Kambala Sport, Wellbeing, & Senior Learning Precinct Development

Demolition & Construction Waste Management Plan May 2020

Table of Contents

1. Introduction....3
2. The Site....4
   2.1 Background & Site Description....4
   2.2 Legal Description and Ownership....6
   2.3 Overview of Proposed Development....7
3. Waste Management Strategy....8
   3.1 Waste Management Principles....8
   3.2 Record Keeping....8
   3.3 Materials Storage....9
   3.4 Liquid Waste....9
   3.5 Asbestos....9
4. Demolition Phase....10
5. Construction Phase....11
6. Work Plan....13
7. Contractor Management....14
8. Training and Education....14

1. Introduction

This Construction Waste Management Plan report for the Kambala Sport, Wellbeing, and Senior Learning Precinct development has been prepared by Waste Audit & Consultancy Services (Aust) Pty Ltd for the Kambala School and Carmichael Tompkins Property Group to provide guidance on environmentally sound and cost-effective management of waste 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 the sports precinct of Kambala School at 794 -796 New South Head Road, Rose Bay.

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

Kambala is an independent day and boarding school for girls up to 18 years. Kambala also has an early learning centre catering for approximately 70 girls and boys aged between 6 months and 5 years. The school was established in the late 1800s and moved to the current campus in 1913. The campus has evolved in an organic and ad-hoc manner over the last 100 years as the school and its demands have grown.

A new campus-wide planning approach offers the opportunity to strategically plan for the future in a sustainable and effective manner and to preserve the unique aesthetic and heritage qualities of the campus. The preparation of a campus-wide planning approach is also consistent with the School's 2019 - 2023 Strategic Plan which identified the need for a broader strategic plan to coordinate renewal and development in a feasible and staged manner.

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-10385 issued on 24 November 2019.

Preparation of this 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

Kambala is located at 794 -796 New South Head Road, Rose Bay and is within the Woollahra Council local government area (LGA). Situated in the eastern suburbs of Sydney, the School is approximately 8km east of the Sydney CBD. The School is located on New South Head Road which is a classified road connecting the City with the eastern beaches. The School is surrounded by predominantly residential uses.

The campus is bound by New South Head (to the east), Bayview Hill Road (to the north) and Tivoli Avenue (to the west). Fernbank Boarding House is located at 1A -3 Bayview Hill Road opposite the Kambala School grounds. No works are proposed to this part of the campus in this DA. The locational context of the School is illustrated at Figure1. Figure 2 provides an aerial map of the School and its immediate surrounds.

The School campus slopes down from New South Head Road in the east to the west and comprises a series of existing buildings in the western part of the campus that range in height and age. The south western and north western part of the campus accommodates much of the school's existing built form, while the eastern part has the school's sporting fields and courts.

The Kambala School building known as Tivoli House is in the heart of the campus. The house, its interiors, gateposts, gates and flanking walls with railing facing Tivoli Avenue, as well as 2 Norfolk Island Pines are listed as a heritage item in Woollahra Local Environmental Plan 2014 (WLEP 2014).

Within the School campus, the site of this SSDA is illustrated in Figure 3. The site proposed for new buildings is on top of the existing sports field and music building, as shown in green. The site proposed for demolition works and associated façade redevelopment and landscaping works is shown in red and is limited to a portion of the existing Hawthorne Building and the Arts building. The site of new landscape works is shown in yellow and includes all external spaces connecting these works. 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. The four key main buildings proposed are identified in Figure 4.

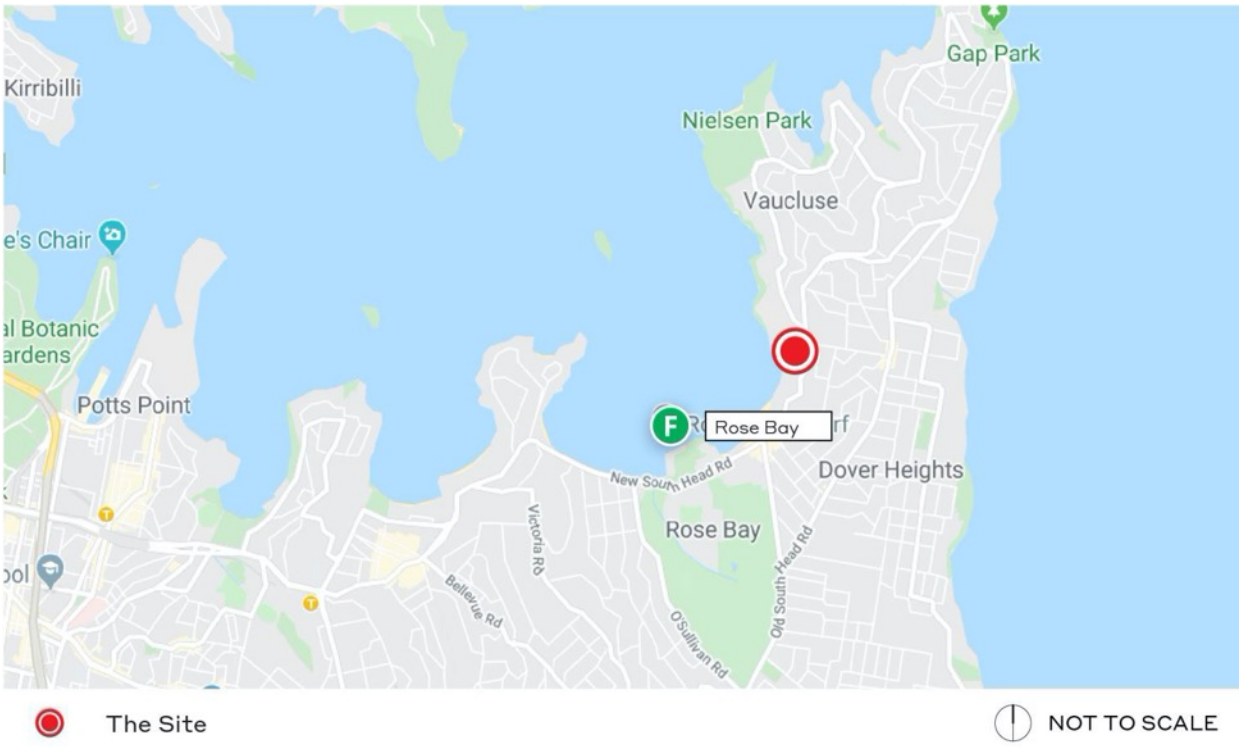

Figure 1 – Kambala School Location Context Plan
Source: Ethos Urban

Figure 2 – Aerial Map of the Kambala Campus
Source: Near Map

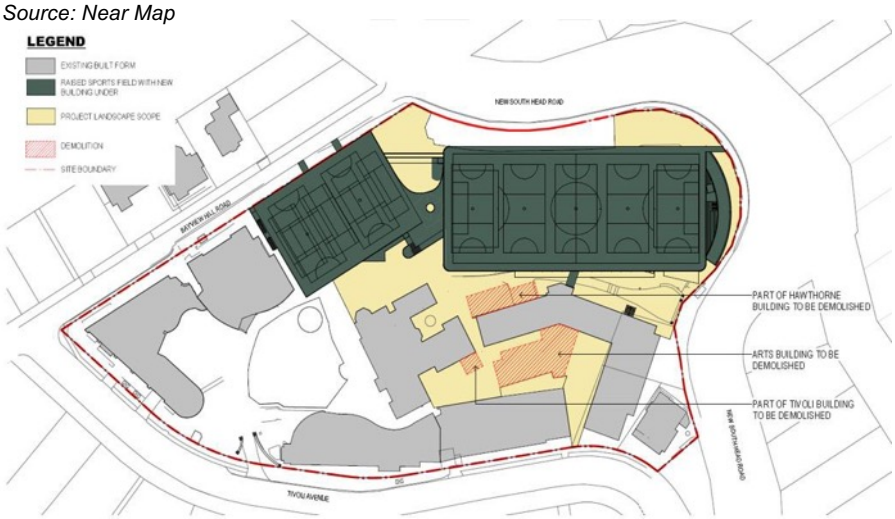

Figure 3 – Project Scope
Source: AJC

Figure 4 – Key Plan
Source: AJC

5.2 Legal Description and Ownership

The campus comprises several allotments, the legal descriptions of which are provided in Table 1 below. The existing campus has a site area of approximately 22,511m^2.

Table 1: Legal Description

Address	Lot	Plan
794-796 New South Head Road	Lot 67	DP 2538
	Lot C	DP 210074
	Lot 1	DP 1089403
3 Tivoli Avenue	Null	SP 64653
3 Bayview Hill Road	Lot 1	DP 175832
1A Bayview Hill Road	Lot 45	DP 2538
1 Bayview Hill Road	Lot 46	DP 2538

5.3 Overview of Proposed Development

This SSDA includes detailed plans for a new sport, wellbeing and senior learning precinct. Accordingly, consent is sought for the following:

- The excavation of part of the existing sports field to facilitate the construction of the following:
  - Sports facilities including weights room and dance rooms;
  - Indoor multipurpose sports courts for use by up to 1500 people
  - Innovative and flexible teaching and learning spaces
  - Amenities, store rooms, plant, circulation and ancillary spaces
  - Reinstatement of the sports field surface on the roof (sports field and perimeter fencing)
  - Spectator seating / bleachers
- The removal of the tennis courts (currently on the roof of the music building), and the construction of the following:
  - A wellbeing centre, called the SHINE centre, to accommodate the Kambala SHINE program
  - A new staff centre, called the KITE centre, to accommodate staff workstations, meeting areas, staff development workshop rooms and amenities
  - Reinstatement of the tennis courts, lighting and perimeter fencing on the new roof
- A new eastern forecourt for the school, new external landscaped areas and new courtyards;
- Minor works to the existing music building to facilitate a new connection to the new courtyard;
- The partial demolition of the Hawthorne building and the construction of a new façade, roof and landscaping; and
- The demolition of the Arts building and the construction of new facades to adjacent affected buildings, and new landscaping to the footprint of the demolished building

Additionally, an estimated 23,275 cubic metres of soil, rock, and grass will be excavated, to a depth of around 5.5 metres, from the existing playing field and adjacent areas. Geotechnical tests carried out in 2019 (PSM Consulting *Geotechnical Investigation Report* 29/1/19) showed that the subsurface material in this area consists indicatively of the following types of soil and rock, at varying depths:

Table 2: Excavation Materials: Expected Volumes

Category	Description	Depth (m)
Fill	Silty sand, gravel, clay, crushed sandstone	0.0-5.1
Natural Soil	Sand, silt, clay	1.2-5.1
Weathered Rock	Sandstone	1.9-4.0
Fresh Rock	Sandstone	3.3-7.0

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

Based on the probable age of the structures to be demolished, it is unlikely that any contain asbestos. However, this should be confirmed before demolition works commence.

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 existing sports oval, 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 3: 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	**23,275 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
Misc. General Waste	**100 m^3**	No onsite reuse or recycling	Separated onsite into dedicated receptacles and collected by the waste contractor for disposal	Disposal to landfill
Bitumen	**60 m^3**	No onsite reuse	Collected by contractor and taken to recycling facility	No disposal to landfill
Metal Roofing, Walls	**60 m^3**	No onsite reuse	Removed if still serviceable and sold for reuse to an appropriate contractor, or collected by specialist contractor for recycling	No disposal to landfill
Paving	**50 m^3**	Onsite reuse if possible	Reused onsite if possible and in good condition; if not possible, sent for recycling	No disposal to landfill
Vegetation	**40 m^3**	Mulched on-site and reused for landscaping	Mulched offsite if onsite treatment is not feasible	No disposal to landfill
Bricks	**40 m^3**	Separated on site and crushed for use in pavement and/or temporary access road construction	Acceptable quality bricks collected by contractor for reuse. Unusable bricks collected and recycled at recycling facility to be used in aggregate gravel products	No disposal to landfill
Carpet	**20 m^3**	No on-site reuse	This will be 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
Ceiling Tiles	**20 m^3**	No onsite reuse	Material to be separated and stockpiled onsite and collected by the waste contractor for recycling. Possible use as soil improver with gypsum etc. 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)**
Cardboard Packaging (from deliveries)	**20 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
Concrete Flooring	**20 m^3**	Separated onsite and crushed for use in pavement and/or temporary access road construction	Collected by contractor and taken to recycling facility	No disposal to landfill
Electrical Wiring, Fixtures	**12 m^3**	No on-site reuse	Removed if still serviceable and sold for reuse to an appropriate contractor, or collected by specialist contractor for recycling	No disposal to landfill
Light Fixtures	**12 m^3**	No onsite reuse	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	**12 m^3**	No onsite reuse	Collected by contractor and taken to recycling facility	No disposal to landfill
Metal Fixtures, Fencing (from tennis courts)	**10 m^3**	No on-site reuse	This will be 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
TOTAL VOLUME OF MATERIALS	**23,751 m^3**			
POTENTIAL RECOVERY	**>98%**			

In total, the development's demolition phase will produce around **23,751 cubic metres** of waste materials, of which **98% by volume** will be excavated soil. 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, one the timing of commencement of excavation works has been confirmed.

8. Construction Phase

Table 3 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 4: 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)**
Used Pallets	**20 m^3**	Reused on site for storage where possible	Collected by contractor and disposed of at recycling facility	No disposal to landfill
Paper/Cardboard Recycling	**20 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
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)	**10 m^3**	No on-site reuse or recycling	Separated onsite into dedicated receptacles and collected by the waste contractor for disposal	Disposal to landfill
Glass (Excess)	**5 m^3**	No on-site reuse	Recyclers consulted as to potential for recycling	No disposal to landfill
Timber Offcuts	**5 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	**5 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)	**5 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
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	**95 m^3**			
POTENTIAL RECOVERY	**>89%**			

In total, the development's construction phase will produce around **95 cubic metres** of waste materials, of which **over 89%** 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 a condition 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 Woollahra Municipal 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 in regard to the WMP as detailed in Section 7 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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