Department of Education, Training and Employment

Marsden Park New Primary School
Waste Management Plan

July 2019

Executive summary

This Waste Management Plan has been prepared by GHD on behalf of Schools Infrastructure NSW (SINSW) (the Applicant). It accompanies an Environmental Impact Statement (EIS) that has been prepared to in support of State Significant Development Application (SSD-9809) for the Marsden Park New Primary School at the corner of Northbourne Drive (to the east) and a proposed future road (to the north) within the Elara Estate, Marsden Park (the site).

This Waste Management Plan has been prepared to address the requirements of the:

- Secretary's Environmental Assessment Requirements for SSD-9809 relating to waste management:

  Identify, quantify and classify the likely waste streams to be generated during construction and operation and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste. Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.

- Blacktown City Council Growth Centre Precincts Development Control Plan 2018 (DCP) waste management objectives and controls.

Approximately of 275 tonnes of construction related waste are estimated to be produced during the project. Wastes generated on the site during construction would be managed and minimised by a combination of waste planning initiatives and on site controls.

Initiatives would include designing buildings to minimise on site cutting of components, and maximise on site assembly rather than fabrication tasks. It would also include careful ordering of materials such as sand and building products to match quantities with amounts required, and on time ordering rather than having materials stored on site for months before being used. Segregating materials and providing weather protection for stored materials on site would maximise their fitness for use and reduce spoilage.

On site controls would include developing and implementing a Construction Waste Management Plan. This would include segregating wastes generated on site by using different skip bins for recycling and waste, with separate bins for different recyclable materials, ensuring all waste disposal bins are clearly marked, keeping records of quantities of waste and recycled materials disposed of, and the destinations of these materials and ensuring that wastes are only disposed of to licenced facilities.

During operation of the school, it is estimated that approximately 1,500 litres of garbage and 500 litres of recycling would be generated each week.

This would require two 1,100 litre rear lift bin per week for garbage, and one 660 litre bin per week for recyclables. It may also be necessary to have a second 660 litre bin for bulky cardboard. Some contractors may also provide a separate bin for office paper. In addition, items such as batteries and fluorescent tubes may be separated by staff for recycling.

The garbage bins could be collected more frequently than weekly, if only a single 1,100 litre bin is desired, or a larger steel bin could be used. The quantities estimated above are very approximate, and likely to be conservative. They are expected to reduce over time, if waste minimisation initiatives can be successfully implemented at the school.

Bins would be stored at the proposed waste collection area, which will be located in the north west corner of the carpark adjacent to the school and oval. The proposed location is shown on the site plan provided in Appendix A. Allowance has been made in the car park design for either a typical front lift or rear lift waste collection vehicle to access and lift the bins located in the

waste collection area. Swept path analysis confirms that waste collection vehicles will be able to circulate and enter and exit the car park in a forward direction. However as the turning paths for the waste collection vehicles will intersect some car spaces, a curfew will be put in place to ensure cars are not parked during contracted waste collection times. The turning paths do not intersect any kerbs or garden beds.

The site design and proposed servicing arrangements during operations are expected to meet the requirements of the Blacktown City Council 'Growth Centre Precincts Development Control Plan DCP 2018' and the NSW EPA (2012) 'Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities'.

This report is subject to, and must be read in conjunction with, the limitations set out in section 1.3 and the assumptions and qualifications contained throughout the Report.

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1. Introduction

1.1 Overview

This Waste Management Plan has been prepared by GHD on behalf Schools Infrastructure NSW (SINSW) (the Applicant). It accompanies an Environmental Impact Statement (EIS) in support of State Significant Development Application (SSD-9809) for the Marsden Park New Primary School at the corner of Northbourne Drive (to the east) and a proposed future road (to the north) within the Elara Estate, Marsden Park (the site).

The site is legally described as Lot 2889 in Deposited Plan 1230906. The development footprint does not include a portion of the site to the west as this is reserved for a future alternative use.

The Marsden Park New Primary School will cater for 1,000 primary school students at completion. The proposal seeks consent for:

- Construction Stage 1 (Temporary School): a temporary school facility constructed within the western portion of the development site located on the future sports grounds. This temporary school facility is to accommodate a maximum of 500 students at any given time. Should the permanent school progress as per the program, the temporary school will not be required.
- Construction Stage 2 (Construction of Permanent School Facility): a permanent consolidated two storey courtyard building with capacity to accommodate a maximum of 1,000 students. This new school building is to comprise
  - 40 teaching spaces
  - A canteen
  - Library
  - Multipurpose hall
  - Office and administration space
  - Staff and student amenities, and
  - Out of school hours care accommodation.
- Multi-purpose sporting facilities and outdoor play spaces
- Associated site landscaping and public domain improvements
- An on-site car park for 48 parking spaces and a drop-off and pick-up area, and
- Construction of ancillary infrastructure and utilities as required.

The purpose of this Waste Management Plan is to support the Marsden Park New Primary School EIS by responding to the Secretary's Environmental Assessment Requirements (SEARs) requirements.

1.2 Response to SEARs

The Waste Management Plan is required by the SEARs for SSD-9809. This table identifies the SEARs and relevant reference within this report.

Table 1.1 SEARs and relevant reference

SEARs item	Report reference
4. Built Form and Urban Design Detail how services, including but not limited to waste management, loading zones, and mechanical plant are integrated into the design of the development.	Section 6 covers Operational waste requirements
9. Ecologically Sustainable Development (ESD) Include a framework for how the future development will be designed to consider and reflect national best practice sustainable building principles to improve environmental performance and reduce ecological impact. This should be based on a materiality assessment and include waste reduction design measures, future proofing, use of sustainable and low-carbon materials, energy and water efficient design (including water sensitive urban design) and technology and use of renewable energy.	Addressed in Ecologically Sustainable Development technical assessment (GHD, 2019)
21. Waste Identify, quantify and classify the likely waste streams to be generated during construction and operation and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste. Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.	Sections 5 and 6

1.3 Scope and limitations

This report: has been prepared by GHD for the NSW Department of Education, Training and Employment and may only be used and relied on by the NSW Department of Education for the purpose agreed between GHD and the NSW Department of Education as set out in this report.

GHD otherwise disclaims responsibility to any person other than the NSW Department of Education arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report, GHD disclaims liability arising from any of the assumptions being incorrect.

2. Project description

2.1 Site description

The works associated with the entire project comprise:

- The construction of a two storey courtyard building with capacity to accommodate a maximum of 1,000 students. This new school building is to comprise
  - 40 teaching spaces
  - A canteen
  - Library
  - Multipurpose hall
  - Office and administration space
  - Staff and student amenities, and
  - Out of school hours care accommodation.
- Multi-purpose sporting facilities and outdoor play spaces
- Associated site landscaping and public domain improvements
- An on-site car park for 48 parking spaces and a drop-off and pick-up area, and
- Construction of ancillary infrastructure and utilities as required.

2.2 Site location and layout

The site is located on the corner of Northbourne Drive (east) and a proposed future road (north) within the Elara Estate, Marsden Park.

A site layout is shown on the site plan in Appendix A.

2.3 Earthworks and site preparation

Bulk earthworks (under DA-14-1948) has been undertaken as part of the Elara Estate development. The site for the Marsden Park new Public School is cleared land that is devoid of vegetation.

2.4 Works undertaken for the SSD

Works undertaken for the SSD include establishing construction facilities, services, buildings, roadways, and landscaping and external works.

2.4.1 Construction facilities

- Establishing internal site construction access roads, laydown areas and a dedicated construction management compound with temporary offices and site facilities
- Connecting temporary site services to the construction compound
- Site reprofiling including construction of retaining walls and batters to create building pads

2.4.2 Services

- Provision of services to the site including sewerage connection, water, gas, telecommunications

2.4.3 Buildings

- Excavations associated with building foundations and slabs
- Provision of below ground building services including plumbing and drainage
- Building slab construction
- Building framing
- Walls, windows and roofing
- Internal services (power, lighting)
- Internal fit out of buildings

2.4.4 Roadways

- Laying stormwater drainage pipes and placing pits
- Constructing kerbs and gutters for roads
- Paving of carparks

2.4.5 Landscaping and external works

- Utilisation of stored topsoil for garden beds
- Planting
- Paving of pedestrian areas
- Sports field construction
- Playground construction
- Vegetable garden area construction
- Landscaping of nature plan area

2.5 Hours of operation for construction

The proposed working hours for this project are as follows:

Monday to Friday- 7:00am to 5:00pm

Saturdays- 7:00am to 1:00pm

Sundays and Public Holidays - No work

If required, after hours permits will be sought from the relevant authorities.

2.6 Construction programme

Two options are proposed. The anticipated programme of works for each option is as follows:

Option 1 – Temporary School

- Stage 1 – Site office and temporary school construction – completion and handover December 2020
- Stage 2 – Permanent school construction – completion and handover April 2021
- Stage 3 – Temporary School Removal – completion and handover May 2021
- Stage 4 – Sports field construction – completion and handover July 2021
- Stage 5 – Landscaping construction – completion and handover July 2021

- Stage 6 – Site office removal – completion and handover July 2021
- Stage 7 – Final landscaping construction – completion and handover July 2021

Option 2 – New School

- Stage 1 – Site office and new school construction – completion and handover August 2020
- Stage 2 – Landscaping construction – completion and handover November 2020
- Stage 3 – Site office removal – completion and handover December 2020
- Stage 4 – Final landscaping construction – completion and handover January 2021

3. EIS requirements

3.1 State Significant Development Application

This report supports a State Significant Development Application for Marsden Park new Public School to be submitted to the Department of Planning and Environment pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

3.2 Secretary's Environmental Assessment Requirements

The SEARs requirements for the EIS that relate to waste management are as follows:

4. Built Form and Urban Design

• Detail how services, including but not limited to waste management, loading zones, and mechanical plant are integrated into the design of the development.

9. Ecologically Sustainable Development (ESD)

• Include a framework for how the future development will be designed to consider and reflect national best practice sustainable building principles to improve environmental performance and reduce ecological impact. This should be based on a materiality assessment and include waste reduction design measures, future proofing, use of sustainable and low-carbon materials, energy and water efficient design (including water sensitive urban design) and technology and use of renewable energy.

21. Waste

Identify, quantify and classify the likely waste streams to be generated during construction and operation and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste. Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.

Relevant Policies and Guidelines:

Waste Classification Guideline Part 1 (General) 2014 – (EPA)

3.3 Blacktown City Council Growth Centre Precincts Development Control Plan 2018 requirements

The Blacktown City Council Growth Centre Precincts Development Control Plan 2018 (DCP) provides waste management objectives and controls. The waste management requirements from Section 6.9 of this DCP are stated below:

Waste Management

Objectives

a. To maximise opportunities for re-use through source separation and on-site storage.

b. To minimise waste generation and maximise re-use and recycling

c. To minimise waste generation through design, material selection and building practices.

d. To ensure efficient storage and collection of waste and quality design of facilities.

Controls

General

1. A Waste Management Plan must be prepared in accordance with Appendix F of this DCP.

2. Facilities to allow on-site source separation and re-use of materials on-site should be provided.

3. Waste collection should be provided on-site at the street frontage with clear access to facilitate pick up.

4. The siting of any stockpile must take into account environmental factors such as slope, drainage, location of watercourses and native vegetation.

5. Sufficient space must be provided for the storage of garden waste and other waste materials on site.

6. Re-use of stockpile materials on-site should be facilitated.

7. Sufficient space for storage of recyclables and garbage should be provided on-site.

8. Adequate space should be provided for the temporary storage of recyclables, garbage and compostable materials in each unit.

9. Waste cupboards should be designed and located so as to be accessible, useable and cater for change of use.

10. The area or room allocated for garbage and recycling is to be of a sufficient size to store Council's standard bins in an efficient manner.

11. Garbage and recycling areas/rooms must be accessible to all users and have unobstructed access to Council's standard bins in an efficient manner.

12. Areas for the storage of bulky waste (e.g. clean up materials) should be provided.

13. Volume reduction equipment should be specified in the Development application.

14. Where the development is large or where the site characteristics warrant, multiple garbage and recycling areas should be provided.

15. External space for compostable materials should be provided and located separate to the garbage and recycling room.

16. Composting facilities should be purpose built and be incorporated into the landscape plan for development.

17. The siting of composting facilities should take into account the potential impact on neighbouring properties.

18. Composting facilities should be adequately signposted to indicate availability of composting facilities on-site.

3.4 Green star assessment

The SEARs require the development to be assessed against a suitably accredited rating scheme to meet industry good practice.

An Ecologically Sustainable Development Report has been prepared for the project by GHD Woodhead. A Self-Assessment of the project against the GBCA Green Star Rating Tool was conducted to assess this requirement. Waste requirements were included in this assessment.

4. Addressing requirements

4.1 SEARs

The SEARs requirements for the EIS for waste management and where they are addressed is provided in Table 1.1.

4.2 DCP requirements

Clause 11 of State Environmental Planning Policy (State and Regional Development) 2011 states that development control plans (whether made before or after the commencement of this Policy) do not apply to State significant development. Notwithstanding this, the SEARs have requested that the DCP requirements be addressed.

The waste management requirements of the Blacktown City Council Growth Centre Precincts DCP and where they are addressed in this report are summarised below.

Table 4.1 Blacktown City Council Growth Centre Precincts DCP requirements

	Requirement	How/where addressed
Separation and storage of materials	To maximise opportunities for re-use through source separation and on-site storage.	Refer Section 5.4
Recycling	To minimise waste generation and maximise re-use and recycling	Refer Sections 5 and 6
Waste reduction in design	To minimise waste generation through design, material selection and building practices.	Refer Sections 5
Collection and storage of waste	To ensure efficient storage and collection of waste and quality design of facilities.	Refer Sections 5 and 6
Waste management Plan	A Waste Management Plan must be prepared in accordance with Appendix F of this DCP.	This document
Separation of materials	Facilities to allow on-site source separation and re-use of materials on-site should be provided.	Operational waste arrangements are covered in Section 6
Location of garbage storage areas	Waste collection should be provided on-site at the street frontage with clear access to facilitate pick up.	Operational waste arrangements are covered in Section 6
Waste storage location	The siting of any stockpile must take into account environmental factors such as slope, drainage, location of watercourses and native vegetation.	Operational waste arrangements are covered in Section 6
Waste storage location	Sufficient space must be provided for the storage of garden waste and other waste materials on site.	Operational waste arrangements are covered in Section 6
Re-use	Re-use of stockpile materials on-site should be facilitated.	Construction waste arrangements are covered in Section 5
Waste storage location	Sufficient space for storage of recyclables and garbage should be provided on-site.	Operational waste arrangements are covered in Section 6

	Requirement	How/where addressed
Temporary waste storage location	Adequate space should be provided for the temporary storage of recyclables, garbage and compostable materials in each unit.	Operational waste arrangements are covered in Section 6
Waste storage	Waste cupboards should be designed and located so as to be accessible, useable and cater for change of use.	Operational waste arrangements are covered in Section 6
Waste storage	The area or room allocated for garbage and recycling is to be of a sufficient size to store Council's standard bins in an efficient manner.	Operational waste arrangements are covered in Section 6
Service routes	Garbage and recycling areas/rooms must be accessible to all users and have unobstructed access to Council's standard bins in an efficient manner.	Operational waste arrangements are covered in Section 6
Bulky waste storage	Areas for the storage of bulky waste (eg. clean up materials) should be provided.	Operational waste arrangements are covered in Section 6
Waste treatment	Volume reduction equipment should be specified in the Development application.	Not relevant – volume reduction equipment not specified
Waste storage locations	Where the development is large or where the site characteristics warrant, multiple garbage and recycling areas should be provided.	Not relevant – one waste storage location proposed
Composting waste	External space for compostable materials should be provided and located separate to the garbage and recycling room.	Not relevant – composing facilities not proposed
Composting waste	Composting facilities should be purpose built and be incorporated into the landscape plan for development.	Not relevant – composing facilities not proposed
Composting waste	The siting of composting facilities should take into account the potential impact on neighbouring properties.	Not relevant – composing facilities not proposed
Composting waste	Composting facilities should be adequately signposted to indicate availability of composting facilities on-site.	Not relevant – composing facilities not proposed

5. Construction and demolition wastes

5.1 Demolition wastes

The site is located on cleared, de-vegetated land with no existing structures. Demolition is not required. No demolition waste is expected.

5.2 Clearing and earthworks

Waste related activities associated with these works include:

- Minor earthworks for landscaping and reshaping purposes

5.3 Construction waste generation

Waste that would typically be produced by construction works is as follows:

- Brick
- Waste mortar
- Concrete
- Metals
- Timber
- Soil
- Paper and cardboard

No information is available at this stage of the project about the likely quantities of each type of waste produced during construction.

Blacktown City Council Growth Centre Precincts DCP does not provide guidance of construction waste generation rates. However The Hills Shire Council DCP 2012 Appendix A does provide some guidance on typical quantities of construction wastes for offices and factories (but not schools), and has been reproduced in Table 5.1 below.

Table 5.1 Construction waste estimates

Building type	Timber	Concrete	Bricks	Gyprock	Sand/Soil	Metal	Other
Factory per 1000 m²	0.25	2.10	1.65	0.45	4.80	0.60	0.50
Office Block per 1000 m²	5.10	18.8	8.50	8.60	8.80	2.75	5.0

This waste generation guidance does not specify whether the figures are in tonnes or cubic metres, but it is more common to use tonnages, so this is what has been assumed. Assuming that a school is more like an office block than a factory, and based on a new building area of approximately 4,773 m^2, the following quantities of construction wastes are estimated:

- Timber – 24 tonnes
- Concrete – 90 tonnes
- Bricks – 41 tonnes
- Gyprock – 41 tonnes
- Sand/soil – 42 tonnes

- Metal – 13 tonnes
- Other – 24 tonnes

Therefore a total of 275 tonnes of waste estimated to be produced from construction activities. The likely classification of these wastes is General Solid Waste (non-putrescible).

5.4 Waste handling procedures and site responsibilities

During construction, wastes generated on the site will be managed and minimised by a combination of waste planning and on site controls.

5.4.1 Waste planning

Waste planning activities include:

- Designing buildings to minimise on site cutting of components, and maximising on site assembly tasks
- Careful ordering of materials such as sand and building products to match quantities with amounts required, and on time ordering rather than having materials stored on site for months before being used
- Segregating materials and providing weather protection for stored materials on site, to maximise their fitness for use
- Bringing in material such as sand in large bags rather than as bulk loads, to enable excess materials to be easily picked up and used at other sites
- Encouraging bulk handling and use of reusable and returnable containers
- At the time of tendering, advise contractors and sub-contractors and suppliers of the requirements to minimise waste on site
- Include provision in the tender documentation for the client to monitor the use of waste and recycling bins on site
- Development of a Construction Waste Management Plan by the main site contractor, which includes all of the above elements

5.4.2 On site controls

On site controls include:

- Implementation by the main site contractor of a Construction Waste Management Plan
- Segregating wastes generated on site, using different skip bins for recycling and waste, with separate bins for different recyclable materials
- Discussion about the site's waste management and recycling policies and practices with employees and subcontractors during site inductions and tool box talks
- Ensuring all waste disposal bins are clearly marked
- Keeping records of quantities of waste and recycled materials disposed of, and the destinations of these materials
- Ensuring that wastes are only delivered to licenced facilities that are lawfully able to accept the waste

5.5 Spoil

Spoil refers to fill and soil from surface clearing, excavation and site re-profiling. Bulk earthworks will be required at the site to create level platforms for construction. The preliminary civil design indicates that there will be a net fill requirement and therefore no waste spoils to dispose of.

However if spoil is required to be removed from a site, it can possibly be used on other projects, if it is classified as Virgin Excavated Natural Material (VENM). However it needs to be certified to confirm that it is VENM. As this site was used for agricultural purposes, it is uncertain whether spoil from the site can be classified as VENM.

Where an excavated material cannot be classified as VENM, it may still be eligible for reuse under the NSW EPA excavated natural material order and exemption. However, excavated natural material (ENM) does not include material located in a contamination hotspot, material that has been processed; or that contains asbestos, Acid Sulfate Soils (ASS), Potential Acid Sulfate soils (PASS) or sulfidic ores.

5.6 Contaminated soils

A number of contamination investigations were undertaken across the parent site. A contamination report will be provided with the EIS. Contaminated soils are not expected.

Surplus excavated soil would be assessed for classification as VENM, and kept segregated from other shallow spoil, to maximise the possibility that they can be disposed of as VENM.

5.7 Metals

Small quantities of metals are expected to be generated during construction from trimming of roof sheets and other activities resulting from construction of items that cannot be prefabricated. A dedicated bin would be used for these offcuts, which would be collected by a metals recycler.

5.8 Concrete

Concrete waste would be generated during construction, in the form of excess concrete from site pours, and washout from concrete pumps and other equipment. Concrete waste would be scraped up from the ground and collected in a dedicated bin for transport to a licensed construction waste processing facility.

5.9 Wiring

Wiring offcuts would be generated during building fit out. They would either be disposed of with metal wastes, or separately. Small pieces may be disposed of with mixed wastes, if the quantities are not great enough to justify a separate bin, or they may be collected by the electrical contractor, for co-disposal with their other wastes (assuming they generate this type of waste frequently and can demonstrate that they have suitable recycling arrangements in place).

5.1 Timber

Timber pallets would be stacked on site and returned to the pallet suppliers for re-use. Where pallets are damaged and not suitable for re-use, or non-standard, they would be placed in a dedicated wood waste bin, and sent to a recycling facility for chipping or fuel production. If they are made of treated timer, and not suitable for re-use or fuel, they would be disposed of to a licenced waste facility.

5.2 Plastic

Various plastic wastes would be generated during construction. They would range from shrink wrap, to plastic ties and miscellaneous items. Plastics would be collected in a dedicated bin and transported to a licensed plastic waste reprocessing facility.

5.3 Plasterboard

Plasterboard offcuts and damaged sheets or part sheets would be generated during building fit out. Plasterboard will be collected by a licenced waste contractor and transported to a recycling facility or licenced disposal facility depending on its suitability for recycling.

5.4 Carpet/underlay

Carpet and underlay offcuts would be generated during building fit out. Plasterboard will be collected by a licenced waste contractor and transported to a recycling facility or licenced disposal facility depending on its suitability for recycling.

5.5 Residual/mixed

Residual and mixed wastes would be generated during construction works. This material is expected to consist of:

- Small quantities of food and drink
- Non-recyclable packaging in which food and drink is sold or stored
- Packaging in which building material is delivered or stored
- Composite materials not able to be separated, and
- Small quantities of miscellaneous waste generated during the construction process.

General waste would be collected by a licenced waste contractor and disposed of at a licensed waste disposal facility.

6. Operational waste

6.1 Commercial and Industrial waste guidelines

The NSW EPA (2012) Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities provides useful guidance on siting waste collection locations. It is recognised that this guideline is not strictly applicable to schools, but no school specific guidelines are available.

If a collection point is difficult for contractors to access collection charges may be higher. Ideally the collection point and storage area should be in the same place, avoiding the need to move bins to the collection point in time for servicing. If this is not possible, the collection point should be as close to the storage area as possible. If the storage area is not suitable as a collection point, the contractor will need to nominate a collection point where they can gain safe and easy access.

There are some general guidelines for collection points. They should:

- not be near intersections, ramps, roundabouts, pedestrian crossings, on busy roads or in narrow lanes
- not be near awnings, overhead wires, trees or other overhead structures
- be clear of air-conditioning and other service ducts and pipes, sprinklers, CCTV cameras, movement sensors, smoke detectors and other ceiling fixtures if located inside a building
- be on level surfaces rated for heavy vehicles
- have plenty of room for trucks to manoeuvre and reverse if necessary
- have enough room for bins to be manoeuvred by the driver for servicing
- be away from public areas;
- be well clear of vehicle, pedestrian, public, staff and visitor traffic areas
- not be restricted by parked cars or vehicle loading or unloading
- not be restricted by bollards, signs, plants, bins, seats or other street furniture
- not require vehicles to reverse
- not block the normal operations of the building
- be accessible at the times the collections are scheduled to take place and not behind locked gates.

All collections should take place in accordance with all the relevant acts, regulations, guidelines and codes administered by Austroads, Transport for NSW, SafeWork NSW and any local traffic requirements.

If the storage area and collection point are in separate locations, bins will have to be moved by staff or cleaners from the storage area to the collection point. Where bins smaller than 660 L in capacity are to be moved by hand:

- the distance between the storage area and collection point over which the bins are to be transported should
- not exceed 75 m in all circumstances
- the grades between the storage area and collection point should not exceed 1:14
- there should be no steps or kerbs anywhere on the route.

Bins greater than 660 litre and less than 1.5 m^3 should not be moved more than five metres from the storage area to the collection point.

Manual movement of bins greater than 1.5 m^3 in capacity should be avoided wherever possible. If movement cannot be avoided, these bins should not be moved more than three metres from the storage area to the collection point. No grade on the route should exceed 1:30.

The current site design would meet all of these requirements.

6.2 Waste generation estimates

There is little published information about the amount of waste and recycling typically produced by schools. There are a number of different tools available for estimating waste quantities for schools:

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

- Garbage 2.6 litres per student per year
- Recycling 7.2 litres per student per year

(2) Randwick City Council Waste Guidelines (2015)

- Garbage 1.5 litres per day per student
- Recycling 0.5 litres per day per student

(3) City of Melbourne waste guidelines (2015)

- Garbage 0.5 litres of waste per student per week
- Recycling 0.5 litres of recycling per student per week

On the basis of the Randwick City Council guidelines, the waste generation rates for 1,000 students would be 1,500 litres per week of waste and 500 litres per week of recycling.

This would require two 1,100 litre rear lift bin per week for garbage, and one 660 litre bin per week for recyclables. It may also be necessary to have a second 660 litre bin for bulky cardboard. Some contractors may also provide a separate bin for office paper. In addition, items such as batteries and fluorescent tubes may be separated by staff for recycling.

The garbage bins could be collected more frequently than weekly, if only a single 1,100 litre bin is desired, or a larger steel bin could be used.

Roads and driveways would be designed and constructed in accordance with the relevant authority requirements to allow the safe passage of a laden collection vehicle in all seasons.

6.3 Waste classification

Wastes generated during operation are expected to comprise:

- General solid waste (putrescible) – e.g. food scraps and litter
- General solid waste (non-putrescible) – e.g. garden waste, paper, cardboard, classroom scraps, containers

Hazardous wastes are not expected to be generated during normal school operations.

6.4 Site access for waste collection vehicles

6.4.1 Bin locations

Bins would be stored at the proposed waste collection area, which will be located in the north west corner of the carpark adjacent to the school and oval. The proposed location is shown on the site plan provided in Appendix A.

6.4.2 Road and driveway construction and geometry

According to the NSW EPA (2012) Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities, there are certain desired requirements for roads used to access waste bins.

Designers are encouraged to consult with council and other relevant authorities prior to the design of roads and access points to ascertain specific requirements for the proposed development.

Appropriate heavy vehicle standards should be incorporated into the development design, including those specified in Acts, regulations, guidelines and codes administered by Austroads, Standards Australia, Transport for NSW, SafeWork NSW and any local traffic requirements.

Roads and driveways must be designed and constructed in accordance with the relevant authority requirements to allow the safe passage of a laden collection vehicle in all seasons.

Factors to be considered in design include:

- gradients for turning heads
- longitudinal road gradients
- horizontal alignments
- vertical curves
- cross-falls
- carriageway width
- verges
- pavement widths
- turning areas (see below)
- local area traffic management requirements (for example speed humps)
- sight distance requirements
- clearance heights (for example a vertical clearance of 6.5 metres is required to load front-lift vehicles)
- manoeuvring clearance
- road strength (industrial-type strength pavement required, designed for a maximum wheel loading of seven tonnes per axle to accommodate garbage and recycling collection vehicles).

6.4.3 Turning circles

Allowance has been made in the car park design for either a typical front lift or rear lift waste collection vehicle to access and lift the bins located in the waste collection area. Swept path analysis confirms that waste collection vehicles will be able to circulate and enter and exit the car park in a forward direction.

However as the turning paths for the waste collection vehicles will intersect some car spaces, a curfew will be put in place to ensure cars are not parked during contracted waste collection times. The turning paths do not intersect any kerbs or garden beds.

Further analysis on the waste collection truck including a swept path analysis is provided in the accompanying technical assessment - Transport Study (GHD, 2019).

The proposed layout is shown on the site plan provided in Appendix A.

6.5 Storage and collection

It is anticipated that cleaners, operating after classes have finished each day, will collect the contents of the bins in each area and on each level. Bins with waste and recycling sections are expected to be located in outdoor common areas, rather than having bins in every classroom.

Waste materials are expected to be collected in bags and transported by the cleaners to the waste collection area using trolleys. This area will have outdoor lighting, and is securely within the school grounds.

Waste collection contractors will be appointed to collect the waste outside of normal hours, pull out bins as required for servicing and replace them when emptied.

6.6 Storage requirements

Two bin sizes are likely to be used. A 660 litre bin (Figure 6.1) is easily movable by waste management contractors, or school staff. Alternatively, a 1,100 litre rear lift bin (Figure 6.2) could be used.

Figure 6.1 Typical 660 litre bin

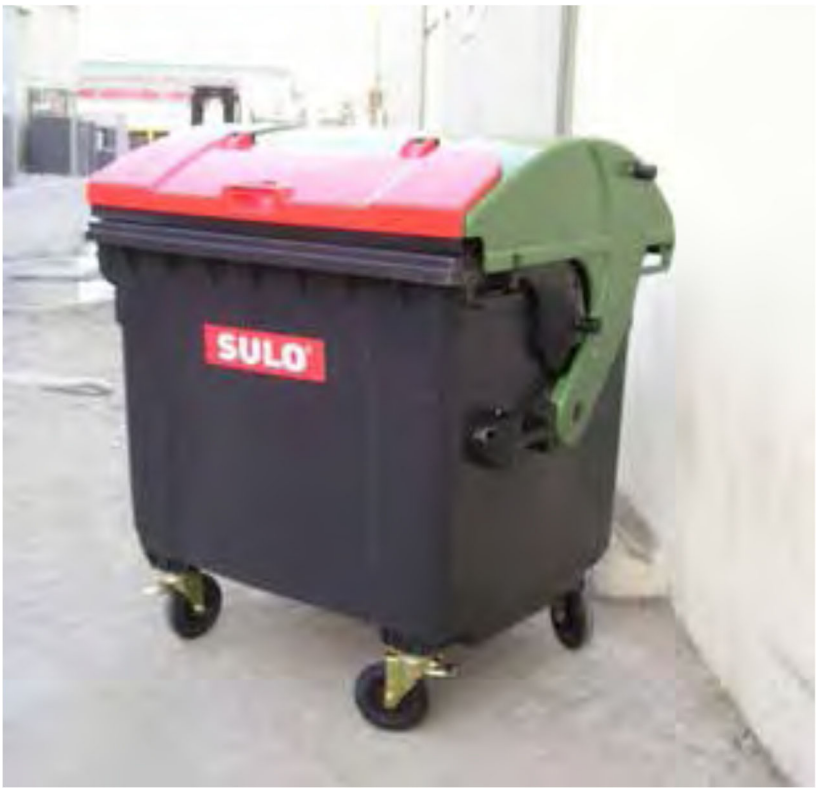

Figure 6.2 Typical 1100 litre bin

8. Conclusions

GHD has prepared this Waste Management Plan to assess the waste management requirements for site construction works and operation of the Marsden Park New Primary School, and address the various requirements.

Information is presented herein to support the Marsden Park New Primary School Environmental Impact Statement (EIS), by responding to the SEARs requirements, which are stated as follows:

> *Identify, quantify and classify the likely waste streams to be generated during construction and operation and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste. Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.*

Clause 11 of State Environmental Planning Policy (State and Regional Development) 2011 states that Development control plans (whether made before or after the commencement of this Policy) do not apply to State significant development. Notwithstanding this, the SEARs have requested that the DCP be addressed.

The site design and proposed servicing arrangements during operations are expected to meet the requirements of the Blacktown City Council 'Growth Centre Precincts Development Control Plan DCP 2018' and the NSW EPA (2012) 'Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities'.

9. References

Blacktown City Council Growth Centre Precincts Development Control Plan July 2018, NSW Government Department of Planning and Environment

City of Melbourne Waste Generation Rates, Jan 2015

Hills Shire Council Development Control Plan (DCP 2012) Appendix A Waste Management Plan

NSW EPA Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities, 2012

Randwick City Council Waste Management Guidelines, 2015

Appendices

Appendix A – Site Plans

GHD

Level 15
133 Castlereagh Street
T: 61 2 9239 7100 F: 61 2 9239 7199 E: sydmail@ghd.com

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