ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

WASTE MANAGEMENT PLAN - 277 MONA VALE ROAD, TERREY HILLS NSW

STATEWIDE PROJECT MANAGEMENT

4 MAY 2023
121117
VERSION 2

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

2 May 2023

Syesun Pty Ltd
c/o Statewide Project Management
Suite 3 / 79
Alexander Street
Crows Nest NSW 2065

Attention: **Brent Jones**
Director

Waste Management Plan for proposed development at 277 Mona Vale Road, Terrey Hills NSW

Please find enclosed a copy of our report entitled as above. Thank you for the opportunity to undertake this work.

Should you have any queries, please do not hesitate to contact us on (02) 9922 1777.

For and on behalf of
Environmental Earth Sciences NSW

Author
Claude Platell
Environmental Scientist

Project Director
Stephan Pawelczyk
NSW Manager

Project Manager
Natalie Eldridge
Environmental Scientist

Internal Reviewer
James Barwood (v1)
Principal

Stephan Pawelczyk (v2)
NSW Manager

121117_WMP_V2

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

TABLE OF CONTENTS

Tables

Appendices

1 INTRODUCTION

Environmental Earth Sciences NSW have been commissioned by Statewide Project Management (SPM) to prepare a Waste Management Plan (WMP) for the property at 277 Mona Vale Road, Terrey Hills NSW (the "site").

The site is currently occupied by a commercial garden centre and nursery space and includes a large carpark and multiple buildings. The site is proposed to be redeveloped into a new commercial garden centre and retail space based on alterations and additions to existing development.

The purpose of the WMP is to describe the principles, procedures and management of the waste generated during the demolition phase and subsequent redevelopment of the site to ensure wastes are reduced, reused and recycled wherever possible.

After the re-development of the site, the WMP will also serve as a framework to arrange measures to manage and mitigate waste generation and resource consumption during the operation of the site under commercial/ industrial land use.

2 LEGISLATIVE FRAMEWORK

This WMP is based upon legislation outlined below to ensure that environmental quality impacts of activities associated with the construction and operation of state-controlled roads are within appropriate criteria at all nearby sensitive receptors. The latest version/updates/amendments of the legislation/subordinate legislation shall always be applicable.

- Work Health and Safety legislation:
    - Work Health and Safety Act 2011 (State).
    - Work Health and Safety Regulation 2017 (State).
    - Dangerous Goods (Road and Rail Transport) Act 2008 (State).
    - Dangerous Goods (Road and Rail Transport) Regulation 2014 (State).
- Public health legislation:
    - Public Health Act 2010 (NSW).
    - Public Health Regulation 2012 (State).
- Environmental protection and waste legislation:
    - Protection of the Environment Operations (POEO) Act 1997 (State).
    - POEO (General) Regulation 2009 (State).

- POEO (Waste) Regulation 2014 (State).
- Waste Avoidance and Resource Recovery Act 2001 (State)
- Waste Recycling and Processing Corporation Act 2001 (State)
- National Environment Protection Council Act 1994 (Commonwealth).

- General subordinate legislation applying to the project:
  - Environmental Planning and Assessment Act 1979 (State).

Under *Section 7* of the Waste Reduction and Recycling Regulation 2011, the project will be specifically regulated by *Northern Beaches Council (2016) Waste Management Guidelines* (Northern Beaches Council (Council)) to protect the public health, safety and amenity related to waste management and prevent and combat the spread of pests and disease within its jurisdiction by:

(a) Regulating the storage, servicing, collection and removal of waste;

(b) Regulating the disposal of waste at waste facilities;

(c) Ensuring that an act or omission does not result in:

(i) Harm to human health or safety or personal injury; or

(ii) Property damage or loss of amenity; or

iii) Environmental harm or environmental nuisance; and

(d) Enabling Council to take enforcement action for contraventions of this Local Law.

2.1 Development application requirements

SPM are managing the contract to redevelop the site, in line with the NSW Environmental Planning and Assessment Act 1979 (EP&A Act), and in accordance with Application for Development set by Council which requires an Environmental Management Plan for all new buildings, major alterations/additions and other developments.

3 OBJECTIVES

The objective of this waste management plan (WMP) is to provide a framework for the appropriate management of waste streams associated with the site's lifespan including the following distinct phases:

- Demolition;
- Construction; and
- Ongoing operation.

SPM and subcontractors will be responsible for managing all waste streams generated from work activities with the overarching goal of minimising waste and negative impacts to onsite and offsite receptors as a result of the project.

This WMP will document performance requirements with reasonable and practicable management measures in accordance with the Environmental Protection Act 1994. The project will employ the waste management hierarchy for construction and activities:

- Reduce or Avoid generating waste.
- Reuse waste.
- Recycle waste
- Recover energy
- Treat waste.
- Dispose of waste

The requirements outlined in this WMP must be implemented during all the above-mentioned phases of the site lifespan and may be subject to review upon further expansion for, and/or changes to the development. Typically, the head contractor of the site will be responsible for removing all construction-related waste offsite in a manner that meets all authority requirements.

3.1 Demolition and Construction

Key requirements of WMP regarding demolition and construction phase of developments:

- Minimise the volume of waste sent for offsite disposal;
- Minimise the impact of construction and demolition on the surrounding residents, public amenity, the natural environment, and surrounding infrastructure;
- Adhere to relevant legislation surrounding classification of hazardous waste, the storage of hazardous waste and the transport and disposal of hazardous waste;
- The disposal of waste to a licenced facility;
- Suitable areas onsite to sort and store material to be re-used onsite; and
- Suitable record keeping for all material disposed of including tipping dockets and receipts.

3.2 Ongoing operation

Key requirements of WMP regarding the ongoing operation of the site:

- Waste storage area designs;
- Waste storage area location; and

- Provide estimates of the sites waste generation rate.

4 SITE SETTING

4.1 Site identification

Information has been provided in **Table 1** regarding site identification.

Table 1: Site identification

Item	Details
Address	277 Mona vale Road, Terrey Hills NSW 2084 (refer to **Figure 1**)
Lot identification	Lot 4 in Deposited Plan (DP) 737411
Area	2.829 hectares
Current site use	Commercial garden centre including a carpark, material storage bays and nursery areas
Proposed site use	Redeveloped into a commercial garden centre

4.2 Description of current property

The site currently covers 2.829 hectares (ha) with 4,750 m^2 covered by corrugated iron buildings. 9,750 m^2 of the site is covered with asphalt hardstand across the carparks and nursery areas. 14,500 m^2 of the site is covered by the nursery space and associated green space.

4.3 Surrounding land use

Adjacent land uses include:

- North: Low density residential properties North of Cooyong Road.
- East: Low density residential properties East of Myoora Road.
- South: residential property occupied by a single dwelling.
- West: Remnant natural vegetation.

4.4 Soil and Geology

A review of the NSW Government Department of Planning Industry & Environment website *eSPADE* (https://www.environment.nsw.gov.au/Salis5app/resources/spade/reports/9030bp.pdf , accessed 6 December 2021) indicates that the soil landscape of Terrey Hills is Somersby. Soil of this landscape typically consist of sandy clay to sandy loam soils derived from the sandstone geology. Soils are also noted to contain weathered sandstone, ironstone and laterite parent material. Limitations of this soil landscape are that there are localised high water tables and areas of laterite and stony soils.

Review of the *Sydney 1:100 000 Geological Sheet* indicates the site is underlain by the Middle Triassic aged Wianamatta Group Hawkesbury Sandstone consisting of medium to coarse grained quartz sandstone with minor shale and laminate lenses.

4.5 Topography, drainage, hydrology and hydrogeology

The general topography of the site is relatively flat, with a slight upwards slope to the east and south-east. Currently the site is occupied by a commercial premise with no native vegetation remaining onsite. No surface water bodies are noted onsite. Rainfall is likely to run off the hardstand in stormwater management systems or percolate through the soil into local groundwater sources or run off the site to the west.

The nearest water body is Kierans Creek, which is 970m south west of the site. Five Mile Creek is 1.85km south east of the site.

A search of the Australian Bureau of Meteorology (BoM) Australian Groundwater Explorer database (accessed 8 December 2021) indicated a three registered water groundwater bore located within a 500 m radius of the site.

Table 2: Registered groundwater bores

Registered Bore ID	Direction from site	Distance from site (m)	Depth of bore (m BGL)	Depth to water bearing zone (m)	Aquifer lithology	Status	Authorised purpose
GW018575.1.1	NE	275	52.4	----	----	----	HUSE
GW107021.1.1	S	425	156	----	----	----	HUSE
GW108967.1.1	S	475	172	----	----	----	HUSE

Notes:

mBGL	Metres below ground level
---	No available information
IRAG	Irrigation
MON	Monitoring
HUSE	Water supply for household needs e.g. washing, toilet.

5 POTENTIAL IMPACTS

5.1 Waste streams

Throughout the sites lifespan all wastes generated as a result of operations during each phase will fall into the following categories.

- Materials for onsite re-use.
- Materials such as concrete or brick which can be processed and reused without leaving the site.
- Materials such as fill soil suitable for onsite reuse which can be reused from cutting operations.
- Material for offsite recycling:
    - Surplus materials such as concrete, brick, metal, cardboard, recyclable plastics etc which can be disposed of at a resource recovery centre.
    - Materials such as classified virgin soil which can be disposed of offsite for reuse.
- Waste for offsite disposal:
    - Surplus materials or residual/hazardous wastes which cannot be reused or recycled and must be disposed of an appropriate waste management facility.
    - Surplus soil material that is either classified as unsuitable for onsite reuse or is soil other than excavated natural soil requiring disposal offsite at a licensed waste facility.

All of these waste streams will require appropriate management to ensure the sites total exported waste is minimised as much as possible across the site's lifespan in accordance with local, state and national regulations.

5.2 Sensitive receptors and impacts

The primary receptors and examples of their potential waste management related impacts associated with the site are as follows.

5.2.1 Environmental

- Flora and fauna:
    - Plants onsite are dependent on the soil quality.
- Soil:
    - Onsite and offsite soil conditions can potentially be impacted by onsite activities such as the generation of dust or release of contaminated waters.

- Water (groundwater and surface):
    - Onsite and offsite surface and subsurface water bodies are liable to be impacted by inappropriate onsite water and soil management.

5.2.2 Human

- Occupants of nearby/neighbouring properties:
    - Human receptors within nearby properties can potentially be impacted by noise, vibration, dust, debris and surface water originating from the site.
- Site workers:
    - Site workers both current and future could potentially be affected by impacted media (water and soil) as well as general site waste.
- Offsite waste management facility workers:
    - Workers at offsite material management facilities could be affected by inappropriately managed site materials exported to their workplace if material categorisation does not adequately reflect the true nature of the material.
- Visual amenity:
    - Inappropriate waste storage and management practices could result in a loss of site visual amenity which could be associated with complaints or fines under some circumstances.

6 WASTE MANAGEMENT PROCEDURES

Prior to the initiation of works a Northern Beaches Council waste management form should be completed to document project details as well as details on the expected waste quantities, disposal methodologies and receiving facilities including onsite re-use applications. A template for the Northern Beaches Council waste management plan form is provided in **Appendix A**.

6.1 Specific waste management requirements

6.1.1 Management of demolition debris

Management of materials recovered during demolition works are recommended to be undertaken in accordance with a specific demolition management plan developed for the works as well as any specific materials management plans developed for materials that have been considered for a specific management strategy. For example, if certain materials require special management due to the presence of hazardous materials or contamination.

Estimates of demolition waste have been provided to guide waste management onsite. Estimates have been developed using the waste management plan and tailored to the specifics of the site. Estimates are provided in **Table 3** based on the demolition plan.

Table 3: Estimates of demolition debris volumes

Material	Estimated volumes
Brick	650 m^3
Excavated soil material	2,900 m^3 assuming a 0.1 m deep scrap across the whole site
Asphalt	2,200 m^3 assuming hardstand across half of the site to a depth of 0.15m
Concrete	1,750 m^3
Timber	10 m^3
Metal	200 m^3. This estimate is conservative and will likely be higher as corrugated sheeting is the primary building material onsite.
General waste	525 m^3
Green waste	725m^3 – is a high-end estimate of potential green waste generated from within the site as upwards of 50% of the site is covered by nursery space and vegetation.
Asbestos	Providing an estimate of asbestos volumes is not possible without a hazmat building material assessment of the site. Asbestos is a common building material used up until the 1990 which can be found in many materials.

1. Volumes have been calculated off the Northern Beaches waste management plan.
2. Where Environmental Earth Sciences has diverged from the waste management plan it has been clearly noted.

6.1.2 Classification of soil

During development of the site, if material needs to be excavated from the site it is important material is properly classified to facilitate offsite disposal or onsite reuse. Where surplus soil material is intended for offsite export a waste classification report should be commissioned for the material to determine its waste management requirements in accordance with the *NSW EPA Waste classification guidelines – Part 1: Classifying Waste*. It should be considered if any material can be reused onsite to fulfill other sections of the development. Material should be suitably assessed chemically and physically for its suitability to remain onsite.

In addition to offsite disposal or onsite reuses material can be assessed for beneficial reused offsite under virgin excavated natural material (VENM) or excavated natural material (ENM) as defined by the NSE POEO act and the NEW EPA *The Excavated Natural Material Order 2014*.

Any such classifications must be conducted by a certified environmental practitioner for the full volume of soil material requiring excavation prior to its export from site and should accompany any portion of the material when it's transported to the licensed waste facility.

If large volumes of a discrete waste stream are to be generated the NSW EPA lists current resources recovery exemptions which outlines specific scenarios to facilitate the reused of material. Examples of material which falls under an exemption is compost and mulch.

6.1.3 Management of recyclable wastes

The anticipated type and quantity of recyclable materials should be specified in the pre-work waste plan (provided in **Appendix A**) as well as the individual work method statements

produced during each phase of the site's lifespan. From these expected quantities appropriate provisions for the recovery, sorting, storage and removal of the materials from site should be allocated to ensure that the recycling of materials is maximised and that recyclable materials are not contaminated in the course of being recovered.

Contamination of recyclable materials can occur in a number of ways and specific details on the appropriate storage of a given material should be sourced from the chosen resource recovery specialist. A number of generalised practices that could result in the contamination of recyclable materials is provided below.

- Inappropriate mixing of materials.
- Exposure of materials to unsuitable weather conditions.
- Poor storage resulting in dispersal of materials and subsequent contamination.
- Poor labelling of storage areas resulting in unintentional mixing of materials.

Table 4: Table of recyclable materials and suitable reuses during demolition

Material	Re-use and recycling options
Excess excavated soil material	Re-use for filling or leveling onsite. Beneficial reuse offsite as clean fill
Concrete	Re-used as filling or leveling onsite. Utilised as crushed aggregate on or offsite. Utilised within landscaping onsite.
Bricks / Pavers	Re- used as whole bricks or pavers. Crushed and used for filling and or landscaping including roadways.
Timber	Treated – reused during construction activity, within landscaping or as cultural heritage items. Untreated – recycled offsite
Internal fixtures and fittings	Reused within the new development or sent to a second hand supplier.
Metal	Recycled through a scrap metal market or reused onsite.
Green waste	Mulched onsite, composed or utilised offsite.

6.1.4 Estimates of construction waste

During the construction phase of the works, contractors and subcontractors are encouraged to efficiently utilised building materials to reduce wastage and costs. The Northern Beaches waste management plan provides estimates on potential volumes of waste which will be generated during construction. It is recommended to make all contractors aware of the need to reduce material being generated as waste.

6.1.5 Estimates of waste generation rates

Estimates of general waste generated by the site have been included into the northern beaches waste management plan indicating the premises will produce approximately 6000L of combined garbage and recycling waste per day.

6.1.6 Management of general wastes during the ongoing management of the site

General wastes (food scraps and other unrecyclable materials) will be produced throughout the sites lifespan and will require management through the provision of general waste disposal bins.

The size, number and location of these bins should be specified in the work method statements of individual contracted works and should consider the following key aspects:

- Expected waste volume.
- Expected work duration.
- Accessibility to site staff.
- Accessibility to waste removal contractors.
- Visual amenity.

Estimate volumes of material to be managed during the ongoing management of the site have been provided in **Table 5**. WMPs are subject to change across the project as more information is made available and utilisation of the building evolves. Although Northern Beaches Council (2016) waste management plan provides estimates on potential volumes of waste which will be generated during ongoing use, it does not specify discrete values for each type of waste. Efforts should be made to segregate all waste into specific waste streams, to reduce the total volume entering landfills.

Table 5: Potential wastes produced during operational stage

Type of Premises and waste	Waste stream	Waste destination	Estimated amount (L) per day
Garden Centre, Nursery and Plant Store			
Garbage generation and recycling generation[1]	Landfill/ recycling	Landfill and/or Recycling depot where applicable	65,950
Retail			
Garbage generation	Landfill	Landfill	80
Recycling generation	Recycling	Recycling depot	80
Pet Shop			
Garbage generation	Landfill	Landfill	210
Recycling generation	Recycling	Recycling depot	210
Café/ Servery			
Garbage generation	Landfill	Landfill	1,200
Recycling generation	Recycling	Recycling depot	800
Kitchen Store			
Garbage generation and recycling generation[1]	Landfill/ recycling	Landfill and/or Recycling depot where applicable	7
Fruit Shop			
Garbage generation	Landfill	Landfill	270
Recycling generation	Recycling	Recycling depot	0
Garden Centre goods store/ Landscaping shop and hardstand			
Garbage generation and recycling generation[1]	Landfill/ recycling	Landfill and/or Recycling depot where applicable	2430
Car park			
Garbage generation	Landfill	Landfill	150
Recycling generation	Recycling	Recycling depot	0

Notes
1. Northern Beach Council (2016) combines garbage and recycling generation for florists – plant shops, domestic hardware and houseware, and domestic appliance retailing.

7 IMPLEMENTATION

The WMP provided in **Table 5** below should be applied through all site work phases. This plan is a working document and should be reviewed and superseded based on specific work method statements (such as a Construction Environmental Management Plan) produced throughout the various stages of the site's life span.

Table 6: Waste management plan

Aspect	Responsible	Timing
General control measures		
Location of all key environmental controls, including waste management controls (e.g. location of skip bins, sediment control measures) included in site induction.	Construction project Manager (CPM) Site workers	Throughout
All waste streams to be routinely removed from site, with appropriate documentation noted by the CPM.	CPM Site workers	Throughout
All waste materials must be disposed of at an appropriately licensed facility in accordance with State requirements, accounting for the type of waste (such as whether it is regulated or not).	CPM Site workers	Throughout
Separate material generated by waste streams into their designated waste area/receptacle. General, and hazardous waste materials are contained and separated to prevent the migration of contaminants to surrounding areas or downstream environments.	CPM Site workers	Throughout
Waste generation that cannot be avoided, recycled or reused onsite are collected by a licensed waste transporter and disposed of in an appropriately licensed facility. Transportation of this waste is documented in accordance with the EPA waste tracking requirements	CPM Site workers	Throughout
Waste bins should be properly sealed to secure food wastes and keep them inaccessible to vermin / wind.	CPM Site workers	Throughout
All waste bin lids and other waste objects shall be secured or weighted down to ensure that waste objects do not become windblown.	CPM Site workers	Throughout
No waste is to be burned or buried on site.	CPM Site workers	Throughout
Site and the surrounds are to be kept free of litter. (i.e. no litter is left onsite).	CPM Site workers	Throughout
Waste transport is to be undertaken be a licensed contractor.	CPM Subcontractor	Throughout
Only the minimum essential stocks of items such as chemicals, fuels and paints are to be stored on site at any one time.	CPM	Throughout
Before hazardous waste is removed from site, the site project manager must be informed of the: • Type and quantity of waste to be disposed	CPM	Throughout

Aspect	Responsible	Timing
• The name of the licenced transport contractor; and • The landfill operator that is accepting the waste.		
At the completion of each work stage the Managing contractor shall ensure that all wastes have been removed from the project site or otherwise lawfully disposed. No wastes shall be buried onsite.	CPM	Throughout
Vegetation Waste from clearing and grubbing may be used in conjunction with soil erosion and sediment measures such as brush matting.	CPM Site workers	Throughout
Mulch stockpiles shall be separated from drainage lines and waterways by distance or management measure to inhibit discharge. Mulch stockpiles shall be a maximum of 2.5 m in height where air temperature is < 30° and humidity < 70%.	CPM Site workers	Throughout
Hazardous materials / product control measures		
All staff should be trained in the appropriate storage and handling of chemicals and fuels, the identification of a spill hazard and spill procedures. Spill kits must be readily available on site in the vicinity of storage areas and all workers trained in their implementation.	CPM Site workers	Throughout
Regulated dangerous / hazardous goods, and waste materials to be listed on a manifest register maintained by CPM.	CPM	Throughout
Appropriate signage shall be placed at the storage area for products and associated wastes providing warning/instructions as per respective MSDS.	CPM	Throughout
Storage areas for hazardous substances and waste are to be sited no closer than 50 m from the nearest watercourse, drainage channel or diversion channel in an impermeable / bunded area.	CPM Site workers	Throughout
Fuels and chemical products stored onsite are to be kept within bunded area(s), containing space for 110% of stored volume.	CPM Site workers	Throughout
All drums which are kept in a horizontal position for the purpose of filling other containers will have a drop pan or bucket placed under the discharge point in order to catch small leaks. All faulty valves used on dispensing drums will be replaced immediately and all valves will have automatic shut-off capabilities.	CPM Site workers	Throughout
Recyclable material management		
Recyclable materials and products shall be proposed for works wherever these can be utilised. i.e. reuse of mulch onsite from vegetation clearing	CPM Site workers	Throughout
Site to include separate covered bins for the disposal of recyclables and general waste	CPM Site workers	Throughout
Recyclable waste streams should be stored separately according to the specific type, with routine removal from site. Appropriate documentation should be noted by the CPM.	CPM Site workers	Throughout
Pollution control incidents		
All staff should be trained in the appropriate storage and handling of chemicals and fuels, the identification of a spill hazard and spill procedures. Spill kits must be readily available on site in the vicinity of storage areas and all workers trained in their implementation.	CPM Site workers	Throughout
Daily inspections of the site shall be undertaken by the site CPM to identify any spillage. Should spillage be identified, the project manager should be informed as soon as practicable and details of the spill (volume, chemical, location etc) reported on an incident reporting form.	CPM Site workers	Throughout

Aspect	Responsible	Timing
Any spills identified should be cleaned up and remediated. Absorbent materials used in spill clean-up should be placed and sealed in an appropriate container marked “regulated waste” and disposed offsite by a suitably licenced waste contractor.	CPM Site workers	Throughout
Separation of Hazardous and Industrial waste from any incompatible materials. Any Hazardous or industrial waste shall be stored in an environmentally safe manner by being properly bunded and >50m from drainage lines or water courses.	CPM Site workers	Throughout
General litter is to be disposed of in bins at site common area, fitted with lids and serviced regularly	CPM Site workers	Throughout
Provision of portable self-contained toilets onsite. Toilets are to be kept clean and contents are collected regularly.	CPM	Throughout
Provision of Spill kits. Spill kits shall be located with close proximity to designated waste areas.	CPM	Throughout
Monitoring		
Regular site inspections are undertaken and documented to monitor waste handling process, and pollution incidents (e.g. product spills) and validate that appropriate waste handling procedures are being followed. This should include a weekly inspection of spill kits (stock levels and placement with respect to ongoing high-risk site activities) should be undertaken to ensure the spill kit inventory does not run low and kits are positioned within the site area, appropriately.	CPM Site workers	Throughout
Waste tracking provisions, including record keeping, are completed to ensure the correct disposal methods of waste are undertaken.	CPM	Throughout
Routine daily site inspections are to include monitoring capacity of waste storage facilities and arranging collections as required, monitoring for the presence of vermin or odours in association with waste storage or handling and monitoring for the presence of litter and general worksite tidiness.	CPM	Throughout
Reporting		
The CPM should record any incidents in a logbook or form and report on corrective actions taken before the recommencement of site work.	CPM	Throughout

A registry of wastes will be kept onsite and will identify:
• Type of waste/material.
• Amount (volume).
• How identification of waste has taken place (estimation or based on dockets/records).
• Amount (volume) of waste sent to landfill.
  • Date taken to landfill.
  • Contractor used.
  • Type of material sent to landfill.
	CPM	Throughout

Details of any complaints should be recorded in a site register.	CPM	Throughout
Corrective Actions		
If any complaints are received regarding excessive dust the incident will be reported in accordance with an Incident and Complaint Form. The issue will be investigated, and steps taken to prevent reoccurrence, including additional training and/or update of procedures if required.	CPM Site workers	Throughout

8 LIMITATIONS

This report has been prepared by Environmental Earth Sciences NSW ACN 109 404 006 in response to and subject to the following limitations:

1. The specific instructions received from Statewide Project Management;

2. The specific scope of works set out in PO121245 issued to Statewide Project Management, is included in Section 3 (Scope of Work) of this report;

3. May not be relied upon by any third party not named in this report for any purpose except with the prior written consent of Environmental Earth Sciences NSW (which consent may or may not be given at the discretion of Environmental Earth Sciences NSW);

4. This report comprises the formal report, documentation sections, tables, figures and appendices as referred to in the index to this report and must not be released to any third party or copied in part without all the material included in this report for any reason;

5. The report only relates to the site referred to in the scope of works being located at 277 Mona Vale Road, Terrey Hills, NSW ("the site");

6. The report relates to the site as at the date of the report as conditions may change thereafter due to natural processes and/or site activities;

7. No warranty or guarantee is made in regard to any other use than as specified in the scope of works and only applies to the depth tested and reported in this report;

8. Fill, soil, groundwater and rock to the depth tested on the site may be fit for the use specified in this report. Unless it is expressly stated in this report, the fill, soil and/or rock may not be suitable for classification as clean fill, excavated natural material (ENM) or virgin excavated natural material (VENM) if deposited off site;

9. This report is not a geotechnical or planning report suitable for planning or zoning purposes; and

10. Our General Limitations set out at the back of the body of this report.

9 REFERENCES

Australian Bureau of Meteorology Website - *Australian Groundwater Explorer* (http://www.bom.gov.au/water/groundwater/explorer/map.shtml accessed 27 September 2021)

Dangerous Goods (Road and Rail Transport) Act 2008 (State).

Dangerous Goods (Road and Rail Transport) Regulation 2014 (State).

Environmental Planning and Assessment Act 1979 (State).

Herbert C (1983) - Sydney 1:100 000 Geological Sheet 9130, 1st edition. Geological Survey of New South Wales, Sydney.

National Environment Protection Council Act 1994 (Commonwealth).

Northern Beaches Council (2016) Waste Management Guidelines (Northern Beaches Council)

NSW Government Department of Planning Industry & Environment website *eSPADE* (https://www.environment.nsw.gov.au/Salis5app/resources/spade/reports/9030bp.pdf , accessed 27 September 2021)

Public Health Act 2010 (NSW).

Public Health Regulation 2012 (State).

Protection of the Environment Operations (POEO) Act 1997 (State).

POEO (General) Regulation 2009 (State).

POEO (Waste) Regulation 2014 (State).

Waste Avoidance and Resource Recovery Act 2001 (State)

Waste Recycling and Processing Corporation Act 2001 (State)

Work Health and Safety Act 2011 (State).

Work Health and Safety Regulation 2017 (State).

ENVIRONMENTAL EARTH SCIENCES GENERAL LIMITATIONS

Scope of services
The work presented in this report is Environmental Earth Sciences response to the specific scope of works requested by, planned with and approved by the client. It cannot be relied on by any other third party for any purpose except with our prior written consent. Client may distribute this report to other parties and in doing so warrants that the report is suitable for the purpose it was intended for. However, any party wishing to rely on this report should contact us to determine the suitability of this report for their specific purpose.

Data should not be separated from the report
A report is provided inclusive of all documentation sections, limitations, tables, figures and appendices and should not be provided or copied in part without all supporting documentation for any reason, because misinterpretation may occur.

Subsurface conditions change
Understanding an environmental study will reduce exposure to the risk of the presence of contaminated soil and or groundwater. However, contaminants may be present in areas that were not investigated, or may migrate to other areas. Analysis cannot cover every type of contaminant that could possibly be present. When combined with field observations, field measurements and professional judgement, this approach increases the probability of identifying contaminated soil and or groundwater. Under no circumstances can it be considered that these findings represent the actual condition of the site at all points.

Environmental studies identify actual sub-surface conditions only at those points where samples are taken, when they are taken. Actual conditions between sampling locations differ from those inferred because no professional, no matter how qualified, and no sub-surface exploration program, no matter how comprehensive, can reveal what is hidden below the ground surface. The actual interface between materials may be far more gradual or abrupt than an assessment indicates. Actual conditions in areas not sampled may differ from that predicted. Nothing can be done to prevent the unanticipated. However, steps can be taken to help minimize the impact. For this reason, site owners should retain our services.

Problems with interpretation by others
Advice and interpretation is provided on the basis that subsequent work will be undertaken by Environmental Earth Sciences NSW. This will identify variances, maintain consistency in how data is interpreted, conduct additional tests that may be necessary and recommend solutions to problems encountered on site. Other parties may misinterpret our work and we cannot be responsible for how the information in this report is used. If further data is collected or comes to light we reserve the right to alter their conclusions.

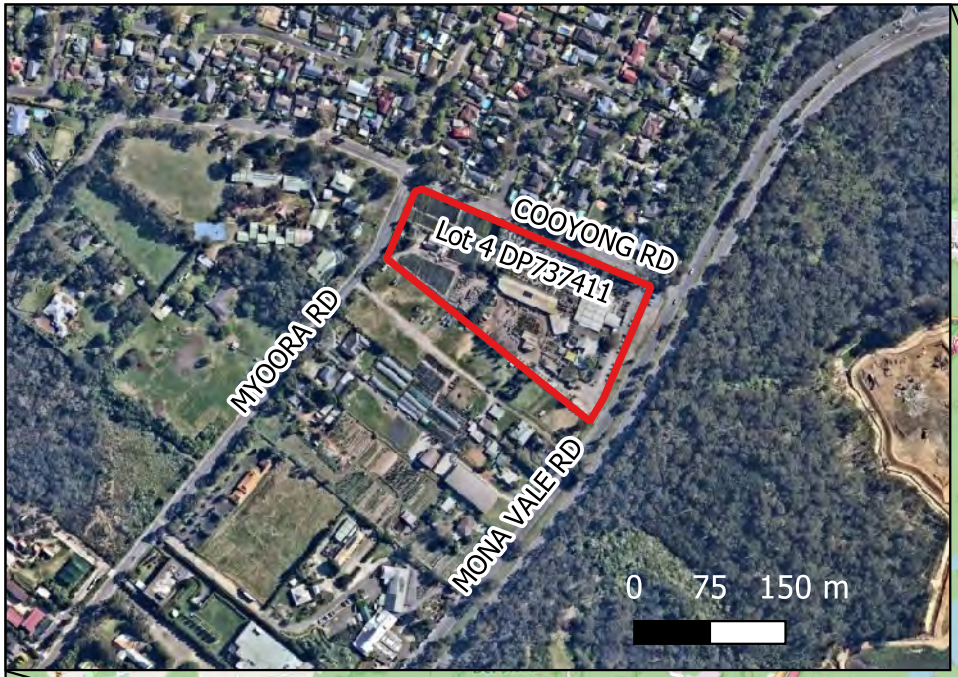
Obtain regulatory approval
The investigation and remediation of contaminated sites is a field in which legislation and interpretation of legislation is changing rapidly. Our interpretation of the investigation findings should not be taken to be that of any other party. When approval from a statutory authority is required for a project, that approval should be directly sought by the client.

Limit of liability
This study has been carried out to a particular scope of works at a specified site and should not be used for any other purpose. This report is provided on the condition that Environmental Earth Sciences NSW disclaims all liability to any person or entity other than the client in respect of anything done or omitted to be done and of the consequence of anything done or omitted to be done by any such person in reliance, whether in whole or in part, on the contents of this report. Furthermore, Environmental Earth Sciences NSW disclaims all liability in respect of anything done or omitted to be done and of the consequence of anything done or omitted to be done by the client, or any such person in reliance, whether in whole or any part of the contents of this report of all matters not stated in the brief outlined in Environmental Earth Sciences NSW's proposal number and according to Environmental Earth Sciences general terms and conditions and special terms and conditions for contaminated sites.

To the maximum extent permitted by law, we exclude all liability of whatever nature, whether in contract, tort or otherwise, for the acts, omissions or default, whether negligent or otherwise for any loss or damage whatsoever that may arise in any way in connection with the supply of services. Under circumstances where liability cannot be excluded, such liability is limited to the value of the purchased service.

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

FIGURE



Legend

Site Boundary

0 2 4 km

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

Title: Site Location

Client: Statewide Project Management

Location: 277 Mona Vale Road, Terrey Hills, NSW

Project Manager: NE	Scale: As Shown	Job No: 121117
Drawn By: CP	Date: December 2021	

Figure 1

ENVIRONMENTAL EARTH SCIENCES
CONTAMINATION RESOLVED

APPENDIX A: NORTHERN BEACHES COUNCIL WASTE MANAGEMENT PLAN

NORTHERN BEACHES COUNCIL

Waste Management Plan

(For development in the area of WLEP 2011 and WLEP 2000)

This plan is to be completed

in accordance with Council's

Waste Management Guidelines

(For development in the area of WLEP 2011 and WLEP 2000)

Effective Date: 25 October 2016

TABLE OF CONTENTS

Purpose of the Waste Management Plan

This *Waste Management Plan (WMP)* will detail the arrangements for waste management during all stages of development and occupation.

The WMP must be completed in accordance with the Waste Management Guidelines (Guidelines).

A completed WMP is a mandatory requirement for any Development Application (DA) submitted under WLEP 2011 or WLEP 2000. DAs that are submitted without a completed WMP will be rejected or refused by Council.

Structure of the Waste Management Plan

All applicants are required to complete the 'Applicant and Project Details' part of the WMP and include it with the relevant Sections that apply to their proposed development.

The WMP is divided into Sections and applicants are only required to complete the relevant Sections in accordance with the Guidelines. The table below identifies which Sections are relevant to which development types.

For example, if the proposed development was to include demolition of an existing structure and construction of a single dwelling, the relevant Sections would be Sections 1, 2 and 3.

Section	Development Type^
Section 1 – Demolition	All
Section 2 – Construction	All
Section 3 – On-going waste management for one or two dwellings	One or two dwelling developments Mixed-use developments containing one or two dwellings
Section 4 – On-going waste management for three or more dwellings	Three or more dwelling developments Mixed-use developments containing three or more dwellings
Section 5 – On-going waste management for non-residential and mixed use developments	Commercial developments Industrial developments Mixed-use developments
Section 6 – Private roadway developments	Private roadways

^Note: the definitions of the development types are provided in Section vi of the Introduction to the Guidelines

Applicant and Project Details

Complete this page and the relevant Sections that apply to your proposed development.

Applicants' Details

Name: (must be the same as the DA form)	
Address: (must be the same as the DA form)	
Phone Number:	
Email Address:	

Property Details

Lot No: Deposited Plan (DP) No: or Strata Plan (SP) No:	
Unit No: House No: Street: Suburb: Postcode:	

Project Details

Description of proposed development:	
Structures to be demolished:	

Applicant Declaration

I declare that:

1. This plan has been completed in accordance with the Waste Management Guidelines
2. To the best of my knowledge, the details on this form are accurate and correct

I understand that:

1. All records demonstrating lawful disposal of waste will be retained and kept readily accessible for inspection by regulatory authorities such as Council, NSW Environment Protection Authority or WorkCover NSW.
2. A bond in accordance with Council's fees and charges may apply to this development and must be paid to Council prior to any works commencing.
3. The bond will only be refunded when Council is satisfied that all waste outlined in this plan has been managed as per the plan, and evidence such as photos, receipts and statutory declarations must be supplied where appropriate.

Signature of Applicant: _____ Date: _____

Section 1 – Demolition

This section must be completed in accordance with 'Chapter 1 – Demolition' of the Waste Management Guidelines

MATERIALS ON SITE	**DESTINATION** *Evidence such as weighbridge dockets and invoices for waste disposal or recycling must be retained on site for inspection*					
	REUSE AND RECYCLING (MOST FAVOURABLE)				**DISPOSAL (LEAST FAVOURABLE)**	
Types of Waste Material	Estimated Volume (m^3) or Weight (t)	**ONSITE RE-USE** ✓ Specify how material will be reused on site	**OFFSITE RECYCLING** ✓ Recycling Outlet (RO) ✓ Waste Transport Contractor (WTC)		**OFFSITE DISPOSAL** ✓ Specify landfill site (LS) ✓ Specify Waste Transport Contractor (WTC)	
			WTC	RO	WTC	LS
Excavated Material						
Garden Organics						
Bricks					OPTION NOT AVAILABLE: These materials must be re-used or separated on or off site and sent for recycling.	
Tiles						
Concrete						
Timber						
Plasterboard						
Metals						
Asbestos						
Other waste (please specify)						
Estimated Total % Recovered						

Refer to the estimation tables in 'Chapter 1 – Demolition' of the Guidelines for assistance in completing this table.

The applicant must submit a Site Plan showing the structures to be demolished and storage areas for waste and construction materials (if the development also includes construction).

WMP Checklist

Have you included the following:	Applicant Tick
A site plan showing: • The structures to be demolished. • Storage areas for waste to be reused, recycled, or disposed of. • Materials storage (if the development also includes construction)	☐
The table on the previous page, completed in accordance with 'Chapter 1 – Demolition' in the guidelines.	☐

Section 2 – Construction

This section must be completed in accordance with 'Chapter 2 – Construction' of the Waste Management Guidelines

MATERIALS ON SITE	**DESTINATION** *Evidence such as weighbridge dockets and invoices for waste disposal or recycling must be retained on site for inspection*					
	REUSE AND RECYCLING (MOST FAVOURABLE)				**DISPOSAL (LEAST FAVOURABLE)**	
Types of Waste Material	Estimated Volume (m^3) or Weight (t)	**ONSITE RE-USE** ✓ Specify how material will be reused on site	**OFFSITE RECYCLING** ✓ Specify recycling outlet (RO) ✓ Specify Waste Transport Contractor (WTC)		**OFFSITE DISPOSAL** ✓ Specify landfill site (LS) ✓ Specify Waste Transport Contractor (WTC)	
* Please specify			WTC	RO	WTC	LS
Excavated Material						
Garden Organics						
Bricks					OPTION NOT AVAILABLE: These materials must be re-used or separated on or off site and sent for recycling.	
Tiles						
Concrete						
Timber*						
Plasterboard						
Metals*						
Asbestos						
Other waste*						
Estimated Total % Recovered						

Refer to the estimation tables in 'Chapter 2 – Construction' of the Guidelines for assistance in completing this table.

The applicant must submit a Site Plan showing the structures to be demolished and storage areas for waste and construction materials (if the development also includes construction).

WMP Checklist

Have you included the following:	Applicant Tick
A site plan showing: • The structures to be demolished. • Potential storage areas for waste to be reused, recycled, or disposed of. • Materials storage	☐
The table on the previous page, completed in accordance with 'Chapter 2 – Construction' in the guidelines.	☐

Section 3 – On-going waste management for one or two dwellings

This section is to be completed in accordance with 'Chapter 3 – On-going waste management for one or two dwellings' of the Waste Management Guidelines.

Type of development: _____

Number of dwellings: _____

WMP Checklist

Do your architectural and landscape plans include the following:	Applicant Tick
Waste Storage Area design requirements (Chapter 3.2.)	☐
Waste Storage Area location requirements (Chapter 3.3.)	☐

Section 4 – On-going waste management for three or more dwellings

This section is to be completed in accordance with 'Chapter 4 – On-going waste management for three or more dwellings' of the Waste Management Guidelines.

Type of development: _____

Number of dwellings: _____

WMP Checklist and Applicant Declaration

Do your architectural/landscape plans include the following:	Applicant Tick	N/A
Waste Storage Area design requirements (Chapter 4.2.)	☐	-
Waste Storage Area location requirements (Chapter 4.3.)	☐	-
Pathway, access and door requirements (Chapter 4.4.)	☐	-
Clean-up waste requirements (Chapter 4.5.)	☐	☐
Kerbside (on-street) waste collection requirements (Chapter 4.6.)	☐	☐
On-site (off-street) waste collection requirements (Chapter 4.7.)	☐	☐

Section 5 – On-going waste management for non-residential and mixed use developments

This section is to be completed in accordance with 'Chapter 5 – On-going waste management for non-residential developments' and 'Chapter 6 – On-going waste management for mixed use developments' of the Waste Management Guidelines.

Type of development: _____

Number of commercial premises: _____

Number of Waste Storage Areas: _____

WMP Checklist

Do your architectural/landscape plans include the following:	Applicant Tick	N/A
Waste Storage Area design requirements (Chapter 5.2.)	☐	-
Waste Storage Area location requirements (Chapter 5.3.)	☐	-

Section 6 – Private roadway developments

This section is to be completed in accordance with 'Chapter 7 – Private roadway developments' of the Waste Management Guidelines.

Type of development: _____

Number of dwellings: _____
(Only applicable for sub-divisions)

WMP Checklist and Applicant Declaration

Do your sub-division plans include the following:	Applicant Tick	N/A
Council's waste vehicle design requirements (Chapter 7.2.)	☐	☐
Waste Storage Area requirements (Chapter 7.3.)	☐	☐