Saint Ignatius College Riverview

Demolition & Construction Waste Management Plan September 2020

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1. Introduction

This Operational Waste Management Plan report for EPM Projects has been prepared by Waste Audit & Consultancy Services (Aust) Pty Ltd for Saint Ignatius College Riverview to provide guidance on environmentally sound and cost-effective management of waste and recyclable materials during the demolition and construction phases of the proposed development, including excavation works.

The aim of this report is to ensure that all waste resulting from construction and demolition activities is managed in an effective and environmentally aware manner, specifically:

- To minimise the generation of waste to landfill
- To maximise waste avoidance and reuse of materials on site
- To ensure that an efficient recycling procedure is applied to waste materials
- To make employees and subcontractors aware of their waste management responsibilities

This report supports a State Significant Development Application (SSDA) submitted to the Department of Planning, Infrastructure and Environment (DPIE) pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act), for the proposed redevelopment of new building and surrounding landscapes of Saint Ignatius College Riverview at Tambourine Bay Rd, Lane Cove.

This application is SSD by way of clause 8 and schedule 1 under State Environmental Planning Policy (State and Regional Development) 2011 on the basis that the development is for the purpose of an existing school and has a Capital Investment Value of more than $20 million.

2. Background

The College Site comprises some 40 hectares, including the Main Campus (Senior School) and Regis Campus (Junior School). The Site is legally described as Lot 10 DP 1142773 and is owned by The Trustees of the Jesuit Fathers (ABN 80 167 682 043), a body corporate by virtue of the Roman Catholic Church Communities' Land Act 1942 No 23 (NSW). The College leases the Site from the landowner. The Site is currently used as an Educational Establishment for boys with an overall capacity of 1,640 students across the Main Campus and the Regis Campus. Boarding student numbers fluctuate each year to a maximum of 365. The staff numbers fluctuate to a maximum of 350, and this includes full time and part time staff. A total of 47 residences are located on site. The following objectives have been identified as forming the basis of the proposed development of the existing educational establishment.

- Create an education precinct to create a high-quality teaching and learning environment for staff and students;
- Establish additional floor space to increase availability and efficiency of teaching functions for Saint Ignatius' College Riverview;
- Upgrade the public domain to create visually interesting transitions through the campus, and promote the heritage elements of the campus;
- Ensure minimal environmental impact; Ensure the development is compatible with the approved Concept Master Plan and Ensure development is compatible with surrounding development and the local context.

The Site and proposed design are considered to meet the objectives of the project as it allows for development on land that has been previously used for educational purposes.

3. SEARS Requirements

This report has been prepared having regard to the Secretary's Environmental Assessment Requirements issued for the project by DPIE, ref no SSD-10424 issued on the 5th February 2020.

Preparation of this Demolition and Construction Waste Management Plan has been undertaken with reference to the relevant SEARs requirement 20. Waste below, as well as industry best practices.

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

4. Other Standards and Legislative Requirements

Compliance with *Australian Standard AS2601: The Demolition of Structures* is required under the Environmental Planning and Assessment Regulation 2000, which:

- Sets out requirements for the planned demolition of buildings and certain other structures so that the risk of injury to workers, other site personnel and the public, and the risk of damage to adjacent property and the immediate environment is minimised;
- Covers the methods and safety procedures applicable to demolition work in general as well as procedures for some types of structures;
- Deals with manual and mechanical demolition techniques including those employing specialised earth-moving type machinery;
- Includes appendices covering the demolition of pre-stressed concrete structures, some contractual considerations, a checklist for contractors and qualifications for site personnel;
- Addresses safety and health issues under the headings of:

- Health and safety of the public - covering general requirements, lighting, falling materials, fencing, hoardings and warning notices, scaffolding, overhead protection for footpaths, and hazardous materials and conditions;
- Health and safety of site personnel - covering general safety, personal protective clothing and equipment, cutting and welding, fire protection, first aid, amenities, removal of hazardous material and electrical safety;
- Protection of adjoining buildings and protection of immediate environment - covering requirements relating to access and egress, damage and structural integrity, vibration and concussion, weatherproofing, burning, dust control, noise control, protection of public roads and protection of sewers and water courses; and
- General protection of the site.

Section 143 of the *Protection of the Environment Operations Act 1997* requires waste to be transported to a place that can lawfully accept it. It will be the responsibility of the site's developer to ensure that all contractors:

- Provide details of their operating licence to transport waste
- Clearly specify where all wastes are to be transported
- Confirm the capacity of the nominated facilities to receive/manage the waste
- Retain demolition, excavation, and construction waste/recycling dockets on site to confirm which authorised waste/recycling facilities received the material for recycling and disposal
- Provide reports on management aspects (types, quantities and disposal pathways).

Note: The testing and classification of excavated material is not covered in this report. If necessary, the development will arrange for such testing to be conducted. If acid sulphate soils are found on site, a separate plan will need to be prepared for the handling and disposal of such soil.

5. The Site

5.1 Background & Site Description

The Site is located in the suburb of Riverview within the Lane Cove Local Government Area. The Site is bounded by Riverview Street to the north, Tambourine Bay Road to the east and the Lane Cove River to the south and west which is a prime waterfront position on the Lane Cove River. The existing campus, like many school campus developments, is characterised by a collection of buildings and facilities, which have been developed in isolation, without maximising opportunities for collaboration or connection. The College is separated by Riverview Street into two campuses being the Main Campus (Senior School) and Regis Campus (Junior School).

Of significance the College includes amongst other buildings and land uses the following: Chapel; Administration Buildings; Classrooms and Learning Spaces; Library; Halls Refectory, Kitchen and Canteen; Boarding Houses; Health Centre; Long Day Care Centre Sporting facilities including playing fields, gymnasium, swimming pool, rowing sheds, sailing club, basketball , cricket nets, mountain biking track and tennis courts; Observatory; Wharf connecting to the Lane Cove River; Staff and Jesuit residences; Weather station; Storage, maintenance, loading and waste management facilities. A range of built form and building heights exists across the College, which is typical of an Educational Establishment.

A vehicular/pedestrian loop road also exists through the Main Campus (Senior School) of the College providing two entrances and exits at Riverview Street. A further entrance and exit from Riverview Street services the Regis Campus (Junior School). The locational context of the School is illustrated at Figure1. Figure 2 provides an aerial map of the School and its immediate surrounds. Within the School campus, the site of this SSDA is illustrated in Figure 3. The site proposed for a new building is on top of the basketball courts, as shown in blue. The site proposed for demolition works and associated façade redevelopment and landscaping works is shown in green and is limited to a portion of the existing O'Neil Building. It is anticipated that the construction works will be staged, so the construction site for any given stage will be smaller than the overall site identified in Figure 3.

Figure 1 – Saint Ignatius College Riverview Location Context Plan

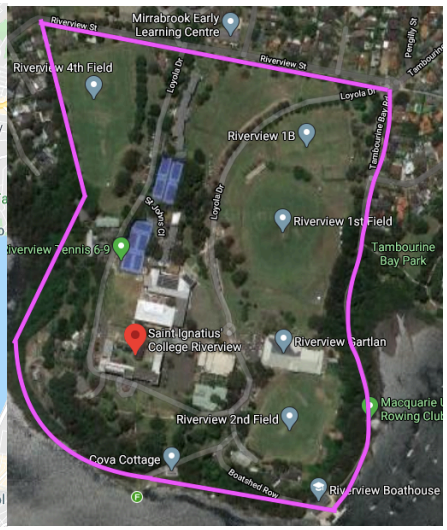

Figure 2 – Aerial Map of the Saint Ignatius College Riverview Campus

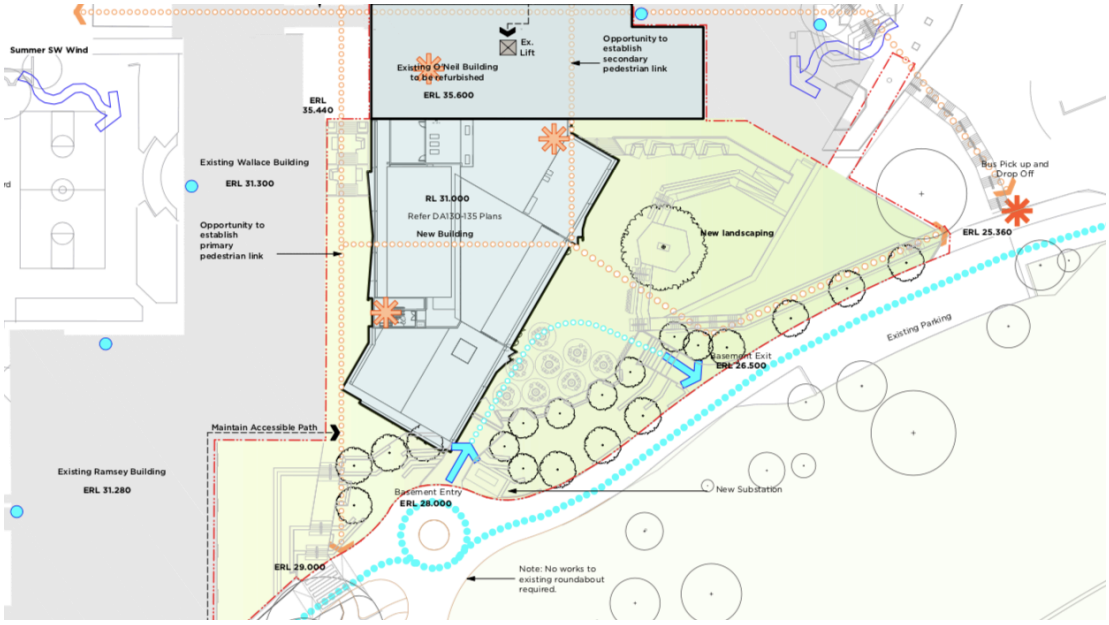

Figure 3 – Project Scope

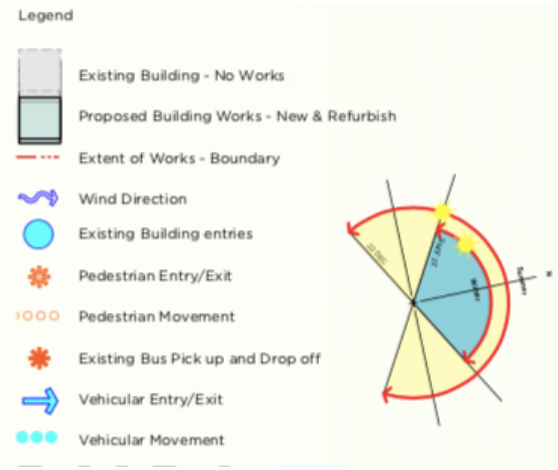

Figure 4 – Key Plan

5.2 Overview of Proposed Development

This SSDA includes detailed plans for a new learning precinct, refurbishment of the existing O'Neil Building and surrounding landscapes. Accordingly, consent is sought for the following:

- Construction of new five (5) storey building with a maximum RL52.00 at the heart of the Campus to accommodate modern, flexible teaching and learning spaces;
- Provide improved learning opportunities for Science, Technology, Engineering, Mathematics and PDHPE as a STEMP facility, along with six (6) Pastoral Care House areas, and staff rooms;
- The ground floor will accommodate a C.O.L.A, multi-purpose Hall and Canteen (Food and Beverage) with servicing by a loading area on basement level;
- Refurbishment of existing O'Neil Building to allow integration of New Ignis Stage 2 STEMP Building to connect to existing fabric;
- New North Landscaped Area; New Landscaped Area between the existing Wallace Building and the New Ignis Stage 2 STEMP Building;
- Upgrade courtyard to improve the integration of the learning space and create a sense of place.

Overall, the proposed built form approval seeks to provide a framework for the future physical development of the Campus to ensure the best teaching and learning outcomes, and ongoing evolution of the School.

6. Waste Management Strategy

6.1 Waste Management Principles

The waste management hierarchy below has been used to guide the waste management plan:

Avoid
Adopt sound work practices during the demolition and construction processes that avoid the creation of waste products in the first place

Reduce
Reduce the use of materials during the demolition process that require treatment or disposal

Reuse
Ensure that wherever possible, materials are reused either on site or offsite:

- Identify and put systems in place to separate and store materials that can be reused onsite
- Identify the potential applications for reuse offsite and facilitate this process

Recycle/Recover
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 economical to send the unsorted waste to specialised waste contractors who will separate and recycle materials at an offsite location.

Treat/Dispose
Waste products which cannot be reused or recycled will be removed and treated/disposed of at appropriately licensed facilities, ensuring the following:

- Chosen waste disposal contractor complies with OEH requirements
- Bins to be monitored for fullness and collected on an efficient schedule minimising transport

6.2 Record Keeping

Records will be required to be kept of all wastes and recyclables generated and either re-used on site or transported off-site. It will be a condition of appointment that all contractors provide these records and that they also contain details of the facilities that the materials are transported to. These records will be made available to relevant authorities on request.

6.3 Materials Storage

All waste and recycling materials will be stored in bins provided by the appointed contractor(s). These bins will be appropriately coloured and signed to indicate what materials are to be deposited into them and located so as to maximise the recovery of reusable/recyclable materials.

6.4 Liquid Waste

- Ensure water is used in moderation and no taps are left continuously running
- Use any grey water produced on site for irrigation or for dust suppression
- Only discharge clean water into storm water
- Manage all wastewater and runoff in accordance with Sydney Water requirements

6.5 Asbestos

Should any materials be suspected of being (or containing), asbestos, the following process will be followed:

i. Treat the material as asbestos unless proven otherwise
ii. Do not disturb the material (i.e., shift or place into a container)
iii. Seek advice from a suitably qualified laboratory to test the material(s) to determine if it is or is not asbestos
iv. If determined not to be asbestos, then it can be managed as an inert waste
v. If determined to be asbestos then it must be managed by a licenced contractor for packaging, removal and disposal
vi. If the material has accidently been uncovered, then the area should be cleared, barriers erected to prevent access, NSW WorkCover and EPA notified, and if the material is broken, it should be covered with a fine spray/mist of water.

For what has been conclusively identified as asbestos-containing materials (including soils), a specialist/licensed asbestos contractor will be used. As required, only workers trained in asbestos removal techniques will be allowed to manage the removal of asbestos-contaminated soil and any material contained in the buildings.

In regard to disposal of asbestos containing materials, there are regulatory requirements under Clause 42 of the Protection of the Environment Operations (Waste) Regulation 2005 that apply to the management of asbestos waste, including:

- Waste must be stored on the premises in an environmentally safe manner.
- Non-friable asbestos material must be securely packaged at all times.
- Friable asbestos material must be kept in a sealed container.
- Asbestos-contaminated soil must be wetted down.
- All asbestos waste must be transported in a covered, leak-proof vehicle.
- It is illegal to re-use, recycle or dump asbestos waste.

7. Demolition Phase

Table 1 shows estimated quantities in m^3 of demolition waste to be generated, and the recommended management strategy for each type of material. Please note that this phase includes excavation of the basketball courts/recreational area, which will produce a significant volume of material requiring disposal.

It is recommended that opportunities for reusing this material either on site or at an off-site location, or locations, be further investigated.

Specific disposal/recycling facilities have not been shown, as a waste contractor has not yet been appointed for the project. All contractors and sub-contractors, once appointed, will be required to detail all intended and actual disposal facilities used, in order to ensure the guiding principles of the waste hierarchy are upheld and maximum diversion from landfill is achieved.

Table 1: Demolition Waste - Expected Materials Streams

Materials on Site		Destination/Treatment		
Type of Material	**Estimated Volume (m^3)**	**Onsite (Reuse/Recycle)**	**Offsite (Reuse/Recycle)**	**Disposal (Landfill)**
Excavation Material	**2,516 m^3**	Retained onsite for reuse as fill where possible	For excavation materials leaving the site, soil will be collected and used as clean fill by waste contractor with notification of location and end use	Material that cannot be reused will be disposed of at landfill facility
Garden Organics	**56 m^3**	No onsite reuse or recycling	Collected by contractor and taken to recycling facility	No disposal to landfill
Bricks/Pavers	**43 m^3**	No onsite reuse or recycling	Removed if still serviceable and sold for reuse to an appropriate contractor, or collected by specialist contractor for recycling	No disposal to landfill
Structural Steel	**12 m^3**	No onsite reuse or recycling	Collected by contractor and taken to recycling facility	No disposal to landfill
Misc. General Waste	**10 m^3**	No onsite reuse or recycling	Separated onsite into dedicated receptacles and collected by the waste contractor for disposal	Disposal to landfill
Plumbing Pipework, Fixtures	**4 m^3**	No onsite reuse or recycling	Collected by contractor and taken to recycling facility	No disposal to landfill
Wood	**3 m^3**	No onsite reuse or recycling	Collected by contractor and taken to recycling facility	No disposal to landfill
Cabinetry	**3 m^3**	No onsite reuse or recycling	Removed if still serviceable and sold for reuse to an appropriate contractor, or collected by specialist contractor for recycling	No disposal to landfill
Carpet	**2 m^3**	No onsite reuse or recycling	Disposed of into a designated bin and collected for recycling if of the required quality, or disposal to landfill if not	Material that cannot be recycled will be disposed of at landfill facility
Plasterboard	**2 m^3**	No onsite reuse or recycling	Separated and stockpiled onsite and collected by contractor for recycling. Possible use as soil improver with gypsum removed by recycler	Material that cannot be recycled will be disposed of at landfill facility

Materials on Site		Destination/Treatment		
Type of Material	**Estimated Volume (m^3)**	**Onsite (Reuse/Recycle)**	**Offsite (Reuse/Recycle)**	**Disposal (Landfill)**
Electrical Pipework, Fixtures	**2 m^3**	No onsite reuse or recycling	Removed if still serviceable and sold for reuse to an appropriate contractor, or collected by specialist contractor for recycling	No disposal to landfill
Window Glass	**2 m^3**	No onsite reuse or recycling	Collected by contractor and taken to recycling facility	No disposal to landfill
Bathroom Tiles	**2 m^3**	No onsite reuse or recycling	Removed if still serviceable and sold for reuse to an appropriate contractor, or collected by specialist contractor for recycling	No disposal to landfill
Glass	**2 m^3**	No onsite reuse or recycling	Collected by contractor and taken to recycling facility	No disposal to landfill
Cardboard Packaging (from deliveries)	**2 m^3**	No on-site reuse or recycling	Separated onsite into dedicated receptacles and collected by the waste contractor for recycling	No disposal to landfill
Electrical Wiring	**1 m^3**	No onsite reuse or recycling	Collected by contractor and taken to recycling facility	No disposal to landfill
Metal Ductwork, Lighting Fixtures	**1 m^3**	No onsite reuse or recycling	Collected by contractor and taken to recycling facility	No disposal to landfill
Ceiling Tiles	**1 m^3**	No onsite reuse or recycling	Separated and stockpiled onsite and collected by contractor for recycling. Possible use as soil improver with gypsum removed by recycler	Material that cannot be recycled will be disposed of at landfill facility
TOTAL VOLUME OF MATERIALS	**2,662 m^3**			
POTENTIAL RECOVERY	**>99%**			

In total, the development's demolition phase will produce around **2,662 cubic metres** of waste materials, of which **99% by volume** can potentially be diverted from landfill if the demolition process is properly managed. It is critical that every effort be made to identify a sustainable disposal method for this material. Ideally this would involve reuse at another suitable nearby site, to minimise the environmental impacts of transportation and disposal.

Waste Audit will be available to provide assistance with this initiative, once the timing of commencement of excavation works has been confirmed.

8. Construction Phase

Table 2 shows estimated quantities in m^3 of construction waste to be generated, and the recommended management strategy for each type of material.

Specific disposal/recycling facilities have not been shown, as a waste contractor has not yet been appointed for the project. All contractors and sub-contractors, once appointed, will be required to detail all intended and actual disposal facilities used, in order to ensure the guiding principles of the waste hierarchy are upheld and maximum diversion from landfill is achieved.

Table 2: Construction Waste - Expected Materials Streams

Materials on Site		Destination		
Type of Material	**Estimated Volume (m^3)**	**Onsite (Reuse or Recycle)**	**Offsite (Reuse or Recycle)**	**Disposal (Landfill)**
Excavation Material	**840 m^3**	Retained onsite for reuse as fill where possible	For excavation materials leaving the site, soil will be collected and used as clean fill by waste contractor with notification of location and end use	Material that cannot be reused will be disposed of at landfill facility
Used Pallets	**15 m^3**	Reused on site for storage where possible	Collected by contractor and disposed of at recycling facility	No disposal to landfill
Mixed Recyclables	**15 m^3**	No on-site reuse or recycling	Separated onsite into dedicated receptacles and collected by the waste contractor for recycling	No disposal to landfill
General Waste (All Other Materials)	**15 m^3**	No on-site reuse or recycling	Separated onsite into dedicated receptacles and collected by the waste contractor for disposal	Disposal to landfill
Paper/Cardboard Recycling	**10 m^3**	Reuse cardboard boxes for storage where possible	Separated onsite into dedicated receptacles and collected by the waste contractor for recycling	No disposal to landfill
Timber Offcuts	**10 m^3**	Reuse for formwork where possible	Untreated recyclable timber will be collected and recycled at appropriate timber yard. Unrecyclable (treated) timber will be disposed of at landfill	Material that cannot be recycled will be disposed of at landfill facility
Plasterboard Offcuts	**10 m^3**	No on-site reuse	Material to be separated and stockpiled onsite and collected by the waste contractor for recycling for use as soil improver with gypsum etc. removed by recycler	Material that cannot be recycled will be disposed of at landfill facility
Concrete (Excess)	**10 m^3**	Separated on site and crushed for use in temporary access road construction	Collected by contractor and taken to concrete recycling facility	No disposal to landfill
Glass (Excess)	**5 m^3**	No on-site reuse	Recyclers consulted as to potential for recycling	No disposal to landfill
Floor Coverings	**5 m^3**	No on-site reuse	Collected in designated bin and sent for recycling if of required quality; otherwise sent to landfill	Material that cannot be recycled will be disposed of at landfill facility
Metal Offcuts, Roof Sheeting, Wiring, etc.	**5 m^3**	No on-site reuse	Collected by specialist metal subcontractor for separation into different metal types for recycling	No disposal to landfill
TOTAL VOLUME OF MATERIALS	**935 m^3**			
POTENTIAL RECOVERY	**>98%**			

In total, the development's construction phase will produce around **935 cubic metres** of waste materials, of which **over 98%** should be able to be diverted from landfill disposal, either by being reused on or off site, or recycled off-site at a specialised facility.

9. Work Plan

The following summarises the principles for the Work Plan to be provided for demolition activities for the development; a comprehensive Work Plan will be developed and submitted to the relevant authorities after the demolition contractor(s) have been appointed.

Following this appointment, more detail as to the demolition process will be known, and this will be evaluated to ensure that all applicable requirements are met. It will be optional of appointment that the contractor(s) will develop a Work Plan and the requirement for submitting it following the appointment should be conditioned in the DA for lodgment with the reviewing authority.

A copy of AS 2601-2001 *The Demolition of Structures* will be kept on site, and during site induction all workers will be advised as to the requirements contained within the Standard.

It is recommended that the following requirements are included in the Work Plan:

Proposed Demolition Methods

- The contractor will be required to detail all machinery that will be used on-site as well as for transporting materials off-site, including vehicles to be used by waste/recycling contractors
- All operators of machinery will be required to provide evidence of licences and insurances to operate machinery
- All machinery will have to be demonstrated to be in good working order
- Safe work method statements will be required for all aspects of the demolition

Estimated Time for Work to be Completed

It is difficult to state with accuracy the actual time for the demolition activities to occur (i.e., be completed), due to issues such as weather and other unforeseen issues. Once the contractor(s) have been appointed a timeframe for demolition activities will be developed.

Hours of Operation

Hours of all demolition activities will be restricted to what is required by Lane Cove Council and any other relevant obligations.

There are a large number of residences in close proximity to the site, so all contractors will be required to ensure that hours of operation, noise, dust and other adverse impacts, do not cause nuisance to these other premises.

Sediment Control Measures

All drains located on or off-site that could have any sediment flow to them will be protected by bunding. The type of bunding used will depend on the location.

Contractors will be responsible for undertaking activities that minimise sediment generation and this will be required to be included in their Work Plan as to the methodologies to be used. All measures used for sediment control will be inspected daily.

Site Access

The site will be protected by fencing, and all gates locked when the site is not occupied. Access during working hours will be controlled by a gatekeeper, and there will be clearly signed and controlled entry and exit points. Site access will only be granted to those who have attended site induction and/or required to be on site due to their employing organisations' requirements (e.g., Council or WorkCover officers).

10. Contractor Management

Each subcontractor working on the site will be required to adhere to this Waste Management Plan. The Head Contractor will ensure each subcontractor:

- Takes practical measures to prevent waste being generated from their work
- Implements procedures to ensure any waste that is created will be actively managed and where possible recycled, as part of the overall site recycling strategy or separately
- Ensures that the right quantities of materials are ordered, minimally packaged and where practical pre-fabricated, and any oversupplied materials are returned to the supplier
- 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
- Engaging qualified contractors to remove waste and recycling materials from the site
- Coordinating subcontractors to maximise on site reuse of materials
- Regular monitoring of bins by site supervisors to detect any contamination or leakage
- Ensuring the site has clear signs directing staff to the correct location for recycling and stockpiling, and that each bin/skip/stockpile is clearly signposted
- Providing training to all site employees and subcontractors regarding the WMP as detailed in Section 11 below

Should a subcontractor cause a bin to be significantly contaminated, the Site Manager will be advised through a non-conformance report and 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 Contractor's Quality Management System.

11. Training and Education

All site employees and sub-contractors will be required to attend an 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, and are also to be made aware of waste reduction efforts in regard to packaging.

This report has been prepared by:

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