

CONSTRUCTION WASTE MANAGEMENT REPORT

**SSD The Boral Berrima Cement Works
SWDF Consumption Increase and New Access**

Prepared for:

Boral Cement Limited
Taylor Avenue
New Berrima
NSW 2577

SLR Ref: 660.30127-R02
Version No: -v1.1
December 2021



PREPARED BY

SLR Consulting Australia Pty Ltd
ABN 29 001 584 612
Tenancy 202 Submarine School, Sub Base Platypus, 120 High Street
North Sydney NSW 2060 Australia

T: +61 2 9427 8100
E: sydney@slrconsulting.com www.slrconsulting.com

BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) on behalf of Boral Limited or its subsidiaries (Client). No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR. This report and all material contained within it is subject to Australian copyright law, and is the property of Boral Limited under the Agreement with SLR. Other than in accordance with the Copyright Act 1968 or the report, no material from the report may, in any form or by any means, be reproduced, distributed, or transmitted, other than with the written consent of Boral Limited or its subsidiaries.

DOCUMENT CONTROL

Reference	Date	Prepared	Checked	Authorised
660.30127-R02-v1.1	8 December 2021	Emerson Helmi Patch	Chani Lokuge	Chani Lokuge
660.30127-R02-v1.0	24 November 2021	Emerson Helmi Patch	Chani Lokuge	Chani Lokuge

CONTENTS

1	INTRODUCTION	5
1.1	Overview	5
1.2	Objectives	5
2	PROJECT DESCRIPTION	6
2.1	Overview of Proposed Development.....	6
2.2	Overview of Proposed Construction Work	6
3	BETTER PRACTICE WASTE MANAGEMENT AND RECYCLING.....	7
3.1	Waste Management Hierarchy.....	7
3.2	Benefits of Adopting Better Practice	7
4	WASTE LEGISLATION AND GUIDANCE	8
5	SITE PREPARATION AND CONSTRUCTION WASTE MANAGEMENT	10
5.1	Targets for Resource Recovery	10
5.2	Key Activities.....	10
5.3	Waste Streams and Classifications	10
5.4	Site Preparation and Construction Waste Types and Quantities	13
5.4.1	New Haul Road	13
5.4.2	New Storage Sheds.....	13
5.5	Waste Avoidance	13
5.6	Reuse and Recycling	14
5.7	Waste Storage and Servicing	15
5.7.1	Waste Segregation and Storage	15
5.7.2	Waste Servicing and Record Keeping	16
5.8	Excavated Soils.....	16
5.9	Site Inductions	16
5.10	Signage.....	17
5.11	Monitoring and Reporting	17
5.12	Roles and Responsibilities.....	18

DOCUMENT REFERENCES

TABLES

Table 1	Legislation and guidance	8
Table 2	Potential waste types and their management methods.....	11

CONTENTS

Table 3	Construction waste generation rates.....	13
Table 4	Anticipated types and estimated quantities of construction waste	13
Table 5	Suggested roles and responsibilities for site preparation and construction waste management.....	18

FIGURES

Figure 1	Waste management hierarchy.....	7
Figure 2	Examples of NSW EPA labels for waste skips and bins	17

1 Introduction

1.1 Overview

SLR Consulting Australia Pty Ltd (SLR) has been commissioned by Boral Cement Limited (the Client) to prepare a Statement of Environmental Effects (SEE) to support a development consent modification to increase the consumption of SWDF at the Boral Cement Works kiln located south of New Berrima in the Southern Highlands, NSW in the Wingecarribee local government area (the Project).

This report applies to management of waste generated from the site preparation and construction waste stages of the Project. Given the relatively small scale of the proposed construction works there is expected to be minimal waste generated requiring disposal either off-site or on-site during construction stage of the project.

1.2 Objectives

The principal objective of this waste management report is to identify potential waste likely to be generated at the Project site during the site preparation and construction phases, including a description of how waste would be handled, processed, and disposed of, or re-used or recycled, in accordance with NSW state and Wingecarribee Shire Council (Council) requirements.

The objectives of this waste management report are as follows:

- Review of Wingecarribee Shire Council's waste management requirements
- Estimate of the type and quantities of waste and recycling likely to be generated from the site preparation and construction activities
- Advice on potential opportunities for waste generated from site preparation and construction activities to be re-used or recycled
- Advice on the separation and storage recommendations for site preparation and construction waste streams
- Advice on maintenance and monitoring requirements
- Advice on waste avoidance and minimisation measures, including communication strategies; and
- Designation of roles and responsibilities.

This report provides the framework and key principles to be adopted as part of a waste management plan (WMP) to be prepared prior to construction works commencing.

2 Project Description

2.1 Overview of Proposed Development

The Project would enable the previously approved use of SWDF to be operationally viable, with the use of SWDF currently constrained by the site's ability to receive, handle and store SWDF prior to use in the kiln. To efficiently fuel the kiln with SWDF an ongoing regular supply is required, with site operations and approvals not currently allowing this to occur. To facilitate the use of SWDF in the kiln modifications to the current approval is required to:

- Increase the permissible delivery times
- Increase the maximum permitted deliveries to site
- Increase on-site storage capacity.

2.2 Overview of Proposed Construction Work

Project works are expected to include site preparation and construction activities, for the following infrastructure:

- a new haul road access from the Cement Works west to the Old Hume Highway, allowing bulk material delivery vehicles to bypass Taylor Avenue to minimise the potential for impact.
- Two additional SWDF storage sheds are proposed for construction, with a combined additional floor space of 1,968m². The additional sheds will be used for SWDF storage and handling, as well as for the potential, storage, handling and feed infrastructure associated with AKF-5.

3 Better Practice Waste Management and Recycling

3.1 Waste Management Hierarchy

This waste management report has been prepared in line with the waste management hierarchy shown in **Figure 1** which summarises the objectives of the *Waste Avoidance and Resource Recovery Act 2001*.

The waste management hierarchy comprises the following principles, from most to least preferable:

- Waste **avoidance**, prevention, or reduction of waste generation. Achievable through better design and purchasing choices.
- Waste **reuse**, reuse without substantially changing the form of the waste.
- Waste **recycling**, treatment of waste that is no longer usable in its current form to produce new products.
- Energy **recovery**, processing of residual waste materials to recover energy.
- Waste **treatment** reduces potential environmental, health and safety risks.
- Waste **disposal**, in a manner that causes the least harm to the natural environment.

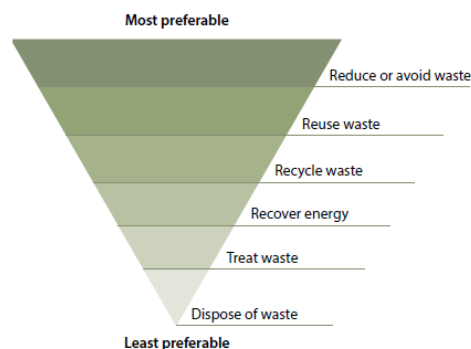


Figure 1 Waste management hierarchy

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

3.2 Benefits of Adopting Better Practice

Adopting better practice principles in waste minimisation offers significant benefits for organisations, stakeholders, and the wider community. Benefits from better practice waste minimisation include:

- Improved reputation of an organisation due to social and environmental responsibility.
- Lowered consumption of non-renewable resources.
- Reduced environmental impact, for example, pollution, from materials manufacturing and waste treatment.
- Reduced expenses from lower waste disposal.
- Providing opportunities for additional revenue streams through beneficial reuse.

4 Waste Legislation and Guidance

The legislation and guidance outlined in **Table 2** below should be referred to during the site preparation and construction of the Project.

Table 1 Legislation and guidance

Legislation and Guidance	Objectives
Council legislation and guidelines	
Wingecarribee Shire Council Industrial Land Development Control Plan	The Wingecarribee Shire Council Development Control Plan, 2021 (DCP) applies to all industrial land development proposals in the Wingecarribee Shire Council area. The DCP provides simple guidance on how development may occur and a general overview of the common submission requirements for development applications. The DCP has been prepared in accordance with the Environmental Planning and Assessment Regulation 2000. This DCP includes a sub-section on Waste Minimisation and Management under Environmental Management section. Waste management guidelines in terms of desired outcomes and prescriptive measures are provided in this section.
Wingecarribee Local Environmental Plan 2010 (LEP)	The Wingecarribee Local Environmental Plan 2010 (LEP) is Council's main planning instrument. The LEP outlines what can be developed where. It features both a written instrument and maps. The written instrument includes legal definitions of development types and land use tables that describe what development is permissible in each zone. It also contains key development standards and special provisions to address land constraint issues, such as land acquisition, biodiversity and flood prone land.
State and National legislation and guidelines	
Building Code of Australia (BCA) and relevant Australian Standards	The BCA has the aim of achieving nationally consistent, minimum necessary standards of relevant health and safety, amenity and sustainability objectives efficiently.
Council of Australian Governments National Construction Code 2019	The National Construction Code 2019 sets the minimum requirements for the design, construction and performance of buildings throughout Australia.
NSW EPA's Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012	These better practice guidelines present information on waste minimisation and resource recovery as well as information on commonly used waste management provisions. The guidelines also provide benchmarks for assessing waste production rates in Australia.
NSW Waste and Sustainable Materials Strategy 2041	Replacing the <i>NSW Waste Avoidance and Resource Recovery Strategy (2014-21)</i> (see below) identifies a focus on the transition of NSW to a circular economy. The focus of the strategy is on minimising what is thrown away, and to use and reuse resources more efficiently, making them as productive as possible. The strategy identifies the need to identify infrastructure needs, the mandating of separation of some organic waste streams, and incentivising biogas generation from waste materials.
NSW EPA (2014) NSW Waste Avoidance and Resource Recovery Strategy 2014-21	The <i>NSW Waste Avoidance and Resource Recovery Strategy 2014-21</i> is aimed at ultimately "improving environment and community well-being by reducing the environmental impact of waste and using resources more efficiently" by presenting a framework intended to avoid and reduce waste generation, increase recycling, divert more waste from landfill, manage problem waste better, reduce litter and reduce illegal dumping.

Legislation and Guidance	Objectives
NSW EPA Resource Recovery Orders and Resource Recovery Exemptions	<p>The NSW EPA has issued a number of resource recovery orders and resource recovery exemptions under the POEO (Waste) Regulation 2014 for a range of waste that may be recovered for beneficial re-use. These wastes typically include those from demolition and construction works, as well as operational waste such as food waste.</p> <ul style="list-style-type: none"> Resource recovery orders present conditions which generators and processors of waste must meet to supply the waste material for beneficial re-use. Resource recovery exemptions contain the conditions which consumers must meet to use waste for beneficial re-use.
NSW EPA's Waste Classification Guidelines 2014	<p>The NSW EPA <i>Waste Classification Guidelines</i> assists waste generators to effectively manage, treat and dispose of waste to ensure the environmental and human health risks associated with waste are managed appropriately and in accordance with the <i>POEO Act 1997</i> and its associated regulations.</p>
<i>Protection of the Environment Operations Act (POEO) 1997 and Amendment Act 2011</i>	<p>The <i>POEO Act 1997</i> and <i>POEO Amendment Act 2011</i> are administered by the NSW Environment Protection Authority (NSW EPA) to enable the NSW Government to establish instruments for setting environmental standards, goals, protocols and guidelines. They outline the regulatory requirements for lawful disposal of waste generated during the demolition, construction and operational phases of a development, as well as the system for licencing waste transport and disposal.</p>
<i>Waste Avoidance and Resource Recovery Act 2001</i>	<p>The <i>Waste Avoidance and Resource Recovery Act 2001</i> aims to promote waste avoidance and resource recovery and repeals the <i>Waste Minimisation and Management Act 1995</i>. Specific objectives of the <i>Waste Avoidance and Resource Recovery Act 2001</i> include:</p> <ul style="list-style-type: none"> encouraging efficient use of resources minimising the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the reuse and recycling of waste ensuring industry and the community share responsibility in reducing/dealing with waste, and efficiently funding of waste/resource management planning, programs and service delivery. <p>As of 2016, the addition to the Act of Part 5 defines the legislative framework for the "Return and Earn Container Deposit Scheme" whereby selected beverage containers can be returned to State Government authorities for a monetary refund.</p>

5 Site Preparation and Construction Waste Management

5.1 Targets for Resource Recovery

Targets for new development are expected to contribute to state specific targets. The NSW Waste and Sustainable Materials Strategy 2041 (DPIE, 2021¹) sets a target of 80% average recovery rate from all waste streams by 2030.

Analysis by DPIE (2021) indicates that construction and demolition waste recovery rates in 2019-2020 were 77%.

The waste management outcomes of Wingecarribee Shire Council include development that maximises re-use and recycling of building materials, and waste storage and collection facilities that are designed to encourage recycling, located, and designed to be compatible with the streetscape, accessible, clean, and safe for users and collectors.

It is expected that if this waste management plan is followed, at least 80% recovery (either through reuse or recycling) would be possible from all waste streams (site preparation and construction waste), which would contribute to the targets set by the Council's DCP, and NSW Waste and Sustainable Materials Strategy 2041 (DPIE, 2021). Waste reporting and audits can be used to determine the actual percentage of waste that have been recycled during the construction and site preparation stage of the Project.

5.2 Key Activities

The key site preparation and construction activities at the site are anticipated to include:

- Excavation and filling for site levelling purposes and road construction, and
- Construction of two (2) new SWDF storage sheds.

5.3 Waste Streams and Classifications

The site preparation and construction of the Project is likely to generate the following broad waste streams:

- Site clearance waste,
- Construction waste,
- Packaging waste, and
- Work compound waste from on-site employees.

A summary of likely waste types generated from site preparation and construction activities, along with their waste classifications and proposed management methods, is provided in **Table 2**.

¹ NSW Government, Department of Planning, Industry and Environment (DPIE), 2021. NSW Waste and Sustainable Materials Strategy 2041. Stage 1: 2021-2027 (https://www.dpie.nsw.gov.au/_data/assets/pdf_file/0006/385683/NSW-Waste-and-Sustainable-Materials-Strategy-2041.pdf)

For further information on how to classify a waste type refer to the NSW EPA (2014) *Waste Classification Guidelines*². Further information on managing site preparation and construction waste is available from the NSW EPA³ and the HDCP.

Table 2 Potential waste types and their management methods

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Site Clearance		
Clean fill	General solid waste (non-putrescible)	On-site re-use for existing stockpile area pads or unsealed roads
Contaminated fill	To be classified subject to the results of testing	Off-site treatment and disposal to landfill
Excavated natural material (ENM) or virgin excavated natural material (VENM)	General solid waste (non-putrescible)	On-site re-use of topsoil for landscaping of the site or as fill material
Construction		
Sediment fencing, geotextile materials	General solid waste (non-putrescible)	On-site reuse where possible or disposal to landfill
Asphalt, bitumen	General solid waste (non-putrescible)	On-site reuse where possible (road base) or offsite resource recovery
Concrete	General solid waste (non-putrescible)	On-site reuse for levelling or road base or offsite resource recovery
Bricks and pavers	General solid waste (non-putrescible)	Off-site recycling
Gyprock or plasterboard	General solid waste (non-putrescible)	Off-site resource recovery
Sand or soil	General solid waste (non-putrescible)	On-site reuse
Metals such as fittings, appliances and cabling, including copper and aluminium	General solid waste (non-putrescible)	Reuse or offsite resource recovery
Conduits and pipes	General solid waste (non-putrescible)	On-site reuse
Timber	General solid waste (non-putrescible)	<i>Treated</i> : offsite resource recovery or landfill <i>Untreated</i> : offsite resource recovery
Paint	Hazardous waste	On-site reuse or Off-site recycling, Paint-back collection or disposal
Ceramics including tiles	General solid waste (non-putrescible)	Off-site recycling at a crushing and recycling company
Plant Maintenance		

² Available online from <https://www.epa.nsw.gov.au/your-environment/waste/classifying-waste/waste-classification-guidelines>

³ <http://www.epa.nsw.gov.au/your-environment/waste/industrial-waste/construction-demolition>

Waste Types	NSW EPA Waste Classification	Proposed Management Method
Empty oil and other drums or containers, such as fuel, chemicals, paints, spill clean ups	Hazardous waste: Containers were previously used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and residues have not been removed by washing or vacuuming. General solid waste (non-putrescible): Containers have been cleaned by washing or vacuuming.	Transport to comply with the transport of Dangerous Goods Code applies in preparation for off-site recycling or disposal at licensed facility
Air filters and rags	General solid waste (non-putrescible)	Off-site disposal
Oil filters	Hazardous waste	Off-site recycling
Batteries	Hazardous waste	Off-site recycling, Contact the Australian Battery Recycling Initiative for more information
Packaging		
Packaging materials, including wood, plastic, including stretch wrap or LLPE, cardboard and metals	General solid waste (non-putrescible)	Off-site recycling
Wooden or plastic crates and pallets	General solid waste (non-putrescible)	Reused for similar projects on-site, returned to suppliers, or off-site recycling. Contact <i>Business Recycling</i> for more information
Work Compound and Associated Offices		
Food Waste	General solid (putrescible) waste	Dispose to off-site landfill with general garbage
Recyclable beverage containers including glass and plastic bottles, aluminium cans and steel cans	General solid waste (non-putrescible)	Co-mingled recycling at off-site licensed facility or deliver to local NSW container deposit scheme 'Return and Earn' facility ⁴
Clean paper and cardboard	General solid waste (non-putrescible)	Paper and cardboard recycling at off-site licensed facility
General domestic waste generated by workers such as soiled paper and cardboard and polystyrene	General solid waste (non-putrescible) mixed with putrescible waste	Disposal at off-site landfill

⁴Available online from <http://returnandearn.org.au/>

5.4 Site Preparation and Construction Waste Types and Quantities

5.4.1 New Haul Road

A new site access is proposed to be established from the west, connecting directly with the Old Hume Highway. The access road will be constructed on existing Boral landholdings, comprising a sealed two lane, one way in each direction that connects in with existing internal roads within the Cement Works. Minimal quantities of waste will be generated during construction of the haul road. It is expected that approximately one (1) x 7 m³ skip per week of residual waste will be generated from road construction activities.

5.4.2 New Storage Sheds

To calculate construction waste generation rates for the new SWDF storage sheds, in the absence of construction waste generation rates from Council, SLR has used the 'Factory' construction waste generation rates from Appendix A of The Hills Development Control Plan 2012. The rates are listed in Appendix A of The Hills development Control Plan 2012 and are shown in **Table 7**.

Table 3 Construction waste generation rates

Rate Type	Floor Area (m ²)	Waste types and quantities (tonnes)					
		Timber	Concrete	Bricks	Gyprock	Metal	Other
Factory	1,000	0.25	2.10	1.65	0.45	0.6	0.6

Based on the approximate total footprint area of the two new storage sheds, these above waste generation rates were used to estimate the waste generated from the construction of the sheds. These estimates are provided in **Table 8**.

Table 4 Anticipated types and estimated quantities of construction waste

Development Component	Area (m ²)	Waste types and quantities (tonnes)					
		Timber	Concrete	Bricks	Gyprock	Metal	Other
Proposed building area	2,000	0.5	4.2	3.3	0.9	1.2	1.2

Actual waste quantities and composition will vary; however, this estimate is provided so that the Construction Site Manager can make provision for on-site or off-site re-use and recycling opportunities. The Construction Site Manager will need to specify the actual types and quantities of waste produced during construction and on this basis, the numbers and capacity of skip bins can be determined.

5.5 Waste Avoidance

In accordance with Council's DCP and better practice waste management, the Building Contractor, Building Designer and/or equivalent roles should:

- Develop a purchasing policy based on the approximate volumes of materials to be used so that the correct quantities are purchased.
- Arrange for delivery of materials on an 'as needed' basis to avoid material degradation through weathering and moisture damage.

- Communicate strategies to handle and store waste to minimise environmental, health and amenity impacts.
- Select materials with a low environmental impact over the lifecycle of the building.
- Design the Project to require standard material sizes or make arrangements with manufacturing groups for the supply of non-standard material sizes.
- Design works for de-construction.
- Reduce packaging waste by:
 - Returning packaging to suppliers where practicable to reduce waste further along the supply chain
 - Purchasing in bulk
 - Requesting cardboard or metal drums rather than plastics
 - Requesting metal straps rather than shrink wrap, and
 - Using returnable packaging such as pallets and reels.
- Use prefabricated materials.
- Preferentially use paints, floor coverings and adhesives with low VOC (volatile organic compound) content.
- Reduce the use of polyvinyl chloride products.
- Implement measures to prevent the occurrence of windblown litter, dust and stormwater pollution.
- Ensure subcontractors are informed of and implement site waste minimisation and management procedures.

5.6 Reuse and Recycling

Effective management of construction materials and construction and demolition waste, including options for reuse and recycling where applicable and practicable, will be conducted. Only waste that cannot be cost effectively reused or recycled are to be sent to landfill or appropriate disposal facilities.

In accordance with Council's DCP and best practice waste management, the following specific procedures should be implemented:

- Maximise reuse and recycling of building and construction materials and minimise disposal of materials to landfill.
- Ensure Waste is minimised by the reuse and recycling of excavated and building materials on-site or
- Reuse timber formwork or waste corrugated iron as formwork and examine the useability of other materials for productive purposes.
- Source separation of offcuts to facilitate reuse, resale or efficient recycling.
- Temporary stockpiling of surplus materials for use in later stages.
- Building waste materials shall be reused, recycled or disposed to approved landfill sites.
- Store waste on site appropriately to prevent cross-contamination and guarantee the highest possible re-use value.

- Consider the potential of any new materials to be re-used and recycled at the end of the Project's life.
- Retain used crates for storage purposes unless damaged.
- Recycle cardboard, glass and metal waste.
- Recycle or dispose of solid waste timber, brick, concrete, asphalt and rock, where such waste cannot be re-used on site, to an appropriately licenced construction and demolition waste recycling facility or an appropriately licenced landfill.
- Dispose of all garbage via a council approved system.

5.7 Waste Storage and Servicing

5.7.1 Waste Segregation and Storage

As outlined better practice waste management guidelines, waste materials from site preparation, and construction activities are to be separated at the source where practical and stored separately on-site.

It is anticipated that the Project will provide bins and areas on-site for the sorting, recycling and disposal of building waste materials and indicated on the site plans or drawings. Enough space should be for separate storage, for example, separate skip bins or appropriately managed stockpiles, of the following waste types:

- Landfill waste
 - Non-recyclable general waste
- Recyclable waste
 - Bricks, bitumen, concrete and scrap metal
 - Metal and steel, in a condition suitable for recycling at metal recycling facilities
 - Timber
 - Glass
 - Hardstand rubble
 - Paper and cardboard
 - General co-mingled recycling waste
- Reusable materials
- Excavation materials
 - Uncontaminated excavation spoil, if present
 - Contaminated excavation spoil, if present
- Hazardous waste, if present.

If there is insufficient space on-site for full segregation of waste types, the Site Manager, or equivalent role, should consult with the waste and recycling collection contractor to confirm which waste types may be co-mingled prior to removal from the site.

5.7.2 Waste Servicing and Record Keeping

Documentation, such as receipts or weighbridge dockets, for the transport and disposal of waste and recycling materials from the site must be retained.

If skips and bins are reaching capacity, removal and replacement should be organised as soon as possible. All site generated building waste collected in skips and bins will leave the site and be deposited in the approved site lawfully able to accept them.

5.8 Excavated Soils

Based on the proposed construction works, it is expected that no excavated soils will be disposed off-site. However, in the unlikely scenario that excavated soils are sent off-site for disposal, the material must be classified in accordance with the NSW EPA (2014) Waste Classification Guidelines and Protection of the Environment Operations (Waste) Regulation 2014. The following sampling must be undertaken, and waste classification report prepared by a suitably qualified environmental consultant:

- A minimum of 3 soil samples, at a rate of 1 soil sample per 25m³. Where the volume of material requiring classification is >250m³, 10 soil samples shall be collected and the 95% Upper Confidence Level calculated for each analyte. Analytical results are to be compared to the criteria in Table 1 and where required Table 2 in NSW EPA (2014).
- Soil samples shall be analysed at a National Association of Testing Authorities (NATA) accredited laboratory for Total Petroleum Hydrocarbons (TPH), Benzene, Toluene, Ethyl-benzene, Xylenes (BTEX), Polycyclic Aromatic Hydrocarbons (PAHs), Organochlorine and Organophosphate Pesticides (OCP/OPP), metals (As, Cd, Total Cr, Cu, Ni, Pb, Zn, Hg) and asbestos (absence/presence).

Once classified, the material must be disposed of at a facility licensed to accept the waste.

5.9 Site Inductions

All staff, including sub-contractors and labourers, employed during the site preparation and construction phases of the Project must undergo induction training regarding waste management for the Site.

Induction training is to cover, as a minimum, an outline of the WMP including:

- Legal obligations and targets
- Emergency response procedures on-site
- Waste priorities and opportunities for reduction, reuse and recycling
- Waste storage locations and separation of waste
- Procedures for suspected contaminated and hazardous waste
- Waste related signage
- The implications of poor waste management practices, and
- Responsibilities and reporting, including identification of personnel responsible for waste management and individual responsibilities.

It is the responsibility of the Site Manager or Building Contractor to notify Council of the appointment of waste removal, transport, or disposal contractors.

5.10 Signage

In Accordance with the better practice waste management, standard signage is to be posted in all waste storage and collection areas. All waste containers should be labelled correctly and clearly to identify stored materials.

Signs approved by the NSW EPA for labelling of waste materials are available online⁵ and should be used where applicable. A selection of signs prepared by NSW EPA is provided in **Figure 3**.



Figure 2 Examples of NSW EPA labels for waste skips and bins

5.11 Monitoring and Reporting

The following monitoring practices should be undertaken to improve site preparation and construction waste management and to obtain accurate waste generation figures:

- Conduct waste audits of current projects where feasible.
- Note waste generated and disposal methods.
- Look at past waste disposal receipts.
- Record this information to track waste avoidance, reuse, and recycling performance and to help in waste estimations for future waste management plans.

Records of waste volumes recycled, reused or contractor removed are to be maintained. This can include dockets or receipts verifying recycling and disposal. This evidence should also be presented to regulatory bodies when required.

Daily visual inspections of waste storage areas will be undertaken by site personnel and inspection checklists and logs recorded for reporting to the Site Manager on a weekly basis or as required. These inspections will be used to identify and rectify any resource and waste management issues.

⁵ NSW EPA approved waste materials signage <https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/business-government-recycling/standard-recycling-signs>

5.12 Roles and Responsibilities

All personnel have a responsibility for their own environmental performance and compliance with all legislation. It will be the responsibility of the Building Contractor to implement the WMP, and an employee and subcontractor responsibility to ensure that they always comply with the WMP.

Where possible, an Environmental Management Representative should be appointed for the Project. Suggested roles and responsibilities are provided in **Table 9**.

Table 5 Suggested roles and responsibilities for site preparation and construction waste management

Responsible Person	General Tasks
Construction Site Manager	Ensuring plant and equipment are well maintained.
	Ordering only the required amount of materials.
	Keeping materials segregated to maximise reuse and recycling.
	Ultimately responsible for routinely checking waste sorting and storage areas for cleanliness, hygiene and safety issues, contaminated waste materials, and also ensuring that all monitoring and audit results are well documented and carried out as specified in the WMP.
Construction Environmental Management Representative or equivalent	Approaching and establishing the local commercial reuse of materials where reuse on-site is not practical.
	Establishing separate skips and recycling bins for effective waste segregation and recycling purposes.
	Ensuring staff and contractors are aware of site requirements.
	Provision of training of the requirements of the WMP and specific waste management strategies adopted for the Project.
	Contaminated waste management and approval of off-site waste transport, disposal locations and checking licensing requirements.
	Approval of off-site waste disposal locations and checking licensing requirements.
	Assessment of suspicious potentially contaminated materials, hazardous materials and liquid waste.
	Monitoring, inspection and reporting requirements.

Daily visual inspections of waste storage areas may be delegated to other on-site staff. All subcontractors will be responsible for ensuring that their work complies with the WMP through the project induction and contract engagement process.

ASIA PACIFIC OFFICES

ADELAIDE

60 Halifax Street
Adelaide SA 5000
Australia
T: +61 431 516 449

BRISBANE

Level 16, 175 Eagle Street
Brisbane QLD 4000
Australia
T: +61 7 3858 4800
F: +61 7 3858 4801

CANBERRA

GPO 410
Canberra ACT 2600
Australia
T: +61 2 6287 0800
F: +61 2 9427 8200

DARWIN

Unit 5, 21 Parap Road
Parap NT 0820
Australia
T: +61 8 8998 0100
F: +61 8 9370 0101

GOLD COAST

Level 2, 194 Varsity Parade
Varsity Lakes QLD 4227
Australia
M: +61 438 763 516

MACKAY

21 River Street
Mackay QLD 4740
Australia
T: +61 7 3181 3300

MELBOURNE

Level 11, 176 Wellington Parade
East Melbourne VIC 3002
Australia
T: +61 3 9249 9400
F: +61 3 9249 9499

NEWCASTLE CBD

Suite 2B, 125 Bull Street
Newcastle West NSW 2302
Australia
T: +61 2 4940 0442

NEWCASTLE

10 Kings Road
New Lambton NSW 2305
Australia
T: +61 2 4037 3200
F: +61 2 4037 3201

PERTH

Grd Floor, 503 Murray Street
Perth WA 6000
Australia
T: +61 8 9422 5900
F: +61 8 9422 5901

SYDNEY

Tenancy 202 Submarine School
Sub Base Platypus
120 High Street
North Sydney NSW 2060
Australia
T: +61 2 9427 8100
F: +61 2 9427 8200

TOWNSVILLE

12 Cannan Street
South Townsville QLD 4810
Australia
T: +61 7 4722 8000
F: +61 7 4722 8001

WOLLONGONG

Level 1, The Central Building
UoW Innovation Campus
North Wollongong NSW 2500
Australia
T: +61 2 4249 1000

AUCKLAND

Level 4, 12 O'Connell Street
Auckland 1010
New Zealand
T: 0800 757 695

NELSON

6/A Cambridge Street
Richmond, Nelson 7020
New Zealand
T: +64 274 898 628

WELLINGTON

12A Waterloo Quay
Wellington 6011
New Zealand
T: +64 2181 7186

SINGAPORE

39b Craig Road
Singapore 089677
T: +65 6822 2203