10 Boondah Road, Warriewood – Waste Management Plan

A Submission to Henroth Group

3rd June 2024

MRA Consulting Group

Insert Report Title

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Version History

Ver	Date	Status	Author	Approver	Signature
0.1	14/02/2024	Draft	Matthew Chandra	James Cosgrove	-
0.2	16/02/2024	Review	James Cosgrove	-	-
1	03/06/2024	Final	-	James Cosgrove	

Disclaimer

In the spirit of reconciliation MRA Consulting Group acknowledges the Traditional Custodians of Country throughout Australia and their connection to land, sea and community. We pay our respects to Aboriginal and Torres Strait Islander peoples and to Elders past, present and emerging.

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Glossary

Terminology	Definition
AS	Australian Standard
C&D	Construction and Demolition
C&I	Commercial and Industrial
DA	Development Application
DCP	Development Control Plan
ENM	Excavated Natural Material
EPA	Environment Protection Authority
ILU	Independent Living Unit
LGA	Local Government Area
MGB	Mobile Garbage Bin
MRA	MRA Consulting Group
MSW	Municipal Solid Waste
PLEP	Pittwater Local Environmental Plan
PDCP	Pittwater Development Control Plan
VENM	Virgin Excavated Natural Material
WMP	Waste Management Plan
WSP	Waste Service Provider
WSRA	Waste Storage and Recycling Area

1 Introduction

MRA Consulting Group (MRA) was engaged by Henroth Group to prepare a Waste Management Plan (WMP) related to the proposed nursery development located at 10 Boondah Road, Warriewood. The site is located within the Norther Beaches Council Local Government Area (LGA).

The proposed nursery development features various amenities including a garden centre, plant nurseries, a kids playground, propagation areas, a biodiverse garden area, an event lawn, and a relaxation area.

This WMP addresses the requirements of the Consent Authority (Council) and conforms to the following environmental planning instruments and reference documents:

- *Pittwater Local Environmental Plan (PLEP) 2014.*
- *Pittwater 21 Development Control Plan (PDCP).*

Consideration has also been given to the following supplementary documents in the preparation of the WMP:

- Northern Beach Waste Management Plan Guidelines;
- *Better Practice Guide for Resource Recovery in Residential Developments (NSW EPA, 2019);* and
- *Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities (NSW EPA, 2012).*

The following key overarching objectives for waste management are outlined in the Northern Beach Waste Management Plan Guidelines for new developments:

a) Define and outline the minimum requirements for the effective and efficient management of wastes in developments.

b) Contribute to NSW state targets for construction and demolition waste.

c) Encourage the principles of ecological sustainable development (ESD).

d) Encourage accountability, transparency and appropriate management of demolition and construction waste generated on development sites.

e) Minimise any negative impacts associated with the storage and collection of waste on public health and the natural and built environment.

This WMP is used to inform the building design to deliver best practice waste management and promote sustainable outcomes at the demolition, construction and operational phases of the development. The WMP addresses waste generation and storage associated with demolition and construction works through redevelopment, and ongoing occupation of the proposed use.

2 Background

2.1 Description of the Proposed Development

The proposed nursery development features the following:

- Garden centre;
- Plant nurseries;
- Kids playground;
- Propagation areas,
- Biodiverse garden area;
- Event lawn; and
- Relaxation area.

2.2 Location

The subject site consists of a single land parcel legally designated as Lot 3 and 4 DP26902, located within the North Beaches Council Local Government Area (LGA). The site is situated at 10-12 Boondah Road, Warriewood, positioned opposite a Sydney Water sewer treatment plant and adjacent to the Warriewood Wetlands.

Figure 1: Site and surrounding area

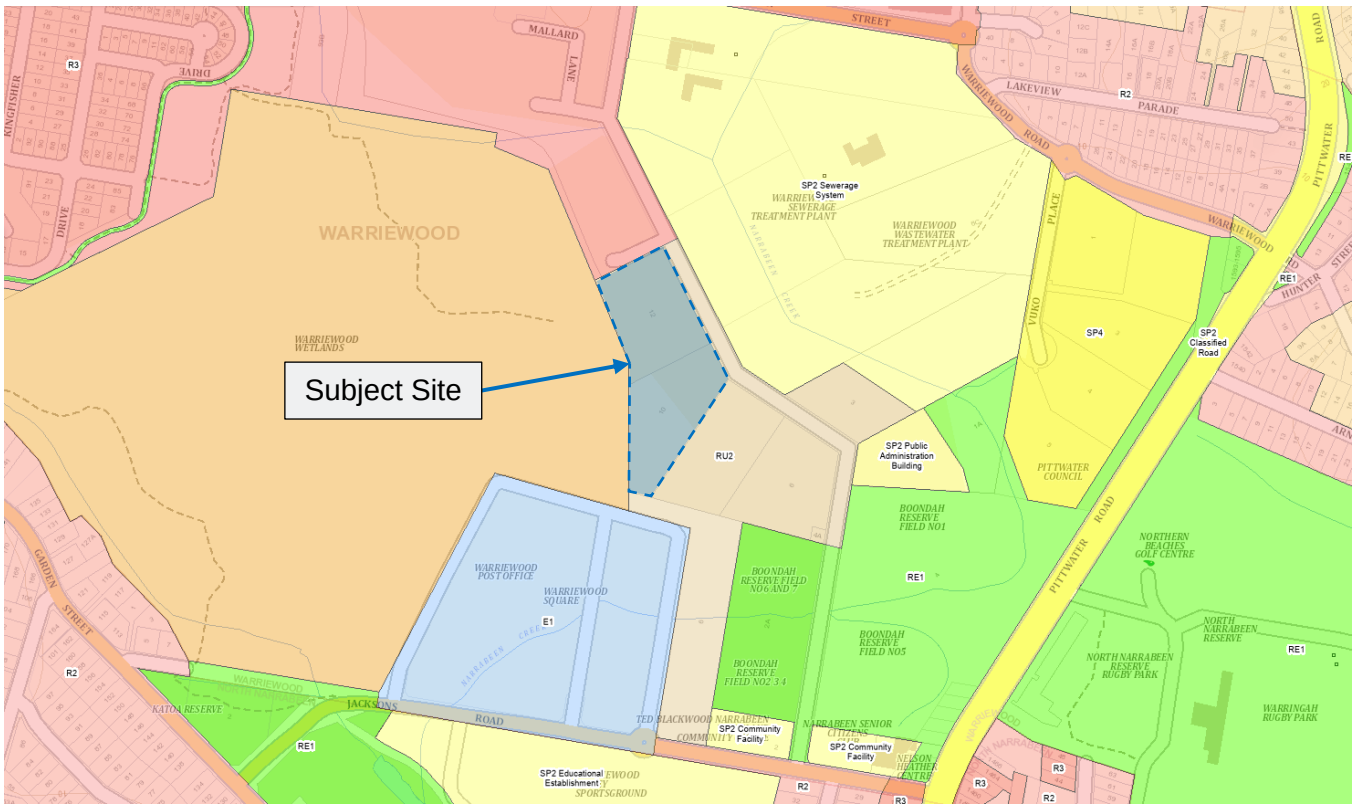
Source: Nearmap, 2024.

2.3 Zoning and Use

The site is zoned as **RU2** – **Rural Landscape** according to the PLEP 2014. The objectives of this zone are:

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To maintain the rural landscape character of the land.
- To provide for a range of compatible land uses, including extensive agriculture.
- To ensure that development in the area does not unreasonably increase the demand for public services or public facilities.
- To minimise conflict between land uses within this zone and land uses within adjoining zones.

Figure 2: Land use zone map



Source: NSW ePlanning Spatial Viewer, 2024.

2.4 Strategies

Waste management for the site considers better practice, necessary equipment, and integration with other guidance documents including the NSW Waste and Sustainable Materials Strategy (NSW EPA, 2021), and National Waste Policy: Less Waste, More Resources (DAWE, 2018). The key policy aims that are considered are:

- Avoidance (to prevent the generation of waste);
- Reduce the amount of waste (including hazardous waste) for disposal;
- Manage waste as a resource; and
- Ensure that waste treatment, disposal, recovery and re-use are undertaken in a safe, scientific and environmentally sound manner.

Management of waste generated onsite according to directives of the NSW Strategy will assist in achieving the target of 80% diversion from landfill in the C&D sector.

2.5 Assumptions

This report is a Waste Management Plan (WMP), forming part of the development documentation and assumes:

- Drawings and information that have been used in waste management planning for this WMP are the final design set for DA submission from the project architect, Buchan Group, included in the DA submission package;
- Plans presented in the Appendix of this report are the DA landscape architectural plans prepared by JCA
- Waste and recycling volumes are based on information provided from the Northern Beach Waste Management Plan Guidelines; and
- This WMP is a living document and therefore, waste management equipment and systems described in this report are subject to change based on future operations and available technology.

3 Construction and Demolition

Demolition and construction activities at the site will generate a range of construction and demolition (C&D) waste. Throughout the development process, all materials will be reused and recycled where possible, minimising the disposal (landfilling) of materials other than those that are contaminated or unsuitable for reuse or recycling processes.

Waste storage during construction operations will involve some stockpiling of reusable material, as well as placement of wheeled bins for the separation of construction materials for recycling. A bin for residual waste or contaminated material will also be made available at the site for disposal where necessary. Bins may require alternative placement across construction operations to facilitate the safe and efficient storage of materials and will be retained within property boundaries to avoid illegal dumping.

A waste storage area shall be designated by the demolition or construction contractor and shall be sufficient to store the various waste streams expected during operations. Waste storage areas will be kept clear to maintain access and shall also be kept tidy to encourage separation of waste materials and for WHS reasons. The waste storage area will retain multiple bins to allow for source separation of waste to allow for ease of recovery and reuse of materials.

Waste management principles, management measures and facilities in use on the site shall be included as part of the site induction for all personnel working on the site.

3.1 Demolition Waste

The proposed development will require demolition of existing structures prior to commencement of excavation and construction operations. Demolition works will include the removal of a small paddock, sheds, vegetations, and at least one dwelling.

Objectives regarding demolition and construction waste, as outlined in Northern Beach Waste Management Plan Guidelines include:

a) Incorporate the waste hierarchy principle of avoidance, resource recovery and disposal.

b) Minimise the waste sent for disposal.

c) Minimise the impact and disturbance on surrounding amenity, public safety, roadways and natural and built environment.

d) Footpaths, public reserves, street gutters are not to be used as places to store demolition or construction waste or materials of any kind without Council approval.

e) Adhere to any relevant legislation not limited to hazardous waste, storage and transportation regulations.

f) Send waste materials to a suitably licensed facility.

Table 1 outlines the expected demolition waste quantities to be generated at the site, in addition to the appropriate management methods for each material type. Other materials with limited reuse potential either on or offsite will be removed in bulk bins for recycling at an appropriately licenced and capable recycling facility.

Table 1: Demolition waste generation estimates

Type of Material	Estimated volumes (m^3)	Re-use on-site	Recycle (Separate collection)	Recycle (Off-site)	Disposal	Estimated % Landfill	Estimated % of landfill diversion	Methods for re-use, recycling or disposal
Concrete	40 – 100	✓	✓	✓	-	<5%	>95%	Onsite: Separated wherever possible and reused or crushed for filling, levelling or road base. Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Glass	Minor	✓	✓	✓	-	<10%	>90%	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Bricks/pavers	100 – 150	✓	✓	✓	-	<5%	>95%	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. The development will be able to reuse a number of existing building bricks as paving in landscaped areas. Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Tiles	40 – 60	✓	✓	✓	-	<5%	>95%	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. Offsite: Removed to C&D facility for crushing and recycling for recovered products.

Type of Material	Estimated volumes (m^3)	Re-use on-site	Recycle (Separate collection)	Recycle (Off-site)	Disposal	Estimated % Landfill	Estimated % of landfill diversion	Methods for re-use, recycling or disposal
Timber (Clean)	5 – 10	✓	✓	✓	-	0	100	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Timber (Clean)	5 – 10	✓	✓	✓	-	50	50	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Plasterboard	5 – 10	-	✓	✓	-	<10%	>90%	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Metals (ferrous & non-ferrous)	Minor	-	✓	✓	-	<10%	>90%	Onsite: Separated wherever possible to improve resource recovery. Offsite: Removed to C&D facility for recovery and recycling.
Floor covering	10 – 20	-	✓	✓		50%	50%	Should be removed in bulk and sent to carpet recycler or C&D facility for recovery where possible.
Residual waste	10 – 20	-	-	-	✓	100%	-	Resource recovery dependant on facility destination capability.

Type of Material	Estimated volumes (m^3)	Re-use on-site	Recycle (Separate collection)	Recycle (Off-site)	Disposal	Estimated % Landfill	Estimated % of landfill diversion	Methods for re-use, recycling or disposal
Hazardous Waste	Unknown	-	-	-		100%	-	Existing buildings may contain potentially hazardous materials. Should contaminated or potentially hazardous materials be discovered they would be handled according to the demolition and/or materials management plan
	Total % Diversion from Landfill Estimated						**>80%**	

3.2 Construction Waste

The proposed development includes the construction of the following features:

- Garden centre;
- Plant nurseries;
- Kids playground;
- Propagation areas,
- Biodiverse garden area;
- Event lawn; and
- Relaxation area.

Table 2 outlines indicative volume to weight conversion factors for common construction materials.

Table 2: Building waste material by percentage and conversion factor for volume and weight

Building waste material	Tones per m^3	Waste as % of the total material ordered
Bricks	1.3	5-10%
Concrete	1.1	3-5%
Tiles	1.3	2-5%
Timber	1.1	5-7%
Plasterboard	-	5-20%
Ferrous metal	2.4	-

Source: Northern Beach Waste Management Guidelines 2016.

Table 3 outlines the estimated waste generation rates for materials through construction of the proposed development, in addition to the appropriate management methods for each material type.

Table 3: Construction waste generation estimations

Type of Material	Estimated Volumes (m^3)	Re-use on-site	Recycle (Separate collection)	Recycle (Off-site)	Landfill	% of landfill diversion	Methods for re-use, recycling or disposal
Excavated material	–	✓	✓	✓	<5%	>95%	Onsite: Reuse for fill and levelling. Offsite: Removed from site for reuse as recycled fill material or soil. Disposal: Removal of any contaminated material for appropriate treatment or disposal.
Bricks/pavers	100 – 200	✓	✓	✓	<10%	>90%	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. Offsite: Returned to supplier for reuse or removed to C&D facility for crushing and recycling for recovered products.
Concrete	100 – 200	✓	✓	✓	<10%	>90%	Onsite: Separated wherever possible and reused or crushed for filling, levelling or road base. Offsite: Removed to C&D facility for crushing and recycling for recovered products.
Tiles	100 – 150	✓	✓	✓	<10%	>90%	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. Offsite: Returned to supplier for reuse or removed to C&D facility for crushing and recycling for recovered products.

Type of Material	Estimated Volumes (m^3)	Re-use on-site	Recycle (Separate collection)	Recycle (Off-site)	Landfill	% of landfill diversion	Methods for re-use, recycling or disposal
Timber (clean)	100 – 150	-	✓	✓	<10%	>90%	Onsite: Separated wherever possible to improve resource recovery. Offsite: Returned to supplier for reuse removed to C&D facility for recovery where possible.
Timber (treated)	100 – 150	-	✓	✓	50%	50%	Onsite: Separated wherever possible to improve resource recovery. Offsite: Returned to supplier for reuse removed to C&D facility for recovery where possible.
Plasterboard	5 – 10	-	✓	✓	<10%	90%	Onsite: Separated wherever possible to improve resource recovery. Offsite: Returned to supplier or removed to a C&D/plasterboard recovery facility for recovery where possible.
Glass	Minor	✓	✓	✓	<10%	>90%	Onsite: Separated wherever possible and reused or crushed for landscaping and driveways. Offsite: Returned to supplier for reuse or removed to C&D facility for crushing and recycling for recovered products.
Metals (ferrous) Metals (non-ferrous)	Minor	-	✓	✓	<10%	>90%	Onsite: Separated wherever possible to improve resource recovery. Offsite: Returned to supplier for reuse or removed to C&D facility for recovery and recycling.

Type of Material	Estimated Volumes (m^3)	Re-use on-site	Recycle (Separate collection)	Recycle (Off-site)	Landfill	% of landfill diversion	Methods for re-use, recycling or disposal
Floor covering	10 – 30	✓	✓	✓	<10%	>90%	On site: to be separated wherever possible to enhance resource recovery. Reuse: surplus and offcut material returned to manufacturer for reuse where possible. C&D processor: recovery and recycling.
Residual waste	10 – 20	-	✓	✓	100%	-	Resource recovery dependant on facility destination capability.
Total % Diversion from Landfill Estimated						**>90%**	

3.3 Waste Contractors and Facilities

To ensure best practice waste management, appropriate contractors and facilities have been proposed based on their location and service offerings (Table 4).

Table 4: Waste service contractors and facilities

Role	Details
Recommended Waste Collection Contractor	The following are local skip bin operators for consideration in the management of excavation and construction waste for the site: • North Shore Skips; • Brown Bros Skip Bins; • North Beaches Skip Bins; • Bingo Industries; Or another supplier as elected by the building contractor.
Principal Off-Site Recycler	The following are local C&D processing facilities for consideration in the management of C&D waste generated at the site: • Kimbriki Resource Facility Centre; • AE Biggs; Or another appropriate facility as elected by the waste management contractor.
Principal Licensed Landfill Site	• Kimbriki Resource Facility Centre; Or other appropriate facility as elected by the waste management contractor.

3.4 Site Documentation

This WMP will be retained on-site during the construction phases of the development, along with other waste management documentation (e.g. contracts with waste service providers).

Responsibility for the WMP, waste documentation and processes during the excavation and construction phases will be with the site manager or builder.

A logbook that records waste management and collection will be maintained on site, with entries including:

- Time and date of collections;
- Description of waste and quantity;
- Waste/processing facility that will receive the waste; and
- Vehicle registration and company name.

Waste management documentation, the logbook and associated dockets and receipts must be made available for inspection by an authorised Council Officer at any time during site works.

4 Operational Waste Management

4.1 Overview

Operational waste management requirements of the site arise from the daily activities at the site. The development will operate as a commercial development. Commercial waste sources arise from commercial and retail uses of a plant nursery engaged in the cultivation and propagation of various plants for sale. This generates waste, including garden organics, as well as general waste and recyclables generated from office and recreational activities.

Waste management strategies related to site operations have been established according to the PDCP 2013 and NSW EPA guideline documents. Waste generation for the operational phase of the development will be addressed in applying waste generation rates outlined Section 4.2. Bin requirements and waste storage areas were defined with reference to waste generation rates and have been addressed in Section 4.3.

The following space calculations are based off the mobile garbage bin (MGB) and bulk bin dimensions sourced from NSW EPA's *Better Practice Guide for Resource Recovery in Residential Developments* (2019) (Table 5).

Table 5: Mobile Garbage Bin (MGB) and Bulk Bin capacity and footprint

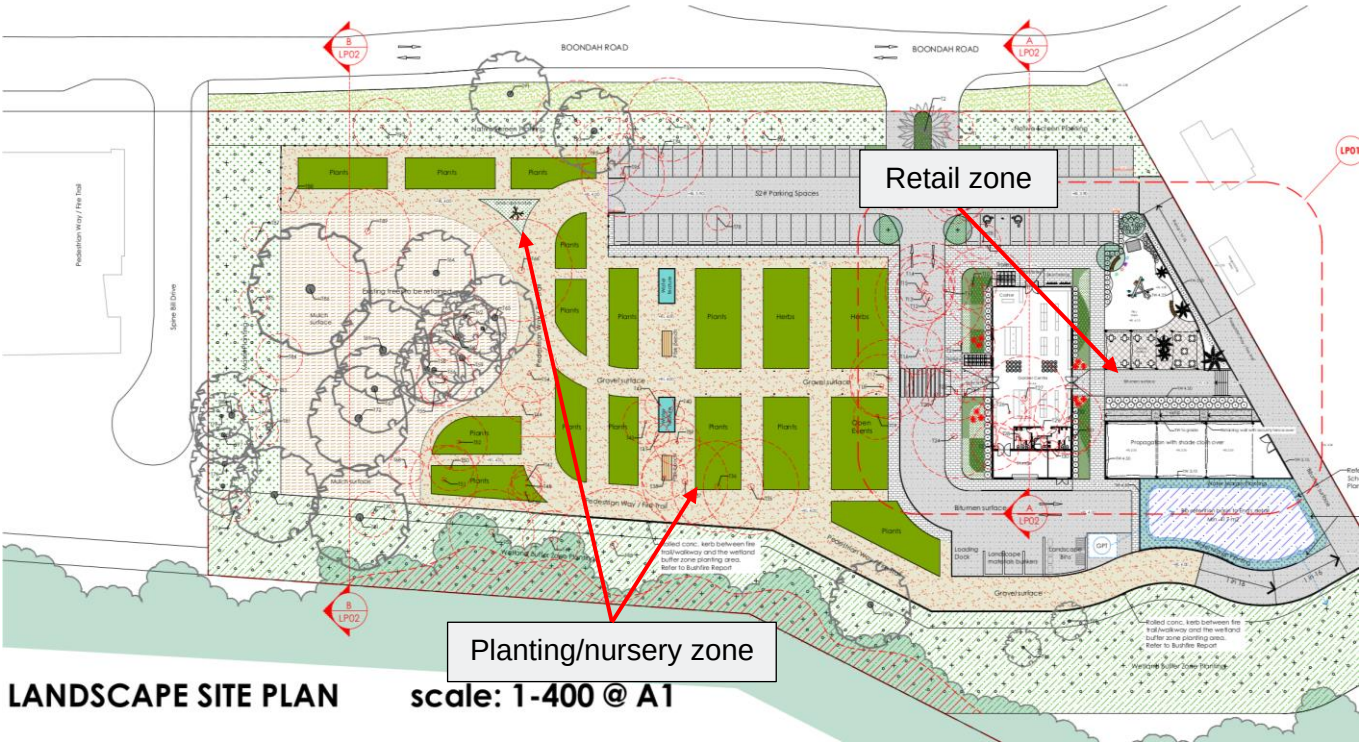
Bin Capacity (L)	Height (mm)	Depth (mm)	Width (mm)	Footprint (Approx. m^2)
240	1,080	735	580	0.43
660	1,250	850	1,370	1.16
1,100	1,470	1,245	1,370	1.71
3m^3	1,580	1,700	2,010	3.4
4.5m^3	2,014	1,900	2,010	3.8

Source: Northern Beach Waste Management Guidelines developments (2016).

4.2 Waste Generation

Operational waste management addressed in the following section relates to waste generation associated with the various commercial use types. The site proposes the use of part of the subject building for commercial uses, including offices, event space, gardens, and propagation area.

Figure 3: Site zoning based on usage



Source: JCA (2024).

The Pittwater 21 DCP, Northern Beaches Council *Waste Management Guidelines* and NSW EPA *Better Practice Guidelines* do not specify generation rates for the proposed use of a plant nursery. The proposed development will have a non-food related retail element and open spaces for the display and sale of plants and other adjacent items. Table 6 below shows the waste generation of the site based on the different zone usage displayed in Figure 3, according to best estimates from guidance documentation and MRA previous experience:

Table 6: Waste Generation Estimation

Use type	Area (m^2)	Waste Stream	Generation Rate ($L/100m^2/day$)	Total Weekly Generation (L)
Retail	1,430	General waste	50	5,005
		Commingled Recycling	25	2,503
		Paper & Cardboard*	25	2,503
Nursery & planting	4,980	General waste	5	1,743
		Commingled Recycling	-	-
		Paper & Cardboard*	5	1,743

		Organics	10	3,486
TOTALS		**General waste**		**6,748**
		Commingled Recycling		**2,503**
		Paper & Cardboard		**4,246**
		Organics		**3,486**

**Retail uses are expected to generate a proportion of paper/cardboard waste of total recycling. Therefore, for the purpose of estimating waste generation, 50% of recycling is assumed to be paper and cardboard waste in this instance. Management may like to opt into a paper & cardboard collection for further source separation at the site.*

Note: Waste generation based on 7 day per week operation.

4.3 Waste Storage Requirements

Waste storage space has been calculated considering estimations of bin type and collection frequency, as described in the table below (Table 7).

Table 7: Commercial waste storage and collection frequency

Waste stream	Waste generation (L/week)	Waste management options (bins and collection frequency)	Minimum Storage Area (m^2)
General waste	6,748	1 x 4.5m^3 bulk bin / collected up to **2 times per week**	4
Recycling	2,503	2 x 660L MGBs / collected up to **2 times per week**	2.5
Paper & Cardboard	4,246	1 x 4.5m^3 bulk bin / collected **once per week**	4
Organics	3,486	2 x 660L MGBs / collected up to **2-3 times per week**	2.5
		Bin storage requirement*	19.5
Bulky / other wastes	Other waste streams serviced as required.		4
		Total minimum space requirement	**23.5m^2**

**storage space requirement considers additional space of approximately (m^2 x 1.5) for manoeuvring of bins. Food waste stored in bins recommended to be collected at least three times per week to reduce risk of odour impact.*

Larger mobile garbage bins (MGBs) and bulk bins are expected to be the most suitable option for the management of waste generated at the site.

Site management can observe the bin fullness levels once the site is fully occupied and adjust the number of collections accordingly.

A bin holding area has been provided near the proposed loading dock to accommodate safe and efficient management and collection of waste at the site.

4.3.1 Temporary Waste Storage

Interim containers will be retained in BOH areas and throughout the site for public use and disposal of waste. Interim waste bins made available will be sufficient for one day's generation of each waste stream required to be stored. Site staff will be responsible for the emptying of these bins daily and transporting waste to the bin storage area near the loading dock.

4.3.2 Bulky Waste

Space for storage of bulky waste resulting from the proposed development is available within the waste storage and recycling area near the loading dock. Bulky waste removal will be organised promptly with the nominated waste collection contractor to avoid overspill into common areas or corridors.

5 Waste Management Systems

5.1 Waste Management System Summary

The following specific management methods are proposed for the various collection waste streams expected to be generated at the site, including alterative waste streams outside of general waste, recycling and organics:

- **General Waste:** General waste shall be placed within a tied plastic bag prior to transferring into collection bins. For collection purposes, general waste shall be stored within a mobile garbage bin (MBG).
- **Commingled Recycling:** All recyclables will be stored in commingled bins (mixed plastic, paper, cardboard, glass, aluminium, steel). All recyclables should be decanted loose (not bagged) with containers un-capped, drained and rinsed prior to disposal into the recycling bin. Paper should be flattened and placed in paper and cardboard bin if applicable.
- **Garden Waste:** Given the nature of the proposed plant nursery activity, garden waste is expected to be prevalent at the site. Garden waste bins will be retained at the site for the disposal of clippings, dead plants and other organics generated by the proposed development. A suitably qualified waste contractor will be responsible for servicing organics bins on a regular basis, per a scheduled agreement.
- **Paper and Cardboard:** Should large quantities of paper and carboard waste be generated from proposed site uses a separate service may be suitable for application at the site. The contracted waste service provider may be able to provide separate paper and cardboard bins for the source separation and collection of paper and cardboard waste.
- **Other (Problem) Waste:** The disposal of hard, bulky, electronic, liquid or potentially hazardous wastes shall be organised between the operator and site users as necessary.

5.2 Waste Management and Recycling Method

The flow of **commercial waste and recycling** goes from generation to collection through several steps:

1. Waste is temporarily stored at its point of generation in an appropriately sized receptacle, clearly marked for type of waste;
2. Site cleaners and/or staff will transfer waste to the waste storage area near the site loading dock and decant material into the appropriate bin.
3. Site staff or management will be responsible for maintenance of bins and the waste storage rooms, ensuring bins are clean and in working order. Cleaning staff and site management are also responsible for switching out full bins and monitoring bin fullness;
4. Site management is to ensure contracts with Council or a private waste contractor, who also ensure appropriate collection scheduling and access is organised to minimise noise, odour, vermin, and visual amenity impacts to staff, visitors and the public.

5.3 Management System and Responsibilities

The site manager will be responsible for the management of waste at the site. Should there be any issues that impact on the operational efficiency, safety and suitability of waste management, management will be responsible for making any necessary changes, responsibilities include:

- Using this WMP to inform waste management operations, design and infrastructure;
- Providing educational materials and information on sorting methods for recycled waste, awareness of waste management procedures for waste minimisation and resource recovery;
- Maintaining a valid and current contract with a licensed waste service provider for waste and recycling collection and disposal;
- Making information available to residents and visitors about waste management procedures;
- Organising, maintaining and cleaning bins as part of a regular maintenance schedule;

- Manoeuvring bins to specified onsite collection point prior to and following scheduled collection of waste bins;
- Organising bulky waste collections as required;
- Ensuring bin allocation and waste/recycling collection frequency is adequate. Requesting additional infrastructure or services where necessary; and
- Monitoring any vermin and pest issues and arranging appropriate controls (traps or fumigating) and maintenance of doors or other points of potential entry.

5.4 Collection Method and Loading Area

Waste collection vehicles required to access the site will be rear loading and front loading style vehicles with approximate specifications in line with NSW EPA guidelines shown below:

Figure 4: Appendix B, Table B2.1: Collection vehicle dimensions (NSW EPA, *Better Practice Guide for Resource Recovery in Residential Developments).*

Table B2.1: Collection vehicle dimensions

Vehicle type	Rear-loading	Side-loading*	Front-lift-loading	Hook truck	Crane truck
Length overall (m)	10.5	9.6	11.8	10.0	10.0
Width overall (m)	2.5	2.5	2.5	3.0	2.5
Travel height (m)	3.9	3.6	4.8	4.7	3.8
Height in operation (m)	3.9	4.2	6.5	7.1	8.75
Vehicle tare weight (t)	13.1	11.8	16.7	13.0	13.0
Maximum payload (t)	10.0	10.8	11.0	14.5	9.5
Turning circle (m)	25.0	21.4	25.0	25.0	18

* The maximum reach of a side arm is 3 m.

Sources: JJ Richards, SUEZ, MacDonald Johnson, Cleanaway, Garwood, Ros Roca, Bingo and Edbro. Figures shown represent the maximum dimensions for each vehicle type.

Collection point and loading areas will be safe and accessible by proposed waste collection vehicles and operating personnel per Table 8.

Table 8: Collection points and loading areas requirements and specification

Component	Requirement	Specification
Collection point	Allow safe waste collection and loading operations	- Adequate clearance and manoeuvring space; - Sufficient clearance for the safe handling of materials and equipment; and - Sectioned loading bay does not impede upon traffic and pedestrian safety.
Vehicle manoeuvring and loading space	Truck space for adequate lift clearance, manoeuvring and operation for a contractor collection vehicle	- Collection from each site use loading area by a rear lift collection vehicle; - Adequate loading bay dimensions to not impede lift clearance; - Operational clearance for truck manoeuvring in a forward direction; and - The provision of space clear of vehicle parking spaces (level and free of obstructions).

Component	Requirement	Specification
Operating times	Appropriate collection times to limit noise and traffic disturbance	- Collection times will be arranged during off-peak times to ensure minimal disturbance to pedestrians and visitors.

5.5 Waste and Recycling Storage Areas

The waste areas will provide centralised storage that has adequate capacity to receive and store the maximum likely generation of waste and recycling between collection times. In accordance with the DCP, it is recommended the bin storage areas be designed with the following considerations:

- Storage areas reflect the equipment, infrastructure, manoeuvring space and potential future needs of the development;
- Separate Residential and Commercial waste areas will be maintained;
- Be located in a position that is convenient for users and waste collection staff, located away from habitable rooms;
- Waste handling, storage and collection systems for residential and non-residential waste to be separate and self-contained;
- All waste and recycling storage areas and access paths to be kept clean and free of obstructions;
- The floor being graded and drained to an approved drainage outlet connected to the sewer and having a smooth, even surface, coved at all intersections with walls;
- The walls being cement rendered to a smooth, even surface and coved at all intersections; and
- The room shall be adequately ventilated (either natural or mechanical) in accordance with the Building Code of Australia.

5.6 Signage

Signage that promotes resource recovery, waste minimisation, safety and amenity follows the Australian Standard for safety signs for the occupational environment (Standards Australia, 1994).

Signage will be designed to consider language and non-English speaking backgrounds, vision impairment and accessibility. Illustrative graphics must form a minimum 50% of the area of the signage. Signage is to be prominently posted in the waste room indicating:

- Details regarding acceptable recyclables;
- Recyclables are to be decanted loose (not bagged);
- *No standing* and *danger* warnings apply to the area surrounding the waste storage area;
- Contact details for arranging the disposal of bulky items; and
- The area is to be kept tidy.

Standard signage requirements and guidance for application apply (see Appendix A).

5.7 Prevention of Pollution and Litter Reduction

To minimise dispersion of litter and prevent pollution (to water and land via contamination of runoff, dust and hazardous materials), building management and the site cleaning staff will also be responsible for:

- Maintenance of open and common site areas;
- Ensuring waste areas are well maintained and kept clean;
- Securing the waste storage area from vandalism and the escape of litter;

- Identification and appropriate disposal of goods with hazardous material content (paints, e-waste, fluorescent tubes);
- Taking action to prevent dumping and unauthorised use of waste areas; and
- Requiring contractors to clean up any spillage that may occur during waste servicing or other work.

6 References

Australian Department of Sustainability, Environment Water, Population and Communities (2011) Construction and Demolition Waste Guide - Recycling and Re-use Across the Supply Chain.

Australian Standards 4123.7 Mobile Waste Containers.

Pittwater 21 Development Control Plan

Pittwater Local Environmental Plan 2014

NSW EPA (2012) Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities.

NSW EPA (2021) NSW Waste and Sustainable Materials Strategy 2041.

NSW EPA (2014) Waste Classification Guidelines.

NSW EPA (2016) Recycling Signs, Posters and Symbols. Available at: http://www.epa.nsw.gov.au/wastetools/signs-posters-symbols.htm.

NSW EPA (2019) Better Practice Guide for Resource Recovery in Residential Developments.

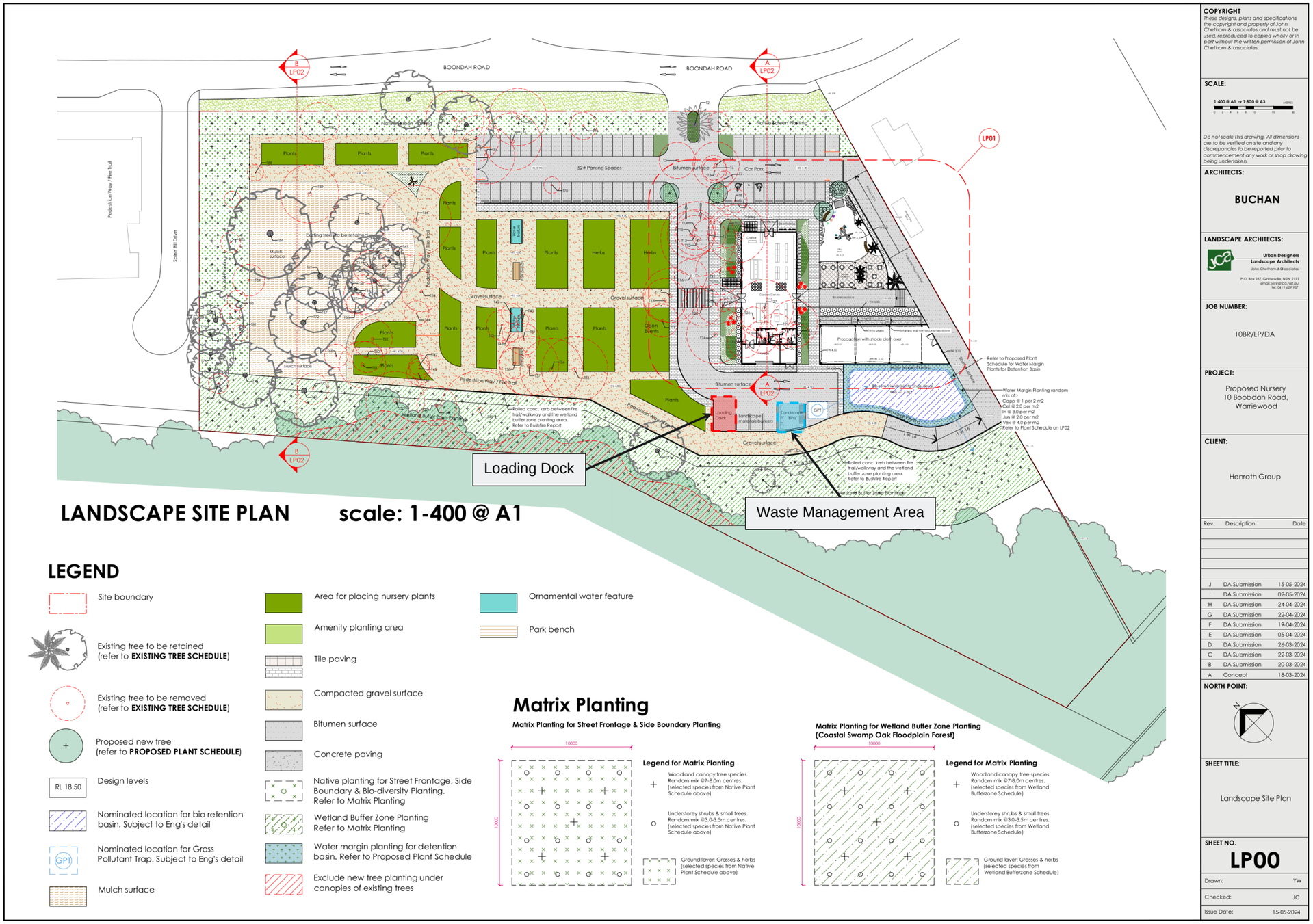
NSW Government (1979) Environmental Planning and Assessment Act.

NSW Government (1997) Protection of the Environment Operations Act.

NSW Government (2000) Environmental Planning and Assessment Regulation.

NSW Government (2001) The Waste Avoidance and Resource Recovery Act

Appendix A Site Plans



LANDSCAPE SITE PLAN scale: 1-400 @ A1

LEGEND

- Site boundary
- Existing tree to be retained (refer to **EXISTING TREE SCHEDULE**)
- Existing tree to be removed (refer to **EXISTING TREE SCHEDULE**)
- Proposed new tree (refer to **PROPOSED PLANT SCHEDULE**)
- RL 18.50 — Design levels
- Nominated location for bio retention basin. Subject to Eng's detail
- GPT — Nominated location for Gross Pollutant Trap. Subject to Eng's detail
- Mulch surface
- Area for placing nursery plants
- Amenity planting area
- Tile paving
- Compacted gravel surface
- Bitumen surface
- Concrete paving
- Native planting for Street Frontage, Side Boundary & Bio-diversity Planting. Refer to Matrix Planting
- Wetland Buffer Zone Planting Refer to Matrix Planting
- Water margin planting for detention basin. Refer to Proposed Plant Schedule
- Exclude new tree planting under canopies of existing trees
- Ornamental water feature
- Park bench

Matrix Planting

Matrix Planting for Street Frontage & Side Boundary Planting

Legend for Matrix Planting

- Woodland canopy tree species. Random mix @7-8.0m centres. (selected species from Native Plant Schedule above)
- Understorey shrubs & small trees. Random mix @3.0-3.5m centres. (selected species from Native Plant Schedule above)
- Ground layer: Grasses & herbs (selected species from Native Plant Schedule above)

Matrix Planting for Wetland Buffer Zone Planting (Coastal Swamp Oak Floodplain Forest)

Legend for Matrix Planting

- Woodland canopy tree species. Random mix @7-8.0m centres. (selected species from Wetland Bufferzone Schedule)
- Understorey shrubs & small trees. Random mix @3.0-3.5m centres. (selected species from Wetland Bufferzone Schedule)
- Ground layer: Grasses & herbs (selected species from Wetland Bufferzone Schedule)

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SCALE: 1:400 @ A1 or 1:800 @ A3

Do not scale this drawing. All dimensions are to be verified on site and any discrepancies to be reported prior to commencement any work or shop drawing being undertaken.

ARCHITECTS: BUCHAN

LANDSCAPE ARCHITECTS: Urban Designers Landscape Architects — John Chetham & Associates — P.O. Box 287, Gladesville, NSW 2111 — email: john@jcanet.au — tel: 0419 629 987

JOB NUMBER: 10BR/LP/DA

PROJECT: Proposed Nursery 10 Boobdah Road, Warriewood

CLIENT: Henroth Group

Rev.	Description	Date
J	DA Submission	15-05-2024
I	DA Submission	02-05-2024
H	DA Submission	24-04-2024
G	DA Submission	22-04-2024
F	DA Submission	19-04-2024
E	DA Submission	05-04-2024
D	DA Submission	26-03-2024
C	DA Submission	22-03-2024
B	DA Submission	20-03-2024
A	Concept	18-03-2024

NORTH POINT:

SHEET TITLE: Landscape Site Plan

SHEET NO. LP00

Drawn: YW

Checked: JC

Issue Date: 15-05-2024

Source: JCA, 2024

Appendix B Waste Equipment Options

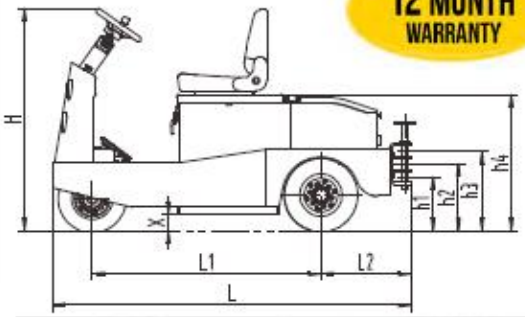
SITECRAFT
MATERIALS HANDLING EQUIPMENT

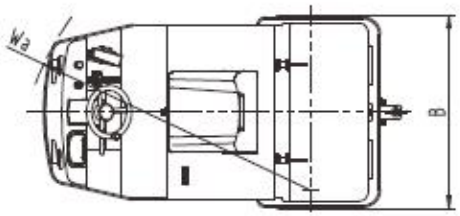
17 Macquarie Drive, Thomastown, VIC 3074
Phone: 1300 363 152 Fax: 1300 722 383
E: sales@sitecraft.com.au ABN: 36 423 328 526

SITECRAFT HEAVY DUTY ELECTRIC TOW TRACTOR

- Towing capacities from 2000 kg to 6,000 kg
- **Full AC electric system** has a brake-releasing function, making the unit easy and effortless to operate; The maintenance-free motor completely solves the issues of DC motor carbon brush.
- Batteries located in the lowest part of frame ensures excellent stability
- Quick open back service cover for easy maintenance and part replacement
- CANbus technology reduces wiring complexity and increases reliability
- H type axle design provides excellent stability
- New high-range steering design; light steering and easy to maintain.
- New large-screen instrument display provides information clearly and directly to the operator.

12 MONTH WARRANTY





Model		ST-2000AC	ST-3000AC	ST-5000AC	ST-6000AC
Towing Capacity	Kg	2000	3000	5000	6000
Drawbar Centre Height	h1/h2/h3 mm	280/350/420	280/350/420	280/350/420	280/350/420
Motor	Kw / V	3Kw / 36V	3Kw / 36V	5Kw / 48V	5Kw / 48V
Total Size	L x B x H mm	1720 x 968 x 1270	1720 x 968 x 1270	1975 x 1100 x 1270	1975 x 1100 x 1270
Total Weight (With Batteries)	Kg	740	780	1240	1280
Wheel Size	Solid Rubber	15*4-8	15*4-8	15*4-8	15*4-8
Wheelbase	L1 mm	1055	1055	1280	1280
Rear Hanging Distance	L2 mm	382	382	500	500
Seat Height	h4 mm	910	910	910	910
Ground Clearance	X mm	90	90	90	90
Turning Radius	Wa mm	1500	1500	1650	1650
Maximum Speed	Km/h	10	8	14	12
Battery	V/Ah	36/200	36/250	48/360	48/400
Battery Weight	Kg	200	250	610	650
Charger	On-board V/Ah	36/30	36/30	48/50	48/50

SITECRAFT
MATERIALS HANDLING EQUIPMENT
17 Macquarie Drive, Thomastown, VIC 3074
Phone: 1300 363 152 Fax: 1300 722 383
E: sales@sitecraft.com.au ABN: 36 423 328 526

SITECRAFT HEAVY DUTY ELECTRIC TOW TRACTOR

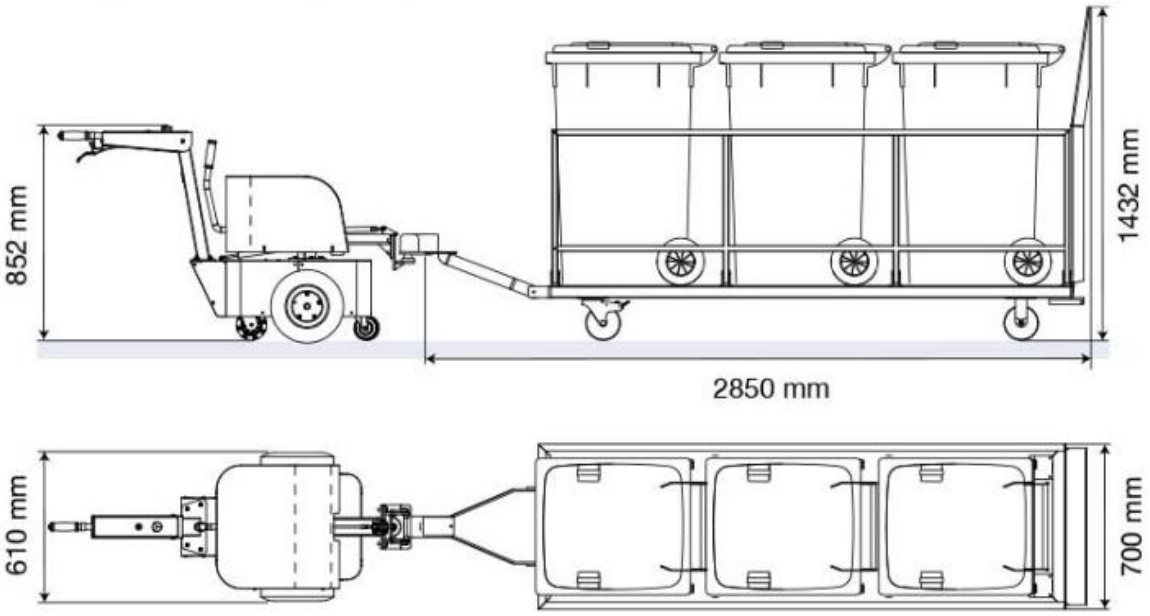
Sitecraft ST3000-AC tow tug moving 660 & 1100 litre bins

Sitecraft ST3000-AC tow tug moving 660 & 1100 litre bins

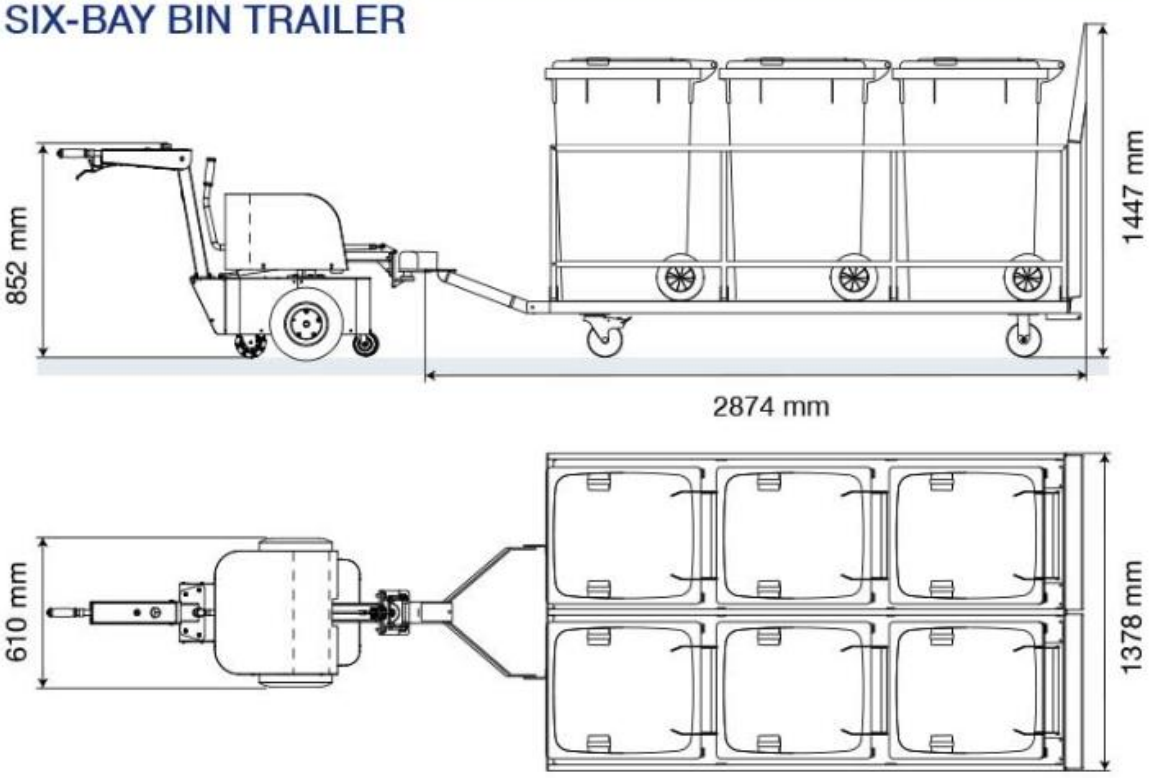
ST3000-AC tow tug complete with 6 x 250AH heavy duty batteries

Optional steel / aluminium trailers for moving waste bins, linen trolleys, food trolleys, delivery boxes, etc ...

THREE-BAY BIN TRAILER



SIX-BAY BIN TRAILER



Appendix C Standard Signage

Waste Signage

Signs for garbage, recycling and organics bins should comply with the standard signs promoted by the NSW EPA.

Standard symbols for use in signage, bin facade and educational materials are promoted through the NSW Environment Protection Authority. They are available for download from the NSW EPA website (NSW EPA 2016b), in black and white and colour versions. The Australian Standard series AS 4123 (Part 7) details colours for mobile waste containers (Standards Australia 2008).

Figure 5: Examples of standard signage for bin uses

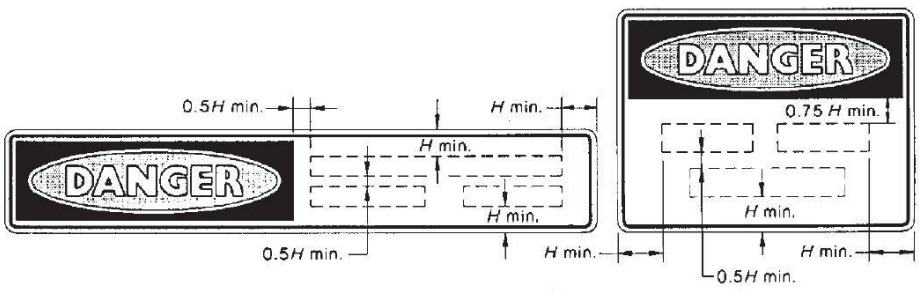
Safety Signs

The design and use of safety signs for waste and recycling rooms and enclosures should comply with AS 1319 (Standards Australia 1994). Safety signs should be used to regulate, and control safety related to behaviour, warn of hazards and provide emergency information, including fire protection information. Below are some examples. Clear and easy to read 'NO STANDING' and 'DANGER' warning signs must be fixed to the external face of each waste and recycling room where appropriate.

Figure 6: Example and layout of safety signage

(d) Horizontal

FIGURE D5 TYPICAL ARRANGEMENTS OF DANGER SIGNS



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