

An architectural rendering of a modern school building with two main wings. The left wing is a multi-story brick building with white balconies and large windows. The right wing is a taller, more modern building with a dark brick facade and large glass windows. In the foreground, there is a paved area with a red brick path, a green lawn, and several trees. A group of children are playing on the path, and a few adults are standing nearby. The sky is blue with some clouds.

## **Upgrades to Chatswood Public School and Chatswood High School**

### **Appendix 29 - Construction Waste Management Plan**

SSD 9483

Prepared by Foresight Environmental

For School Infrastructure NSW, Department of Education





# Upgrades to Chatswood Public School and Chatswood High School

## Construction

## Waste Management Plan

Prepared by Foresight Environmental

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

This report is not a substitute for legal advice on the relevant environmental related legislation, which applies to businesses, contractors or other bodies. Accordingly, Foresight Environmental will not be liable for any loss or damage that may arise out of this project, other than loss or damage caused as a direct result of Foresight Environmental negligence.

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Revision	Issue date	Consultant/s	Reason/comments
1	17/01/20	Kyle Renwick Patrick Arnold	Draft issue for review
2	17/02/20	Kyle Renwick Patrick Arnold	Update based on Johnstaff/DFP Planning feedback

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# 1. Introduction

This Construction Waste Management Plan has been prepared by Foresight Environmental on behalf of Johnstaff (the 'Applicant'). The plan details the way in which the proposed development – Upgrades to Chatswood Public School and Chatswood High School, will manage the waste and recycling generated during the construction stage of the development.

Investing in our schools - The NSW Government is investing \$6.7 billion over four years to deliver 190 new and upgraded schools to support communities across NSW. In addition, a record \$1.3 billion is being spent on school maintenance over five years. This is the largest investment in public education infrastructure in the history of NSW.

Upgrades to Chatswood Public School and Chatswood High School will deliver:

- more than 150 new and refurbished innovative learning and teaching spaces
  - increased quality active play space currently allocated to primary school and high school students
  - specialist teaching facilities such as science, art, and music rooms
  - dedicated performing arts spaces
  - new sports facilities and recreational areas
  - new libraries and administration facilities.
- Upgrades to Chatswood Public School, including the provision of:
  - 53 x homebases (comprising 25 existing and 28 new spaces);
  - 4 x special program classrooms (music, language etc);
  - 3 x special support unit classrooms;
  - Increased quality active play spaces;
  - Retaining Heritage buildings A and B
  - New hall;
  - New car parking facilities; and
  - Associated site works and landscaping.
- Upgrades to Chatswood High School, including the provision of:
  - 123 Classrooms (comprising 21 existing and 102 new spaces)
  - New administration and staff facilities;
  - New hall; and
  - Associated site works and landscaping.

## 2. Waste Generation Estimate

The aim of this Plan is to ensure that all waste resulting from construction activities is managed in an effective and environmentally aware manner. Specifically,

- To maximize the reuse and recycling of demolition materials
- To reduce the volume of materials going to landfill
- To maximise waste material avoidance and reuse on site
- To ensure that where practicable, an efficient recycling procedure is applied to waste materials
- To ensure efficient storage and collection of waste

The quantity of waste materials to be generated onsite are estimates based on the information provided to Foresight Environmental and therefore the systems that will be put in place need to incorporate flexibility to allow for variation in the total quantities generated.

The quantities of construction waste materials have been estimated using the information provided to Foresight by Johnstaff, our knowledge of similar developments and industry guides for predicting waste quantities<sup>1</sup>. The figures in the following tables are estimates and are used as a guide for designing the waste management systems on site. These figures will be adjusted according to the final building material selection and quantities. The waste management systems will be adjusted as necessary.

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<sup>1</sup> McGregor Environmental Services (2000) Predicting C&D waste quantities in the Inner Sydney Waste Board Waste Planning Guide for Development Applications-Planning for Less Waste (1998) NSW Waste Boards

## 2.1 Construction

Active site management during the construction phase will ensure all waste/recyclable materials are disposed of appropriately and that all waste receptacles are of sufficient capacity to manage onsite activities.

As the demountable will be constructed off-site and will only be assembled onsite, there will be minimal waste generated during this phase.

The table below details the estimated composition by volume of construction waste to be generated.

Table 1 – Estimated composition of construction waste by volume

Material	M <sup>3</sup>
Masonry	23
Concrete	21
Mixed Residual Waste	15
Metal	7
Tiling	5
Timber	4
Carpet	3
Plasterboard	2
Glazing	1
Paint	1
<b>Total</b>	<b>82</b>

### 3. Waste Management Strategy

Consideration of waste management during all phases of the development will provide the best opportunity to minimise the volume of waste generated throughout the project's lifetime. Whilst recycling and reuse of materials are important aspects of waste management, waste minimisation techniques incorporated into construction can prevent materials from being brought onto the site that will eventually become waste. The following waste hierarchy will be used as a guiding principle:



The development team will implement this Waste Management Plan, incorporating the following best practice management techniques as a minimum:

#### 3.1 Avoid and Reduce

Minimise the production of waste materials in the construction process by

- Assessing and taking into consideration the resultant waste from different design and construction options
- Purchasing materials that will result in less waste, which have minimal packaging, are pre-cut or fabricated. Where possible, arrange for packaging to be removed by the delivery company
- Not over ordering products and materials



- Ordering materials cut to size to reduce waste material onsite

## 3.2 Reuse

Ensure that where ever possible, materials are reused either on site or offsite

- Identify all waste products that can be reused
- Any demolition and excavation materials should be salvaged and retained onsite for re-use where possible
- Put systems in place to separate and store reusable items
- Identify the potential applications for reuse both onsite and offsite and facilitate reuse

## 3.3 Recycling

Identify all recyclable waste products to be produced on site

- Provide systems for separating and stockpiling of recyclables
- Provide clear signage to ensure recyclable materials are separated
- Process the material for recycling either onsite or offsite

Note: In some cases, it may be more efficient to send the unsorted waste to specialised waste contractors who will separate and recycle materials at an offsite location.

## 3.4 Disposal

Waste products which cannot be reused or recycled will be removed and disposed of. The following will need to be considered:

- Ensure the chosen waste disposal contractor complies with OEH requirements
- Implement regular collection of bins
- Maintain records of both recycled and general waste volumes being transferred offsite or reused onsite.
- The only materials to be sent to landfill are those that cannot be recycled due to contamination, legal requirements or lack of facilities to enable recycling.

## 4. Waste Management Systems

### 4.1 Onsite and Offsite Systems

Onsite separation of the various waste streams is encouraged to lower recycling costs so to avoid additional fees for sorting at appropriate facilities. However, it is highly unlikely that each stream will be separated and thus will need to be processed offsite for recycling. Those streams that may be hard to individually separate will be treated as “residual mixed waste”.

The following tables combine the estimated volumes for each component of the development as the recycling practices are to be replicated during each respective phase.

#### 4.1.1. Construction

Material	Estimated volume (m <sup>3</sup> )	Onsite (re-use or recycle)	Offsite (recycling contractor)
Concrete	21	Crushed and reused onsite as aggregate/road base where possible	Separated where possible and taken to concrete recycling facility – deposited onsite directly into skips or trucks to be removed from site.
Masonry	23		
Tiles	5		
Metal	7		Stockpiled and collected as required by specialty metal recycler or taken to appropriate C&D facility for separation and recycling
Residual Mixed Waste	15		Collected by contractor to be sorted and re-processed at an appropriate C&D recycling
Carpet	3		
Glazing	1		

Plasterboard	2		facility into recycled products where possible
Timber	1		

It should be noted that there are multiple offsite recycling/disposal facilities available for the appropriate processing of the materials detailed above and the facility choice will depend largely on the waste contractor/supplier engaged. See section 5.

## 4.2 Waste Storage and Collection

A designated waste storage area will be established for the collection of all waste and recyclables. The waste storage area shall have appropriate signage to clearly identify the area to construction workers and to prevent unauthorised access to the area.

Stockpile size or bin numbers should be minimised by regular removal of waste from site and construction staging plans must allow for the waste storage area to move within the site as the development progresses if necessary.

The waste storage area does not have to be enclosed. However, bins should be covered where possible to prevent transmission of dust and fine particles, odour, wind impacts, vermin and vandalism or theft. Bins will be stored on a hardstand area with appropriate sediment control measures implemented to mitigate run-off into stormwater. Any spillages in the waste storage area should be treated immediately using a spill kit. Contaminated or hazardous wastes should be stored in a secure area with appropriate signage.

## 4.3 Site waste control and management

To ensure adequate site environmental standards are maintained, it is recommended that the following controls be implemented and enforced by the proponent:

1. All waste generated during the project is assessed, classified and managed in accordance with the "Waste Classification Guidelines Part 1: Classifying Waste" (DECCW, December 2009)
2. The body of any vehicle or trailer, used to transport waste or excavation spoil from the premises, is covered before leaving the premises to prevent any spill or escape of any dust, waste or spoil from the vehicle or trailer

3. Mud, splatter, dust and other material likely to fall from or be cast off the wheels, underside or body of any vehicle, trailer or motorized plant leaving the site, is removed before the vehicle, trailer or motorized plant leaves the premises.

## 4.4 Hazardous Wastes

During any demolition and material recovery activities, contractors should beware of potentially hazardous materials. Hazardous construction materials should be disposed of in accordance with EPA guidelines in order to protect the environment and personnel. In order to avoid risk to the environment and any breach of legislation this development endeavours to uphold the following practices:

- Early identification and reporting of hazardous waste
- Reporting of any suspicious activities of involved stakeholders (waste generator, transporter or receiver) to including handling waste unlawfully or illegally dumping waste through the Environment Line on 131 555.
- Ensure waste is transported to a place that can lawfully accept it under Section 143 of the Protection of the Environment Operations Act 1997.
- Take all reasonable precautions and exercise due diligence at all times to prevent/minimise commission of any offence.
- Keep accurate written records such as:
  - who transported the waste (company name, ABN, vehicle registration and driver details, date and time of transport, description of waste)
  - copies of waste dockets/receipts from the waste facility (date and time of delivery, name and address of the facility, its ABN, contact person).

## 4.5 Contracts and Purchasing

Each subcontractor working on the site will be required to adhere to this Waste Management Plan (WMP).

The Head Contractor will ensure each subcontractor:

- Takes practical measures to prevent waste being generated from their work
- Implements procedures to ensure waste resulting from their work will be actively managed and where possible recycled, as part of the overall site recycling strategy
- Implements source separation of off cuts to facilitate reuse, resale or recycling.



The Site Manager will be responsible for:

- Ensuring there is a secure location for on-site storage of materials to be reused on site, and for separated materials for recycling off site.
- Ensuring all skips/bins/stockpiles are clearly labelled identifying which material is suitable for each receptacle
- Engaging appropriate waste and recycling contractors to remove waste and recycling materials from the site
- Co-coordinating between subcontractors, to maximise on site reuse of materials
- Monitoring of bins on a regular basis by site supervisors to detect any contamination or leakage
- Ensuring the site has clear signs directing staff to the appropriate location for recycling and stockpiling station/s. And that each bin/skip/stockpile is clearly sign posted
- Providing training to all site employees and subcontractors in regard to the WMP as detailed in the section below.
- Should a subcontractor cause a bin to be significantly contaminated, the Site Manager will be advised by a non-conformance report procedure. The offending subcontractor will then be required to take corrective action, at their own cost. The non-conformance process would be managed by the Head Contractors' Quality Management Systems
- Retaining demolition and construction waste dockets to confirm and verify which facility received the material for recycling or disposal.

## 4.6 Training and Education

All site employees and sub-contractors will be required to attend a site-specific induction that will outline the components of the WMP and explain the site specific practicalities of the waste reduction and recycling strategies outlined in the WMP.

All employees are to have a clear understanding of which products are being reused/recycled on site and where they are stockpiled. They are also to be made aware of waste reduction efforts in regard to packaging.

The site manager will post educational signage in relation the recycling activities on site in breakout areas, lunchrooms etc.

## 5. Waste Facilities

The following waste recycling facilities provide disposal options within reasonable distance to the project. It is the responsibility of the site manager to ensure that the chosen facilities can accept the material being sent to it.

### SUEZ RYDE RESOURCE RECOVERY CENTRE

Contact	Materials Accepted
145 Wicks Road North Ryde NSW 2113 <a href="https://www.suez.com.au/en-au/who-we-are/suez-in-australia-and-new-zealand/our-locations/waste-management-ryde">https://www.suez.com.au/en-au/who-we-are/suez-in-australia-and-new-zealand/our-locations/waste-management-ryde</a>	<ul style="list-style-type: none"> <li>• Concrete</li> <li>• Ceramics</li> <li>• Bricks</li> </ul>

### BINGO RECYCLING CENTRE - ARTARMON

Contact	Materials Accepted
10 McLachlan Ave Artarmon NSW 2064 <a href="https://www.bingoindustries.com.au/recycling-centres/recycling-centres-sydney-and-surrounds/artarmon">https://www.bingoindustries.com.au/recycling-centres/recycling-centres-sydney-and-surrounds/artarmon</a>	<ul style="list-style-type: none"> <li>• Bricks</li> <li>• Ceramics</li> <li>• Plasterboard</li> </ul>

\*May not accept concrete