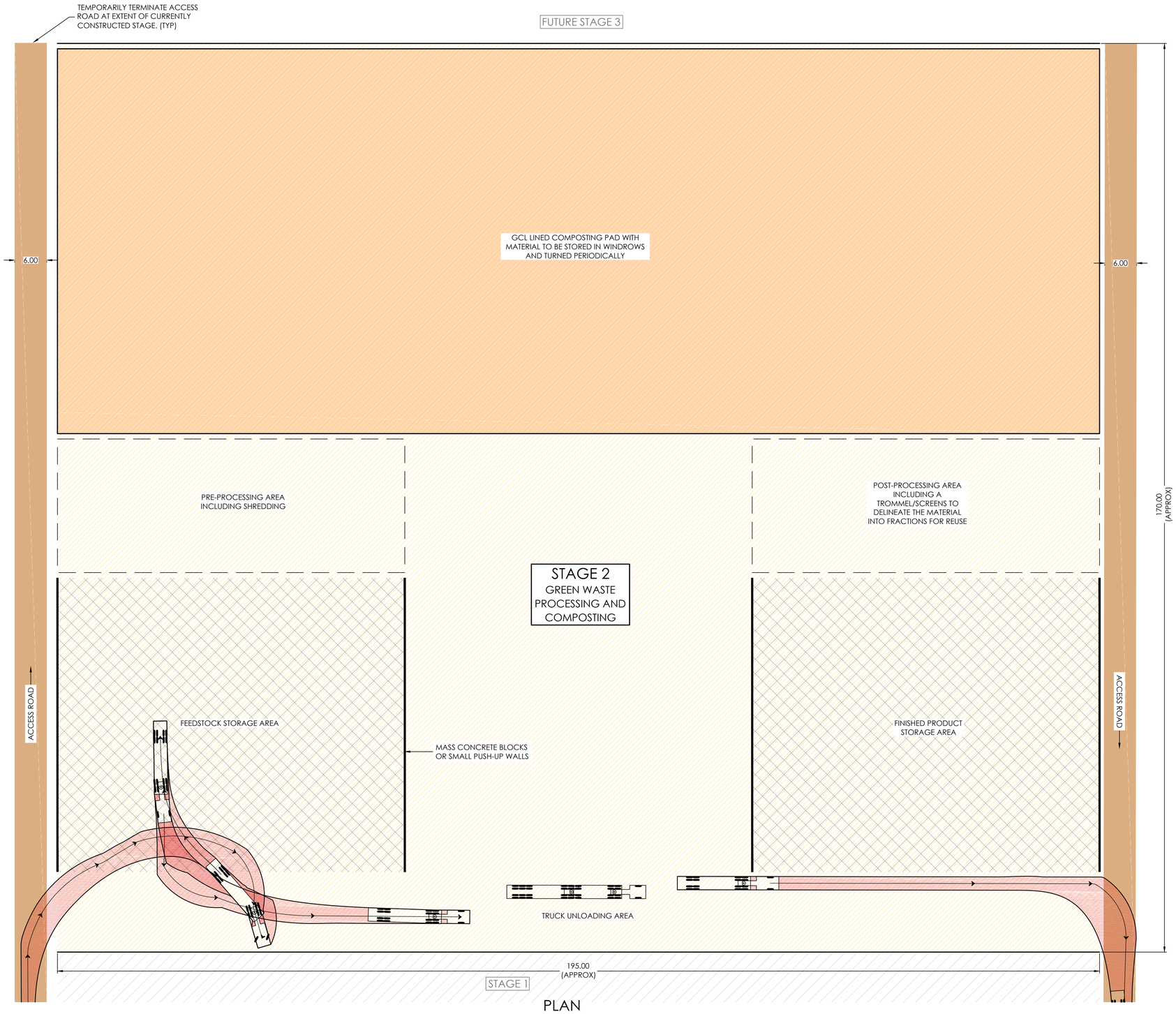


B-DOUBLE 26M

meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 23.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		





PLAN
SCALE 1:400

NOT FOR CONSTRUCTION

REV	DATE	AMENDMENT DESCRIPTION	DES	DRN	CHK	APPR
2	11.06.21	ISSUED AS FINAL	AW	PS	BD	AW
1	26.03.21	ISSUED FOR COMMENT	AW	PS		

DBD environmental

ISO9001 QUALITY MANAGEMENT SYSTEM · ISO14001 ENVIRONMENT MANAGEMENT SYSTEM · ISO45001 OH&S MANAGEMENT SYSTEM

100mm ON ORIGINAL PRINT. DO NOT SCALE

SCALE: 1:400	SHEET SIZE: A1
SURVEYED: Surveyed	DATE: Survey_date
COORDINATES: MGA2020 ZONE 54	DATUM: mAHD

NOTE:
THIS DRAWING TO BE VIEWED AND PRINTED IN COLOUR.
LOCATION OF ALL SERVICES SHOWN SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

CLEANAWAY

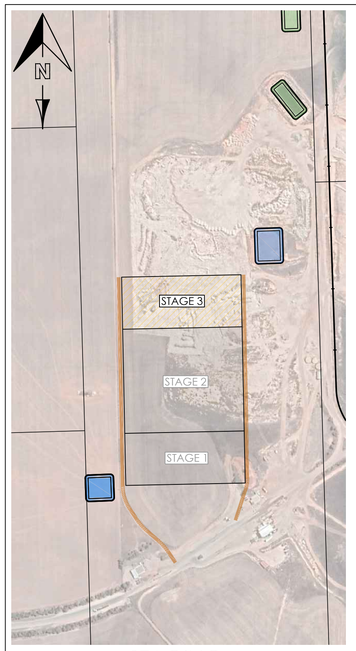
INKERMAN RESOURCE RECOVERY CENTRE

MASTERPLAN

STAGE 2 - GREEN WASTE PROCESSING AND COMPOSTING

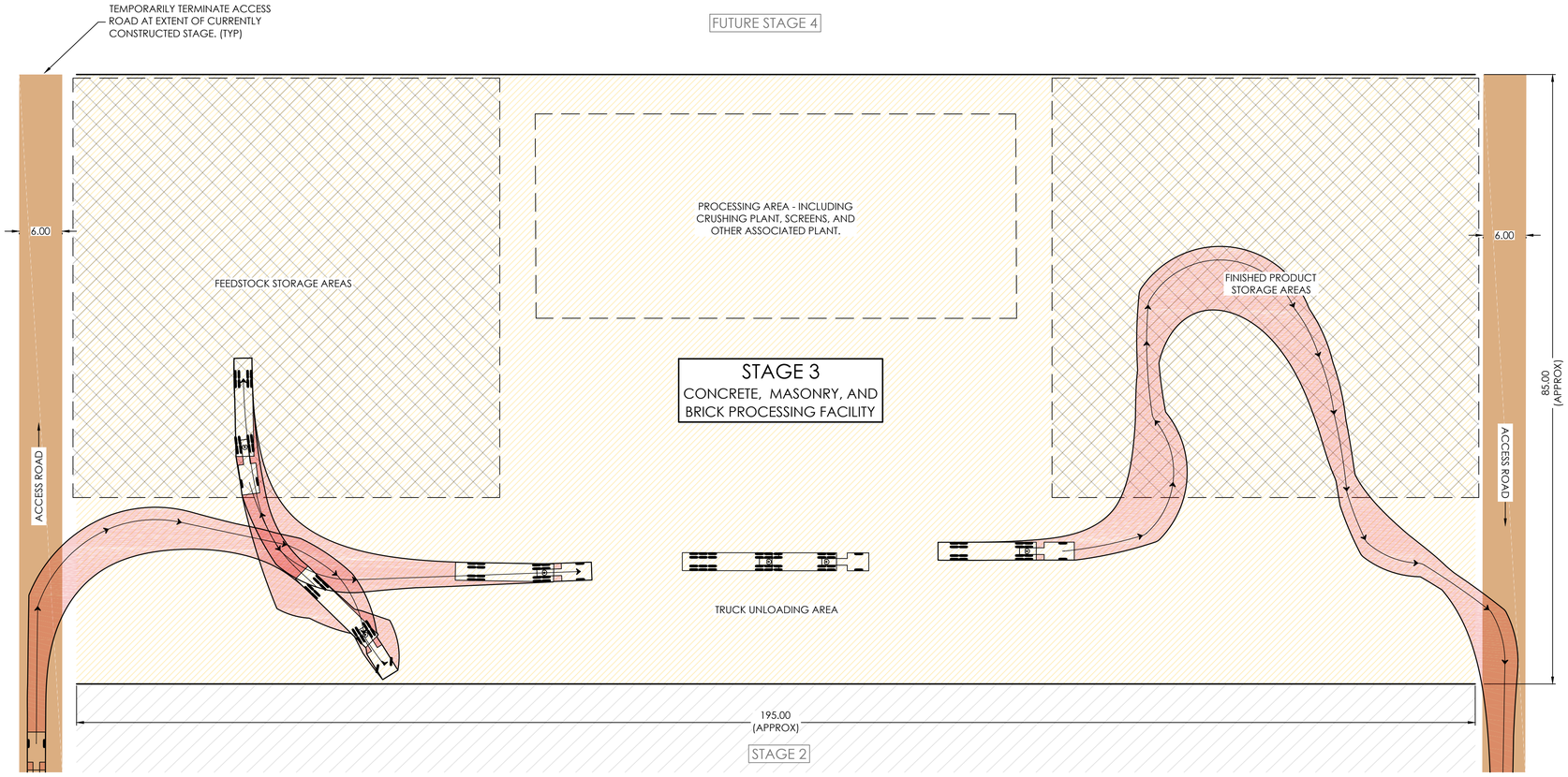
PROJECT No.	SHEET No.	REVISION
0127CWY.01	004	2

drawing file: 0127CWY_004_Stage2_Masterplan-Op1.dwg Plot Date: 7/1/2021 4:54 PM



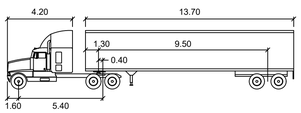
STAGING

SCALE 1:5000



PLAN

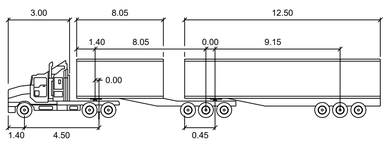
SCALE 1:400



SEM1

meters

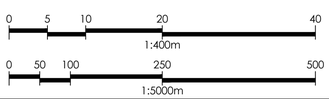
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 28.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		



B-DOUBLE 26M

meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 23.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		



NOT FOR CONSTRUCTION

REV	DATE	AMENDMENT DESCRIPTION	DES	DRN	CHK	APPR
2	11.06.21	ISSUED AS FINAL	AW	PS	BD	AW
1	26.03.21	ISSUED FOR COMMENT	AW	PS		

DBD environmental

BEST PRACTICE CERTIFICATION ISO9001 QUALITY MANAGEMENT SYSTEM
BEST PRACTICE CERTIFICATION ISO14001 ENVIRONMENT MANAGEMENT SYSTEM
BEST PRACTICE CERTIFICATION ISO45001 OH&S MANAGEMENT SYSTEM

100mm ON ORIGINAL PRINT. DO NOT SCALE

SCALE: 1:400	SHEET SIZE: A1
SURVEYED: Surveyed	DATE: Survey_date
COORDINATES: MGA2020 ZONE 54	DATUM: mAHD

NOTE:
THIS DRAWING TO BE VIEWED AND PRINTED IN COLOUR.
LOCATION OF ALL SERVICES SHOWN SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

CLEANAWAY

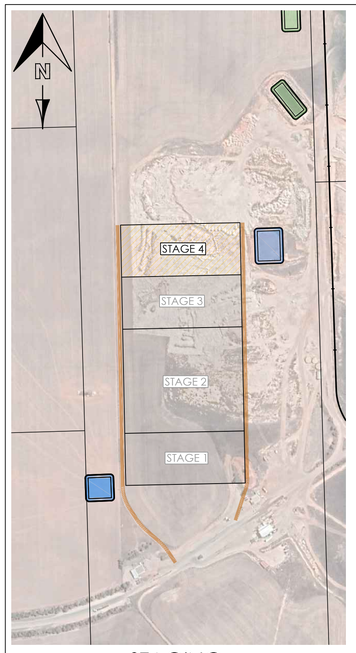
INKERMAN RESOURCE RECOVERY CENTRE

MASTERPLAN

STAGE 3 - C&D PROCESSING FACILITY

PROJECT No.	SHEET No.	REVISION
0127CWY.01	005	2

drawing file: 0127CWY_005_Stage3_Masterplan-Op1.dwg Plot Date: 7/1/2021 4:54 PM

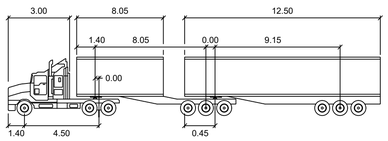


STAGING

SCALE 1:5000

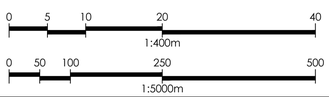
SEM1

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 28.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

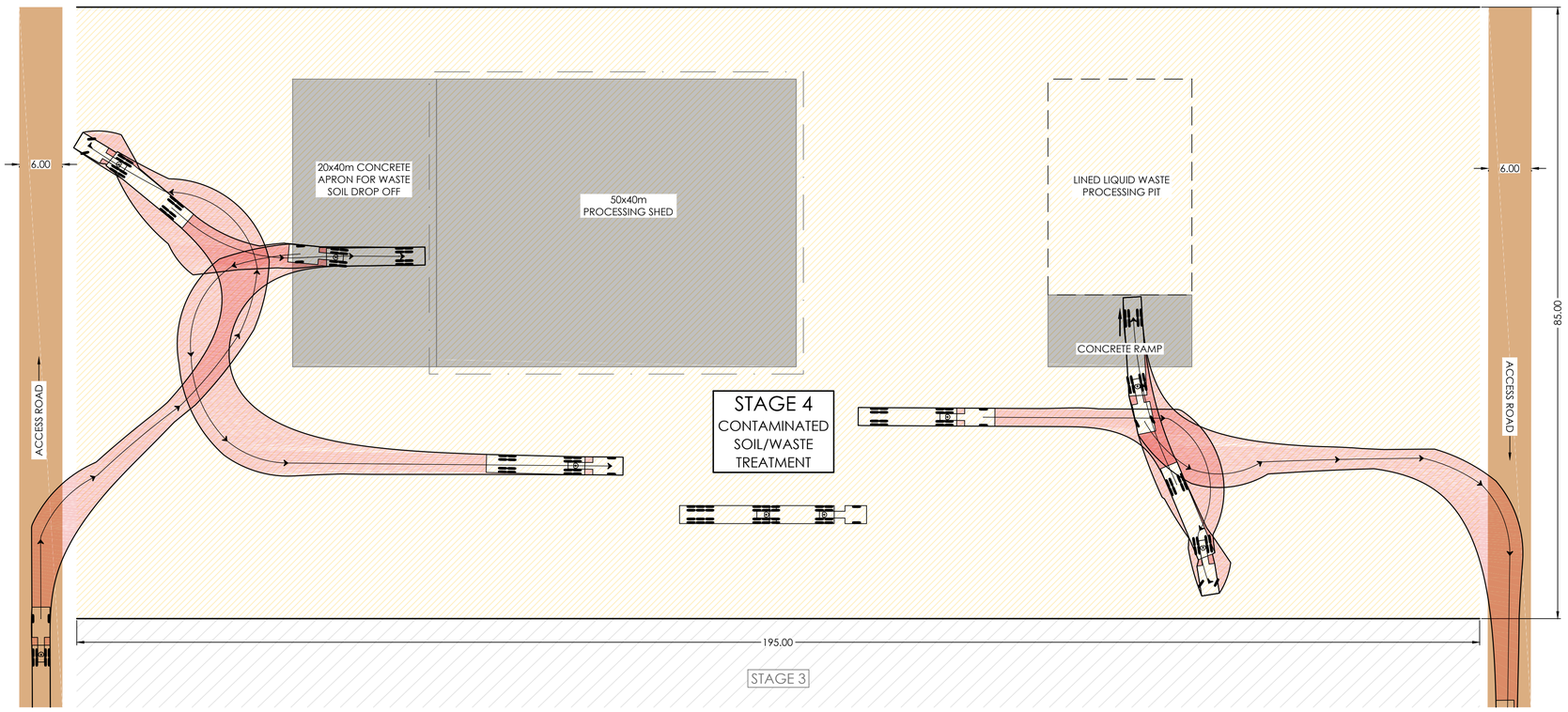


B-DOUBLE 26M

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 23.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		



FUTURE STAGE 5



PLAN

SCALE 1:400

NOT FOR CONSTRUCTION

REV	DATE	AMENDMENT DESCRIPTION	DES	DRN	CHK	APPR
2	11.06.21	ISSUED AS FINAL	AW	PS	BD	AW
1	26.03.21	ISSUED FOR COMMENT	AW	PS		

DBD environmental

ISO9001 QUALITY MANAGEMENT SYSTEM · ISO14001 ENVIRONMENT MANAGEMENT SYSTEM · ISO45001 OH&S MANAGEMENT SYSTEM

100mm ON ORIGINAL PRINT. DO NOT SCALE

SCALE: 1:400	SHEET SIZE: A1
SURVEYED: Surveyed	DATE: Survey_date
COORDINATES: MGA2020 ZONE 54	DATUM: mAHD

NOTE:
THIS DRAWING TO BE VIEWED AND PRINTED IN COLOUR.
LOCATION OF ALL SERVICES SHOWN SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

CLEANAWAY

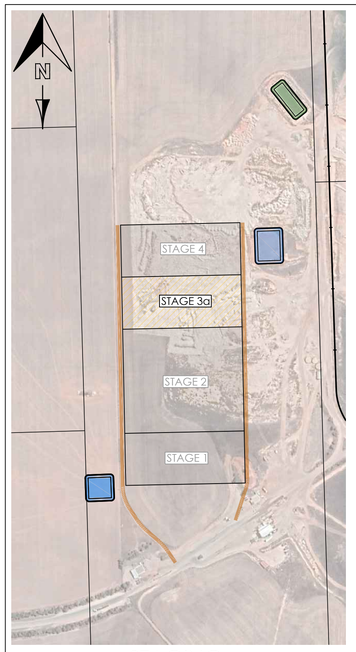
INKERMAN RESOURCE RECOVERY CENTRE

MASTERPLAN

STAGE 4 - CONTAMINATED SOIL & WASTE TREATMENT

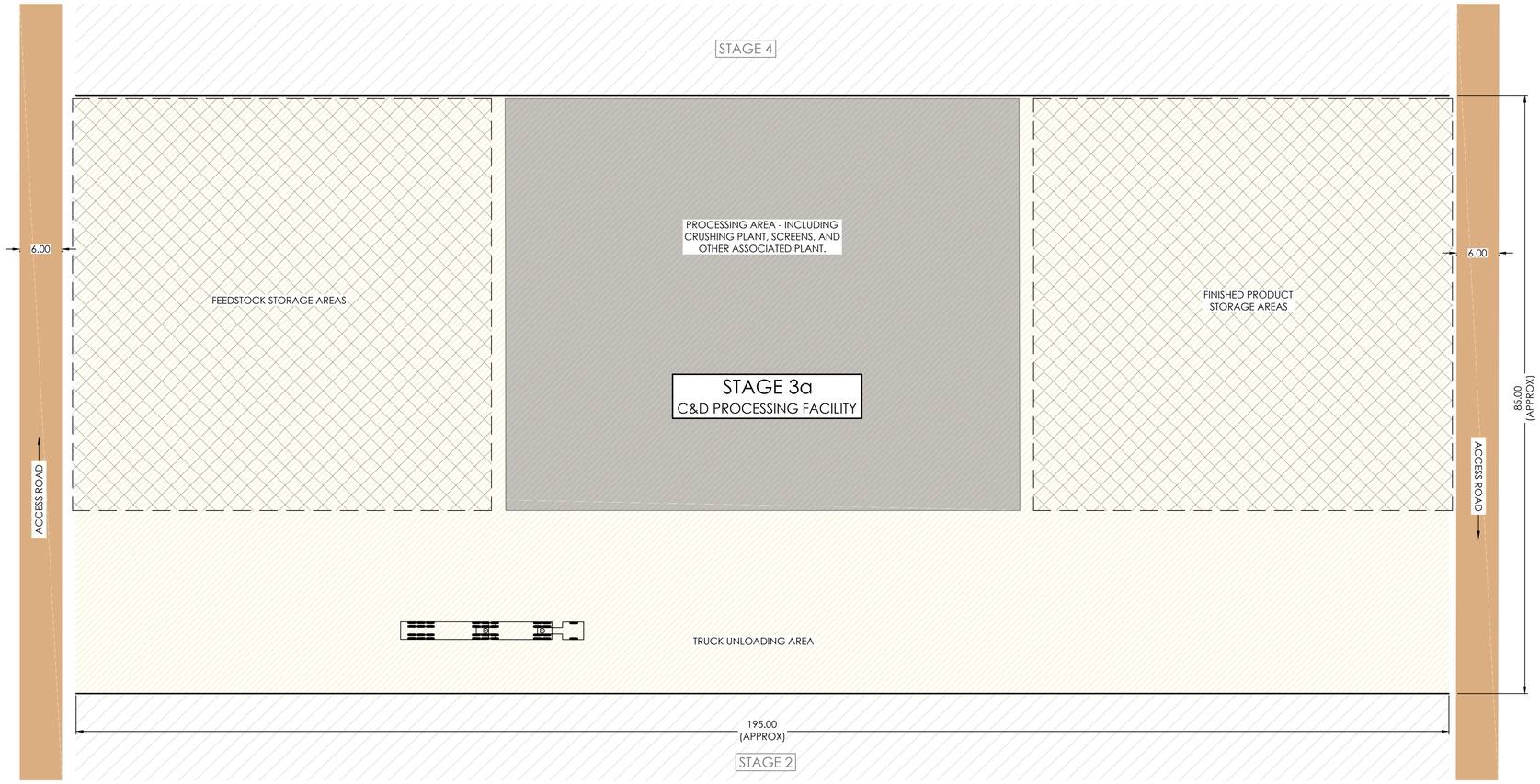
PROJECT No.	SHEET No.	REVISION
0127CWY.01	006	2

drawing file: 0127CWY_006_Stage4_Masterplan-Op1.dwg Plot Date: 7/1/2021 4:54 PM



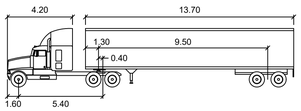
STAGING

SCALE 1:5000



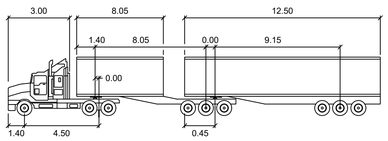
PLAN

SCALE 1:400



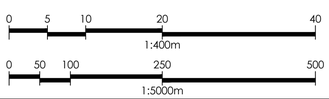
SEM1

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 28.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		



B-DOUBLE 26M

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 23.4
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		



NOT FOR CONSTRUCTION

REV	DATE	AMENDMENT DESCRIPTION	DES	DRN	CHK	APPR
2	11.06.21	ISSUED AS FINAL	AW	PS	BD	AW
1		ISSUED FOR COMMENT	AW	PS		

DBD environmental

BEST PRACTICE CERTIFICATION ISO 9001 QUALITY MANAGEMENT SYSTEM
BEST PRACTICE CERTIFICATION ISO 14001 ENVIRONMENT MANAGEMENT SYSTEM
BEST PRACTICE CERTIFICATION ISO 45001 OH&S MANAGEMENT SYSTEM

100mm ON ORIGINAL PRINT. DO NOT SCALE

SCALE: 1:400	SHEET SIZE: A1
SURVEYED: Surveyed	DATE: Survey_date
COORDINATES: MGA2020 ZONE 54	DATUM: mAHD

NOTE:
THIS DRAWING TO BE VIEWED AND PRINTED IN COLOUR.
LOCATION OF ALL SERVICES SHOWN SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

CLEANAWAY

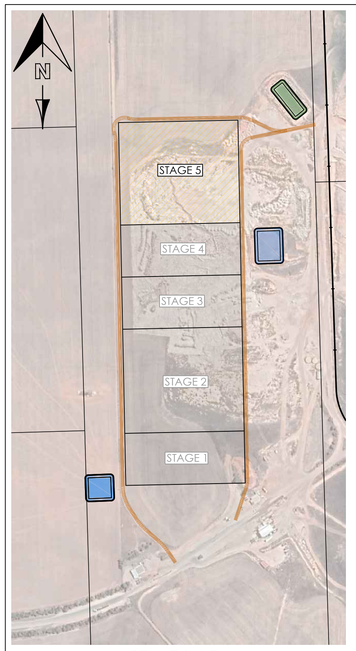
INKERMAN RESOURCE RECOVERY CENTRE

MASTERPLAN

STAGE 3a - C&D PROCESSING FACILITY

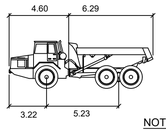
PROJECT No.	SHEET No.	REVISION
0127CWY.01	007	2

drawing file: 0127CWY_007_Stage3a_Masterplan-Op1.dwg Plot Date: 7/1/2021 4:54 PM



STAGING

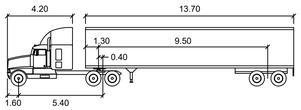
SCALE 1:5000



Articulated Dump Truck

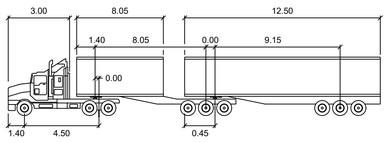
	meters
Front Width	3.42
Rear Width	3.42
Front Track	3.43
Rear Track	2.59
Lock to Lock Time	4.6
Steering Angle	45.0

NOTE:
ALTERNATE ARTICULATED VEHICLE USED IN PLACE OF UNAVAILABLE FRONT END LOADER PROFILE



SEM1

	meters		
Tractor Width	2.50	Lock to Lock Time	6.0
Trailer Width	2.50	Steering Angle	28.4
Tractor Track	2.50	Articulating Angle	70.0
Trailer Track	2.50		

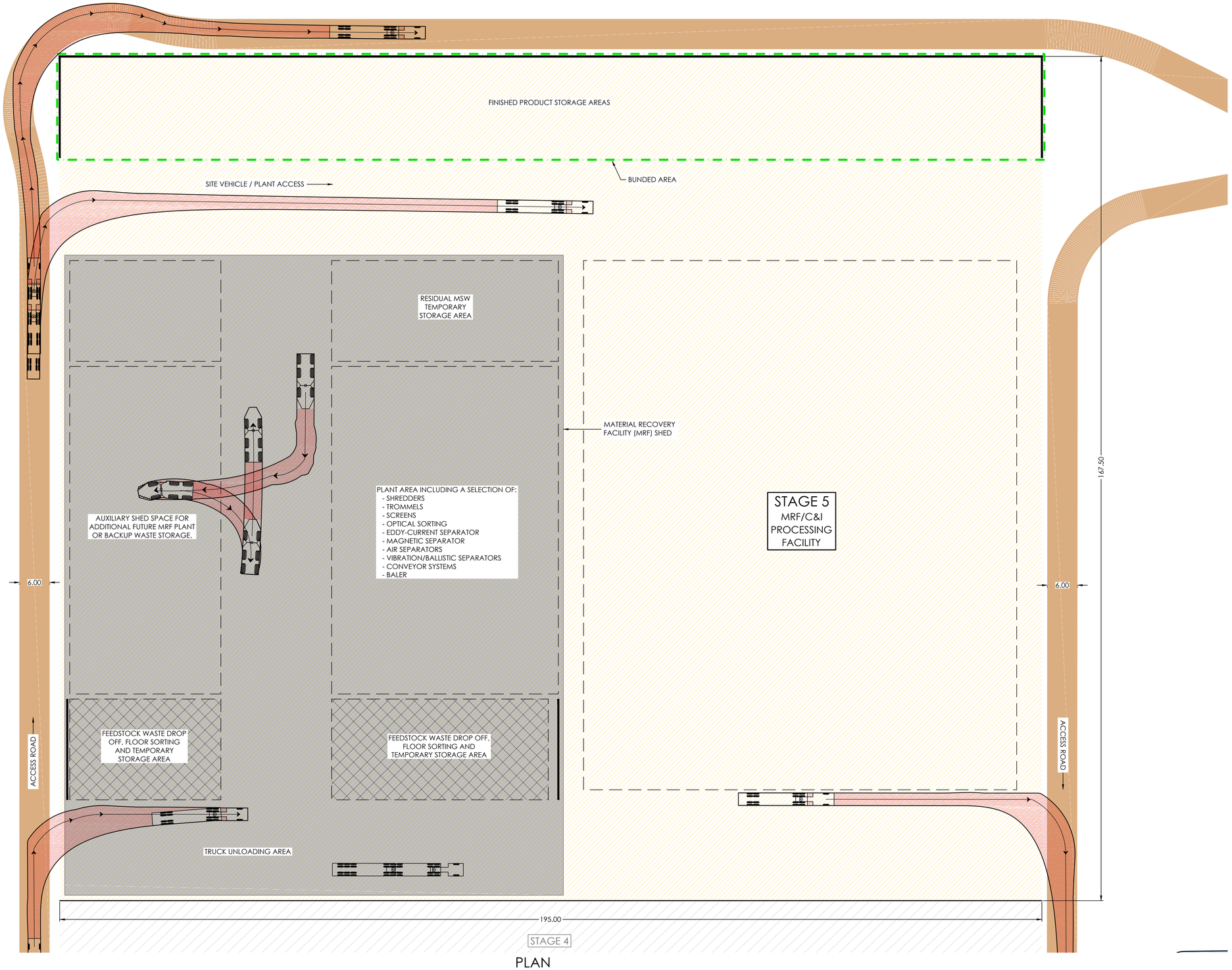


B-DOUBLE 26M

	meters		
Tractor Width	2.50	Lock to Lock Time	6.0
Trailer Width	2.50	Steering Angle	23.4
Tractor Track	2.50	Articulating Angle	70.0
Trailer Track	2.50		

0 5 10 20 40
1:400m

0 50 100 250 500
1:5000m



PLAN

SCALE 1:400

NOT FOR CONSTRUCTION

REV	DATE	AMENDMENT DESCRIPTION	DES	DRN	CHK	APPR
2	11.06.21	ISSUED AS FINAL	AW	PS	BD	AW
1	26.03.21	ISSUED FOR COMMENT	AW	PS		

DBD environmental

ISO9001 QUALITY MANAGEMENT SYSTEM · ISO14001 ENVIRONMENT MANAGEMENT SYSTEM · ISO45001 OH&S MANAGEMENT SYSTEM

100mm ON ORIGINAL PRINT. DO NOT SCALE

SCALE: 1:400	SHEET SIZE: A1
SURVEYED: Surveyed	DATE: Survey_date
COORDINATES: MGA2020 ZONE 54	DATUM: mAHD

NOTE:
THIS DRAWING TO BE VIEWED AND PRINTED IN COLOUR.
LOCATION OF ALL SERVICES SHOWN SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

CLEANAWAY

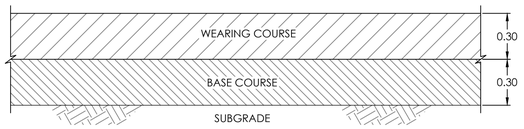
INKERMAN RESOURCE RECOVERY CENTRE

MASTERPLAN

STAGE 5 - MRF PROCESSING FACILITY

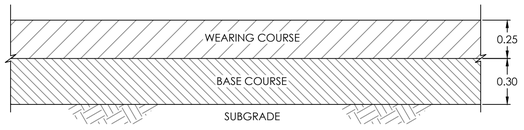
PROJECT No.	SHEET No.	REVISION
0127CWY.01	008	2

drawing file: 0127CWY_008_Stage5_Masterplan-Op1.dwg Plot Date: 7/1/2021 4:54 PM



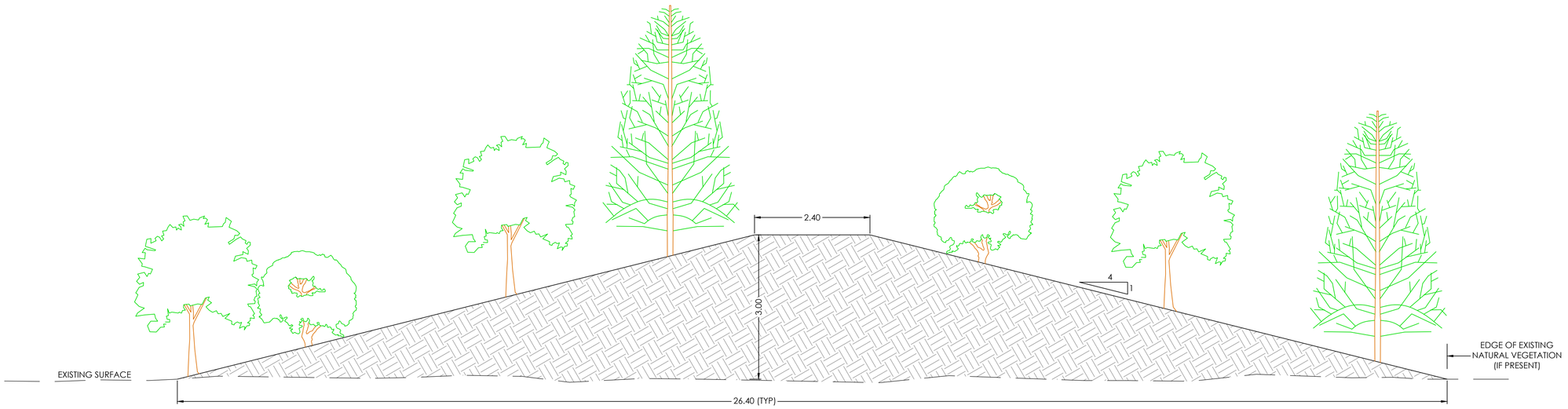
GRANULAR HARDSTAND PAVEMENT

SCALE 1:20



ACCESS ROAD PAVEMENT

SCALE 1:20



TYPICAL VEGETATED SCREENING BUND PROFILE

SCALE 1:50

0 0.5 1 1.5 2 3 4 5

1:50m

NOT FOR CONSTRUCTION

REV	DATE	AMENDMENT DESCRIPTION	DES	DRN	CHK	APPR
2	11.06.21	ISSUED AS FINAL	AW	PS	BD	AW
1	26.03.21	ISSUED FOR COMMENT	AW	PS		

DBD environmental

BEST PRACTICE CERTIFICATION ISO 9001 QUALITY MANAGEMENT SYSTEM
BEST PRACTICE CERTIFICATION ISO 14001 ENVIRONMENT MANAGEMENT SYSTEM
BEST PRACTICE CERTIFICATION ISO 45001 OH&S MANAGEMENT SYSTEM

100mm ON ORIGINAL PRINT. DO NOT SCALE

SCALE: AS SHOWN Scale_ver	SHEET SIZE: A1
SURVEYED: Surveyed	DATE: Survey_date
COORDINATES: MGA2020 ZONE 54	DATUM: mAHD

NOTE:
THIS DRAWING TO BE VIEWED AND PRINTED IN COLOUR.
LOCATION OF ALL SERVICES SHOWN SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.

CLEANAWAY

INKERMAN RESOURCE RECOVERY CENTRE

MASTERPLAN

TYPICAL DETAILS

PROJECT No.	SHEET No.	REVISION
0127CWY.01	009	2

drawing file: 0127CWY_009_Details_Masterplan-Op1.dwg Plot Date: 7/1/2021 4:54 PM

Appendix B

Correspondence with DPTI dated 22 May 2020

Government of South Australia
Department of Planning, Transport and Infrastructure

In reply please quote *2018/17721/01*
Enquiries to *Lee Webb*
Telephone *7109 7066*

PLANNING AND LAND USE SERVICES

50 Flinders Street
Adelaide SA 5000
GPO Box 1533
Adelaide SA 5001

ABN 92 366 288 135

Mr Conan Hookings
General Manager, Solid Waste Services – SA/TAS
Cleanaway
C/- thomas.gallasch@cleanaway.com.au

Dear Mr Hookings

INKERMAN LANDFILL – RESOURCE RECOVERY INITIATIVE

Thank you for your letter dated 23 March 2020 and follow up discussions regarding the proposed use of a mobile trommel within the landfill to screen waste material at the Inkerman Landfill (Northward Fill).

The proposed change to the management of the landfill facility is related to an operational activity and does not involve any design changes, changes to the use of the land or building work.

It is also noted that further discussions are to be held with the Environment Protection Authority regarding the amendments required to the applicable Landfill Environment Management Plan to properly accommodate the required process change.

Having considered the matter and based on the information provided the development authorisation does not need to be varied and this matter can be addressed through the EPA licensing process (via an amendment to the Landfill Environment Management Plan).

Should you have any further questions please do not hesitate to contact Lee Webb, Senior Specialist (Environmental) Planner, on 7109 7066.

Yours sincerely

Robert Kleeman,
Unit Manager Policy & Strategic Assessment
Planning and Land Use Services
22 May 2020