# Kogarah Public School – Waste Management Plan

## A Submission to RP Infrastructure

**17th January 2025**

MRA Consulting Group

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A Submission to RP Infrastructure

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### 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 |
| GRLEP | Georges River Local Environmental Plan 2021 |
| GRDCP | Georges River Development Control Plan 2021 |
| VENM | Virgin Excavated Natural Material |
| WMP | Waste Management Plan |
| WSP | Waste Service Provider |
| WSRA | Waste Storage and Recycling Area |

# 1 Introduction

This Waste Management Plan (WMP) has been prepared to support the Review of Environmental Factors (REF) being prepared on behalf of the NSW Department of Education (DoE) for the proposed Kogarah Public School upgrade (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 (NSW DoE) 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, Clause 3.37 of the T&I SEPP.

This document has been prepared in accordance with the Guidelines for Division 5.1 assessments (the Guidelines) by the Department of Planning, Housing and Infrastructure (DPHI) as well as the Addendum guidelines for schools. The purpose of this report is to provide a WMP for the proposed Kogarah school upgrade that addresses the requirements of the Council waste management policies and conforms to the following environmental planning instruments and reference documents:

- Georges River Development Control Plan 2021 (GRDCP 2021)
- Georges River Local Environmental Plan 2021 (GRLEP 2021)

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

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

A Waste and Recycling Management Plan has been prepared in accordance with the GRDCP 2021 (Section 3.12 and Appendix 4), and states the following objectives for waste management:

- Ensure that adequate provision is made for waste storage and recycling facilities within development.
- Ensure that waste storage and recycling facilities are integrated into the design of new development and do not have negative impacts on streetscape or the amenity of neighbouring properties.
- Ensure that waste storage and recycling facilities are suitably sited for the convenience of the occupants and servicing requirements.
- Maximise reuse and recycling of household waste and industrial / commercial waste.

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 development will include:

- Demolition of existing playground facilities and Covered Outdoor Learning Area (COLA) in addition to footings and services associated with former demountable buildings;
- Tree removal;
- Construction of a new three storey Classroom building and attached amenities facilities;
- Construction of a single storey Hall with attached Covered Outdoor Learning Area;
- New pedestrian pathway connections providing access throughout the site;
- Service upgrades; and
- Site landscaping works.

## 2.2 Location

Kogarah Public School is located at 24B Gladstone Street, Kogarah and contains a site area of 1.644ha per Detail Survey. The school is accommodated within the following allotments:

- Lots 1-3 DP 999122;
- Lot 1 DP 179779
- Lot 1 DP 667959
- Lot 2 DP 175247; and
- Lot A DP 391026.

The site is irregular in shape with existing vehicular access and the car park provided from Gladstone Street along the south western boundary. Pedestrian access is provided from Gladstone Street and Princes Highway. The site accommodates eight (8) permanent buildings and number of modular school buildings with play areas largely confined to the centre and north eastern portions of the site.

Development surrounding the site includes:

- North: Residential flat building at 71 Regent Street, retail tenancies orientated to Princes Highway(39-43 Princes Highway) and a smaller residential flat building at No 41 Princes Highway;
- East: Princes Highway and further to a mix of commercial and mid-rise residential development;
- South: St Paul's Church complex comprising St Paul's Childcare Centre, St Paul's Anglican Church and a residential flat building located at 24-30 Gladstone Street; and
- West: A mix of single dwelling and residential flat building development with Regent Street beyond.

**Figure 1: Site and surrounding area**

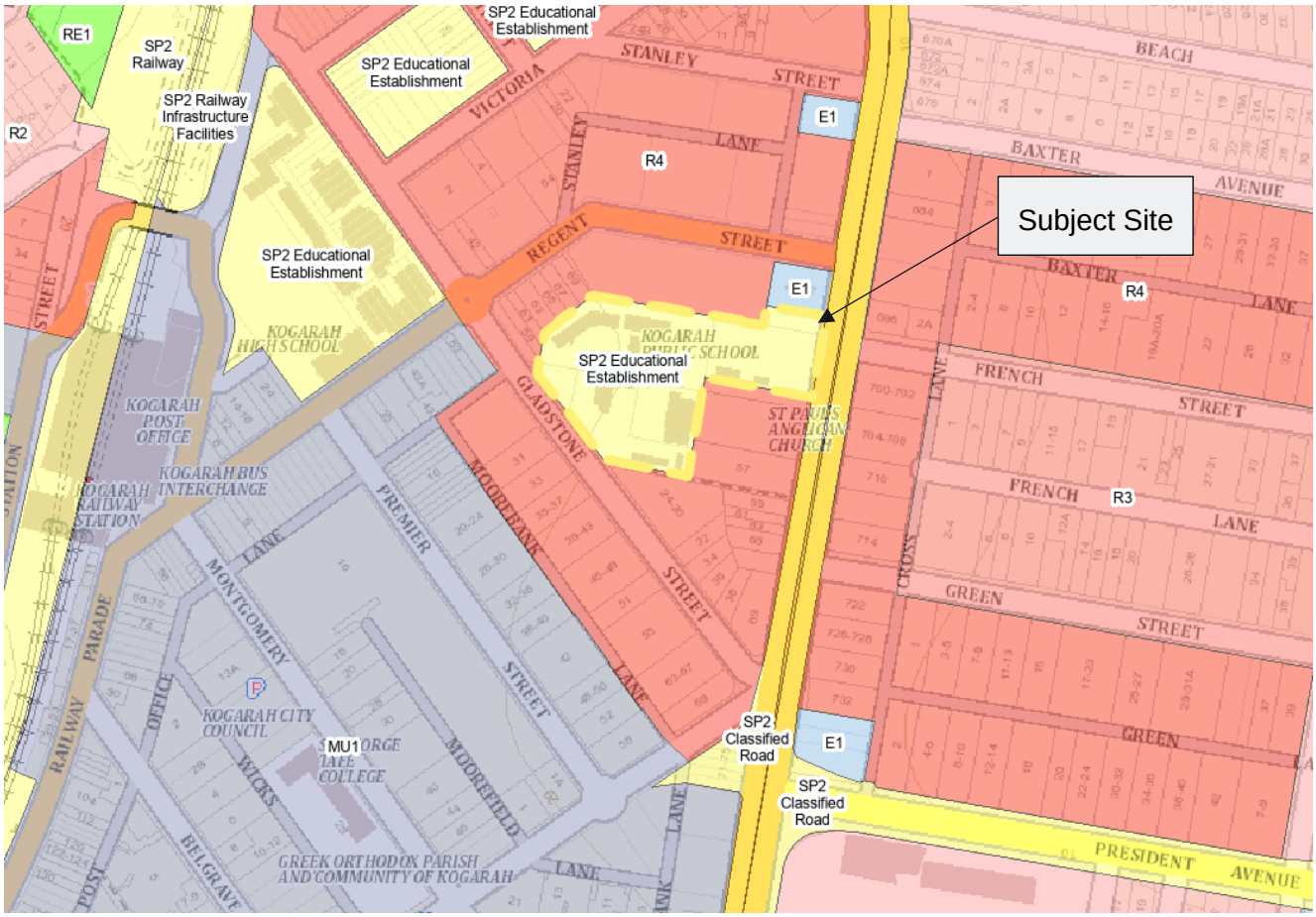

*Source: SixMaps, 2024.*

## 2.3 Zoning and Use

The site is zoned as **SP2 – Educational Establishment** according to the GRLEP 2021. The objectives of this zone are:

- To provide for infrastructure and related uses.
- To prevent development that is not compatible with or that may detract from the provision of infrastructure.
- To protect and provide for land used for community purposes and public infrastructure.

**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 the development plan from the project architect, Fulton Trotter Architects, dated 19/12/2024;
- Waste and recycling volumes are based on information provided from the GRDCP 2021; 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. Should the demolition phase waste storage area be on public land, an application to council shall be made prior to any works commencing as required in the GRDCP 2021. 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 multiple existing trees, playground facilities and Covered Outdoor Learning Area (COLA) in addition to footings and services associated with former demountable buildings.

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 - 50 | ✓ | ✓ | ✓ | - | <5% | >95% | Onsite: Separated wherever possible and reused or crushed for filling, levelling or road base.<br>Offsite: Removed to C&D facility for crushing and recycling for recovered products. |
| Bricks/pavers | 30 - 40 | ✓ | ✓ | ✓ | - | <5% | >95% | Onsite: Separated wherever possible and reused or crushed for landscaping and driveways.<br>The development will be able to reuse a number of existing building bricks as paving in landscaped areas.<br>Offsite: Removed to C&D facility for crushing and recycling for recovered products. |
| Timber (Clean) | <5 | ✓ | ✓ | ✓ | - | 0 | 100 | Onsite: To be separated wherever possible to enhance resource recovery.<br>Offsite: Removed to C&D facility for crushing and recycling for recovered products. |
| Timber (Treated) | <5 | ✓ | ✓ | ✓ | - | 50 | 50 | Onsite: Separated wherever possible and reused or crushed for landscaping and driveways.<br>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 |
|---|---|---|---|---|---|---|---|---|
| Metals (ferrous & non-ferrous) | <5 | - | ✓ | ✓ | - | <10% | >90% | Onsite: Separated wherever possible to improve resource recovery.<br>Offsite: Removed to C&D facility for recovery and recycling. |
| Floor covering | 15 - 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. |
| **Total % Diversion from Landfill Estimated** | | | | | | | **>80%** | |

## 3.2 Construction Waste

The proposed development will include the construction of:

- A new three storey Classroom building and attached amenities facilities;
- A single storey Hall with attached Covered Outdoor Learning Area;
- New pedestrian pathway connections providing access throughout the site;
- Service upgrades; and
- Site landscaping works.

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

**Table 2: Indicative volume to weight conversion factors for common construction materials**

| Building waste material | Tonnes per $m^3$ | Waste as % of the total material ordered |
|---|---|---|
| Soil/aggregate | 1.4 – 1.6 | – |
| Bricks | 1.2 | 5–10% |
| Concrete | 1.5 | 3–5% |
| Tiles/ceramics | 0.5 – 1 | 2–5% |
| Timber | 0.3 | 5–7% |
| Plasterboard | 0.2 | 5–20% |
| Metals | 0.15 – 0.9 | – |

*Source: Green Building Code of Australia C&D Waste Criteria.*

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.

The information below presents multiple options for materials reuse, recycling and disposal where applicable (e.g. return to manufacturer, recycled at construction and demolition (C&D) processor, or disposed to landfill if contaminated).

**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 | 15 - 20 | ✓ | ✓ | ✓ | <5% | >95% | Onsite: Reuse for fill and levelling.<br>Offsite: Removed from site for reuse as recycled fill material or soil.<br>Disposal: Removal of any contaminated material for appropriate treatment or disposal. |
| Bricks/pavers | 10 – 15 | ✓ | ✓ | ✓ | <10% | >90% | Onsite: Separated wherever possible and reused or crushed for landscaping and driveways.<br>Offsite: Returned to supplier for reuse or removed to C&D facility for crushing and recycling for recovered products. |
| Concrete | 10 - 15 | ✓ | ✓ | ✓ | <10% | >90% | Onsite: Separated wherever possible and reused or crushed for filling, levelling or road base.<br>Offsite: Removed to C&D facility for crushing and recycling for recovered products. |
| Tiles | <5 | ✓ | ✓ | ✓ | <10% | >90% | Onsite: Separated wherever possible and reused or crushed for landscaping and driveways.<br>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) | <5 | - | ✓ | ✓ | <10% | >90% | Onsite: Separated wherever possible to improve resource recovery.<br>Offsite: Returned to supplier for reuse removed to C&D facility for recovery where possible. |
| Timber (treated) | <5 | - | ✓ | ✓ | 50% | 50% | Onsite: Separated wherever possible to improve resource recovery.<br>Offsite: Returned to supplier for reuse removed to C&D facility for recovery where possible. |
| Plasterboard | <5 | - | ✓ | ✓ | <10% | 90% | Onsite: Separated wherever possible to improve resource recovery.<br>Offsite: Returned to supplier or removed to a C&D/plasterboard recovery facility for recovery where possible. |
| Glass | <5 | ✓ | ✓ | ✓ | <10% | >90% | Onsite: Separated wherever possible and reused or crushed for landscaping and driveways.<br>Offsite: Returned to supplier for reuse or removed to C&D facility for crushing and recycling for recovered products. |
| Metals (ferrous)<br>Metals (non-ferrous) | <5 | - | ✓ | ✓ | <10% | >90% | Onsite: Separated wherever possible to improve resource recovery.<br>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 | <5 | ✓ | ✓ | ✓ | <10% | >90% | On site: to be separated wherever possible to enhance resource recovery.<br>Reuse: surplus and offcut material returned to manufacturer for reuse where possible.<br>C&D processor: recovery and recycling. |
| Fixtures and fittings | <5 | ✓ | ✓ | ✓ | | | On site: to be separated wherever possible to enhance resource recovery.<br>Reuse: surplus and offcut material returned to manufacturer for reuse where possible.<br>C&D processor: recovery and recycling. |
| Electronic waste | <5 | - | ✓ | ✓ | <10% | >90% | Offcut wires and electronics separated where possible or returned to supplier for reuse. |
| Packaging materials (pallets, wrap, cardboard, etc) | 15 - 20 | - | ✓ | ✓ | <10% | >90% | Returned to supplier where possible or separated by material type for resource recovery. |
| Residual waste | <5 | - | ✓ | ✓ | 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:<br>• St George Skip Bin Hire Services<br>• Purple Cow Industries;<br>• MCM Skip Bins.<br>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:<br>• Remondis Australia Resource Recovery Facility Taren Point;<br>• Lucas Heights Resource Recovery Park;<br>• Visy Recycling Materials Recovery Facility Taren Point;<br>• Bingo Mortdale;<br>• Breen Resources Pty Ltd, Kurnell.<br>Or another appropriate facility as elected by the waste management contractor. |
| Principal Licensed Landfill Site | • Cleanaway Lucas Heights Resource Recovery Park<br>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

The proposed development works are expected to result in an increase in the total waste generation at the site. This section of the WMP outlines the waste strategies for ongoing waste management and identifies changes to waste generation resulting from the proposed expansion works.

Waste management strategies related to site operations have been established according to the GRDCP 2021 and NSW EPA guideline documents.

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. $m^2$) |
|---|---|---|---|---|
| **120** | 940 | 560 | 485 | 0.30 - 0.33 |
| **240** | 1,100 | 735 | 580 | 0.41 - 0.43 |
| **660** | 1,250 | 850 | 1,370 | 0.86 - 1.16 |
| **1,100** | 1,470 | 1,245 | 1370 | 1.33 - 1.74 |
| **3$m^3$** | 1020 - 1580 | 1470 - 1700 | 1400 - 2010 | 2.1 - 3.4 |

*Source: NSW EPA's Better practice guide for resource recovery in residential developments (2019).*

## 4.2 Existing Waste Management Strategy

Kogarah Public School currently comprises approximately 480 students from Kindergarten to Year 6 students. Expected future increase in student population is to 870 students with the construction of the proposed works. Per NSW EPA's *Better practice guidelines* (2012 & 2019), student numbers are utilised as the key measure for defining waste generation expectations for proposed developments.

The school currently employs waste management practices to handle general waste and recycling. The following systems and infrastructure exist at the site:

- General Waste: collected twice weekly.
    - 3 x 1,100L Bins
- Paper & Cardboard Recycling: collected fortnightly
    - 1 x 1,100L Bins

Bins are placed on site as required in the external waste storage area nearby the vehicle access gate on Gladstone Street.

Onsite management of waste within the existing school, including placement of bins in classrooms, playground, canteen and other key areas, and their daily management by site cleaners is to remain largely unchanged. Classroom and common area general waste and recycling bins are located across the campus and collected by cleaning staff each day to be decanted into bulk bins.

## 4.3 Ongoing Waste Generation

The NSW EPA's *Better Practice Guide for Resource Recovery in Residential Developments (2019*) provides waste generation estimates for primary schools. In this instance, Kogarah Public School has provided observed and real waste data relating to the existing waste generation. This has been used to extrapolate additional volumes as a result

of the development's increase in student numbers. This data provided is considered to generate a more accurate estimate of the expected volumes produced on site, resulting in better waste management practices for the site.

The following data/calculations are applied to the site:

- The existing scenario assumes 3 x 1,100 general waste bins are collected twice a week and 1 x 1,100L paper & cardboard recycling are collected fortnightly from the site. Bins are reported to be full when collected.
- Based on the above:
    - 480 students generate 6,600L of general waste per week. Therefore, 870 students are expected to generate **11,963L of general waste per week** (6,600L/480 students = 13.75L/student x 870 students = 11,963L per week).
    - 480 students generate 550L of paper & cardboard recycling per week. Therefore, 870 students are expected to generate **1,001L of paper & cardboard recycling per week** (550L/480 students = 1.15L/student x 870 students = 1,001L per week).

The above calculations are based on a 5 – day school week.

## 4.4 Waste Storage Requirements

Based on the waste volume calculations above and the footprint required from **Error! Reference source not found.**, the following storage requirement in Table 6 is expected at the site.

**Table 6: Waste Storage Requirement**

| Waste Stream | Collection Frequency Option | Waste generation (Weekly) | Bins required | *Space requirement ($m^2$) |
|---|---|---|---|---|
| **General Waste** | Twice weekly | 11,963L | 6 x 1,100L | 13.8 |
| **Paper & Cardboard Recycling** | Fortnightly | 1,001L | 2 x 1,100 | 4.6 |
| | | | **Total Space Required** | 18.4 |

**Note: space requirements have been multiplied by 1.5 to allow for manoeuvrability within waste storage rooms.*

The waste management area has adequate space to accommodate space requirements detailed in Table 6. The waste management and storage areas proposed for the site fulfil waste management requirements, facilitating safe access and manoeuvring of all bins and equipment for the proposed development.

Waste management areas will be screened from general public view and bins will be sealed to maintain site amenity while also reducing the risk of windblown litter, vandalism, and illegal dumping.

### 4.4.1 Waste Streams

The following waste streams are currently managed by the school:

**General Waste**

Most of the general waste is produced by students during recess and lunch periods. General waste bins are placed in the playground, passive activity, and canteen areas. General waste bins are also placed in various other locations such as on pathways, the library, and office spaces. Some general waste is produced by the students during classroom activities other than the waste from the consumable food and beverage products. In each classroom, there are small bins for the collection of general waste. This waste is collected by the cleaner daily and deposited in the 1,100L general waste bins stored within the existing bin bay (see Appendix A).

**Paper and Cardboard**

All classrooms and offices have small cardboard and paper bins for the students to utilise and they are emptied daily into the recycling 1,100L bin for collection.

**Garden Waste**

Garden waste is distributed over the school garden wherever possible. Excessive amounts are disposed at the local tip if required.

**E-waste & Other Problem Wastes (e.g. Batteries, Printer & Toner Cartridges)**

E-waste is kept separated on site until ready for disposal. Batteries are disposed of separately from the general waste. E-waste is to be collected by a suitably licences waste contractor and arranged as required by site management.

### 4.4.2 Temporary Waste Storage and transfer

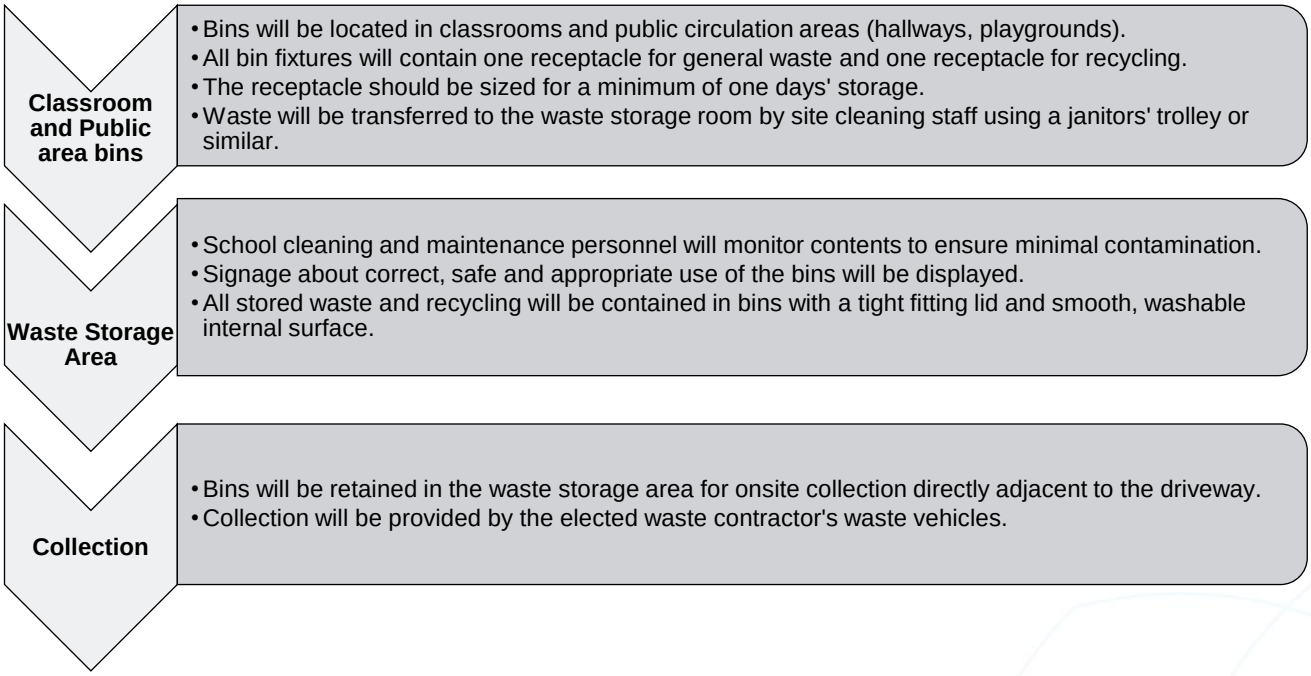
To facilitate waste disposal and separation, clearly labelled bins are stationed across the site, and their contents collected daily by cleaners. Cleaners will deposit the collected waste into respective bins in the consolidated waste storage area (see Appendix A). Maintenance and grounds staff will use the primary waste bins directly.

# 5 Waste Management Systems

## 5.1 Waste Disposal and Recycling Method

The flow of waste goes from generation to collection through several steps (Figure 3).

**Figure 3: Waste Flow**




## 5.2 Collection Method and Loading Areas

The main waste management and collection area for the school is via a vehicle access gate off Gladstone Street. This area will continue to be utilised as the main consolidation point for waste management across the sites and will continue to operate as the waste collection point.

Collection points for the waste service provider and areas for handling and loading are as follows:

- Waste storage area and collection area are open to the sky and will not be impacted by any overhead obstructions for the purpose of waste collection (see **Error! Reference source not found.**).
- Collection and loading from the waste storage area must provide convenient access for the collection of waste.

- Waste collections will be scheduled to occur outside of peak periods, typically between 7 am and 8 am or midday, to avoid times of high pedestrian and vehicle traffic associated with student drop-off or pick-up.
- Clear, safe, accessible, and convenient space is provided for handling of bins and loading of collection vehicles; and
- Identifiable areas where visitors and workers can recognise and avoid any risk associated with moving vehicles, and bin moving and handling.

Bins will be collected from the bin storage areas directly by the waste service provider collection vehicle (see **Error! Reference source not found.**) safely entering the site in a forward direction via Gladstone Street towards the waste storage area. It is expected that a private waste contractor will be engaged for the collection of all waste streams at the site.

Bulk bins require collection by a rear lift collection vehicle (Table 7). The school will continue to engage a commercial contractor and agree on a suitable waste servicing solution for the site, considering waste storage requirements and accessibility.

**Table 7: Collection vehicle dimensions – Rear lift vehicles**

| Length | Width | Travel Height | Height in Operation | Turning Circle |
|---|---|---|---|---|
| 10.24m | 2.5m | 3.5m | 4.5m | 18m |

**Error! Reference source not found.** below outlines relevant requirements and specifications related to the use of collection points and loading areas.

**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;<br>- Sufficient clearance for the safe handling of materials and equipment; and<br>- 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;<br>- Adequate loading bay dimensions to not impede lift clearance;<br>- Operational clearance for truck manoeuvring in a forward direction; and<br>- The provision of space clear of vehicle parking spaces (level and free of obstructions). |
| 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. |

## 5.3 Waste 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 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. The existing external waste storage area will remain in place to service the proposed development. The storage area is an open space with suitable access for disposal and collection purposes, and storage space to accommodate the bins required to service the site. The only changes to existing waste storage area will be an increase in size to accommodate for higher student capacities associated with the proposed development.

## 5.5 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).

## 5.6 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 Recommendations

## 6.1 Additional Waste Management Strategy Overview

The NSW Department of Education has released an Education Facilities Standards and Guidelines (EFSG) which provide assistance to those planning, managing, designing, constructing, and maintaining new and refurbished school facilities. The EFSG provides a best-practice standard for waste management and guides the preparation and implementation of this Waste Management Plan.

The EFSG provides a minimum for waste streams for onsite source separation.

Waste streams to be serviced include:

- General Waste (red lid);
- Commingled Containers (yellow lid);
- Food and Garden Organics (FOGO) (lime green lid);
- Paper and Cardboard (blue lid);
- Container Deposit Scheme (CDS) materials (white lid); and
- Soft Plastics (any colour lid not listed above).

It is noted that the EFSG is a best-practice guideline and should be implemented throughout the site for the best practice of waste management. Kogarah Public School can initially opt for a two-bin system (being general waste and commingled recycling) and over time introduce greater separation of waste streams (paper and cardboard, FOGO, soft plastics, and CDS-eligible containers).

## 6.2 Food Waste

Food waste will be generated around kitchen and canteen areas, as well as by students and staff. Food waste can be managed with a separate food bin and collection service provided by the contracted waste service provider.

Alternatively, compost bins can be retained in garden areas filled with suitable food scraps and soft garden debris and applied to vegetable gardens when mature. Food waste, when not separated from the general (residual) waste stream, represents between 30-40% of waste produced, most of which can be diverted from landfill, therefore reducing disposal costs.

Compost produced onsite presents a free alternative to expensive fertilisers and assist in the retention of water and nutrients in the soil. It is also an excellent opportunity for student education. Table 9 below outlines a list of compostable materials that may be generated through regular operations at the school.

**Table 9: Compostable and Non-Compostable materials list**

| Compostable | Not Compostable |
|---|---|
| ✓ **Vegetable and food scraps** | × **Meat and dairy products** |
| ✓ **Fallen leaves (in layers)** | × **Diseased plant material** |
| ✓ **Tea leaves and tea bags** | × **Metals, plastic, glass** |
| ✓ **Coffee grounds** | × **Animal manures (especially the droppings of cats and dogs)** |
| ✓ **Vacuum cleaner dust** | × **Fat** |
| ✓ **Soft stems** | × **Magazines** |
| ✓ **Dead flowers** | × **Large branches** |
| ✓ **Old potting mix** | × **Weeds that have seeds or underground stems** |
| ✓ **Used vegetable cooking oil** | |
| ✓ **Egg shells** | |

| Compostable | Not Compostable |
|---|---|
| ✓ **Old newspapers (wet)**<br>✓ **Grass cuttings in layers**<br>✓ **Weeds**<br>✓ **Sawdust (from non-treated timber)**<br>✓ **Wood ash**<br>✓ **Human and animal hair** | × **Bread or cake (may attract mice)**<br>× **Bones**<br>× **Sawdust from treated timber** |

## 6.3 Sustainable ordering of food and materials

A significant amount of waste is produced through unsustainable ordering of food and other school related supplies. It may be possible to reduce the waste generation footprint of the school or prevent large increases to waste generation, through the sustainable procurement of food at the canteen, use of recyclable and recycled material products, and reduction in the use of physical mediums of teaching (test papers, worksheets, etc).

## 6.4 Problem Waste Management

Kogarah Public School is encouraged to engage with problem waste management contractors where possible to recover wastes such as E-waste, printer cartridges, batteries, furniture, etc. These systems should be reviewed and increased as necessary with any student population increases resulting from the proposed expansion.

The following management practices could be incorporated for a range of different problem waste materials:

- **Batteries and Printer Cartridges** – A company called “Close the Loop” (among others) provides bins and collection for batteries and printer cartridges. Bins are collected on an as needed basis, at the request of the user, when the provided bins become full. Bins for this purpose can be retained in the main photocopy room, administrative office or computer labs;
- **E-Waste** – A waste or specialist E-waste management contractor may be engaged to provide bins for the collection on E-waste generated at WGS. E-waste bins can be serviced on a regular basis or as needed when bins become full, by the engaged contractor; and
- **Light Globes and Fluorescent Tubes** – Light globes and fluorescent tubes are typically managed by the electrical contractor, with old and damaged units being taken away upon their replacement.

## 6.5 CDS containers and soft plastics

It is difficult to predict the generation of soft plastics and CDS-eligible containers, but a bin may be provided for each stream to be managed on an as needs basis. Site management will be responsible for transfer of CDS materials to a Return and Earn depot, and soft plastics to a RecycleSmart collection point.

Kogarah Public School may like to install a Reverse Vending Machine (RVM) to allow students to directly deposit eligible containers. The school can decide whether students directly receive the refund vouchers or can choose to have the refund amount donated to the school for fund raising or an elected charity.

## 6.6 Waste Avoidance

Employing purchasing strategies to avoid the generation of waste: purchasing products with recyclable, compostable, minimal, or no packaging.

# 7 Mitigation Measures

This WMP has considered the proposal's environmental impacts and has recommended the following mitigation measures as they relate to the waste management of the proposed development.

**Table 10: Waste Management Mitigation Measures**

| Project Stage | Mitigation Measures | Reason for Mitigation Measures | Relevant Section of Report |
|---|---|---|---|
| Design | Extrapolation of existing waste generation outputs. | The existing sites waste generation outputs have been extrapolated to provide the approximate storage space required for bins within the proposed development. | Section 4.3 |
| Design | Retained waste collection location and method. | There are no reported issues with existing collection methods. Onsite waste collection locations and methods have been retained with the inclusion of the proposed PS development upgrades. | Section 5.2 |
| Design | GRDCP 2021 and GRLEP 2021 compliance. | The waste management strategies proposed in this WMP are based from GRDCP 2021 and GRLEP 2021 requirements. | Sections 3 - 5 |
| Construction | C&D waste recovery strategies provided. | Expected waste generated from C&D activities has been calculated. Specific recovery strategies for each type of C&D waste associated with the construction of the proposed development are provided. | Section 3 |
| Operation | Operational waste strategies provided. | Operational waste generated from the pre-school and school building's have been calculated along with associated storage requirements and suitable collection methods. Alternative waste management strategies are also provided for the consideration of site management. It has been noted that some of these | Section 4 |

| Project Stage | Mitigation Measures | Reason for Mitigation Measures | Relevant Section of Report |
|---|---|---|---|
| | | alternative strategies will be mandated in the future. | |

# 8 Evaluation of Environmental Impacts

The proposed upgrades to the existing Kogarah Public School have a minimal impact on existing waste management practices. Those waste management practices that are in place are easily modified to accommodate small changes to operational waste generation associated with the school upgrades.

Construction and Demolition components of the proposed upgrades are expected to be minimal from a waste standpoint. Construction and Demolition waste management strategies have been provided for each expected material as well as site specific local contractors.

The extent and nature of potential impacts are low and will not have significant impact on the locality, community and/or the environment. Potential impacts can be appropriately mitigated or managed to ensure that there is minimal impact on the locality, community and/or the environment.

# 9 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.

Georges River Development Control Plan 2021

Georges River Local Environmental Plan 2021

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.

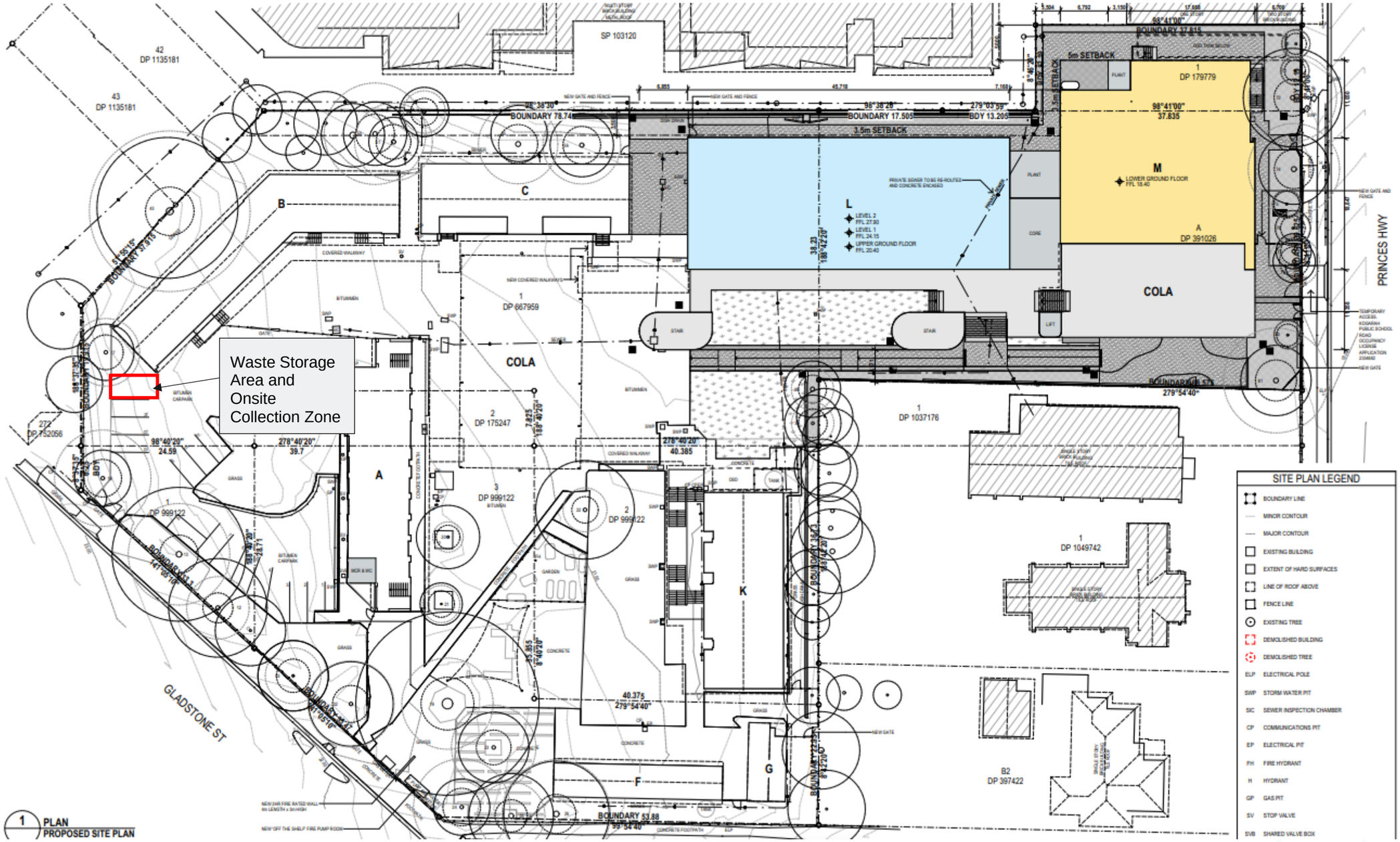
NSW Government (1979) Environmental Planning and Assessment Act.

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

NSW Government (2000) Environmental Planning and Assessment Regulation.

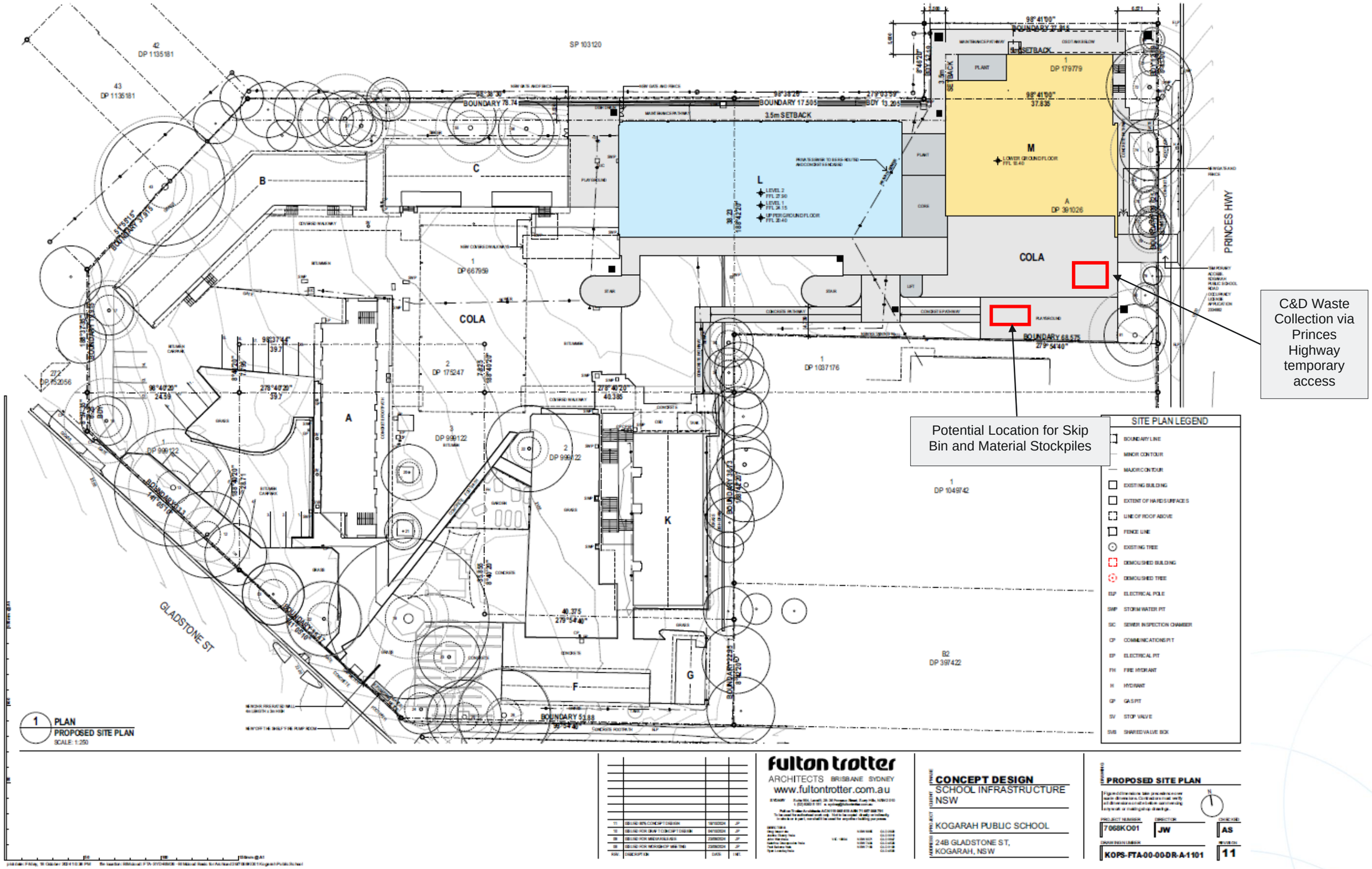
NSW Government (2001) The Waste Avoidance and Resource Recovery Act

# Appendix A Proposed Site Plans




*Source: Fulton Trotter Architects, 2024*

# Appendix B Proposed Storage Locations for C&D Waste & Material Stockpiles




*Source: Fulton Trotter Architects, 2024*

# 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 4: Examples of standard signage for bin uses**

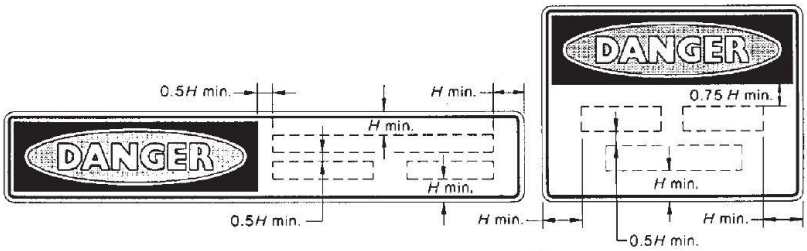

**Safety Signs**

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 5: Example and layout of safety signage**


(d) Horizontal

FIGURE D5 TYPICAL ARRANGEMENTS OF DANGER SIGNS



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