Foresight Environmental

Leppington Public School Upgrade

Leppington, NSW 2179

REF Operational Waste Management Report

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DISCLAIMER

This report is based on information provided by the **Department of Education,** coupled with Foresight Environmental's knowledge of waste generated within the commercial sector. To that extent this report relies on the accuracy of the information provided to the consultant. It has been compiled by Foresight Environmental on behalf of **Department of Education.**

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1. Introduction

This Operational Waste Management Plan (OWMP) has been prepared to support a Review of Environmental Factors (REF) for the Department of Education (DoE) for the upgrade of Leppington Public School (LPS) (the activity). The purpose of the REF is to assess the potential environmental impacts of the activity prescribed by *State Environmental Planning Policy (Transport and Infrastructure) 2021* (T&I SEPP) as "development permitted without consent" on land carried out by or on behalf of a public authority under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The activity is to be undertaken pursuant to Chapter 3, Part 3.4, Section 3.37 of the T&I SEPP.

The proposed activity is for upgrades to the existing LPS at 144 Rickard Road, Leppington, NSW, 2179 (the site).

1.1 Site and Locality Description

LPS is located at 144 Rickard Road, Leppington on the eastern side of Rickard Road, north of Ingleburn Road and south of Byron Road. The site has an area of 3.013 ha and comprises 4 allotments, legally described as:

- Lot 1 DP 127446
- Lot 1 DP 439310
- Lot 38E DP 8979
- Lot 39C DP 8979

The site currently comprises an existing co-education primary (K-6) public school with:

- 14 permanent buildings;
- 11 demountable structures (including 2 male/female toilet blocks);
- interconnected paths;
- covered walkways;
- play areas; and
- at-grade parking.

The site also contains locally listed heritage buildings along its southern boundary.

The buildings are 1 storey in height and there is a sports oval in the eastern portion of the site. The existing buildings are clustered in the north-western part of the site.

Figure 1: Aerial image of the site, outlined in blue (Source: NearMap, taken 24 Sept 2024)

1.2 Proposed Activity Description

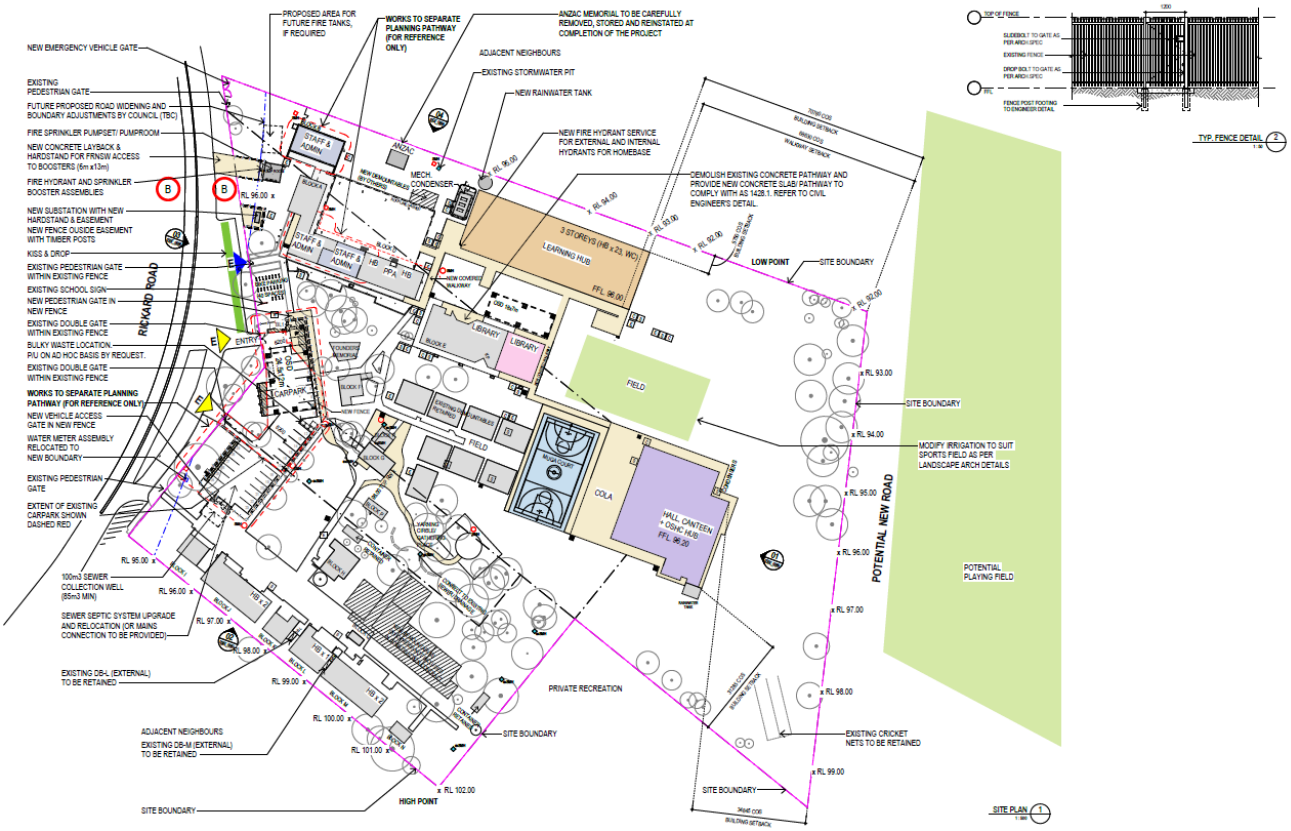
The proposed activity involves upgrades to the existing LPS, including the following:

- Demolition of existing structures and trees;
- Erection of a new 3-storey teaching space along the northern boundary that includes 20 permanent teaching spaces and 3 support teaching spaces;
- Erection of a new hall and COLA comprising of a hall, canteen and OSHC hub towards the eastern boundary of site;
- Extension of the existing library (Building E) and adjoining playground;
- Upgraded sports and play facilities;
- Relocation of the Yarning Circle;
- Erection of a substation and upgrades to site services;
- Footpaths, fencing and associated works; and

- Landscaping.

The intent of the activity is to allow for upgrades to LPS that will provide a 'CORE 35' school standard in line with the Educational Facilities Standards and Guidelines (EFSG). The activity will increase the capacity of the school from 430 to 621 students

Figure 2: The scope of works for the proposed activity.



2. Operational Waste Generation Estimate

Based on the estimated waste profile and in line with the Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities[1], Department of Environment Studies on Commercial & Industrial Waste and Recycling in Australia[2] and Foresight Environmental's benchmark data from similar developments, the primary waste streams expected to be generated in the ongoing operation of the activity would be:

- General Waste
- Paper & Cardboard
- Mixed Recycling (plastics, glass, aluminium, steel)
- For additional smaller waste streams see section 3.2.2

Currently, there is no collection of Mixed Recycling. The following sections detail projected estimates and spatials including a Mixed Recycling stream, should the school wish to add this stream in the future. Current General Waste and Paper & Cardboard data has been obtained from the school as well their current practices for waste collection and disposal.

The waste generated through new day-to-day operations will not impact the current waste systems put in place at the school. The existing management systems are adequate to handle current waste generated while still being able to manage any future increases on projections.

2.1 Waste Estimate Formula

Based on the information provided by LPS, we were able to extrapolate data demonstrating that the school population currently has a waste generation formula of **2.2L/head/day**. Table 1 below shows the current composition of waste, and the projected (best practice) composition that would include a Mixed Recycling stream.

[1] Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities (nsw.gov.au)
[2] A study into commercial and industrial (C&I) waste and recycling in Australia by industry division (dcceew.gov.au)

Table 1 – Composition of waste streams for calculating waste generation estimates

WASTE STREAM	COMPOSITION % - Current	COMPOSITION % - Projected
General Waste	58	60
Paper & Cardboard	42	20
Mixed Recycling	-	20
TOTAL	100	100

2.2 Waste Estimates

The above formula of 2.2L/head /day was then applied to waste estimate projections to include the expected school population growth, and the projected composition including the additional Mixed Recycling stream. It should be noted that adding the Mixed Recycling stream is best practice, and so it may take an adjustment period to implement and reach the figures shown below.

Table 2 – Student generated waste estimate: Current and Projected

WASTE STREAM	KG/DAY Current	KG/DAY Projected	L/DAY Current	L/DAY Projected	KG/WEEK Current	KG/WEEK Projected	L/WEEK Current	L/WEEK Projected
General Waste	64	91	614	865	322	454	3,069	4,323
Paper & C/board	31	20	444	288	156	101	2,222	1,441
Mixed Recycling	-	17	-	288	-	86	-	1,441
TOTAL	96	128	1,058	1,441	478	641	5,291	7,205

3. Waste Management Systems

The following tables detail the recommended systems and suggested collection frequencies to manage the estimated waste profile for the school with its current student and staff population, and to manage projected waste estimates into the year 2027. The systems and collection frequency provide adequate capacity for the projected waste generation of the activity, with scope to further increase bins if needed. See Appendix 1 for description of mobile garbage bin (MGBs) specifications and Appendix 2 for skip bin specifications.

3.1 All Waste

Table 3 – Total recommended waste management systems: Current (2024)

Waste Stream	Bin Type	Bin Size (L)	No. of Bins	Weekly Clearance Frequency	Weekly Capacity (L)	Estimated volume / week (L)	Footprint per bin (m^2)	Total Footprint (m^2)
General Waste	SKIP	3000	1	1	3,000	3,069	2.72	2.72
Paper & Cardboard	MGB	1100	2	1	2,200	2,222	1.33	2.66
TOTAL					**5,200**	**5,291**		**5.38**
Required space including 50% additional space for circulation								**8.07**

The table below includes a Mixed Recycling stream – should this not be implemented, Mixed Recycling will be captured in the General Waste skip bin.

Table 4 – Total recommended waste management systems: Projected (2027)

Waste Stream	Bin Type	Bin Size (L)	No. of Bins	Weekly Clearance Frequency	Weekly Capacity (L)	Estimated volume / week (L)	Footprint per bin (m^2)	Total Footprint (m^2)
General Waste	SKIP	3000	1	2	6,000	4,323	2.72	2.72
Paper & Cardboard	MGB	1100	2	1	2,200	1,441	1.30	2.6
Mixed Recycling	MGB	1100	1	1	1,100	1,441	1.30	1.3
Bulky Waste								4.00
TOTAL					**9,300**	**7,205**		**10.62**
Required space including 50% additional space for circulation								**15.93**

3.2 Waste Streams

3.2.1. Primary Waste Streams

Table 5 – Primary streams acceptance criteria

WASTE STREAM	ACCEPTABLE ITEMS	NOT ACCEPTABLE ITEMS
General Waste	Putrescible waste (non-hazardous)	Hazardous materials such as batteries, E-waste and liquids
Paper & Cardboard	Office Paper, Envelopes, Manilla Folders, Newspapers, Magazines, Cardboard	Plastic bags, food, waxed carboard, polystyrene, food-soiled cardboard

Mixed Recycling	Empty glass, aluminium, plastic, steel bottles/cans/containers	All other items

3.2.2. Additional Waste Streams

Table 6 – Management Protocol for additional streams

WASTE STREAM	MANAGEMENT PROTOCOL
Paper hand towel recycling	In an effort to reduce waste generation volumes, a paper hand towel free system in bathrooms should be considered. Replacing hand towels with a system such as an automatic hand dryer may prove to be more environmentally (and economically) efficient than a paper hand towel system. If a paper hand towel system is chosen, then it should be confirmed with the appointed waste contractor which recycling stream is most appropriate for this material.
Toner cartridge recycling	Where cartridges are generated recycling systems should be implemented. Typically, a free service provided by Planet Ark for example is sufficient – this system will consist of a large cardboard box located within the print rooms which will be collected by Planet Ark upon request by the facilities manager.
E-Waste	Measures should be taken to avoid generating e-waste, but where unavoidable, e-waste should be collected by facilities management as required (including batteries and laptops) and consolidated for collection by specialty e-waste contractor.
Bulky Waste	Bulky waste materials will be transferred to the waste management area (Figure 3). Bulky waste items are recyclable items that are too large to fit into bins, and include items such as furniture, whitegoods, electronics, pallets, strip-out waste and similar items so that storage in a public place is completely avoided. Items are stored here, and then private collection is arranged on an as needed basis.

4. Waste Management Areas

The areas detailed in Section 3 above indicate the total footprint and spatial requirements for the waste storage area. The waste storage area for the activity is an area located on the east side of the staff car park. There is adequate space here for the three bins needed with current estimates (Table 3), and the space can accommodate the total of four bins that are projected to be needed by 2027 (Table 4) – the figure below represents this future size (approximately 19m^2) (Figure 3). Bulky waste to be stored here as well.

4.1 Waste Management Area

The figure below shows the recommended location and layout of the waste storage area.

Figure 3: Location of waste management area

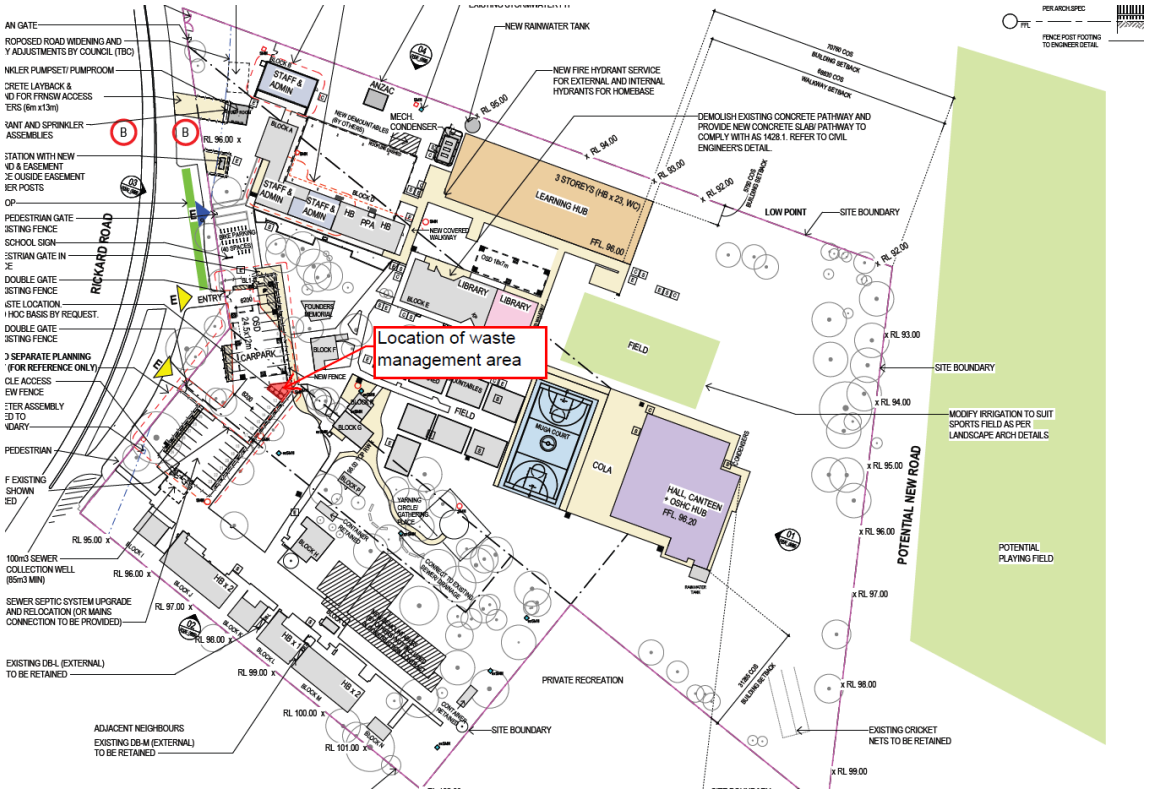
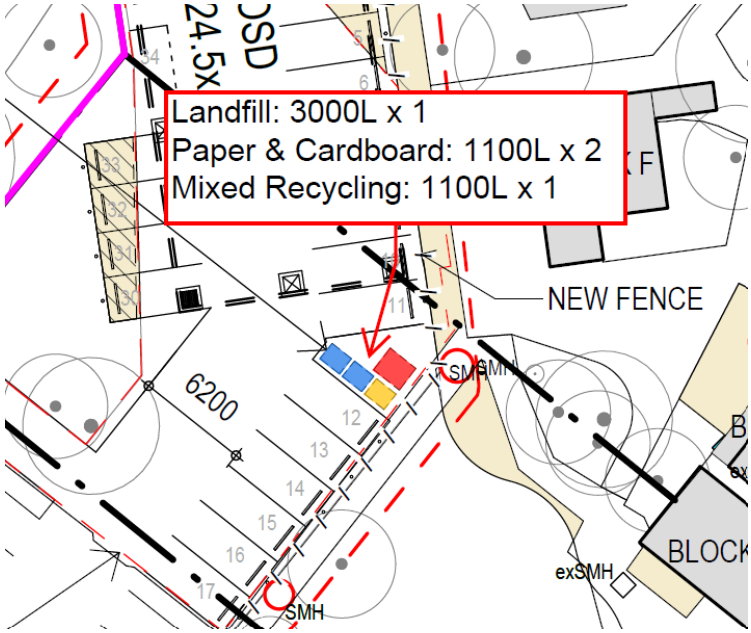


Figure 4: Indicative layout of waste management area



4.2 Signage

All waste and recycling streams should be differentiated with clear signage on all bins in the waste management area. Below are examples of appropriate signage incorporating textual information, pictures and colour-coding to communicate the message.

Figure 5: Stream appropriate signage

4.3 Amenity

The main waste and recycling storage area will have the following features:

- Vermin Prevention:
    - Cleaners are to ensure that bin lids are closed when unattended
- Floor: Structural concrete slab. Graded drains to approved sewer connections – fitted with an in-floor dry basket arrestor approved by Sydney Water Corporation.
- Fire: Floors of waste and recycling areas must be of a fire resistance level (FRL) in accordance with the requirements of the BCA.
- Signage: clear signage identifying the various streams and appropriate use will be prominently displayed (see Section 4.2 on signage).
- Noise: Due to location of waste area, noise will not impact neighbouring residents.
- Hygiene and odour: The School will ensure all bins are cleaned internally and externally on a regular basis (at least once every 3 months).

The ongoing maintenance and up-keep of the waste storage room will be the responsibility of cleaning/school management staff. They will be tasked with ensuring bins are stored neatly and are cleaned as required.

5. Cumulative Impact Assessment

As this is a redevelopment of an existing school, we do not foresee any cumulative impacts arising from the activity, whereby operational waste generation largely continues in line with historical operations, and risks will be mitigated as per Table 7 below.

6. Mitigation Measures

The table below details potential operational impacts to the environment, community and individuals from the introduction of complex school developments, and then specific mitigation measures that should be implemented to address them.

Table 7 – Mitigation Measures

MITIGATION NAME	ASPECT/SECTION	MITIGATION MEASURE	REASON FOR MITIGATION MEASURE	REPORT DELIVERABLE
Manage, reuse, recycle and safely dispose of waste once operational	Long-term effects on the environment	Provision of adequate storage space to allow for appropriate number of bins to effectively separate waste and recycling streams and provide adequate storage capacity	To avoid cross contamination of materials and maximise reuse and recycling opportunities	Section 2 & 3
		All waste (General Waste, Paper & Cardboard and Mixed Recycling) will be disposed by students and staff into the appropriate bins in the public areas which will then be transferred by maintenance staff to the waste storage area on a daily basis		Section 7
		Camden Council waste collection will ensure streams are transported safely and to the correct disposal facility	To ensure the safety of the community and to maximise reuse and recycling opportunities	Section 8

Waste and servicing arrangements – waste minimisation and waste reuse and recycling	Environmental impact on the community during construction and post-construction	The location of the waste area has been chosen so as not to adversely impact on the amenity of the school population and any surrounding land users. This includes noise, odour, and visual amenity. It is the responsibility of school staff/cleaners to ensure that bins and the waste storage area remain clean, tidy and free of odour	To achieve high quality design outcomes and high standards of amenity	Section 4.3
		The bin collection point, and timing of collections are such to ensure the safety for Camden Council waste collectors and students	To ensure the safety of students and waste collectors	Section 8
Whether the activity will have adverse environmental impacts	Risk to the safety of the environment	Waste infrastructure design complies with council requirements regarding runoff into approved drains. Monitoring of all bins on a regular basis to ensure capacity and collection frequency is adequate to minimise/eliminate overfilling, littering, pollution, etc.	To eliminate pollution from run-off, leakage, and littering	Section 4.3
Environmental problems of waste transport and disposal of waste, ongoing use, and eventual decommission of the activity	Environmental problems associated with the disposal of waste	All waste collection transport and disposal activities will be conducted by the appointed waste contractor currently engaged under the Whole of Government Waste Management and Resource Recovery Agreement. The agreement stipulates transporters and receivers will be required to comply with the Protection of the Environment Operations (Waste) Regulation 2014	To ensure all waste is appropriately transported to a place that can lawfully receive it	Section 8
		All waste would be assessed, classified, managed, transported, and disposed of in accordance with the Waste Classification Guidelines (NSW EPA 2014)	To ensure all waste across its life cycle is managed to minimise the potential adverse environmental impacts	Section 9

Proximity to waste transfer depots or landfill sites	Other relevant environmental factors	Waste contractor collection and disposal routes are as efficient as possible to avoid unnecessary transport km	To minimise distance waste needs to travel to reduce potential for accidents, spills, etc.	Section 9

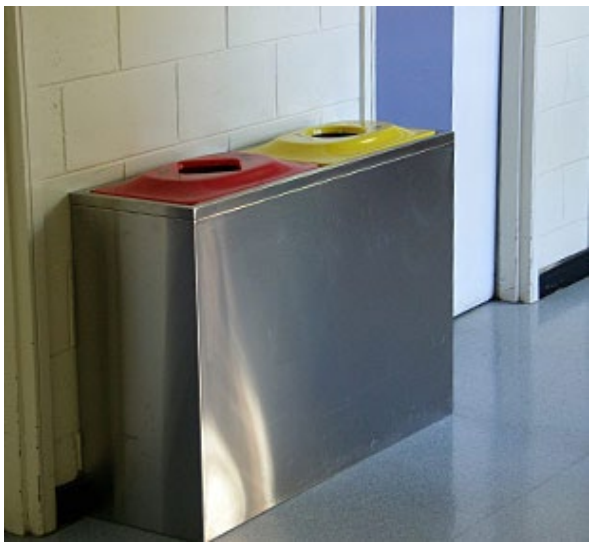
7. Onsite Management Protocols

7.1 Internal Management and Movement of Waste

7.2 Public Areas

Figure 6 below shows the recommended dual bins to be placed within new public areas (library, hall, COLA, etc). A General Waste and Mixed Recycling bin placed at various positions within these areas will give students the opportunity to dispose of their waste effectively.

Figure 6: Enclosed multisort bins



7.3 Staff Spaces – Staff rooms and kitchen areas

It is expected that all staff will implement centralised bin hubs throughout their fit-out in appropriate areas. Establishing centralised bin-hubs for the management of all relevant waste streams will typically drive better staff practices – by requiring staff to interact with the centralised systems, they are forced to make a choice as to which bin they dispose their materials into, within a common area that is shared by co-workers.

Additionally, the common contamination issues associated with individual desk bins or multiple bins throughout a workspace are significantly reduced through a centralised bin-hub approach.

The school can choose to implement freestanding bin hubs or conceal bins within cabinetry throughout their fit-out. Regardless of the approach, it is recommended that signage is clearly displayed throughout on bins or on cabinetry doors to ensure clear, consistent messaging is achieved throughout.

Figure 7: Recommended best practice signage displayed on cabinetry fronts

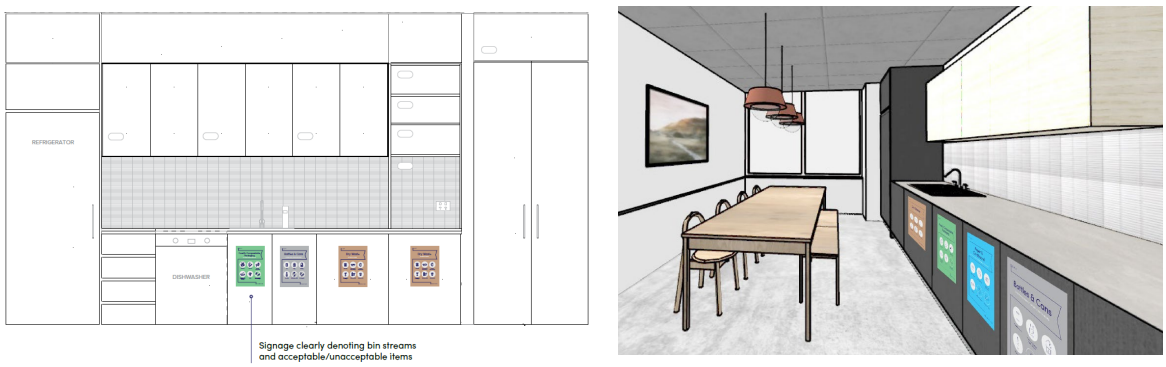


Figure 8: Examples of small waste/recycling "multisort" bins for bin hubs (60L or 90L)

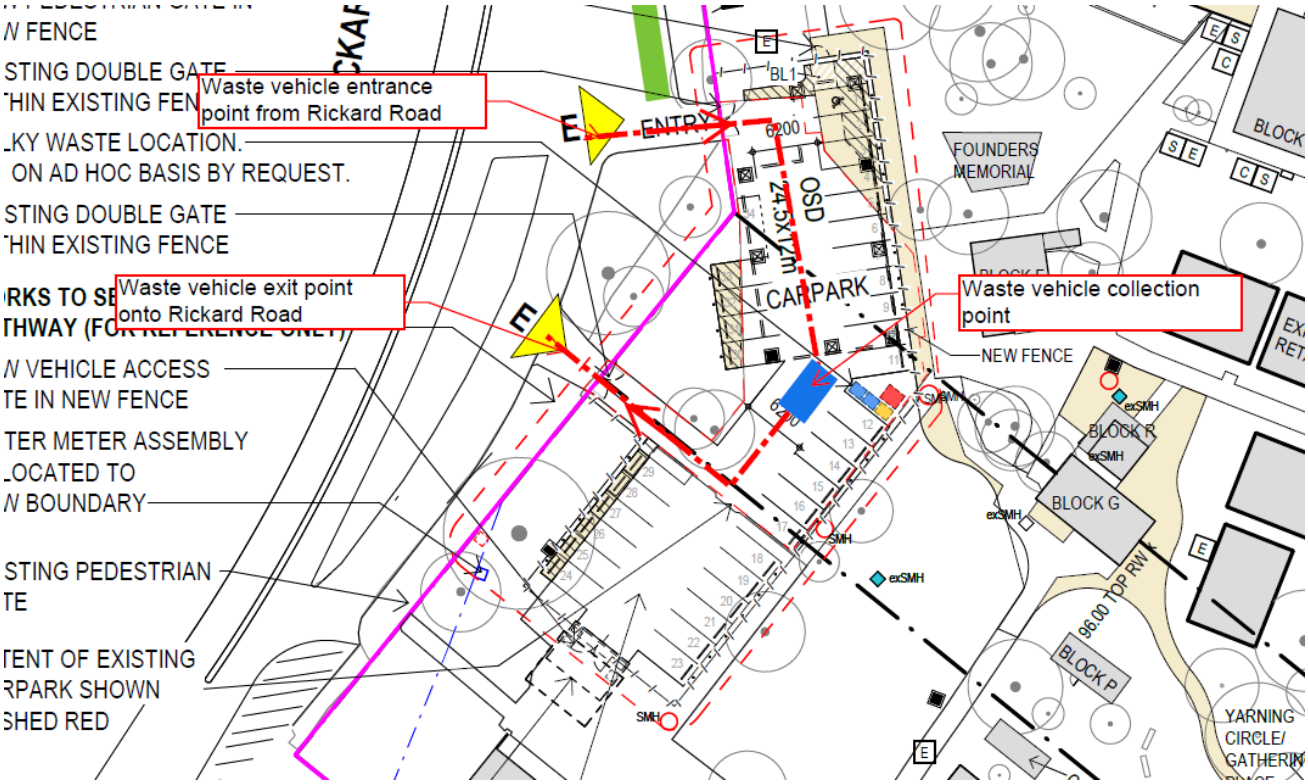
Figure 9: Example of "multisort" bins under bench

8. Collection

The figure below shows how the appointed waste contractor can access the site to collect all bins. General Waste and Mixed Recycling are currently serviced by Camden Council, and the intention is to continue with their service at the completion of the activity.

The Council waste contractor (Veolia) will be able to access the site off Rickard Road, then drive forward into the parking lot to the collection point, conduct collection by moving bins from the waste storage area to either the rear or front of the vehicle, return empty bins back to the waste storage area and then continue forward and exit back out onto Rickard Road, as diagrammed in Figure 10 below. Camden Council ensures that waste collections at schools occur either very early before students arrive, or during class times to ensure the safety of students

Figure 10: Waste storage pick up/collection point



8.1 Waste Collection Vehicles

Veolia are the current waste contractor appointed by Camden Council to collect LPS waste, and this is intended to remain after the completion of the activity. A rear end loader (REL) will collect the 1100L MGBs and a front end loader (FEL) will collect the 3000L skip bins. The following figures show the indicative specifications of the Veolia collection vehicles which will be used by Council to collect waste and recycling from the site.

Figure 11: Veolia/Suez REL vehicle specifications

Figure 12: Veolia/Suez FEL vehicle specifications

Vehicle specifications

Overall length	Up to 11.0m
Overall width	2.5m
Height (travel)	Up to 4.2m
Height (in operation)	Up to 8.5m
Weight (vehicle only)	16.5t
Weight (payload)	11.0t
Turning circle	25.0m

Overview

- Best suited for customers who generate a variety of wastes and are able to store the collection container on-site
- Ideal for hotels, offices, workshops, factories, shopping centres and distribution outlets
- Separate bins can be provided for general waste, paper, cardboard, co-mingled containers, organics and packaging
- Bins are colour-coded to Australian Standards for easy identification of waste streams
- Convenient range of standard containers from 1.5m³ to 6m³ capacities
- Variety of options and accessories including sliding or lifting lid tops, nylon or rubber castors, towing hitches, etc

SUEZ has procedures in place to help ensure our operations are conducted in a manner that protects the health and safety of our employees, customers, contractors, suppliers and the general public, providing a safe and healthy working environment.

9. Monitoring & Review

9.1 Review Process

Waste minimization requires periodic review to ensure that the waste management plan, in accordance with the Waste Classification Guidelines (NSW EPA 2014) is being adhered to, and to identify any new waste minimisation opportunities - a review of the efficacy of the waste management plan should be undertaken every 12 months.

Third party companies can provide waste audit services, or an internal audit review can be undertaken – in both cases waste contractor data should be reviewed to determine that all waste and recyclables are being separated effectively in accordance with the waste management plan, and that waste and recyclables are being taken to the appropriate facilities in the most efficient way possible.

Other points to consider in monitoring and review:

- All products that are of concern in relation to the waste being generated will be replaced where possible with products that are less wasteful and more environmentally friendly.

- All waste bins will be inspected on a weekly basis to ensure that they are maintained in a clean and safe condition appropriate for their use and containment of specific waste. They will also need to be monitored regularly to ensure that cross- contamination does not occur or is kept as minimal as possible.

- School/site management will continue to review the types of materials produced and where possible change the site design and operation to minimize any products that go to landfill.

Reduction, then reuse and recycling of waste products is the highest priority.

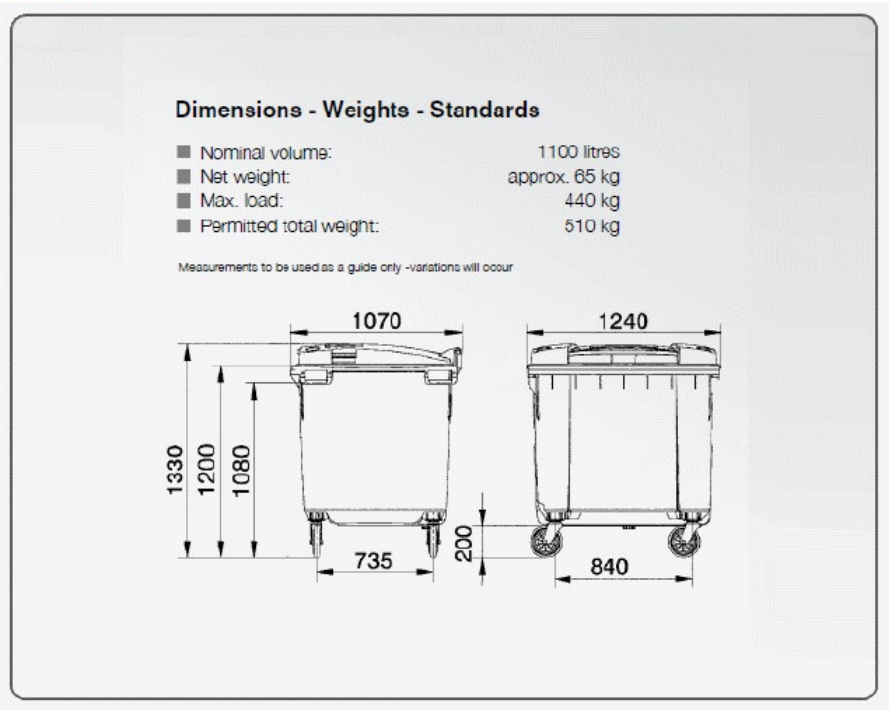
10. Conclusion

The details of this waste management plan confirm that the waste facilities and operational strategy for LPS adequately supports a REF for the DoE for the upgrades. This was done through review of the potential cumulative impacts of the activity and the forecasting of any potential issues and the mitigating measures to combat these should they arise. This report confirms that any environmental issues relating to waste will not be considered a significant impact.

Appendix

Appendix 1: MGB Bin Specifications

1100L MGB



Appendix 2: Skip Bin Specifications

Container specifications

Capacity	1.5m³	3.0m³	4.5m³
Depth	0.905m	1.505m	1.605m
Width	1.805m	1.805m	1.805m
Height	0.910m	1.225m	1.570m