The Sikh Grammar School Australia
C/- PMDL

Waste Management Plan: The Sikh Grammar School – 151 and 161 Tallawong Road, Rouse Hill

martens consulting engineers

ENVIRONMENTAL

WATER

WASTEWATER

GEOTECHNICAL

CIVIL

PROJECT MANAGEMENT

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All enquiries regarding this project are to be directed to the Project Manager.

Contents

1 Introduction

1.1 Overview

This waste management plan has been prepared by Martens & Associates Pty Ltd (MA) to support a state significant development application (SSDA) for a proposed school at 151 and 161 Tallawong Road, Rouse Hill, NSW (the 'site').

The school is proposed to be developed in several stages. The waste management plan is designed to be compatible with this staged approach.

1.2 Project Scope and Aims

The main objectives of this report are as follows:

1. Address the Secretary's Environmental Assessment Requirements (SEARs) No. 9472 as they relate to waste management.

2. Identify types of waste to be generated by the construction and operation of each stage of the development.

3. Identify relevant environmental controls for the management of generated waste streams.

4. Document procedures for handling, classification and disposal of waste of all anticipated waste streams from the site.

1.3 Relevant Planning Controls and Guidelines

The following planning controls have been consulted and, where relevant, incorporated into the design of the site's proposed waste management system:

- State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017.

- Protection of the Environment Operations Act 1997.

- State Environmental Planning Policy (Sydney Region Growth Centres) 2006.

- Blacktown City Council Growth Centre Precincts Development Control Plan (July, 2018)

- Blacktown Development Control Plan 2015.
- Waste Avoidance and Resource Recovery Act 2001.

1.4 Secretary's Environmental Assessment Requirements

Secretary's Environmental Assessment Requirements have been issued for this development. They cover waste management as follows:

> *20. 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.*

2 Site Description

2.1 Background

The Applicant is seeking development consent to develop a co-educational school catering for K – 12 students with library, administration, specialist facilities (including science, performing and visual arts and outdoor learning facilities), carparking and amenities buildings. An early learning centre (ELC) and boarding house is also proposed.

2.2 Location and existing Land-use

The site is located at 151 and 161 Tallawong Road, Rouse Hill, NSW (Lots 42 and 43 DP 30186).

The site is currently used for rural residential purposes and is predominantly open grasslands. A single storey dwelling is located in the eastern corner and a dam is located in the central portion of the site. The site contains an east to west aligned drainage depression across the central portion of the site, connecting the site dam to other dams located to the southwest and northeast of the site.

Site zoning is R2 – Low Density Residential in accordance with SEPP (Sydney Region Growth Centres) 2006.

Surrounding land uses are primarily rural and rural residential. Residential subdivision and development has occurred approximately 600m to the west.

2.3 Proposed Development

The masterplan provided by PMDL Architecture & Design indicates that the school is proposed to be developed in several (nine) stages. The final masterplan will include:

- An early learning centre (ELC) for 86 children / 18 staff.
- Primary School (K – 6) for maximum 588 students / 30 staff.
- Secondary School (7 – 12) for maximum 672 students / 47 staff.
- Boarding house for a maximum 108 students and 15 staff.
- *Gurdwara* and *Langar* facilities/space

- Bus bay, carparking and drop-off/pick up facilities.
- Administration building and communal facilities.
- Various outdoor play areas and sports fields.

3 Waste Management Plan – Construction

3.1 Key Activities

The following sections document anticipated construction works throughout the various stages of the proposed school development, as per the proposed Staging Plan (PMDL, February 2019).

3.1.1 Stage 1

- Construction of the Stage 1 playspace.
- Upgrade works to Tallawong Road.
- Construction of stormwater infrastructure to the north-eastern corner of the site.
- Construction of ongrade carpark in the sites north eastern corner.
- Installation of relocatable primary school building(s).
- Construction of temporary multi-purpose hall.
- Additional ongrade parking.
- Demolition works, including existing house, parking facilities and former piggery structure.

3.1.2 Stage 2

- Construction of the primary school block.
- Partial construction of the Village Green (to service Stage 1).
- Construction of the K-2 play space.
- Construction of multi-purpose court and cricket nets.

3.1.3 Stage 3

- Further construction of the primary school block, including library and staff rooms on 3rd and 4th floor.
- Partial construction of Civic Heart.

- Construction of entry to future underground carpark.
- Construction of temporary playspace in the south western corner of the site.
- Construction of the ELC, including the outdoor play area and ELC carpark and 'kiss & drop'.

3.1.4 Stage 4

- Construction of secondary school block (including science facilities).
- Partial construction of the Village Green.

3.1.5 Stage 5

- Further construction of secondary school block (including café, technological and applied studies (TAS) facilities, performing and visual arts facilities/classrooms).
- Construction of secondary library and staff rooms.
- Partial construction of the Civic Heart.
- Construction of temporary secondary 'kiss and drop'.

3.1.6 Stage 6

- Further construction of secondary school block (specialist TAS facilities and remaining homebases).
- Construction of outdoor TAS workshops.
- Construction of services pavilion.

3.1.7 Stage 7

- Construction of multi-purpose hall and bridge link.
- Construction of *Gurdwara* and *Langar* facilities/space.
- Complete Civic Heart construction
- Landscaping works along Tallawong Road.
- Construct secondary school courtyard.
- Construct underground carpark.

- Demolish temporary parking in south-eastern corner of site.
- Demolish temporary multi-purpose hall.

3.1.8 Stage 8

- Demolish temporary parking in north-western corner of site.
- Demolish relocatable classrooms.
- Construction of administration buildings.
- Construct final 3 General Learning Areas (GLAs) for primary school.
- Construct school sick bay and reception.
- Construct Principal and support staff offices.

3.1.9 Stage 9

- Construction of boarding houses and associated staff apartments.
- Construction of undercroft parking for boarding house.

3.2 Waste Management System

A Project Manager (PM) will have responsibility for safety, quality, environmental, record management, time and cost as well as overseeing site staff and reporting to management. The PM will administer a number of general waste management procedures including:

- At the time of contract negotiation and tendering, all sub-contractors and suppliers will be advised of the requirement to minimise waste. Bulk handling and use of reusable and returnable containers will be encouraged.
- Sub-contractors will be informed that their waste generation will be monitored and that the generation of excessive quantities will be considered non-conforming.
- The waste disposal sub-contractor and the waste processing and disposal facilities will be licensed to receive the waste expected to be generated on site.

- Removal will be done to comply with legal requirements and records will be kept.

The Site Supervisor will be responsible for on-site supervision during construction. The Site Supervisor's responsibilities include reporting to PM, control of site labour and plant and communicating all necessary information to site personnel. A number of general waste management procedures that are administered by the Site Supervisor include:

- Establishing areas for recycling and waste storage area;
- Discussing the site's waste management and recycling policy with employees and subcontractors during site inductions;
- Receiving and holding waste disposal licenses and records;
- Recording quantities and types of waste and forwarding the information each month to the PM;
- Recording details of any soil leaving the site including quantities, truck details, disposal locations and disposal receipts;
- Monitoring the stockpile level and the condition of erosion control measures.

3.3 Waste Streams and Classifications

The demolition (Stage 1 and Stage 7) and construction stages (all stages) of the proposed development are anticipated to generate waste in excavation stream and construction stream. In the absence of waste generation rates for the proposed development type from Blacktown City Council, we have adopted the waste types and quantities for construction of an office block provided in *The Hills Development Control Plan 2012*. Table 1 and Table 2 summarises types and estimated volumes of waste that is likely to be generated during demolition and construction.

Table 1: Potential waste types, classifications and quantity – demolition

Estimated Volume (m^3) [1]			
Waste Types	**Stage 1**	**Stage 7**	**Destination/ Reuse/Recycling**
Sandstone	953	NA	Reuse onsite for landscaping. Remainder to landfill site by waste contractor.
Concrete	65	16,228 [2]	Offsite disposal to crushing and recycling company.
Bricks	1,317	3,253	Clean and reuse onsite where possible for internal walls. Otherwise offsite disposal to crushing and recycling company.
Timber/Gyprock [3]	138	272	Chip timber and reuse onsite in landscaping. Remainder offsite to landscape supplies.
Steel	8	64	Offsite to metal recyclers and remainder to landfill.
Roof tiles	96	NA	Disposal offsite to a crushing and recycling company.
Other	0	340	Reuse and recycle where possible. Otherwise removal by waste contractor to landfill.

Notes

[1] Estimated volume calculated based on areas provided in Staging Plan (PMDL, Feb 2019) and Waste Quantities Estimates provided in Hills Shire Council DCP 2012: Appendix A *Waste Management Plan.*

[2] Value is likely an overestimate. Demolition works are for the temporary hall and south eastern carpark which are not expected to produce a significant amount of concrete waste.

[3] The Hills Shire Council does not distinguish between timber and gyprock for waste quantities estimates generated during demolition works.

[4] Waste types are to be classified in accordance with EPA NSW (2014) prior to offsite disposal.

Table 2: Potential waste types, classifications and quantity – construction

Estimated Volume (m^3) per Stage [1]										
Waste Types	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Destination/ Reuse/Recycling**
Timber	25	60	167	94	167	171	164	247	10	Chip timber and reuse onsite in landscaping. Remainder offsite to landscape supplies.
Concrete	90	222	617	345	616	630	604	911	36	Offsite disposal to crushing and recycling company.
Bricks	41	100	279	156	279	285	273	412	16	Clean and reuse onsite where possible for internal walls. Otherwise offsite disposal to crushing and recycling company.
Gyprock	41	102	282	158	282	288	277	417	16	Offsite disposal to landfill site by waste contractor.
Sand/Soil	42	104	289	162	288	295	283	426	17	Reuse onsite for landscaping. Remainder to landfill site by waste contractor.
Metal	13	33	90	51	90	92	88	133	5	Offsite to metal recyclers and remainder to landfill.
Other	24	59	164	92	164	168	161	242	10	Reuse and recycle where possible. Otherwise removal by waste contractor to landfill.

Notes

[1] Estimated volume calculated based on areas provided in Staging Plan (PMDL, Feb 2019) and Waste Quantities Estimates provided in Hills Shire Council DCP 2012: Appendix A *Waste Management Plan.*

[2] Waste types are to be classified in accordance with EPA NSW (2014) prior to offsite disposal.

3.4 Waste Handling

3.4.1 Excavation Waste

DLA Environmental Services have prepared Preliminary Site Investigation (PSI) reports for Number 151 and 161 Tallawong Road. This report recommends demolition and, if required, remediation of any identified asbestos contaminated material/soil prior to commencing works for the school. Remediation works shall be carried out by a suitability qualified environmental / earthworks contractor and in accordance with any Remediation Action Plan (RAP). Formal waste classification in accordance with NSW EPA (2014) Waste Classification Guidelines is required with samples to be collected at a rate determined by the supervising engineer, and or RAP to adequately assess the material, in accordance with NSW EPA (2014).

Earthworks and landscaping shall be designed to minimise the amount of waste generated. For excavated material that is free from contamination, it shall be kept in a designated stock piling area. Storage piles are to be grass seeded with Hydromulch (or similar products) between stages for protection from water and wind erosion. Any excess excavation wast shall be classified in accordance with NSW EPA (2014) guidelines and transported to licenced processing facilities.

3.4.2 Other Construction Waste

The approximate volume of other construction waste that is likely to be generated during construction is provided in Table 2. The Site Supervisor will establish storage areas for this waste and record quantities. Each type of waste will be collected by a licenced waste contractor and transported to a licenced recycling facility or disposal facility, depending on its quality and suitability for recycling.

3.5 Waste Management and Minimisation

Construction is anticipated to produce materials that will be stockpiled for either reuse on-site or wastes for off-site disposal. Specific site stockpiles shall be required for construction materials (including aggregates, concrete, fencing, prefabricated structural elements, erosion protection materials, etc.), construction wastes and spoil. Location of stockpiles shall be determined on-site to allow ease of access, while ensuring they are clear of overland flow paths and to minimise the impact on site amenity. Stockpiles shall require appropriately designed sediment and erosion controls in accordance with the project Erosion and Sediment Control Plan (ESCP).

During construction works skip bins shall be utilised to manage generated solid waste. These bins shall be covered overnight and during windy conditions to prevent material being lost and spread over the site. Access for waste management service vehicles is proposed to be via existing and construction entrances from Tallawong Road and, once constructed, the proposed new northern road. Removal of waste is anticipated to be carried out during approved hours.

4 Waste Management Plan – Operation

4.1 Waste Streams and Classifications

Operation of the proposed school is anticipated to generate the following waste streams:

- Cardboard and paper recycling
- Commingled recycling
- Food and organics
- General waste

Additional smaller waste streams may include toner cartridge and e-waste recycling, light tube/globe recycling and battery recycling.

As Council guidelines do not provide waste generation rates for schools, rates from Randwick City Council *Waste Management Guidelines* (undated) were adopted, which recommend the following for educational facilities:

- 1.5 L/day/student for garbage; and
- 0.5 L/day/student for recycling.

Given the proposed boarding houses are anticipated to be occupied full time by students and staff, the following generation rates should be applied (based on 'boarding houses' from Randwick City Council *Waste Management Guidelines)*:

- 9 L/day/occupant for garbage; and
- 3 L/day/occupant for recycling.

Based on predicted school populations (Section 2.3) anticipated waste volumes produced for each component of the school is provided in Table 3. For the purposes of this assessment, it is assumed that full time staff waste generation rates are the same as that for students.

It is noted that anticipated waste generated for each stage is to be confirmed at Construction Certificate stage based on maximum stage population and the generation rates adopted above.

Table 3: Potential waste types and estimated quantity – Operation.

	Estimated Volume (L/day)			
Waste Types	**Early Learning Centre**	**Primary**	**Secondary**	**Boarding House**
Garbage	156	927	1079	1107
Recycling	52	309	360	369

4.2 Waste Management Systems

4.2.1 Waste Collection

Estimated waste management facility requirements for each component of the proposed school are summarised in Table 4.

Table 4: Recommended waste management facility requirements

Waste Types	Estimated Waste per Week (L)	Bin Type (L)	Number of Bins	Weekly Clearance Frequency	Capacity (weekly) (L)	Footprint per bin (m^2)	Total Footprint (m^2)
Early Learning Centre							
Garbage	780	240	4	1	960	0.43	1.72
Recycling	260	240	2	1	480	0.43	1.72
Total	**1020**				**1440**		**3.44**
Primary School							
Garbage	4635	1100	2	2	4640	1.37	2.74
		240	1	1		0.43	0.43
Recycling	1545	1100	1	1	1580	1.37	1.37
		240	2	1		0.43	0.86
Total	**6180**				**6220**		**5.40**
Secondary School							
Garbage	5393	1100	2	2	5840	1.37	2.74
		240	3	2		0.43	1.29
Recycling	1798	1100	1	1	1820	1.37	1.37
		240	3	1		0.43	1.29
Total	**7190**				**7660**		**6.69**
Boarding House							
Garbage	7749 [1]	1100	3	2	8040	1.37	4.11
		240	3	2		0.43	1.29
Recycling	2583 [1]	1100	1	2	2680	1.37	1.37
		240	2	1		0.43	0.86
Total	**10 332**				**10 720**		**7.63**

Note:

[1] Waste generated based on 7 days a week for the Boarding House.

4.2.2 Waste Diversion Opportunities

It is recommended that on-site composting facilities be created as part of Stage 7, once landscape works are undertaken and the *Gurdwara* and *Langar* facilities/space are constructed. Such effort contributes to best practice waste management and reduces the total waste generation.

4.2.3 Other Waste

The following waste stream will be collected on call as needed:

- Green Waste/Vegetation – vegetation waste generated from onsite maintenance activities will be managed by grounds staff. A bulk 3 m^3 front lift bin is recommended for the management of this stream which can be located adjacent to the waste storage area. This bin should be collected on request as required.

- Battery Recycling – Battery recycling boxes will be present where deemed necessary e.g. copy rooms, office/study common areas. These boxes will be collected when full by a dedicated contractor.

- E-waste, Toner and Cartridge Recycling – Used toners and other E-waste will be collected by administration staff and consolidated for collection by specialty recyclers.

4.2.4 Waste Storage Area

Waste storage areas are located as shown in Figure 1, Figure 2 and Figure 3, and satisfy minimum area requirements indicated in Table 4.

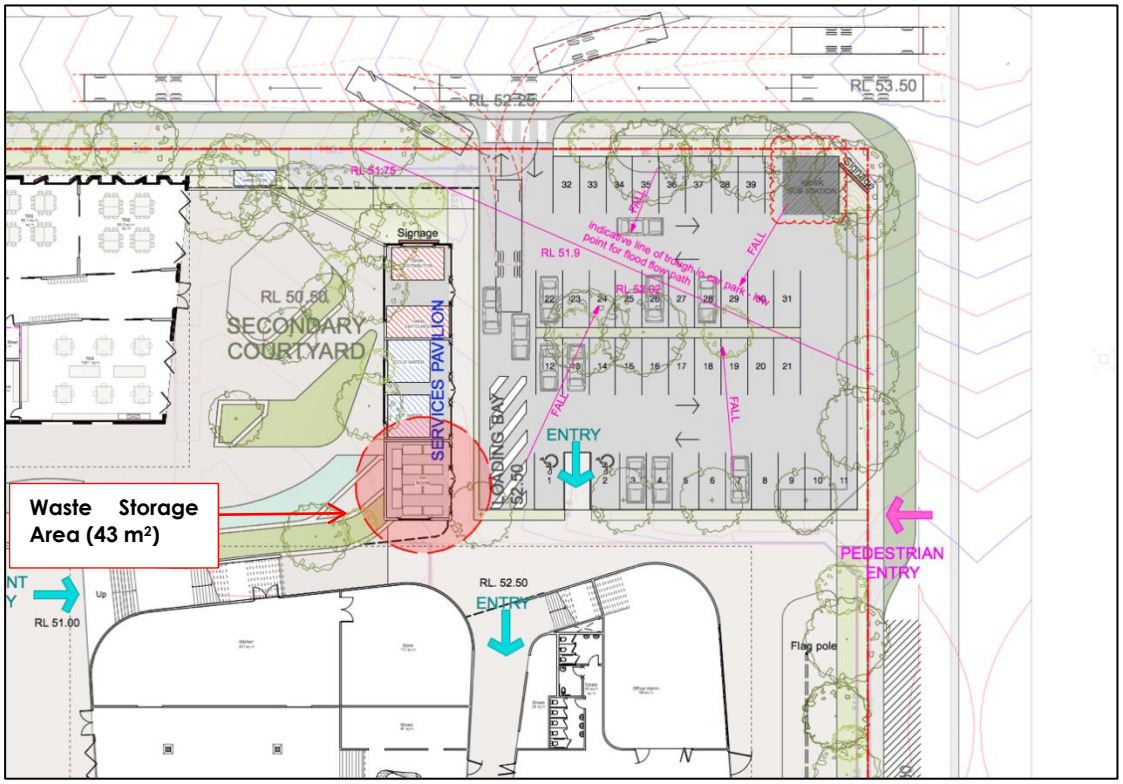

Figure 1: Location of waste storage area for Primary and Secondary: northern corner of site (Source, PMDL, 2019).

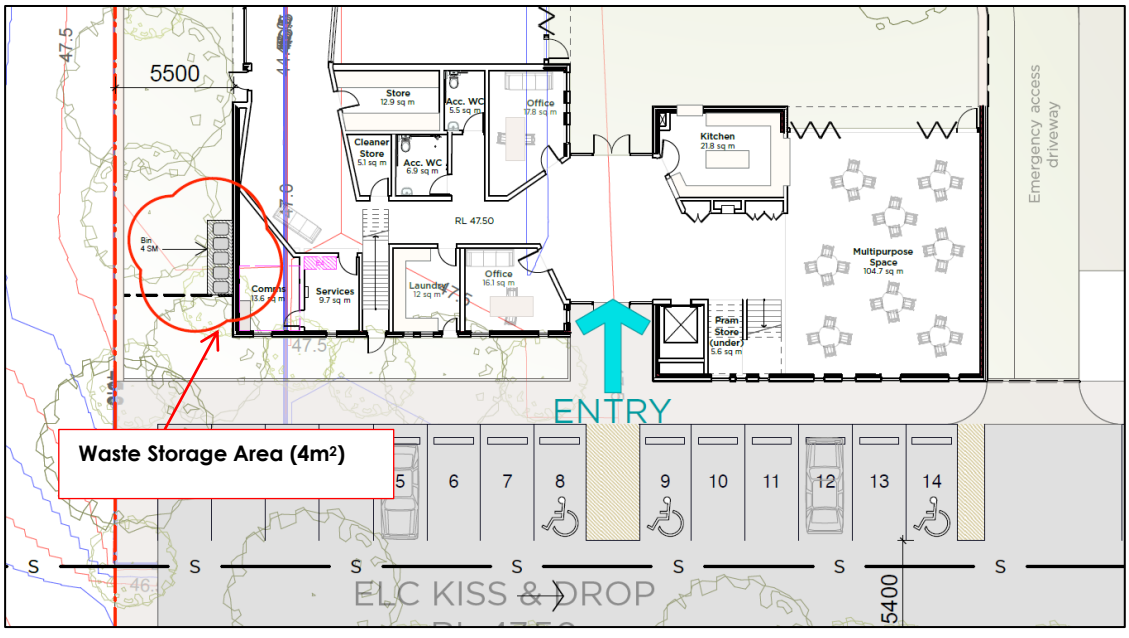

Figure 2: Location of waste storage area for Early Learning Centre: southern corner of site (Source, PMDL, 2019).

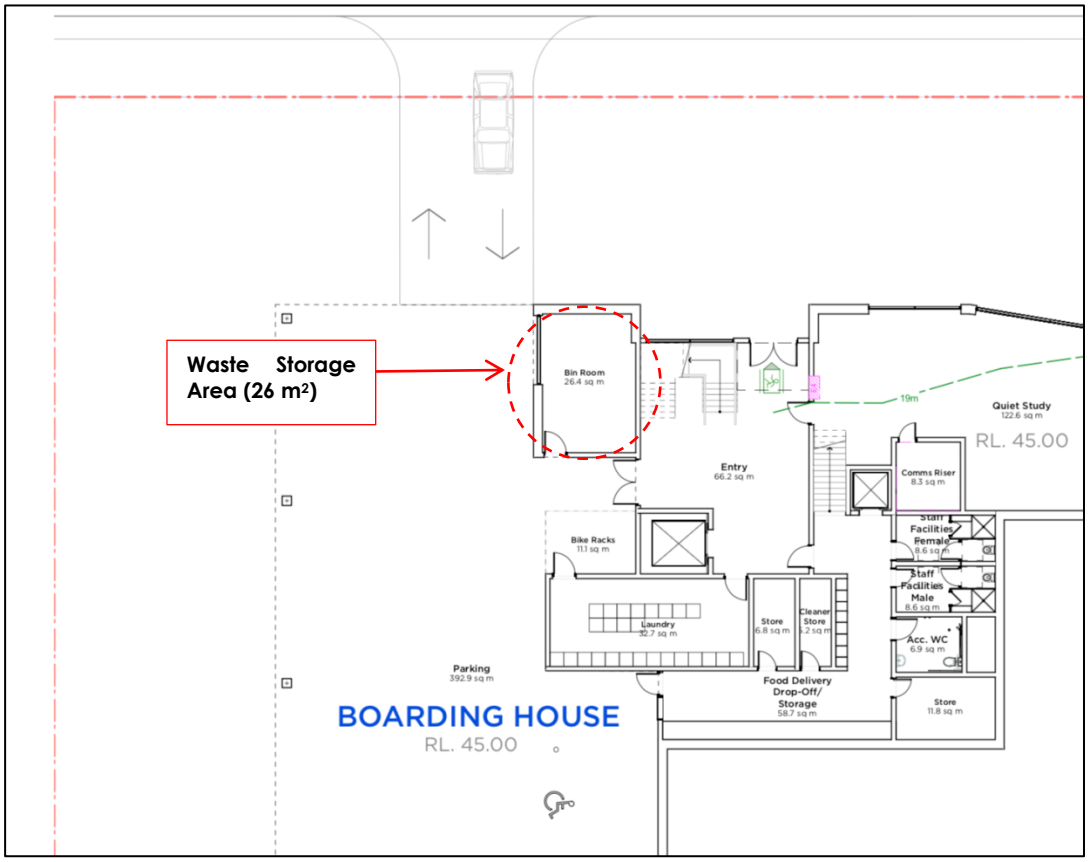

Figure 3: Location of waste storage area for Boarding House: western corner of site (Source, PMDL, 2019).

5 References

Blacktown City Council Growth Centre Precincts Development Control Plan (July, 2018)

Blacktown Development Control Plan 2015.

EPA NSW (2014), *Waste Classification Guidelines Part 1: Classifying waste*, Sydney.

Protection of the Environment Operations Act 1997.

Randwick City Council (undated) *Waste Management Guidelines for Proposed Developments*: *Appendix A - Waste Generation Rates*

State Environmental Planning Policy (Sydney Region Growth Centres) 2006.

SSD 9472 (2018), *Secretary's Environmental Assessment Requirements.*

State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017.

The Hills Shire Council (2012), *The Hills Development Control Plan.*

Waste Avoidance and Resource Recovery Act 2001.