# Appendix G22

# Construction and Operational Waste Management Plans

# Environmental Impact Statement

for Alterations and Additions to

St Philip's Christian College, Cessnock

# St Philips Christian College – Construction Waste Management Plan

## A Submission to St Philips Education Foundation LTD c/o Barr Planning

**19th January 2022**

MRA Consulting Group

## St Philips Christian College: Construction Waste Management: Construction Waste Management Plan

A Submission to St Philips Education Foundation LTD c/o Barr Planning

### Prepared by

MRA Consulting Group (MRA)
Registered as Mike Ritchie & Associates Pty Ltd
ABN 13 143 273 812

Suite 408 Henry Lawson Building
19 Roseby Street
Drummoyne NSW 2047

+61 2 8541 6169
info@mraconsulting.com.au
mraconsulting.com.au

### Version History

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### Disclaimer

# Table of contents

# List of Tables



# List of Figures

# Glossary

| Terminology | Definition |
|---|---|
| **AS** | Australian Standard |
| **C&D** | Construction and Demolition |
| **CCC** | Cessnock City Council |
| **DCP** | Development Control Plan |
| **ENM** | Excavated Natural Material |
| **EPA** | Environment Protection Authority |
| **LEP** | Local Environmental Plan |
| **LGA** | Local Government Area |
| **MGB** | Mobile Garbage Bin |
| **MSW** | Municipal Solid Waste |
| **WMP** | Waste Management Plan |
| **WSP** | Waste Service Provider |
| **WSRA** | Waste Storage and Recycling Area |

# 1 Introduction

MRA Consulting Group (MRA) has been engaged by Barr Planning on behalf of St Philips Education Foundation to prepare a Construction Waste Management Plan (CWMP) for the proposed construction and operation of the upgrades to St Philips Christian College (SPCC), located at 10 Lomas Lane and 210 Wine Country Drive, Nulkaba, NSW 2325. The site is situated in the Cessnock City Council (Council) Local Government Area (LGA).

The development will involve a staged redevelopment to the existing school campus, with construction of new buildings and additions/alterations to existing buildings.

This C&D WMP conforms to the following reference documents:

- *Cessnock Local Environmental Plan (CLEP) 2011;*
- *Cessnock Development Control Plan (CDCP) 2010;*
    - *Part C - Chapter 5: Waste Management and Minimisation*
- *Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities; and*
- *Better Practice Guide for Resource Recovery in Residential Developments (NSW EPA, 2019).*

This WMP has been prepared to inform the development design and assist in the delivery of better practice waste management, promoting sustainable outcomes at the demolition and construction phases for the development. The WMP addresses waste generation and storage associated to the excavation and construction of the proposed development.

The following key objectives for waste management are outlined in the CDCP for new developments:

- to maximise avoidance, reuse and recycling of subdivision debris / refuse, demolition waste, building / construction materials, household generated waste and industrial / commercial waste;
- to assist in achieving Federal and State Government waste minimisation targets in accordance with Regional Waste Plans;
- to minimise the overall environmental impacts of waste and foster the principles of ESD.
- to provide advice to intending applicants on how to prepare waste management plans, detailing actions to minimise waste generation and disposal;
- to provide advice to applicants on matters to be considered when assessing the waste implications of a variety of applications made under the Environmental Planning and Assessment Act 1979 and the Local Government Act 1993; To assist in achieving Federal and State Government waste minimisation targets;
- to require source separation and other design and location standards, which complement waste collection and management services, offered by Council and the private service providers;
- to provide advice to intending applicants on how to reduce and handle waste during the subdivision / demolition and construction phase;
- to encourage building designs and construction techniques which will minimise future waste generation; and
- to provide on-going control for waste handling and minimisation in premises.

# 2 Background

## 2.1 Description of Proposed Development

The site covers approximately 41.8ha of land, and the proposed additions to St Philips Christian College will be completed over several stages in accordance with increasing student enrolment. Table 1 identifies the construction stages for the development:

**Table 1: Development Stages**

| Stage # | Building # | Building description | Infrastructure |
|---|---|---|---|
| **1a** | A3 | Junior School | New southern access off WCD and new internal road/angle parking as far north as Building C2 |
| | A4 | Junior School | Widening of Lomas Lane for bus bays |
| | C2 | Senior School | New bus turnaround area and connection to northern carpark |
| | J | Narnia | Minor intersection refurbishment at Lomas Lane and WCD |
| | E7 | Demountable (TBC) | New 1000kVA Substation |
| **1b** | B1 | Middle School | Reconfiguration of existing northern car park |
| | B2 | Middle School | |
| | S | Waste compound | |
| **2** | E2 | Trade Training Centre | Roundabout at intersection of Lomas Lane and WCD |
| **3a** | C3 | Senior School | Extend internal access road / angle parking adjacent to Building C3 |
| **3b** | D | Welcome and Admin Centre | Nil |
| | K | Café | |
| | N2 | DALE | |
| **4a** | H2 | Sports Hall | Nil |
| **4b** | C4 | Library/Chapel | Extend internal access road to wrap around Building C4 (incl. modify wetland) |
| **5a** | H3 | Sports Hall | Nil |
| **5b** | F | Canteen/Café Hub | Nil |

| Stage # | Building # | Building description | Infrastructure |
|---|---|---|---|
| | O | Aquatic Centre | |
| **5c** | G | Performing Arts Centre | Service access driveway/ramp to PAC |

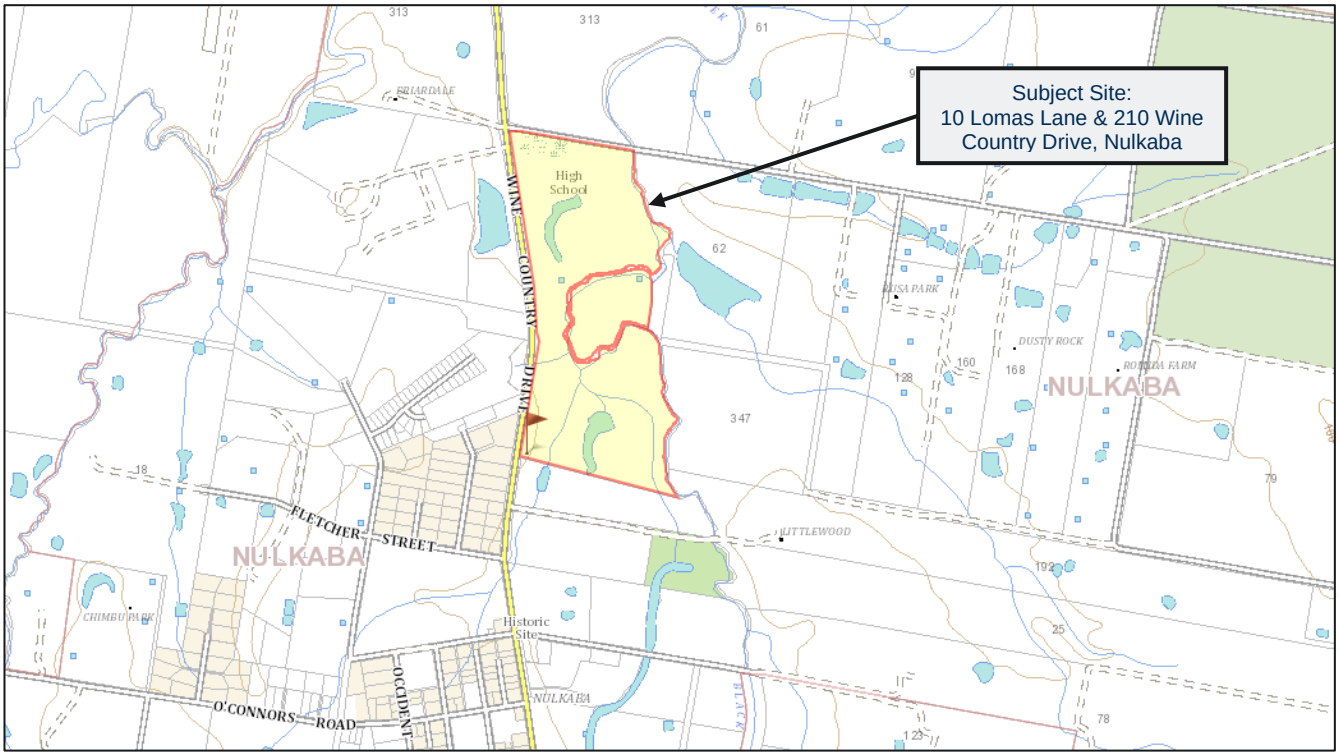
## 2.2 Location

The upgrades proposed for St Philips Christian College (SPCC) are located throughout the site identified in the in the Cessnock local Environment Plan (CLEP) by multiple lots which are outlined as followed:

- Lot 1 DP126765;
- Lot 1 DP744377;
- Lot 2 DP600895; and
- Lot 518 DP837571.

The table below depicts the location of the site in relation to the surrounding land uses and roadways.

**Figure 1: Location of Site**




*Source: SIX Maps, 2021*

## 2.3 Zoning and Use

The site is zoned as RU2 – Rural Landscape in the Cessnock Local Environmental Plan (CLEP) 2011, which is defined by the following objectives:

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To maintain the rural landscape character of the land.

- To provide for a range of compatible land uses, including extensive agriculture.
- To enable other forms of development that are associated with rural activity and require an isolated location or support tourism and recreation.
- To ensure that the type and intensity of development is appropriate in relation to the rural capability and suitability of the land, the preservation of the agricultural, mineral and extractive production potential of the land, the rural environment (including scenic resources) and the costs of providing services and amenities.
- To maintain and enhance the scenic character of the land.
- To ensure that development does not create unreasonable or uneconomic demands for the provision or extension of services.
- To minimise the visual impact of vegetation clearing in order to be consistent with the rural character of the locality.
- To minimise disturbance to the landscape from development through clearing, earthworks, access roads and construction of buildings.
- To ensure development does not intrude into the skyline when viewed from a road or other public place. Zones surrounding the site include R1 - General Residential and RE1 - Public Recreation.

Zones surrounding the site include RU2 Rural Landscape, RU4 - Primary Production Small Lots and RU5 - Village.

## 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 C&D WMP, forming part of the development documentation and assumes:

- Drawings and information that have been used in waste management planning for this CWMP are the final reference/indicative design set for the development plan from the project architect, SHAC Architects (18th January 2022); and
- The Cessnock Development Control Plan (CDCP) 2011, outlines waste generation rates and services available for new developments which have been considered in the preparation of this report.

# 3 Construction and Demolition

Demolition and construction activities at the site will generate a range of construction and demolition (C&D) wastes. 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 wheeled 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 construction contractor and shall be sufficient to store the various waste streams expected during operations. Waste storage areas will be kept clear to maintain access and shall also be kept tidy to encourage separation of waste materials and for WHS reasons. The waste storage area will retain multiple bins to allow for source separation of waste to allow for ease of recovery and reuse of materials.

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

## 3.1 Demolition Waste

The site maintains several existing buildings which may be modified as part of the proposed development. No existing buildings are proposed to be entirely demolished as part of the proposal and therefore, demolition waste expected to be generated as a result of the proposal is low. Minor amounts of excavated material, concrete and vegetation is expected to be generated. It is expected that this material will be generated in quantities that can be either reused onsite for fill material through construction or removed from the site in a skip bin for recycling at an appropriately licenced and capable facility.

Table 2 outlines the expected demolition waste quantities to be generated at the site, in addition to the appropriate management methods for each material type.

**Table 2: Demolition waste generation estimates**

| Type of waste generated | | Quantity | Reuse | Recycling | Disposal | Methods for reuse, recycling and disposal |
|---|---|---|---|---|---|---|
| Concrete | | Minor | ✓ | ✓ | - | On site: to be separated wherever possible to enhance resource recovery.<br>C&D processor: crushing and recycling for recovered products (aggregates). |
| Bricks/pavers | | Minor | ✓ | ✓ | - | On site: cleaned and separated wherever possible for reuse or to enhance resource recovery.<br>C&D processor: recovery for reuse where possible, crushing and recycling for recovered aggregate products. |
| Tiles | Roof | N/A | ✓ | ✓ | - | On site: cleaned and separated wherever possible for reuse or to enhance resource recovery.<br>C&D processor: recovery for reuse where possible, crushing and recycling for recovered aggregate products. |
| | Interior | Minor | ✓ | ✓ | - | |
| Timber (engineered/treated) | | <5m$^3$ | - | ✓ | - | On site: to be separated wherever possible to enhance resource recovery.<br>Reuse: surplus and offcut material returned to manufacturer for reuse.<br>C&D processor: recovery and recycling for recovered product (e.g. mulch) or organics processing. |

| Type of waste generated | Quantity | Reuse | Recycling | Disposal | Methods for reuse, recycling and disposal |
|---|---|---|---|---|---|
| Metals (ferrous and non-ferrous) | Minor | - | ✓ | - | Onsite: to be separated wherever possible to enhance resource recovery.<br>C&D processor: metals recovery and recycling. |
| Plasterboard | <5m$^3$ | ✓ | ✓ | - | On site: to be separated wherever possible to enhance resource recovery.<br>Reuse: surplus and offcut material returned to manufacturer for reuse. |
| Glass | Minor | ✓ | ✓ | - | 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>Glass recycler: recovery and recycling. |
| Fixtures and fittings | Minor | ✓ | ✓ | - | On site: reuse wherever possible or return to manufacturer.<br>Reuse: surplus and offcut material returned to manufacturer for reuse where possible.<br>C&D processor: recovery and recycling. |
| Floor coverings | <5-10m$^3$ | ✓ | ✓ | - | On site: to be separated wherever possible to enhance resource recovery.<br>Reuse: surplus and offcut material returned to manufacturer for reuse where possible. |

| Type of waste generated | Quantity | Reuse | Recycling | Disposal | Methods for reuse, recycling and disposal |
|---|---|---|---|---|---|
| | | | | | C&D processor: recovery and recycling. |
| Garden organics (Vegetation) | <5m$^3$ | ✓ | ✓ | - | Minimal garden organic waste from landscaping.<br>Organics processor: storage on-site (from minor excavations) processing for recovered product (e.g. mulch or other blended recovered fines) or organics treatment. |
| Residual waste (general refuse) | <5-10m$^3$ | - | - | ✓ | Separate recyclables where possible and disposal at principal licensed waste facility. |
| Hazardous/special waste (e.g. spills and contaminated wastes) | Unknown | - | - | ✓ | Management by a licensed asbestos and site hygienist should hazardous or special waste be found at the site. |

## 3.2 Construction Waste

Construction will occur over 5 stages and include the construction of new buildings and upgrades to existing buildings. The following table shows the conversion of tonnes to cubic metres for common building waste types and an indicative percentage of waste generated from materials ordered for site construction works.

**Table 3: Building waste material by percentage and conversion factor for volume and weight**

| Building waste material | Tones per $m^3$ | Waste as % of the total material ordered |
|---|---|---|
| Bricks | 1 | 5-10% |
| Concrete | 2.4 | 3-5% |
| Tiles | 0.75 | 2-5% |
| Timber | 0.5 | 5-7% |
| Plasterboard | - | 5-20% |
| Ferrous metal | 2.4 | - |

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 4: Construction waste generation estimates**

| Type of waste generated | | Quantity | Reuse | Recycling | Disposal | Methods for reuse, recycling and disposal |
|---|---|---|---|---|---|---|
| Excavation material | | 1,000 – 1,500m$^3$ | ✓ | - | - | On site: testing (if necessary) for contamination and stockpiling of material for reuse as fill material.<br>C&D processor: reuse/recycling of VENM and ENM<br>Landfill if contaminated. |
| Concrete | | 25-50m$^3$ | ✓ | ✓ | - | On site: to be separated wherever possible to enhance resource recovery.<br>C&D processor: crushing and recycling for recovered products (aggregates). |
| Bricks/pavers | | 5-10m$^3$ | ✓ | ✓ | - | On site: cleaned and separated wherever possible for reuse or to enhance resource recovery.<br>C&D processor: recovery for reuse where possible, crushing and recycling for recovered aggregate products. |
| Tiles | Roof | N/A | ✓ | ✓ | - | On site: cleaned and separated wherever possible for reuse or to enhance resource recovery.<br>C&D processor: recovery for reuse where possible, crushing and recycling for recovered aggregate products. |
| | Interior | Minor | ✓ | ✓ | - | |

| Type of waste generated | Quantity | Reuse | Recycling | Disposal | Methods for reuse, recycling and disposal |
|---|---|---|---|---|---|
| Timber (engineered/treated) | <5m$^3$ | - | ✓ | - | On site: to be separated wherever possible to enhance resource recovery.<br>Reuse: surplus and offcut material returned to manufacturer for reuse.<br>C&D processor: recovery and recycling for recovered product (e.g. mulch) or organics processing. |
| Metals (ferrous and non-ferrous) | <5m$^3$ | - | ✓ | - | Onsite: to be separated wherever possible to enhance resource recovery.<br>C&D processor: metals recovery and recycling. |
| Plasterboard | <5m$^3$ | ✓ | ✓ | - | On site: to be separated wherever possible to enhance resource recovery.<br>Reuse: surplus and offcut material returned to manufacturer for reuse. |
| Glass | Minor | ✓ | ✓ | - | 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>Glass recycler: recovery and recycling. |
| Fixtures and fittings | Minor | ✓ | ✓ | - | On site: reuse wherever possible or return to manufacturer.<br>Reuse: surplus and offcut material returned to manufacturer for reuse where possible.<br>C&D processor: recovery and recycling. |

| Type of waste generated | Quantity | Reuse | Recycling | Disposal | Methods for reuse, recycling and disposal |
|---|---|---|---|---|---|
| Floor coverings | <5m$^3$ | ✓ | ✓ | - | 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. |
| Packaging (used pallets, pallet wrap) | 25m$^3$ | ✓ | ✓ | - | On site: to be separated wherever possible to enhance resource recovery.<br>C&D processor: recycling of timbers and plastic. |
| Garden organics (Vegetation) | <5m$^3$ | ✓ | ✓ | - | Minimal garden organic waste from landscaping.<br>Organics processor: storage on-site (from minor excavations) processing for recovered product (e.g. mulch or other blended recovered fines) or organics treatment. |
| Containers (cans, plastic, glass) | Minor | - | ✓ | - | Commercial contractor: recycling. |
| Paper/cardboard | <10m$^3$ | - | ✓ | - | Commercial contractor: segregation of paper, cardboard or other streams. |
| Residual waste (general refuse) | <10m$^3$ | - | - | ✓ | Separate recyclables where possible and disposal at principal licensed waste facility. |
| Hazardous/special waste (e.g. spills and contaminated wastes) | Unknown | - | - | ✓ | Management by a licensed asbestos and site hygienist should hazardous or special waste be found at the site. |

## 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 5).

**Table 5: Waste service contractors and facilities**

| Role | Details |
|---|---|
| Examples of suitable Waste Collection Contractors | The following are local skip bin operators for consideration in the management of excavation and construction waste for the site:<br>• Speedy Skips, Maitland;<br>• Central Skips; and<br>• B&R Skip Bins, Newcastle.<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>• B&R Skip Bins, Newcastle;<br>• Regyp, Plasterboard recycler, Newcastle; and<br>• Concrush, Teralba.<br>Or another appropriate facility as elected by the waste management contractor. |
| Principal Licensed Landfill Site | Cessnock Waste Management Centre, Cessnock 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 Waste Management Systems

## 4.1 Waste Storage, Handling, Transport, and Disposal

### 4.1.1 Storage

Considering the nature of proposed works, waste management infrastructure should include retention of several mobile garbage bins for the storage of separated construction waste material. Waste should be placed in designated bins and collected on a regular schedule, as bins become full.

Recyclable materials would be source-separated onsite where possible in labelled bins according to the type of material (e.g. masonry, metals, paper and plastics) to enable improved recovery rates.

All problem and hazardous wastes would be stored in separate areas or bins as they may require special treatment. Asbestos must be stored in a separate container and wrapped in thick plastic. Any flammable liquids would be stored in a bunded area; however, this is not likely to be necessary at the site.

### 4.1.2 Handling

The handling of waste would be dependent on waste type.

- Inert waste would be collected for recycling or disposal, as appropriate.
- Problem wastes include paint, oils and chemicals would be disposed of at facilities which are able to receive these materials.

The Business Recycling website (businessrecycling.com.au) provides a directory of locations where wastes can be recycled or safely disposed of.

All material generated would be separated where possible, to maximise resource recovery potential and reduce the need for disposal of residual materials to landfill. Any material deemed unsuitable for reuse or recovery would be disposed of to an appropriately licensed landfill. Reuse and recovery potential for expected waste product includes (but is not limited to) the methods outlined in Table 6.

### 4.1.3 Recycling of Materials

**Table 6: Expected waste streams during C&D activities related to fit-out works**

| Waste Material | Reuse or recovery Potential |
|---|---|
| Brick, Rubble, Stone, Ceramic, Tile, etc. | Sent to C&D processing facility for crushing and reuse as fill material. |
| Timber (treated and non-treated) | Sent to organics processor or C&D processing facility for mulching for reuse. |
| Metals (ferrous & non-ferrous) | Fixtures and fittings returned to manufacturer for reuse (if applicable) or recycling at materials recycling facility. |
| Plastic | Recycling at materials recycling facility. |
| Paper & cardboard | Recycling at materials recycling facility. |

| Waste Material | Reuse or recovery Potential |
|---|---|
| Eligible residual or non-recoverable material | Processing at appropriately licensed energy from waste (EfW) as technology becomes readily available. |
| Hazardous and problem waste streams | Disposal/recycling at a facility which is able to accept the particular type of waste. |

### 4.1.4 Transport

Section 143 of the *Protection of the Environment Operations Act 1997* requires that waste is transported to a place that can lawfully accept it. Both the owner of the waste and the transporter are legally responsible for proving the waste was transported to a lawful place.

To show that waste has been lawfully disposed of records should be kept of the following:

1. All demolition and construction waste dockets must be kept which show which facility received the material for recycling or disposal.
2. Who transported the waste (company name, ABN, vehicle registration and driver details, date and time of transport, description of waste).
3. Copies of waste dockets/receipts from the waste facility (date and time of delivery, name and address of the facility, its ABN, contact person).
4. Transport of waste materials is managed by a licensed operator.

Audits may be conducted by Council to verify that dockets have been kept and waste recycled and disposed of as described within the Waste Management Plan.

### 4.1.5 Disposal

The disposal of waste is recommended after recycling options have been implemented. Materials may only be disposed of materials to a facility which is licensed to take the particular type of waste.

- The majority of waste onsite is inert, dry, non-putrescible waste which may be taken to any licensed landfill.
- Stabilised asbestos in a bonded matrix may be taken to an inert waste Class 1 landfill or a solid waste landfill class 1 or 2.
- The Planet Ark Business Recycling directory or “Recycling Near You” websites can be consulted to find facilities that accepts a particular type of waste for recycling or disposal.

## 4.2 Management Measures

### 4.2.1 General Measures

The following general site management measures are recommended for the proposed fit-out works:

- Materials would be reused or recycled wherever possible;
- Separate bins would be provided for source separation of waste types where possible;
- Residual waste would be disposed of to a licensed landfill;
- Litter on the site would be managed daily to maintain a tidy environment;
- Transport of waste would be managed by a licenced operator; and
- Records would be kept of transport and disposal of materials.

### 4.2.2 Hazardous Waste Management

Hazardous and problem wastes would be stored separately onsite and disposed of or treated at a facility licensed to receive and manage the material or substance. Hazardous waste may include light globes, paint, oils, chemicals, and e-waste.

## 4.3 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). Illustrative graphics must form a minimum 50% of the area of the signage. Signage is to be prominently posted in each waste storage area or where waste materials will be separated at the source. At a minimum, signage should indicate:

- Details regarding acceptable recyclables;
- No standing and danger warnings apply to the area surrounding waste storage areas;
- Contact details of the waste contractor; and
- The area is to be kept tidy.

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

## 4.4 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 waste caretaker will also be responsible for:

- Maintenance of open and stockpile areas;
- Ensuring waste storage 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;
- 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 accessing the site.

# 5 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

NSW Department of Education (2014) Educational Facilities Standards and Guidelines

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 (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.

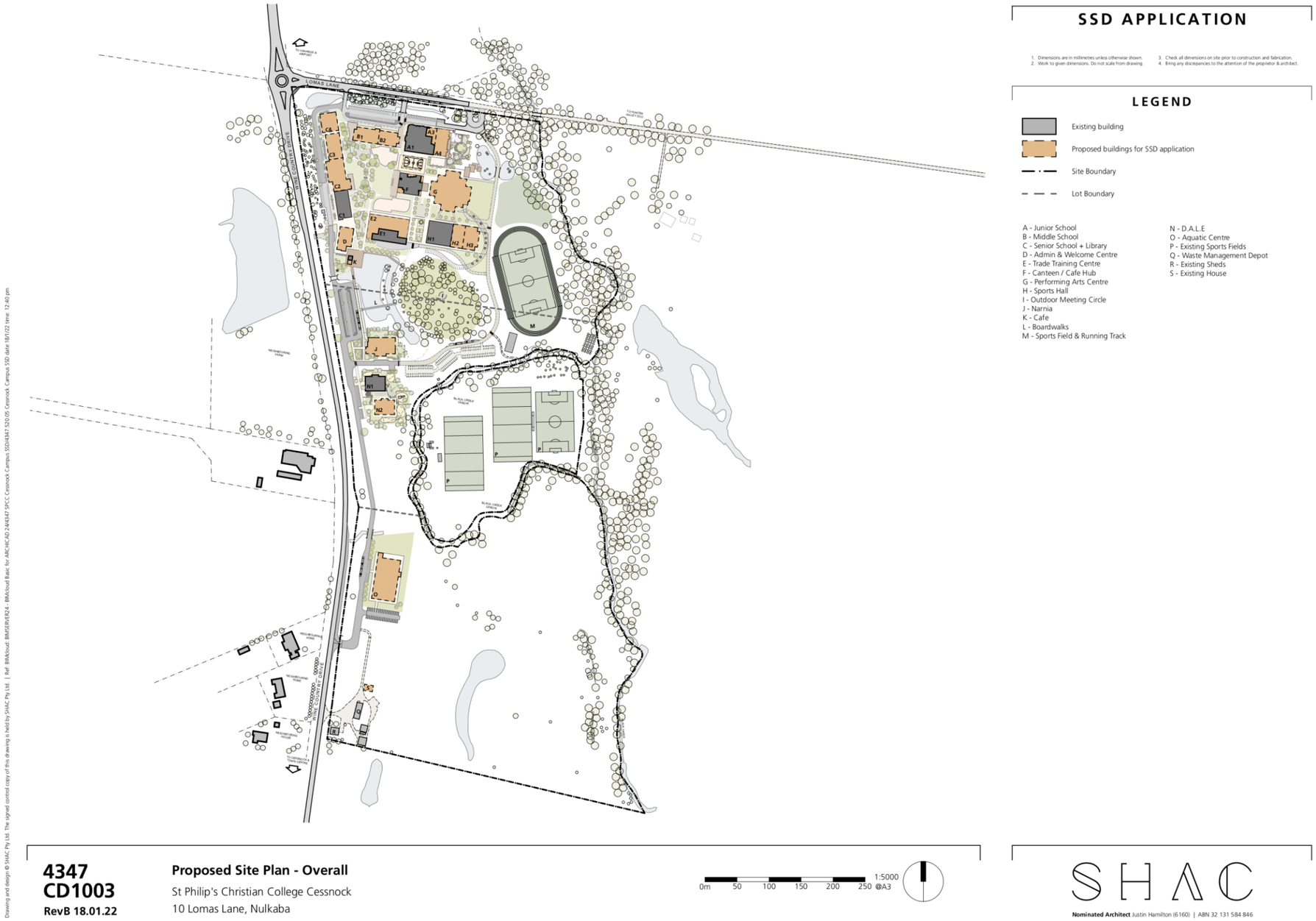
NSW Government (2001) The Waste Avoidance and Resource Recovery Act.

Cessnock City Council (2010) Cessnock Development Control Plan

Cessnock City Council (2011) Local Environmental Plan

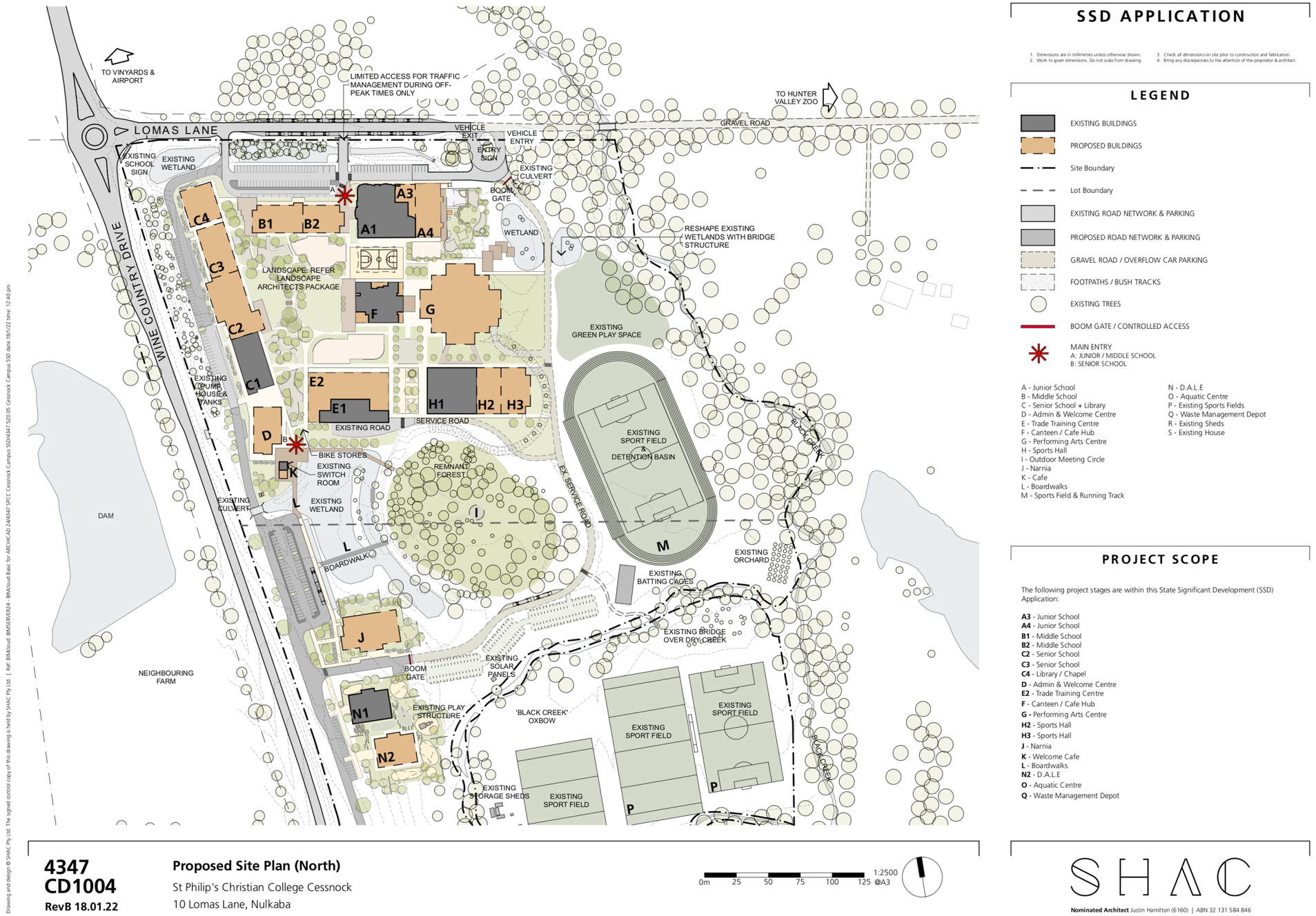
# Appendix A Site Plans

**Figure 2: Full site plans**




*Source: SHAC Architecture, 2021*

**Figure 3: Site plans for the northern end of the site**




## SSD APPLICATION

1. Dimensions are in millimetres unless otherwise shown.
2. Work to given dimensions. Do not scale from drawing.
3. Check all dimensions on site prior to construction and fabrication.
4. Bring any discrepancies to the attention of the proprietor & architect.

### LEGEND

- EXISTING BUILDINGS
- PROPOSED BUILDINGS
- Site Boundary
- Lot Boundary
- EXISTING ROAD NETWORK & PARKING
- PROPOSED ROAD NETWORK & PARKING
- GRAVEL ROAD / OVERFLOW CAR PARKING
- FOOTPATHS / BUSH TRACKS
- EXISTING TREES
- BOOM GATE / CONTROLLED ACCESS
- MAIN ENTRY
  A: JUNIOR / MIDDLE SCHOOL
  B: SENIOR SCHOOL

A - Junior School
B - Middle School
C - Senior School + Library
D - Admin & Welcome Centre
E - Trade Training Centre
F - Canteen / Cafe Hub
G - Performing Arts Centre
H - Sports Hall
I - Outdoor Meeting Circle
J - Narnia
K - Cafe
L - Boardwalks
M - Sports Field & Running Track
N - D.A.L.E
O - Aquatic Centre
P - Existing Sports Fields
Q - Waste Management Depot
R - Existing Sheds
S - Existing House

### PROJECT SCOPE

The following project stages are within this State Significant Development (SSD) Application:

**A3** - Junior School
**A4** - Junior School
**B1** - Middle School
**B2** - Middle School
**C2** - Senior School
**C3** - Senior School
**C4** - Library / Chapel
**D** - Admin & Welcome Centre
**E2** - Trade Training Centre
**F** - Canteen / Cafe Hub
**G** - Performing Arts Centre
**H2** - Sports Hall
**H3** - Sports Hall
**J** - Narnia
**K** - Welcome Cafe
**L** - Boardwalks
**N2** - D.A.L.E
**O** - Aquatic Centre
**Q** - Waste Management Depot

**4347**
**CD1004**
**RevB 18.01.22**

**Proposed Site Plan (North)**
St Philip's Christian College Cessnock
10 Lomas Lane, Nulkaba

0m 25 50 75 100 125 1:2500 @A3

SHAC
**Nominated Architect** Justin Hamilton (6160) | ABN 32 131 584 846



*Source: SHAC Architecture, 2021*

**Figure 4: Site plans for the southern end of the site**

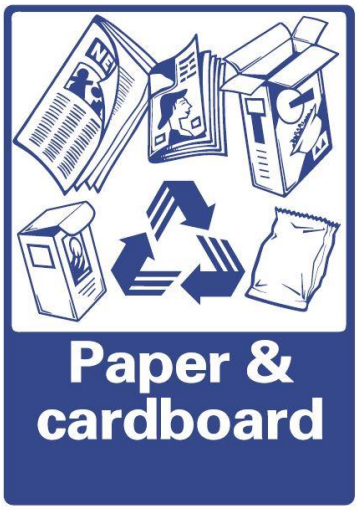

*Source: SHAC Architecture, 2021*

# Appendix B Standard Signage

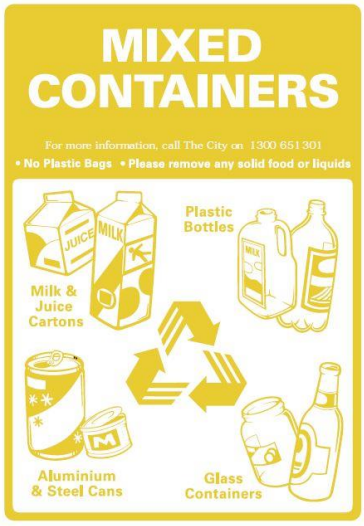
**Waste Signage**

Signs for garbage, recycling and organics bins should comply with the standard signs promoted by the NSW Office of Environment and Heritage (NSW OEH 2008b) and as stated in the DCP.

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).





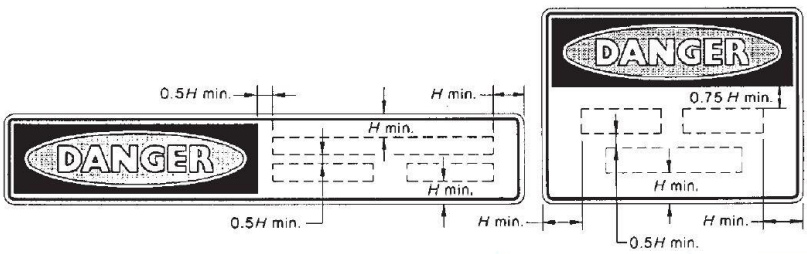



**Safety Signs**

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.


(d) Horizontal

FIGURE D5 TYPICAL ARRANGEMENTS OF DANGER SIGNS



**MRA Consulting Group**

Suite 408 Henry Lawson Building
19 Roseby Street
Drummoyne NSW 2047

+61 2 8541 6169
info@mraconsulting.com.au
mraconsulting.com.au


MRA Consulting Group

# St Philips Christian College – Operational Waste Management Plan

## A Submission to St Philips Education Foundation LTD c/o Barr Planning

**19th January 2022**

MRA Consulting Group

## Prepared by

MRA Consulting Group (MRA)
Registered as Mike Ritchie & Associates Pty Ltd
ABN 13 143 273 812

Suite 408 Henry Lawson Building
19 Roseby Street
Drummoyne NSW 2047

+61 2 8541 6169
info@mraconsulting.com.au
mraconsulting.com.au

## Version History

| Ver | Date | Status | Author | Approver | Signature |
|---|---|---|---|---|---|
| 0.1 | 25/10/2021 | Draft | Candace Lim | Maya Deacock | - |
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| 1 | 19/01/2022 | Final | Candace Lim | James Cosgrove |  |

## Disclaimer

# Table of contents

# List of Tables



# List of Figures

# Glossary

| Terminology | Definition |
|---|---|
| **AS** | Australian Standard |
| **C&D** | Construction and Demolition |
| **C&I** | Commercial and Industrial |
| **CDCP** | Cessnock Development Control Plan |
| **CLEP** | Cessnock Local Environmental Plan |
| **CCC** | Cessnock City Council |
| **DA** | Development Application |
| **DCP** | Development Control Plan |
| **EFSG** | Educational Facilities Standards and Guidelines |
| **EPA** | Environment Protection Authority |
| **LGA** | Local Government Area |
| **MGB** | Mobile Garbage Bin |
| **OWMP** | Operational Waste Management Plan |
| **SEPP** | State Environmental Planning Policy |
| **SPCC** | St Philips Christian College |
| **WARR** | Waste Avoidance and Resource Recovery |
| **WSP** | Waste Service Provider |
| **WSRA** | Waste Storage and Recycling Area |

# 1 Introduction

MRA Consulting Group (MRA) has been engaged by Bar Planning on behalf of St Philips Education Foundation to prepare a Construction Waste Management Plan (CWMP) for the proposed construction and operation of the upgrades to St Philips Christian College (SPCC), located at 10 Lomas Lane and 210 Wine Country Drive, Nulkaba, NSW 2325. The site is situated in the Cessnock City Council (Council) Local Government Area (LGA).

The development will involve a staged redevelopment to the existing school campus, with construction of new buildings and additions/alterations to existing buildings.

This C&D WMP conforms to the following reference documents:

- *Cessnock Local Environmental Plan (CLEP) 2011;*
- *Cessnock Development Control Plan (CDCP) 2010;*
    - *Part C – Chapter 5: Waste Management and Minimisation*
- *Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities; and*
- *Better Practice Guide for Resource Recovery in Residential Developments (NSW EPA, 2019).*

This WMP has been prepared to inform the development design and assist in the delivery of better practice waste management, promoting sustainable outcomes at the demolition and construction phases for the development. The WMP addresses waste generation and storage associated to the excavation and construction of the proposed development.

The following key objectives for waste management are outlined in the CDCP for new developments:

- to maximise avoidance, reuse and recycling of subdivision debris / refuse, demolition waste, building / construction materials, household generated waste and industrial / commercial waste;
- to assist in achieving Federal and State Government waste minimisation targets in accordance with Regional Waste Plans;
- to minimise the overall environmental impacts of waste and foster the principles of ESD.
- to provide advice to intending applicants on how to prepare waste management plans, detailing actions to minimise waste generation and disposal;
- to provide advice to applicants on matters to be considered when assessing the waste implications of a variety of applications made under the Environmental Planning and Assessment Act 1979 and the Local Government Act 1993; To assist in achieving Federal and State Government waste minimisation targets;
- to require source separation and other design and location standards, which complement waste collection and management services, offered by Council and the private service providers;
- to provide advice to intending applicants on how to reduce and handle waste during the subdivision / demolition and construction phase;
- to encourage building designs and construction techniques which will minimise future waste generation; and
- to provide on-going control for waste handling and minimisation in premises.

# 2 Background

## 2.1 Description of Proposed Development

The site covers approximately 41.8ha of land, and the proposed additions to St Philips Christian College will be completed over several stages in accordance with increasing student enrolment. Table 1 identifies the construction stages for the development:

**Table 1: Development Stages**

| Stage # | Building # | Building description | Infrastructure |
|---|---|---|---|
| **1a** | A3 | Junior School | New southern access off WCD and new internal road/angle parking as far north as Building C2 |
| | A4 | Junior School | Widening of Lomas Lane for bus bays |
| | C2 | Senior School | New bus turnaround area and connection to northern carpark |
| | J | Narnia | Minor intersection refurbishment at Lomas Lane and WCD |
| | E7 | Demountable (TBC) | New 1000kVA Substation |
| **1b** | B1 | Middle School | Reconfiguration of existing northern car park |
| | B2 | Middle School | |
| | S | Waste compound | |
| **2** | E2 | Trade Training Centre | Roundabout at intersection of Lomas Lane and WCD |
| **3a** | C3 | Senior School | Extend internal access road / angle parking adjacent to Building C3 |
| **3b** | D | Welcome and Admin Centre | Nil |
| | K | Café | |
| | N2 | DALE | |
| **4a** | H2 | Sports Hall | Nil |
| **4b** | C4 | Library/Chapel | Extend internal access road to wrap around Building C4 (incl. modify wetland) |
| **5a** | H3 | Sports Hall | Nil |
| **5b** | F | Canteen/Café Hub | Nil |

| Stage # | Building # | Building description | Infrastructure |
|---|---|---|---|
| | O | Aquatic Centre | |
| **5c** | G | Performing Arts Centre | Service access driveway/ramp to PAC |

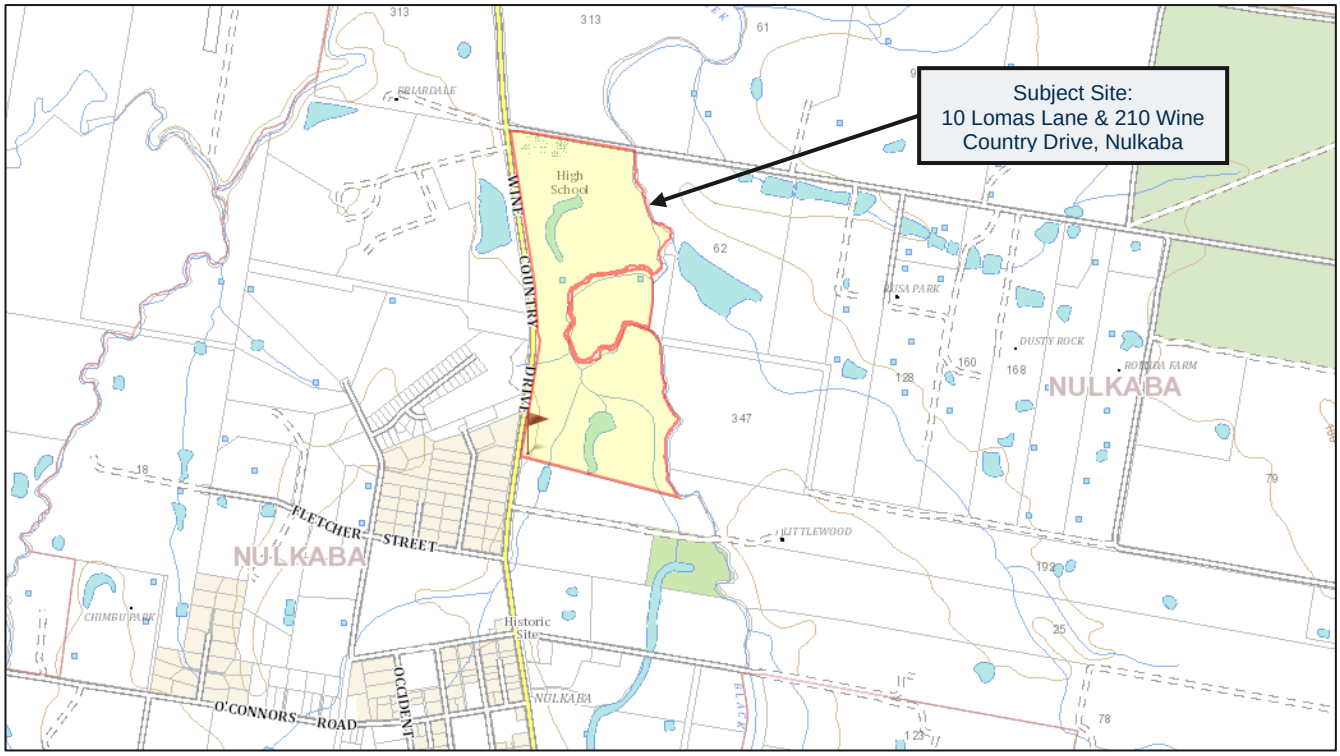
## 2.2 Location

The upgrades proposed for St Philips Christian College (SPCC) are located throughout the site identified in the in the Cessnock local Environment Plan (CLEP) by multiple lots which are outlined as followed:

- Lot 1 DP126765;
- Lot 1 DP744377;
- Lot 2 DP600895; and
- Lot 518 DP837571.

The table below depicts the location of the site in relation to the surrounding land uses and roadways.

**Figure 1: Location of Site**




*Source: SIX Maps, 2021*

## 2.3 Zoning and Use

The site is zoned as RU2 – Rural Landscape in the Cessnock Local Environmental Plan (CLEP) 2011, which is defined by the following objectives:

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To maintain the rural landscape character of the land.

- To provide for a range of compatible land uses, including extensive agriculture.
- To enable other forms of development that are associated with rural activity and require an isolated location or support tourism and recreation.
- To ensure that the type and intensity of development is appropriate in relation to the rural capability and suitability of the land, the preservation of the agricultural, mineral and extractive production potential of the land, the rural environment (including scenic resources) and the costs of providing services and amenities.
- To maintain and enhance the scenic character of the land.
- To ensure that development does not create unreasonable or uneconomic demands for the provision or extension of services.
- To minimise the visual impact of vegetation clearing in order to be consistent with the rural character of the locality.
- To minimise disturbance to the landscape from development through clearing, earthworks, access roads and construction of buildings.
- To ensure development does not intrude into the skyline when viewed from a road or other public place. Zones surrounding the site include R1 - General Residential and RE1 - Public Recreation.

Zones surrounding the site include RU2 Rural Landscape, RU4 - Primary Production Small Lots and RU5 - Village.

## 2.4 Assumptions

This report is an OWMP, forming part of the development documentation and assumes:

- Drawings and information that have been used in waste management planning for this OWMP are the final reference/indicative design set for the development plan from the project architect, SHAC Architects (18th January 2022);
- The Cessnock Development Control Plan (CDCP) 2011, outlines waste generation rates and services available for new developments which have been considered in the preparation of this report; and
- This OWMP 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 Use and Ongoing Waste Management

Waste management strategies related to site operations have been established according to the documents outlined in the CDCP. Ongoing waste management practices onsite will aim to contribute towards the NSW Waste Avoidance and Resource Recovery (WARR) Strategy target recycling rate of 70% for commercial and industrial waste, by 2021-22.

Site waste management responsibilities have been outlined in Section 4.3.

Additional bin infrastructure will be maintained at the site to manage waste associated with the ground floor ancillary services and common use areas.

School cleaning and maintenance staff will maintain waste storage and management areas located on the ground level.

The following spatial calculations are based on mobile garbage bin (MGB) and bulk bin dimensions sourced from NSW EPA's *Better Practice Guide for Resource Recovery in Residential Developments* (2019) (Table 2).

**Table 2: MGB capacity and footprint**

| Bin Capacity (L) | Height (mm) | Depth (mm) | Width (mm) | Footprint (Approx. $m^2$) |
|---|---|---|---|---|
| **240** | 1,180 | 740 | 570 | 0.50 |
| **660** | 1,250 | 850 | 1,370 | 1.46 |
| **1,100** | 1,470 | 1,245 | 1,370 | 2.51 |

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

**Table 3: Bulk bin capacity and footprint**

| Bin Capacity (L) | Height (mm) | Depth (mm) | Width (mm) | Footprint (Approx. $m^2$) |
|---|---|---|---|---|
| **1.5$m^3$** | 910 – 1,250 | 905 – 1,000 | 1,805 – 2,010 | 1.63 – 2.01 |
| **2$m^3$** | 865 – 1,000 | 1,300 – 1,400 | 1,830 – 2,000 | 2.4 – 2.8 |
| **3$m^3$** | 1,020 – 1,580 | 1,470 – 1,700 | 1,400 – 2,010 | 2.1 – 3.4 |
| **4.5$m^3$** | 1,440 – 2,014 | 1,605 – 1,900 | 1,800 – 2,010 | 2.9 – 3.8 |

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

## 3.1 Waste Management Strategies

Once completes the new developments will accommodate for 1,569 students and 180 staff. It is understood that initially, enrolments will be limited to approximately 1,143 students and will scale up over ten years to full capacity. Accordingly, waste management strategies and servicing requirements for the school will adapt to the number of student enrolments. The calculations and strategies below assume full student occupation of the school.

### 3.1.1 Waste Generation

The CDCP does not provide specific waste generation rates for schools. MRA has prior experience with typical waste generation rates expected from schools of similar scale and proposes the following rates for SPCC (based on 5 day per week operation). Table 4 below outlines the generation rates based on the number of students.

**Table 4: Waste Generation for the school (maximum capacity)**

| School Area Number of | Waste Stream | Generation Rate | Weekly Generation Rates (L) |
|---|---|---|---|
| **Junior School (488 Students)** | General Waste | 7.5L per student per week* | 3,700 |
| | Paper and Cardboard | 2.6L per student per week* | 1,350 |
| **Middle School (535 Students** | General Waste | 7.5L per student per week* | 4,080 |
| | Paper and Cardboard | 2.6L per student per week* | 1,490 |
| **Senior School (546 Students)** | General Waste | 7.5L per student per week* | 4,150 |
| | Paper and Cardboard | 2.6L per student per week* | 1,500 |
| **DALE (80 Students)** | General Waste | 20L per student per week* | 1,600 |
| | Paper and Cardboard | *5L per student per week | 200 |
| | Recycling | 5L per student per week | 200 |
| **Prep (80 Students** | General Waste | 20L per student per week* | 800 |
| | Recycling | 5L per student per week* | 200 |
| **ELC (Narnia) (83 Students)** | General Waste | 20L per student per week* | 860 |
| | Recycling | 5L per student per week* | 108 |
| | Paper and Cardboard | 5L per student per week* | 108 |
| **Aquatic Centre (379m$^2$) + Café (104m$^2$)** | General Waste | 100L per 100m$^2$ | 767 |
| | Paper and Cardboard | 120L per 100m$^2$ | 545 |
| | Recycling | 120L per 100m2 | 545 |
| **Café (near Admin) 43m$^2$** | General Waste | 100L per 100m2 | 107 |
| | Paper and Cardboard | 120L per 100m2 | 130 |
| | Recycling | 120L per 100m2 | 130 |

* *Randwick DCP, school waste generation rates.*

In total, the site is expected to generate the following volumes per week:

- General Waste = 16,064L

- Paper and Cardboard = 5,323L
- Recycling = 1,183L

General waste and recycling streams will be stored in bulk mobile garbage bins (MGBs) for collection by a waste service provider (WSP). Waste storage and servicing arrangements for general waste and recycling streams are outlined further in the following sections.

## 3.2 Waste Storage in Each Building

The following table outlines the expected waste generated in each building, and the recommended bin infrastructure for a bin hold within each building (in some instances, multiple bin holds will be available in buildings). The bin retention for each building is recommended on the basis of site cleaning staff transferring and emptying smaller 240L bins into larger bulk bins in the overall site bin hold near the southern end of the site. Space recommendations are also made on the basis of the rate of bin transfer to the overall site bin hold, as indicated in the "Bin Infrastructure" column.

**Table 5: Site Bin Requirements**

| School Area | Waste Stream | Predicted Waste Volume (L/week) | Bin Infrastructure | Space Required |
|---|---|---|---|---|
| Senior School | General Waste | 4,150 | 4 x 240L bins transferred 5x a week | Upper senior school building: 5m$^2$ |
| | Paper and Cardboard | 1,500 | 2 x 240L bin transferred 5x times a week | Lower senior school building/admin building: 5m$^2$ |
| Middle School | General Waste | 4,080 | 7 x 240L bins transferred 5x a week | 7m$^2$ |
| | Paper and Cardboard | 1,490 | 1 x 240L bin transferred 5x a week | |
| Junior School | General Waste | 3,700 | General waste: 4 x 240L bins transferred 5x a week<br><br>Recycling: 1 x 240L bin transferred 5x a week<br><br>Paper and Cardboard: 1 x 240L bin transferred 5x a week | 6m$^2$ |
| | Paper and Cardboard | 1,350 | | |
| Prep | General Waste | 800 | | |
| | Recycling | 200 | | |

| School Area | Waste Stream | Predicted Waste Volume (L/week) | Bin Infrastructure | Space Required |
|---|---|---|---|---|
| ELC (Narnia) | General Waste | 860 | 4 x 240L bins once a week | 5m$^2$ |
| | Recycling | 108 | 1 x 240L bins once a fortnight | |
| | Paper and Cardboard | 108 | 1 x 240L bins once a fortnight | |
| DALE | General Waste | 1,600 | 2 x 240L bins transferred 5x a week | 5m$^2$ |
| | Recycling | 200 | 1 x 240L bins transferred once a week | |
| | Paper and Cardboard | 200 | 1 x 240L bins transferred once a week | |
| Aquatic Centre + Cafe | General Waste | 767 | 1 x 240L bin transferred 4x a week | Bin storage in BOH for café – 2m$^2$<br><br>Bin hold: 5m$^2$ |
| | Recycling | 545 | 2 x 240L bins transferred once a week | |
| | Paper and Cardboard | 545 | 2 x 240L bins transferred once a week | |
| | Food organics | 312 | Food waste transferred to compost area each day. 60-120L bin | |
| Café (near Admin) 43m$^2$ | General Waste | 107 | 1 x 240L bin transferred as required (weekly to fortnightly) | 3m$^2$ |
| | Recycling | 130 | 1 x 240L bin transferred as required (weekly to fortnightly) | |
| | Paper and Cardboard | 130 | 1 x 240L bin transferred as | |

| School Area | Waste Stream | Predicted Waste Volume (L/week) | Bin Infrastructure | Space Required |
|---|---|---|---|---|
| | | | required (weekly to fortnightly) | |
| | Food organics | 107 | Food waste transferred to compost area each day. 60-120L bin | |

240L bins have been elected for management of general waste, paper and cardboard, recycling and food waste at the site. The 240L bins are small and easy to manoeuvre allowing for safe transport to main waste storage area.

The waste calculated above largely captures the generation for the site as a whole, however bin infrastructure is required in the following areas:

- Sports Hall
- Theatre
- Hub
- Trade Training Centre

It is recommended that for each building, litter bins are provided for students and staff. These buildings can be serviced by 2 x general waste and 2 x recycling bins each, to be transferred as required. All the buildings except the theatre have existing components so may already have the required bin infrastructure.

## 3.3 Overall Bin Hold

The initial advice for the bin hold at the site is as follows:

**Table 6: Preliminary Space Requirements for Bin Hold**

| Waste Stream | Infrastructure | Footprint | Other Clearances |
|---|---|---|---|
| General Waste | 2 x 3m$^3$ bins emptied 3 x a week | 7.2m$^2$ | 6.5m height clearance for front-lift truck |
| | OR | | |
| | 23m$^3$** hook lift bin emptied once a week<br>** *Please refer to spec sheet supplied by Waste Initiatives for example of compactor bin Appendix C* | 14m$^2$ | 5m height clearance for hook lift truck<br>As the compactor bin is an entirely sealed unit, it may be located externally to facilitate collection. |
| Paper and Cardboard | 2 x 3m$^3$ bin emptied once a week | 7.2m$^2$ | 6.5m height clearance for front-lift truck |

| Waste Stream | Infrastructure | Footprint | Other Clearances |
|---|---|---|---|
| Commingled Recycling | 1x 1.5m$^3$ bin emptied once a week | 2.5m$^2$ | 6.5m height clearance for front-lift truck |
| Food waste | Composted onsite | N/A | N/A |
| | **Total** | Between 25m$^2$ and 30m$^2$ | No less than 7m overhead obstacles. |

Given the proximity of the waste room to other site uses, and the type of bins proposed, it is suggested that the waste depot feature a roller door to facilitate vehicle access. Bulk bins are unable to be manoeuvred by staff due to size and weight and must be directly serviced by front-lift bins.

Council requires the following:

- The room must have a roof which is connected to stormwater detention for rainwater.
- The waste storage and recycling room shall reflect the design of the main building (including building materials and finishes)
- There is adequate ventilation:
    - mechanical; and
    - natural.
- There is adequate water supply:
    - hot water for commercial uses;
    - hose cocks protected; and
    - hose available.
- The room is well drained to a floor waste connected to the sewer.
- Floors, walls and ceilings are of impervious material.
- Entry of vermin is prevented.
- Adequate separation from walls where containers are used is provided.

Other considerations for this space include:

- Signage for safety and waste bin identification;
- Safety precautions, staff training and signage for plant;
- Fitted with a smoke detector in accordance with Australian Standards, and connected to the fire prevention system of the building;
- Noise attenuation for waste management that limits effects to staff and students from any compactor, bin transfer and collection vehicle noise;
- Floors constructed of concrete (at least 75mm thick) or other approved solid, impervious material that can be cleaned easily;
- A smooth, even floor surface covered with vertical wall and plinth faces;
- Doorway ramp (if not level);
- Light colour finish for all room surfaces;
- Close-fitting and self-closing door, large enough to facilitate access of 660L bins and bulky waste items;
- Suitable construction including limited entry paths to prevent vermin;

- Ventilation through permanent unobstructed ventilation (5% of floor area) or mechanical exhaust ventilation system (5L/s per $m^2$ of floor area); and
- Security and lighting.

The proposed waste storage area is depicted in site plans (Appendix A):

## 3.4 Other Waste Streams

#### 3.4.1.1 Additional Waste Streams – EFSG

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 Operational 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 not a requirement for schools in NSW. SPCC 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).

#### 3.4.1.2 Problem Wastes

SPCC will engage with problem waste management contractors where possible to recover wastes such as E-waste, printer cartridges, batteries, furniture, etc.

SPCC will incorporate a range of different problem waste management practices including any of the following:

- Document Destruction Waste – Two 240L lockable MGBs will be provided for collection and destruction of confidential paper and media materials, on a monthly basis. This would include business records, personnel records, medical/health records, contracts and tenders, office files, archive files, video tapes, CDs, DVDs and microfiche;
- 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 SSCC. E-waste bins can be serviced on a regular basis or as needed when bins become full, by the engaged contractor;
- 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;
- Bulky Waste (Furniture) – Unwanted furniture can be stored onsite and collected on a regular basis or as required; and

- Clinical/Sanitary Waste – Sanitary (including clinical waste where applicable) waste handled by trained (or qualified) personnel using appropriate personal protective equipment and stored in dedicated bins and containers for collection by an appropriate qualified and licensed service provider for transport to a facility appropriate for the purpose of disposing of that waste. Clinical waste containers may be stored in the school sick bay for collection as required.

#### 3.4.1.3 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, should there be space available on school grounds in a veggie patch or garden, a small compost heap may also be suitable for the management of small amounts of vegetable and other food scraps for use around the site. Should onsite composting be unsuitable due to space restrictions, all food waste may be managed with separate bins to be collected by the WSP.

#### 3.4.1.4 CDS Containers and Soft Plastics

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

The closest REDcycle collection points to the site are:

- Woolworths Cessnock - Cessnock Plaza, Cnr Keene & Cooper Street Cessnock NSW 2325
- Coles Cessnock – 1North Ave, Cessnock NSW 2325.

The closest to the site are:

- BP Nulkaba: 247 Wine Country Drive (Reverse Vending Machine);
- Cessnock 20 North Ave, Cessnock (Reverse Vending Machine);

SPCC 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.

SPCC may also apply for listing on local RVM donation registry to enable people to donate CDS revenue to the school from central collection locations.

#### 3.4.1.5 Waste Avoidance

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

#### 3.4.1.6 Reuse of Materials

Where possible, reusing drums, cartridges, and containers where possible. Donating of materials where feasible.

# 4 Equipment and Waste Management Systems

## 4.1 Collection Method and Loading Areas

### 4.1.1 Collection arrangement

Waste collection will occur onsite, at the site waste loading area indicated in Appendix A and Appendix B Collection will be conducted by a private waste contractor, using either a standard rear-loading vehicle, front-loading vehicle or hook-lift truck.

**Table 7: Collection Vehicle Dimensions**

| Vehicle Type | Rear-Loading | Front-Loading | Hook-Lift |
|---|---|---|---|
| Length overall (m) | 10.5 | 11.8 | 10 |
| Width overall (m) | 2.5 | 2.5 | 3 |
| Travel height (m) | 3.9 | 4.8 | 4.7 |
| Operational height for loading (m) | 3.9 | 6.5 | 3 |
| Vehicle tare weight (t) | 13.1 | 16.7 | 13 |
| Maximum payload (t) | 10 | 11 | 14.5 |
| Turning circle (m) | 25 | 25 | 25 |

*Source: NSW EPA Better Practice Guidelines for Resource Recovery in Residential Developments, Appendix B, 2019*

The collection vehicle will enter and exit the site in a forward-facing direction and may either reverse or drive forward into the waste loading area. There are no overhead obstacles in this area and will have sufficient space for a front-lift or hook-lift mechanism.

The SPCC operates between 7am to 8pm, five days per week and to avoid traffic conflicts between passenger vehicles and the private waste contractor vehicles, waste will only be collected outside of these hours.

Waste collection for the site, including the collection point for the waste contractor and areas for handling and loading are as follows:

- Cleaning staff will be responsible for bin set out and return of bins to the bin storage area as soon as practicable following collection.
- Collection is to only occur after school hours to minimise risk to students and staff while the waste vehicle manoeuvres into the loading area;
- Waste trucks will access the site from the vehicle entry at Red Gables Road;
- The waste collection vehicle will collect waste from a loading area adjacent to the bin storage area;
- Clear, safe, accessible, and convenient space for handling of MGBs and equipment and loading of collection vehicles;
- Facilitation of waste collection will be through the site cleaning staff who will be responsible for transfer of bins between the storage area and the kerb; and

- Identifiable areas where students, visitors and site staff can recognise and avoid any risk associated with moving vehicles, and bin moving and handling.

SSCC will engage with a listed supplier of Contract 9698 for waste management at the school.

### 4.1.2 Collection Schedule

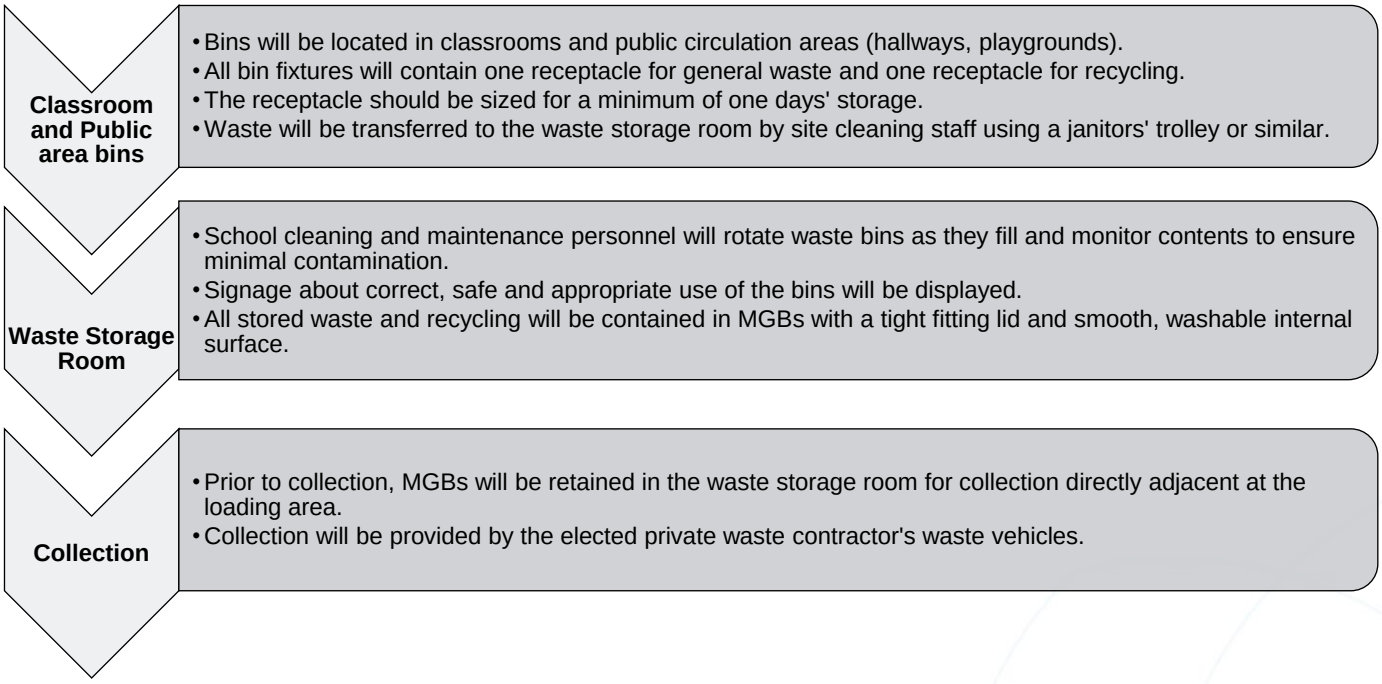
The following collection schedules are proposed for the various waste streams at the site:

- General Waste: 2 x 3m$^3$ bins emptied 3x a week
- Commingled Recycling: 2 x 3m$^3$ bins emptied 3x a week
- Paper and Cardboard: 1x 1.5m$^3$ bin emptied once a week
- Other waste streams may be collected irregularly or less frequently than once per week, depending on specific needs (see Section 3.4.1.2).
- 2 x 240L confidential paper waste bins will be collected once a month, screened for contaminants, shredded and baled before it is sent for reprocessing.

## 4.2 Waste Disposal and Recycling Method

The flow of waste goes from generation to collection through several steps (Figure 2).

**Figure 2: Waste Flow**




## 4.3 Management System and Responsibilities

School cleaning staff 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, school cleaning staff will inform the school operations manager and/or principal. Operation of the waste management system is the responsibility of school management and cleaning personnel. Responsibilities include:

- Using this OWMP 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 students, visitors and site staff about waste management procedures;
- Collection of waste from ground floor ancillary services in a mobile waste management/janitor trolley, for direct disposal into designated bins retained in the waste storage area;
- Manoeuvring bins to specified onsite collection point prior to and following scheduled collection of waste bins;
- Organising, maintaining and cleaning waste management areas as part of a regular maintenance schedule (every 3-6 months);
- Maintenance of equipment and infrastructure for waste where possible (within the means of staff);
- Organising the relevant waste contractor for additional maintenance or waste management for the site (including bulky waste);
- 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.

## 4.4 Waste Storage and Recycling Area Specifications

The waste storage area will provide centralised storage that has adequate capacity to receive and store the maximum likely generation of waste and recycling between collection times. The waste storage area will be constructed to improve amenity, minimise odour, protect surrounding areas and promote user safety. Specifications include:

- The floor being graded and drained to an approved drainage outlet connected to the sewer and having a smooth, even surface, coved at all intersections with walls;
- The walls being cement rendered to a smooth, even surface and coved at all intersections;
- Cold water being provided in the room with the outlet located in a position so that it cannot be damaged, and a hose fitted with a nozzle being connected to the outlet;
- An overhead type door being provided to the room having a clear opening of not less than 1.8m;
- A galvanised steel bump rail at least 50mm clear of the wall being provided at the height of the most prominent part of the garbage containers;
- Construction to conform to the Building Code of Australian Standards and local laws;
- Waste room floor to be constructed of reinforced concrete at least 75mm thick and sealed with a two-pack epoxy;
- Wastewater discharge from bin washing must be drained to sewer in accordance with Sydney Water.
- Signage for safety and waste bin identification;
- Safety precautions, staff training and signage for plant;
- Noise attenuation for waste management and waste storage area that limits effects to students and staff from bin transfer and collection vehicle noise;
- Grading and draining to an approved drainage fitting located in the room;
- A smooth, even floor surface covered with vertical wall and plinth faces;
- Doorway ramp (if not level);
- Light colour finish for all room surfaces;
- Close-fitting and self-closing door, large enough to facilitate access of 1,100L bins and bulky waste items;
- Suitable construction including limited entry paths to prevent vermin;
- Ventilation through permanent unobstructed ventilation (5% of floor area) or mechanical exhaust ventilation system (5L/s per $m^2$ of floor area); and
- Security and lighting.

## 4.5 Bulky Waste Storage

Some bulky wastes will be generated because of typical school activities. Sufficient space will be provided for the temporary storage of these wastes prior to scheduled collection. Management and access of the bulky storage area will be the responsibility of school management and cleaning personnel.

## 4.6 Signage and Education

Signage that promotes resource recovery, waste minimisation, safety and amenity follows the Australian Standard for safety signs for the occupational environment (Standards Australia 1994, Figure 2 and 3).

Signage is designed to consider language and accessibility (i.e. to be understood as clearly as possible by those with different abilities of vision, knowledge of the English language, intellectual ability and with other conditions). Signage is to be prominently posted in each waste storage area and relevant waste service area indicating:

- Detail on 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 D).

## 4.7 Prevention of Pollution, Illegal Dumping and Litter Reduction

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

- Maintenance of communal areas and the waste storage area;
- 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);
- Acting 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.

# 5 Compliance Checklist

## 5.1 Conditions of Consent

Clause E40. of the consolidated consent for the Saint Philips Christian College stipulated that a Waste Management Plan must be prepared for the development prior to the commencement of site operation and submitted to the Certifier (Council or accredited certifier) to include:

**Table 8: Compliance with Clause E.40 of Consent**

| Clause E.40 Conditions | Reference |
|---|---|
| a. the type and quantity of waste to be generated during operation of the development; | Section 3.1.1 |
| b. the handling, storage and disposal of all waste streams generated on site, consistent with the Protection of the Environment Operations Act 1997, Protection of the Environment Operations (Waste) Regulation 2014 and the Waste Classification Guideline (Department of Environment, Climate Change and Water, 2009); | Section 3 |
| c. the materials to be reused or recycled, either on or off site; and | Section 3 |
| d. the Management and Mitigation Measures included in the Waste Management Plan provided at Appendix G of the EIS, as updated by the Response to Submissions. | Section 4.1 |
| e. timing of waste management vehicle access to the site so that there is no conflict with the AM and PM peak drop-off / pick-up times. | Section 4.1 |

# 6 References


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

Australian Standards 4123.7 Mobile Waste Containers

Cessnock Local Environmental Plan (HELP) 2012.

Cessnock Development Control Plan (HDCP) 2010.

NSW Department of Education (2014) Educational Facilities Standards and Guidelines

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

NSW EPA (2014) NSW Waste Avoidance and Resource Recovery Strategy 2014-21.

NSW EPA (2014) Waste Classification Guidelines.

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.

Sustainable Schools NSW (2018) Waste – Accessed at: https://www.sustainableschoolsnsw.org.au/teach/waste

# Appendix A Site Plans

**Figure 3: Site plans for the southern end of the site**


*Source: SHAC Architecture, 2021*

# Appendix B Waste Management Depot

**Figure 4: Proposed waste management depot**


*Source: SHAC Architecture, 2021*

# Appendix C Example of a suitable compactor: Waste Initiatives RP30 Compactor

WASTE INITIATIVES

## RP30 Compactor
Specifications

1 YEAR WARRANTY

### Dimensions

| | |
|---|---|
| Height | 2 555mm |
| Width | 2 270mm |
| Length | 6 000mm |
| Chamber Opening (WxL) | 1 505 x 1 250mm |
| Chamber Volume | 2.12m³ |
| Swept Volume | 1.31m³ |
| Loading height | 1 130mm |
| Motor | 5.5kW |
| Power Supply | 415V 3 Phase |
| Cycle Time | 56 seconds |
| Compaction Force | Up to 33T |

More product info on our website >>

### Features

- High compaction force optimising transport payloads
- Suitable for a range of waste material
- Easy & safe to operate
- Robust design & build - engineered for long life and optimum performance
- Hour meter, full signal & 80% full signal included
- Guide rails & container coupling included

### Optional Extras

- Custom feed hopper
- Wall chutes
- Infeed conveyor
- Material pre-shredder
- Bin tipper for in-feed

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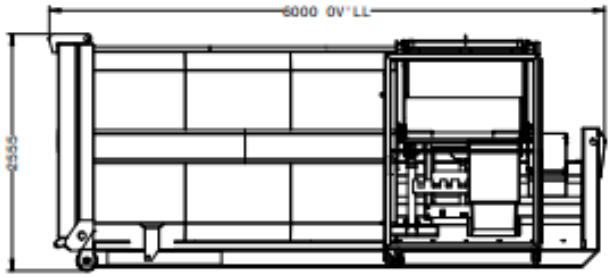
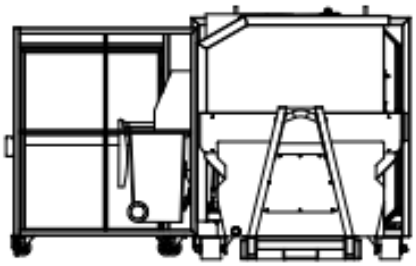
WASTE INITIATIVES

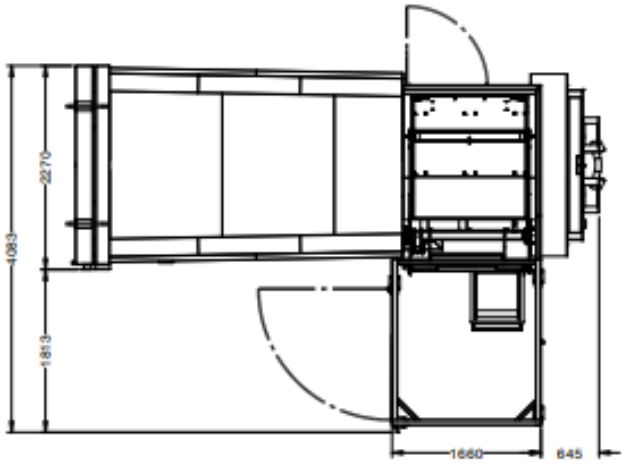
# RP30 Compactor

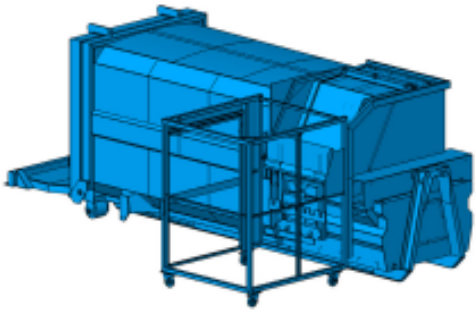
## Schematics

*Dimensions and technical information without obligation. Subject to change.*





Size Comparison

**Compaction Ratio**
Up to 6:1

**Pressing Force**
Up to 33 Ton

**Motor**
5.5kW

**Waste Types**
General Waste, Cardboard, Bulk Bags, Commingled

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# Appendix D Standard Signage

**Waste Signage**

Signs for garbage, recycling and organics bins should comply with the standard signs promoted by the NSW Office of Environment and Heritage (NSW OEH 2008b).

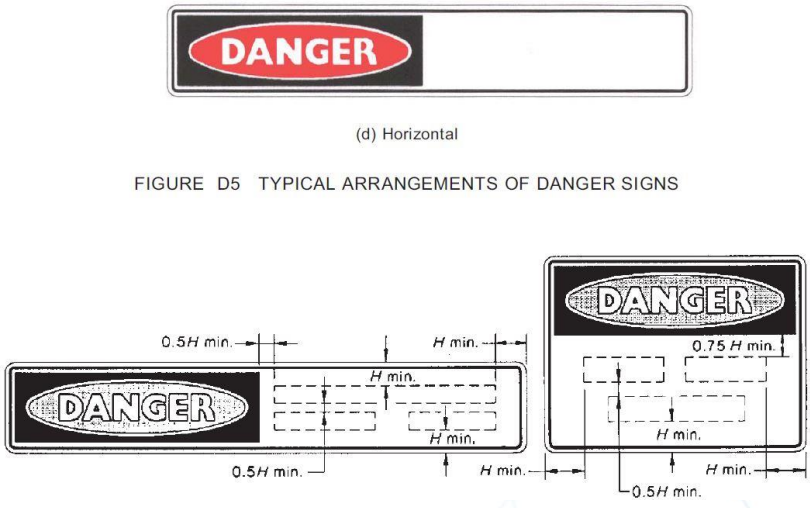
Standard symbols for use in signage, bin facade and educational materials are promoted through the NSW Environment Protection Authority. They are available for download from the NSW EPA website (NSW EPA 2016b), in black and white and colour versions. The Australian Standard series AS 4123 (Part 7) details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

**Figure 5: Examples of standard signage for bin uses**


**Safety Signs**

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

**Figure 6: Example and layout of safety signage**



**MRA Consulting Group**

Suite 408 Henry Lawson Building
19 Roseby Street
Drummoyne NSW 2047

+61 2 8541 6169
info@mraconsulting.com.au
mraconsulting.com.au


MRA Consulting Group