

Construction Spoil Management Plan

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A W EDWARDS PTY LIMITED

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AW EDWARDS acknowledges the Traditional Owners of Country throughout Australia and recognises the continuing connection to lands, waters and communities.
We pay our respect to Aboriginal and Torres Strait Islander people and culture, and to their Elders past and present.

“COMMUNITY”
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1 INTRODUCTION

1.1 BACKGROUND

The Sydney Metro City & Southwest is a 30 kilometre metro rail between Chatswood and Bankstown, including; 17 kilometres of new tunnel from Chatswood, under the harbour to Sydenham connecting seven new underground stations at Crows Nest, Victoria Cross (North Sydney), Barangaroo, Pitt Street, Martin Place, Central and Waterloo. Upgrading 13 kilometres of the Bankstown line, including 11 existing stations; Sydenham, Marrickville, Dulwich Hill, Hurlstone Park, Canterbury, Campsie, Belmore, Lakemba, Wiley Park, Punchbowl and Bankstown plus southern service facilities.

Several separate environmental impact assessments of the project were progressed by Transport for NSW (TfNSW). In May 2016, an environmental impact statement (EIS) for the Chatswood to Sydenham section of the project (the EIS) was placed on public exhibition for 48 days. A preferred infrastructure report on the Chatswood to Sydenham component (the PIR) was prepared and publicly released in October 2016. The project was approved on 9 January 2017 (SSI 15_7400) (project planning approval). Following approval, six modifications have been approved by NSW Department of Planning, Infrastructure and Environment (DPIE).

A W Edwards has been awarded the tender to construct Crows Nest Metro Station (the project).

1.2 PURPOSE

This Construction Spoil Management Plan (CSMP) describes how A W Edwards will manage spoil generation and disposal during construction of the project. It describes legal, planning and contractual requirements and the spoil management measures.

This CSMP forms part of the Construction Environmental Management Plan (CEMP) for the project and was prepared in accordance with:

- The relevant planning approvals and conditions of approval (CoA) for the project (refer to Chapter 2);
- Applicable legislation and regulatory requirements;
- Sydney Metro Construction Environmental Management Framework – Chatswood to Sydenham (CEMF);
- Revised Environmental Mitigation Measures (REMMs); and
- Sydney Metro contractual requirements, including the Project Deed and Scope of Work and Technical Criteria.

1.3 PROJECT OVERVIEW

Crows Nest Station will be between the Pacific Highway and Clarke Lane (eastern side of the Pacific Highway) and between Oxley Street and south of Hume Street. It will be strategically located to the south of the existing station at St Leonards and close to the leisure and retail strip along Willoughby Road.

Crows Nest Station will support the St Leonards specialised centre as a southern gateway to commercial and mixed-use activities. The station will also improve access to the restaurants and specialist shops in the Crows Nest village. Crows Nest Station will:

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- Create a new transport focus on the southern side of the St Leonards specialised centre.
- Maximise legibility and connectivity with the local urban structure.
- Integrate the station with local improvement plans and make a positive contribution to the sense of place.

Refer to **Chapter 2** of the CEMP for detailed scope of work and construction methodology.

The haulage and delivery of spoil and material transport activities are permitted to be undertaken 24 hours per day, seven days a week in accordance with CoA E48.

1.4 OBJECTIVES

The following spoil and waste management objectives, consistent with those described in Section 6.1 of the CEMF will be applied to the project:

- Minimise spoil generation where possible.
- Mandate the 100% reuse or recycling (on or off-site) of usable spoil.
- Manage spoil with consideration to minimising adverse traffic and transport related issues.
- Manage spoil with consideration of the impacts on residents and other sensitive receivers.
- Manage spoil to avoid the contamination of land and water.
- Site contamination will be managed effectively to limit the potential risk to human health and the environment.

This plan addresses and details the following issues:

- Excavation, handling, haulage, disposal and reuse, including on-site storage and stockpiling arrangements.
- Processes and procedures that will be used for the management of spoil, including those for virgin excavated natural material (VENM), excavated natural material (ENM), contaminated and unsuitable material.
- Measures that will be implemented to both reduce spoil quantities and maximise the beneficial reuse of spoil that will be generated during the performance of the works.
- Nominated quantities for reuse of spoil within the construction site, for beneficial reuse of spoil off site and for spoil disposal.
- Processes and procedures for the management of the environmental impacts of spoil transfer and reuse.

1.5 CONSULTATION

In accordance with CoA C5, the CEMP sub-plans must be developed in consultation with relevant government agencies.

As this CSMP is not a requirement of a CoA, but rather the CEMF, no consultation with stakeholders is required.

1.6 ENVIRONMENTAL MANAGEMENT STRUCTURE

This CSMP is part of A W Edward's environmental management framework for the project and is supported by other documents such as:

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- Construction Environmental Management Plan (CEMP);
- Community and Stakeholder Engagement Plan; and
- Environmental Control Maps (ECMs), inclusive of relevant spoil and waste storage areas and management measures.

1.7 APPROVAL

This CSMP will be reviewed by Sydney Metro, endorsed by the Environmental Representative (ER) and submitted to the Secretary of DPIE for approval in accordance with CoA C8.

This CSMP will be submitted for approval to the Secretary of DPIE no later than one month before commencement of construction of the project.

Construction will not commence until the CEMP and sub-plans (including this CSMP) have been approved.

Construction Spoil Management Plan**2 LEGAL AND OTHER REQUIREMENTS****2.1 PLANNING APPROVALS**

Sydney Metro City & Southwest has been declared as critical State significant infrastructure (CSSI) under Division 5.2 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) and State Environmental Planning Policy (State and Regional Development) 2011. There are two CSSI planning approvals for Sydney Metro City & Southwest:

- Construction and operation of the section between Chatswood and the Sydenham dive site known as “CSSI_7400”, which was granted on 9 January 2017. Several modifications to CSSI_7400 have since been approved. A W Edwards will be required to comply with CSSI_7400, including the modifications to this approval, to the extent required by Sydney Metro.
- The section of the rail corridor between Sydenham and Bankstown and is known as “CSSI_8256” and does not have any requirements that are relevant to the project.

Any future amendments to the CSSI approval (Chatswood to Sydenham) will be subject to Sydney Metro approval and will continue to be managed and lodged by Sydney Metro.

The environmental assessments relevant to the project, which have been referenced during the preparation of this CEMP are:

- Sydney Metro City & Southwest – Chatswood to Sydenham – Environmental Impact Statement (May 2016).
- Sydney Metro City & Southwest – Crows Nest Over Station Development – Environmental Impact Statement (November 2018).
- Minor Works Approval for Enabling Works (CN-PCMW-001 Site Establishment Works) – April 2020.

2.2 LEGISLATION AND REGULATORY REQUIREMENTS

Applicable legislation is summarised in Table 2.1.

Table 2.1: Legislation

LEGISLATION	DESCRIPTION	RELEVANCE
<i>NSW Environmental Planning and Assessment Act 1979</i>	This Act establishes a system of environmental planning and assessment for development of the State.	The approval conditions and obligations are incorporated into this CSMP.
<i>NSW Contaminated Land Management Act 1997</i>	This Act provides for a process to investigate and remediate land that has been contaminated and presents a significant risk of harm to human health. Section 60 of the Act is a “Duty to Report Contamination”. This duty applies to owners of land and persons who become aware their activities have contaminated the land.	This plan discusses how A W Edwards will manage works to comply with this Act for any potentially contaminated spoil encountered during construction.
<i>NSW Protection of the Environment Operations Act 1997</i>	This Act includes all the controls necessary to regulate pollution and reduce degradation of the environment, provides for	This plan defines how A W Edwards will manage works to comply with this Act and minimise the

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LEGISLATION	DESCRIPTION	RELEVANCE
	licensing of scheduled development work, scheduled activities and for offences and prosecution under this Act.	potential for a pollution event to occur.
<i>NSW Protection of the Environment Operations (Waste) Regulation 2014</i>	This Act includes additional provisions to protect human health and the environment for a modern and fair waste industry in NSW. Changes within this regulation includes amended thresholds for environment protection licences and reforms to the waste levy system.	This plan outlines how A W Edwards will manage waste disposal in accordance with the new waste reforms.
NSW Waste Avoidance and Resource Recovery Act 2001	This Act includes the majority of NSW's overarching objectives and guiding principles to encourage beneficial reuse and resource recovery. Implementation of a waste hierarchy in accordance with the principle of environmentally sustainable development (ESD) is identified as a main objective of the Act, along with objectives to minimise the consumption of natural resources and waste generation.	This plan defines how A W Edwards will classify spoil within the waste hierarchy guidelines and determine the most appropriate reuse option for spoil.

2.3 GUIDELINES

Guidelines and standards relating to the management of spoil are:

- Waste Classification Guidelines: Part 1 Classifying Waste (EPA 2014).
- NSW Protection of the Environment Operations (Waste) Regulation 2014.
- NSW EPA orders and exemptions: <https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/resource-recovery-framework/current-orders-and-exemption>.

2.4 PROJECT APPROVAL REQUIREMENTS

This CSMP has been produced to demonstrate compliance with the relevant CoA stipulated in SSI_7400, as summarised in Table 2.2.

The CoA relevant to the project have been confirmed via the Sydney Metro Chatswood to Sydenham Staging Report (Sydney Metro, 2019)

Table 2.2: CoA requirements

ITEM	REQUIREMENT	DOCUMENT REFERENCE
E48	<p>Notwithstanding Condition E36 of this approval and subject to Condition E47, the following activities may be undertaken 24 hours per day, seven (7) days per week:</p> <p>(a) tunnelling and associated support activities (excluding cut and cover tunnelling, and excluding the installation and decommissioning of the Blues Point acoustic shed except where compliance with Condition E44 is achieved);</p> <p>(b) excavation within an acoustic enclosure (excluding the Blues Point temporary site except where compliance with Condition E44 is achieved);</p> <p>(c) excavation at Central (excluding Central Walk works at 20-28 Chalmers Street, Surry Hills) without an acoustic enclosure;</p> <p>(d) station and tunnel fit out; and</p> <p>(e) haulage and delivery of spoil and materials.</p>	<p>Section 1.3</p> <p>Construction Noise and Vibration Management Plan</p> <p>Sydney Metro Out of Hours Work Protocol</p>
E66	<p>A Site Contamination Report, documenting the outcomes of Phase 1 and Phase 2 contamination assessments of land upon which the CSSI is to be carried out, that is suspected to be, or known to be, contaminated must be prepared by a suitably qualified and experienced person in accordance with guidelines made or approved under the Contaminated Land Management Act 1997 (NSW).</p>	<p>Not applicable – station excavation completed</p>
E67	<p>If a Site Contamination Report prepared under Condition E66 finds such land contains contamination, a site audit is required to determine the suitability of a site for a specified use. If a site audit is required, a Site Audit Statement and Site Audit Report must be prepared by a NSW EPA Accredited Site Auditor. Contaminated land must not be used for the purpose approved under the terms of this approval until a Site Audit Statement is obtained that declares the land is suitable for that purpose and any conditions on the Site Audit Statement have been complied with.</p>	<p>Not applicable – station excavation completed</p>
E68	<p>A copy of the Site Audit Statement and Site Audit Report must be submitted to the Secretary and Council for information no later than one (1) month before the commencement of operation.</p>	<p>Not applicable – station excavation completed</p>
E69	<p>An Unexpected Contaminated Land and Asbestos Finds Procedure must be prepared and must be followed should unexpected contaminated land or asbestos be excavated or otherwise discovered during construction.</p>	<p>Section 6.3</p>
E70	<p>The Unexpected Contaminated Land and Asbestos Finds Procedure must be implemented throughout construction.</p>	<p>Section 6.3</p>
E106	<p>Waste generated during construction and operation is to be dealt with in accordance with the following priorities:</p> <p>(a) waste generation is to be avoided and where avoidance is not reasonably practicable, waste generation is to be reduced;</p> <p>(b) where avoiding or reducing waste is not possible, waste is to be re-used, recycled, or recovered; and</p> <p>(c) where re-using, recycling or recovering waste is not possible, waste is to be treated or disposed of.</p>	<p>Chapters 3, 4 and 6</p>

Construction Spoil Management Plan**2.5 CONSTRUCTION ENVIRONMENTAL MANAGEMENT FRAMEWORK**

This CSMP has been produced to demonstrate compliance with the Sydney Metro *Construction Environmental Management Framework* as summarised in Table 2.3.

Table 2.3: CEMF requirements

ITEM	REQUIREMENT	DOCUMENT REFERENCE
6.1 (a)	Minimise spoil generation where possible.	Section 4.1
	The project will mandate 100% reuse or recycling (on or off-site) of usable spoil.	Section 4.1
	Spoil will be managed with consideration to minimising adverse traffic and transport related issues.	Section 6.4
	Spoil will be managed to avoid contamination of land or water.	Section 6.3
	Spoil will be managed with consideration of the impacts on residents and other sensitive receivers.	Section 3.1.3 & Section 6.4
	Site contamination will be effectively managed to limit the potential risk to human health and the environment.	Section 6.3
	The Spoil Management Plan will include as a minimum:	-
	The spoil mitigation measures as detailed in the environmental approval documentation.	Chapter 6
	A link or reference to where traffic movements in relation to spoil are described.	Section 6.4 Refer CTMP
6.2 (a)	A register of spoil receipt sites that includes the site or project name, location, capacity, site owner and which tier the site is classified as under the spoil reuse hierarchy.	Section 6.2
	The responsibilities of key project personnel with respect to the implementation of the plan.	Section 7.1
	Procedures for the testing, classification, handling and reuse of spoil.	Chapter 6
	Spoil management monitoring requirements.	Section 7.3
	Compliance record generation and management.	Section 7.7
6.2 (b)	Spoil management measures will be included in regular inspections undertaken by the Contractor, and compliance records will be retained. These will include:	Section 7.7
	Records detailing the beneficial re-use of spoil either within the project or at off-site locations; and	
	Waste dockets for any spoil disposed of to landfill sites.	
6.3	Spoil mitigation measures: <ul style="list-style-type: none"> ▪ Implementing the spoil re-use hierarchy. ▪ Handling spoil to minimise potential for air or water pollution. ▪ Minimise traffic impacts associated with spoil removal. 	Chapters 4 and 6

3 SPOIL CLASSIFICATION AND HIERARCHY

3.1 WASTE MANAGEMENT HIERARCHY

The *Waste Avoidance and Resource Recovery Act 2001* ensures that resource management options are considered against a hierarchy of:

- Avoidance of unnecessary resource consumption;
- Resource recovery (including reuse, recycling, reprocessing, and energy recovery); and
- Disposal.

The approach to the steps in the waste hierarchy most relevant to the project is briefly described below.

3.1.1 Reduce or avoid

Reducing or avoiding the generation of waste is of primary importance to the project. The following approach will be adopted:

- Consider construction options that have a higher waste reduction capacity than alternatives;
- Order material / goods with minimal packaging or request suppliers to remove packaging from site; and
- Accurately estimate materials required to minimise wastage of product.

3.1.2 Reuse and recycling

Waste separation and segregation will be promoted on-site to facilitate reuse and recycling as a priority of the waste management program as follows:

- Segregate waste on-site – waste materials, including spoil and demolition waste, will be separated into dedicated bins / areas for either reuse on-site or collection by a waste contractor and transported to off-site facilities;
- Separate waste off-site – wastes will be deposited into one bin where space is not available for placement of multiple bins, and the waste will be sorted off-site by a waste contractor; and
- Where feasible and reasonable, secondary waste material would be used in construction.

3.1.3 Waste handling and storage

Where waste is required to be handled and stored onsite prior to onsite reuse or offsite recycling / disposal, the following measures will apply:

- Spoil will be stockpiled on-site in allocated areas, where appropriate, and mitigation measures for dust control and surface water management will be implemented in accordance with the CEMP;
- Asbestos containing materials and waste would be investigated, managed, handled and disposed by a suitably qualified and experienced occupational hygienist. The disturbance of, handling and disposal of any asbestos containing materials would be undertaken by an appropriately licenced asbestos removal contractor in accordance applicable SafeWork NSW and EPA requirements and guidelines;
- Liquid wastes will be stored in appropriate containers in bunded areas until transported off-site. Bunded areas will have the capacity to hold 110% of the

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liquid waste volume for bulk storage or 120% of the volume of the largest container for smaller packaged storage;

- Hazardous waste will be managed by the appropriately qualified and licensed contractors, in accordance with the requirements of the *NSW Contaminated Land Management Act 1997*, *Environmentally Hazardous Chemicals Act 1985* and the EPA waste disposal guidelines; and
- All other recyclable or non-recyclable wastes will be stored in appropriate covered receptacles (e.g. bins or skips) in appropriate locations on-site and subcontractors commissioned to regularly remove / empty the bins to approved disposal or recycling facilities.

3.1.4 Waste classification

Where waste cannot be avoided, reused or recycled it will be classified and appropriately disposed of. The classification of waste will be undertaken in accordance with the *NSW Waste Classification Guidelines Part 1: Classifying Waste* (EPA, 2014). This document identifies six classes of waste: Special, Liquid, Hazardous, Restricted Solid, General Solid (putrescible) and General Solid (non-putrescible) and describes a six-step process to classifying waste.

The general classification principles are as follows:

- If a special waste is mixed with another waste, the waste must be managed to meet the requirements of both the special wastes and the other class of waste.
- If asbestos waste is mixed with any other class of waste, all the waste must be classified as asbestos waste.
- If liquid waste is mixed with hazardous or solid waste and retains the defined characteristics of liquid waste, it remains liquid waste.
- Two or more classes of waste must not be mixed to reduce the concentration of chemical contaminants. Dilution is not an acceptable waste management option.
- Where practicable, it is desirable to separate a mixture of wastes before classifying them.

3.2 WASTE STREAMS AND CLASSIFICATION

Spoil is defined as any earthen material that is surplus to requirements or unsuitable for on-site reuse.

Spoil (other than VENM) will be sampled, analysed and characterised in accordance with the *Waste Classification Guidelines: Part 1 Classifying Waste* (EPA 2014) (the Guidelines).

There are resource recovery exemptions in place for VENM and Excavated Natural Material (ENM), which are summarised below. Topsoil is unlikely to be encountered given existing surface disturbance.

General construction waste would be minimised by accurately calculating materials brought to the site and limiting material packaging, with any related waste classified and disposed of in accordance with the *Waste Classification Guidelines*.

3.2.1 Virgin excavated natural material

Virgin excavated natural material is defined as natural material (such as clay, gravel, sand, soil or rock fines) that has been excavated or quarried from areas that are not contaminated

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with manufactured chemicals or with process residues as a result of industrial, commercial, mining or agricultural activities.

The following questions will be used when classifying material as VENM:

- Are manufactured chemicals or process residues present?
- Are sulfidic ores or soil present?
- Are naturally occurring asbestos soils present?
- Is there any other waste present?

If material meets the definition of VENM it can be reused on or offsite without prior testing. However, if there is any doubt as to whether the material is VENM, the Planning and Environment Manager will arrange for sampling and analysis of the material against the excavated natural material (ENM) resource recovery order (The excavated natural material order 2014) to confirm that the material is free of contaminants.

3.2.2 Excavated natural material

Spoil material which does not meet the definition of VENM is likely to be classified as ENM in accordance with the resource recovery order for ENM declared under the Protection of the Environment Operations (Waste) Regulation 2014.

ENM is defined as naturally occurring rock or soil (including but not limited to materials such as sandstone, shale, clay and soil) that has:

- Been excavated from the ground.
- Contains at least 98% by weight natural material.
- Does not meet the definition of VENM in the Act.

ENM does not include material that has been processed or contains acid sulphate soils or potentially acid sulphate soils.

To be classified as ENM, the material must be sampled and analysed in accordance with the requirements of the resource recovery order and satisfy the criteria contained within.

3.3 OTHER WASTE CLASSIFICATIONS

Spoil not classified as either VENM or ENM due to contamination from either construction material or other sources shall be characterised in accordance with the *Waste Classification Guidelines: Part 1 Classifying Waste* (EPA 2014). This may include classification as general solid waste (Non-putrescible), restricted solid waste, hazardous waste or special waste.

3.3.1 Special waste

Special waste is a class of waste that has unique regulatory requirements. The potential environmental impacts of special waste need to be managed to minimise the risk or harm to the environment or human health.

Special waste is defined as any of the following:

- Clinical and related waste.
- Asbestos waste.
- Waste tyres.
- Anything classified as special waste under an EPA gazettal notice.

3.3.2 Hazardous waste

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The following waste types (other than special waste or liquid waste) have been pre-classified by the EPA as 'hazardous waste':

- Containers, having previously contained a substance of class 1, 3, 4, 5 or 8 within the meaning of the *Transport of Dangerous Goods Code*, or a substance to which Division 6.1 of the *Transport of Dangerous Goods Code* applies, from which residues have not been removed by washing or vacuuming.
- Coal tar or coal tar pitch waste (being the tarry residue from the heating, processing or burning of coal or coke) comprising of more than 1% (by weight) of coal tar or coal tar pitch waste.
- Lead-acid or nickel-cadmium batteries (being waste generated or separately collected by activities carried out for business, commercial or community services purposes).
- Lead paint waste arising otherwise than from residential premises or educational or childcare institutions.
- Any mixture of the wastes referred to above.

Construction Spoil Management Plan**3.3.3 Restricted solid waste**

Currently, no wastes have been pre-classified by the EPA as 'restricted solid waste'. Restricted solid waste therefore only includes wastes assessed and classified as restricted solid waste in accordance with the procedures outlined under Step 5 of the *Waste Classification Guidelines: Part 1 Classifying Waste* (EPA 2014). That is, where waste has not been classified under steps 1-4, waste generators must chemically assess their waste to determine the most appropriate waste classification within the EPA guideline by utilising the specific contaminant concentration (SCC) and/or toxicity characteristics leaching procedure (TCLP) test values.

If the waste is not chemically assessed then the waste must be treated as hazardous waste and must be treated prior to disposal at an appropriate licenced location.

3.3.4 General solid waste (non-putrescible)

General solid waste (non-putrescible) is any waste that is not classified as special waste, liquid waste, hazardous waste, restricted solid waste or general solid waste (putrescible).

3.3.5 Resource recovery exemptions

The Protection of the Environment Operations (Waste) Regulation 2014 enables the EPA to issue 'resource recovery exemptions' which allow for the beneficial reuse of wastes via land application or for use as a fuel.

These exemptions enable a project to comply with the principle of 'wastes to resources for beneficial reuse' (where the wastes are fit for beneficial reuse). During the project, materials may be encountered that do not meet the VENM or ENM classification but are also not contaminated material. In these circumstances, the project team will check for existing resource recovery exemptions such as:

- The excavated public road material exemption 2014.
- The reclaimed asphalt pavement exemption 2014.
- The recovered aggregate exemption 2014.
- Raw mulch material exemption 2014.

4 SPOIL GENERATION

4.1 RE-USE OPTIONS AND TARGETS

If spoil is generated during construction, it is anticipated to be crushed sandstone and shale which would be classified as 'virgin excavated natural material' (VENM).

While the project would target 100% of beneficial re-use of the usable spoil generated during construction, it is recognised that there would be very limited opportunities for onsite spoil re-use as the project has very limited onsite requirements for fill and space at the site is limited.

Spoil generated by surface works such as utility relocation is likely to suit classification as ENM or general solid waste and may be re-used as backfill of the excavation, however some residual spoil may be generated. Any residual spoil would be adequately tested to determine waste classification prior to disposal.

Where spoil cannot be re-used for the project, opportunities to re-use this material on other developments (preferably within the Sydney region to reduce transport distances) would be investigated.

The spoil produced by the project may have the following potential re-use opportunities:

- Clean granular fill is likely to be suitable for use as structural fill;
- Excavated moist clay and clayey sand material is likely to be suitable for use as general fill following moisture conditioning;
- Excavated weathered shale and sandstone could be suitable for use as structural fill following moisture conditioning to reduce reactivity;
- Medium strength or better-quality shale is likely to be suitable for use as non-reactive fill;
- Medium to high strength sandstone may be suitable for use as structural fill; and
- Wet clay and wet shale spoil are unlikely to be suitable for re-use on site without substantial moisture conditioning.

The geology of the spoil material, as well as its consistency and quality would determine the re-use options.

The spoil management hierarchy in Table 4.1 has been prepared with reference to the *NSW Waste Avoidance and Resource Recovery Act 2001* and the *NSW Waste Avoidance and Resource Recovery Strategy 2013-2021* to guide spoil re-use and disposal.

Construction Spoil Management Plan*Table 4.1: Spoil management hierarchy*

OPTION	DESCRIPTION	POTENTIAL FOR USE
1. Avoid and reduce spoil generation	Reduce the amount of spoil being generated through design and construction methodology.	Limited
2. Reuse in construction	Reuse spoil for engineering fill. Reuse spoil to restore any pre-existing contaminated sites within the project site. Reuse spoil as a feed product in construction materials.	Limited
3. Reuse for environmental works	Reuse spoil in native vegetation rehabilitation projects. Reuse spoil for coastal protection, such as beach nourishment and land raising. Reuse spoil in flood mitigation projects.	Limited
4. Reuse on in other construction projects	Reuse for engineering fill on projects within an economic transport distance from site. Reuse sand for manufacturing concrete and reuse shale for manufacturing bricks/ tiles.	Preferred
5. Reuse for land restoration	Reuse for land reclamation or remediation works Reuse to fill disused facilities, e.g. mines and quarries, to enable ecological rehabilitation or other ecologically beneficial end use.	Preferred
6. Reuse for landfill management	Reuse to cap completed landfill cells. Reuse in daily covering of landfill waste.	Limited
7. Offsite waste disposal	Disposal of excess spoil as waste at an approved facility licenced to receive the material.	Likely but not preferred

4.2 SPOIL AND WASTE VOLUMES

A W Edwards has estimated the project may generate up to 800 cubic metres of VENM and 3,500 cubic metres of general solid waste (non-putrescible) during construction.

The types of spoil and other waste that may be generated during construction are outlined in Table 4.2. This table also identifies preferred reuse, recycling and disposal methods for each waste stream.

Table 4.2: Waste streams, classification and management options

CONSTRUCTION ACTIVITY	WASTE TYPE	WASTE CLASSIFICATION	PROPOSED STORAGE AND RE-USE /RECYCLING /DISPOSAL METHODS
Geotechnical investigations and non-destructive excavation	Drilling mud or liquid waste	Subject to chemical assessment	<p>Storage/collection – Drilling mud is to be extracted via sealed vacuum tanker by an appropriately licenced contractor and analysed against the Resource Recovery Exemption requirements for treated drilling mud.</p> <p>Reuse off site – In the event the drilling mud is compliant with the exemption requirements, the appropriately licenced contractor is to transport the material via vacuum tanker to their licenced facility for application of the treated drilling mud to land. The facility should be appropriately licenced via an Environment Protection Licence (EPL).</p> <p>Disposal – In the event the drilling mud is not compliant with the exemption requirements, the licenced contractor would transport the material to an appropriately licenced facility permitted to accept liquid waste for appropriate disposal.</p>
General demolition	Concrete, bricks, ceramics	General solid waste (non-putrescible)	<p>Reuse onsite - If suitable, crush and use as backfill/road base.</p> <p>Storage/Collection – General solid wastes are to be stored within designated skip bins on-site for collection by an appropriately licenced waste management contractor.</p> <p>Resource recovery off site – the waste contractor would collect the skip bin and transport to a licenced waste management facility for reuse, recycling, reprocessing or energy recovery in accordance with the Waste Classification Guidelines.</p> <p>Reuse off site – apply concrete to land where there is full compliance with The Recovered Aggregate Exemption.</p>
	Asphalt	General solid waste (non-putrescible)	<p>Reuse onsite - If suitable, crush and use as backfill/road base.</p> <p>Storage/collection – General solid wastes are to be stored within designated skip bins on-site for collection by an appropriately licenced waste management contractor.</p> <p>Resource recovery off site – the waste contractor would collect the skip bin and transport to a licenced</p>

CONSTRUCTION ACTIVITY	WASTE TYPE	WASTE CLASSIFICATION	PROPOSED STORAGE AND RE-USE /RECYCLING /DISPOSAL METHODS
			<p>waste management facility for reuse, recycling, reprocessing or energy recovery in accordance with the Waste Classification Guidelines.</p> <p>Reuse off site – apply asphalt to land where there is full compliance with The Recovered Aggregate Exemption.</p>
Concrete slurry		Liquid waste	<p>Storage/collection – Concrete slurry is to be extracted via sealed wet vacuum or vacuum tanker by an appropriately licenced contractor.</p> <p>Disposal – the licenced contractor would transport the material to an appropriately licenced facility permitted to accept liquid waste for appropriate disposal.</p>
Scrap metal		General solid waste (non-putrescible)	<p>Storage/collection – General solid wastes are to be stored within designated skip bins on-site for collection by an appropriately licenced waste management contractor.</p> <p>Resource recovery off site - the waste contractor would collect the skip bin and transport to a licenced waste management facility for reuse, recycling, reprocessing or energy recovery in accordance with the Waste Classification Guidelines.</p>
Glass		General solid waste (non-putrescible)	<p>Storage/collection – General solid wastes are to be stored within designated skip bins on-site for collection by an appropriately licenced waste management contractor.</p> <p>Resource recovery off site - the waste contractor would collect the skip bin and transport to a licenced waste management facility for reuse, recycling, reprocessing or energy recovery in accordance with the Waste Classification Guidelines.</p>
Asbestos		Special waste	<p>Storage/collection – Asbestos waste is to be left in-situ and adequately secured for collection by an appropriately licenced asbestos removal contractor.</p> <p>Disposal off-site – the licenced contractor is to collect, transport and dispose the waste at an appropriately licensed waste facility in accordance with the premises' Environment Protection Licence. The asbestos waste is to be tracked and all dockets and receipts retained.</p>

CONSTRUCTION ACTIVITY	WASTE TYPE	WASTE CLASSIFICATION	PROPOSED STORAGE AND RE-USE /RECYCLING /DISPOSAL METHODS
Excavation	Excess spoil (unsuitable material)	VENM, ENM and/or General solid waste (non-putrescible)	<p>Reuse on-site - If suitable, re-use non-contaminated spoil in backfill.</p> <p>Storage/collection – Excess spoil is to be stored within designated skip bins or segregated stockpiles on-site for chemical assessment/waste classification, and later collection by an appropriately licenced waste management contractor.</p> <p>Reuse off site – where there is full compliance with the VENM criteria and/or ENM resource recovery exemption, the waste contractor would transport the VENM/ENM material to an appropriately licenced receiving facility permitted to accept VENM/ENM as engineering fill via an Environmental Protection Licence (EPL), or Council DA.</p> <p>Disposal off-site – In the event the spoil does not satisfy the VENM and ENM exemption, the material is to be analysed and classified as general solid waste (or higher classification) and disposed by the contractor at an appropriately licensed waste facility in accordance with the premises' Environment Protection Licence</p>
Building and construction waste	Steel reinforcing	General solid waste (non-putrescible)	<p>Storage/collection – Steel waste is to be stored within designated large skip bins on-site for collection by an appropriately licenced waste management contractor.</p> <p>Resource recovery off site - the waste contractor would collect the skip bin and transport to a licenced waste management facility for reuse, recycling, reprocessing or energy recovery in accordance with the Waste Classification Guidelines.</p>
	Conduits and pipes	General solid waste (non-putrescible)	<p>Storage/collection – General solid waste is to be stored within designated skip bins on-site for collection by an appropriately licenced waste management contractor.</p> <p>Resource recovery off site - the waste contractor would collect the skip bin and transport to a licenced waste management facility for reuse, recycling, reprocessing or energy recovery in accordance with the Waste Classification Guidelines.</p>
	Timber formwork	General solid waste (non-putrescible)	<p>Storage/collection – General solid waste is to be stored within designated skip bins on-site for collection by an appropriately</p>

CONSTRUCTION ACTIVITY	WASTE TYPE	WASTE CLASSIFICATION	PROPOSED STORAGE AND RE-USE /RECYCLING /DISPOSAL METHODS
			<p>licenced waste management contractor.</p> <p>Resource recovery off site - the waste contractor would collect the skip bin and transport to a licenced waste management facility for reuse, recycling, reprocessing or energy recovery in accordance with the Waste Classification Guidelines.</p>
	Packaging materials (including wood, plastic, metal and cardboard)	General solid waste (non-putrescible)	<p>Storage/collection – General solid waste is to be stored within designated skip bins on-site for collection by an appropriately licenced waste management contractor.</p> <p>Resource recovery off site - the waste contractor would collect the skip bin and transport to a licenced waste management facility for reuse, recycling, reprocessing or energy recovery in accordance with the Waste Classification Guidelines.</p>
Sediment control maintenance	Geotextile and sandbags	General solid waste (non-putrescible)	<p>Storage/collection – General solid waste is to be stored within designated skip bins on-site for collection by an appropriately licenced waste management contractor.</p> <p>Resource recovery off site - the waste contractor would collect the skip bin and transport to a licenced waste management facility for reuse, recycling, reprocessing or energy recovery in accordance with the Waste Classification Guidelines.</p>
	Sediment removed from sediment controls once they reach capacity.	VENM, ENM and/or General solid waste (non-putrescible)	<p>Reuse on-site - If suitable, re-use non-contaminated sediment in backfill.</p> <p>Storage/collection – Excess accumulated sediment is to be stored within designated skip bins or segregated stockpiles) on-site for chemical assessment/waste classification, and later collection by an appropriately licenced waste management contractor.</p> <p>Reuse off site – where there is full compliance with the VENM criteria and/or ENM resource recovery exemption, the waste contractor would transport the VENM/ENM material to an appropriately licenced receiving facility permitted to accept VENM/ENM as engineering fill via an Environmental Protection Licence (EPL), or Council DA.</p> <p>Disposal off-site – In the event the spoil does not satisfy the VENM and ENM exemption, the material is to</p>

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CONSTRUCTION ACTIVITY	WASTE TYPE	WASTE CLASSIFICATION	PROPOSED STORAGE AND RE-USE /RECYCLING /DISPOSAL METHODS
Site compound and office			be analysed and classified as general solid waste (or higher classification) and disposed by the contractor at an appropriately licensed waste facility in accordance with the premises' Environment Protection Licence
	Drained oil filters, rags and oil-absorbent materials that only contain non-volatile petroleum hydrocarbons and do not contain free liquids.	General solid waste (non-putrescible)	Storage/collection – General solid waste is to be stored within designated skip bins on-site for collection by an appropriately licenced waste management contractor. Resource recovery off site - the waste contractor would collect the skip bin and transport to a licenced waste management facility for reuse, recycling, reprocessing or energy recovery in accordance with the Waste Classification Guidelines.
	Containers, previously containing dangerous goods, from which residues have been removed by washing or vacuuming	General solid waste (non-putrescible)	Storage/collection – General solid waste is to be stored within designated skip bins on-site for collection by an appropriately licenced waste management contractor. Resource recovery off site - the waste contractor would collect the skip bin and transport to a licenced waste management facility for reuse, recycling, reprocessing or energy recovery in accordance with the Waste Classification Guidelines.
	Food waste	General solid waste (non-putrescible)	Storage/collection – Food waste is to be stored within designated bins on-site for collection by an appropriately licenced waste management contractor. Resource recovery off site - the waste contractor would collect the bin and transport to a licenced waste management facility for reuse, recycling, reprocessing or energy recovery in accordance with the Waste Classification Guidelines.
	Wastewater from amenities	Liquid waste	Storage/collection – Sewage is to be extracted via sealed vacuum tanker by an appropriately licenced contractor. Disposal – the licenced contractor would transport the material to an appropriately licenced facility permitted to accept sewage/liquid waste for appropriate disposal.
Paper, cardboard and plastic, glass, aluminium cans	General solid waste (non-putrescible)	Storage/collection – General office waste is to be stored within designated bins on-site for collection by an appropriately	

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CONSTRUCTION ACTIVITY	WASTE TYPE	WASTE CLASSIFICATION	PROPOSED STORAGE AND RE-USE /RECYCLING /DISPOSAL METHODS
			licenced waste management contractor. Resource recovery off site - the waste contractor would collect the bin and transport to a licenced waste management facility for reuse, recycling, reprocessing or energy recovery in accordance with the Waste Classification Guidelines.
	Unwanted liquid chemicals	Liquid waste	Storage/collection – Chemicals are to be stored in original containers in a designated bunded and secure area for collection by an appropriately licenced contractor. Disposal – the licenced contractor would transport the material to an appropriately licenced facility permitted to accept liquid waste for appropriate disposal.

5 POTENTIAL IMPACTS

Spoil and other waste material entering drainage systems or waterways via stormwater runoff or being deposited on neighbouring lands via wind erosion, can pose a threat to downstream aquatic ecology and water quality as well as the wider community.

Failure to appropriately classify, store, transport and dispose of waste can result in adverse environmental impacts as well as penalties.

The key spoil related aspects and impacts are summarised in Table 5.1.

These identified risks have been considered in the development of this plan and site-specific procedures for the works.

Table 5.1: Aspects and impacts

ASPECTS	POTENTIAL IMPACTS
Earthworks spoil disposal.	<ul style="list-style-type: none"> Incorrect classification of waste (spoil) resulting in incorrect / illegal disposal/re-use.
Potential for discovery of unexpected contaminated spoil during construction.	<ul style="list-style-type: none"> Health effects resulting from airborne contamination, e.g. asbestos. Complaints received from odours released during excavations. Classification of spoil is changed and disposal options altered, costs incurred associated with disposal of higher classification of waste.
Spoil re-use objectives	<ul style="list-style-type: none"> Project requirements of 100% of spoil re-use or recycling not being met.
Noise from spoil transportation activities resulting in impact to residents and businesses.	<ul style="list-style-type: none"> Disturbance to residents or neighbouring businesses. Potential for complaints.
Dust from spoil transportation activities resulting in impact to residents and businesses.	<ul style="list-style-type: none"> Disturbance to residents or neighbouring businesses. Potential for complaints.
Spoil traffic disturbing public access between local roads.	<ul style="list-style-type: none"> Disturbance to residents resulting in complaints being made, limited access, potential for delays at local road access points resulting in complaints.

Construction Spoil Management Plan**6 SPOIL MANAGEMENT**

Table 6.1 outlines the REMMs to be implemented for the project to minimise the potential for impacts arising from spoil and waste management.

Table 6.1: Spoil and waste management REMMs

REFERENCE	MITIGATION MEASURE	TIMING	RESPONSIBILITY
WM1	All waste would be assessed, classified, managed and disposed of in accordance with the NSW Waste Classification Guidelines	During construction	P&EM, PE., FM
WM2	100% of the spoil that can be reused would be beneficially reused in accordance with the project spoil recovery reuse hierarchy.	During construction	P&EM, PE., FM
WM3	A recycling target of at least 90% would be adopted for the project	During construction	FM
WM4	Construction waste would be minimised by accurately calculating materials brought to the site and limiting materials packaging	During construction	CM, FM

6.1 SPOIL AND WASTE STORAGE

Temporary stockpiles of spoil may be produced and stored on site in skip bins or other waste receptacles while the material is classified in accordance with the *Waste Classification Guidelines* for re-use and/or disposal at a licenced waste management facility. No long-term spoil stockpiles will be created.

6.2 RE-USE AND DISPOSAL OPTIONS

Given spoil would be generated, it is necessary to identify spoil re-use and disposal locations. However, many concurrent major infrastructure projects are under construction in the wider Sydney region and there is a significant demand for waste disposal sites from multiple large construction contractors. Therefore, not all sites have been secured at the time of writing this plan and will change over time depending on time and space availabilities. Notwithstanding, a reuse target of at 90% of spoil produced has been adopted and would be reused in accordance with the hierarchy identified in Table 4.1.

Prior to engaging a contractor to collect, transport and dispose/re-use the waste, the Planning & Environmental Manager and Construction Manager would obtain a copy of all relevant qualifications, accreditations, permits and licences from the nominated contractor to ensure the contractor and receiving facility are legally permitted to accept the waste type, as required by the POEO Act. In the event that a waste is to be transported to a non-licensed facility for disposal, the Planning & Environment Manager would request for a notice under Section 143(3A) of the POEO Act to be completed and signed by the owner of the waste facility to demonstrate they are legally permitted to accept the waste type. The Section 143 notice would be provided to Sydney Metro for approval prior to transportation of the waste material.

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For a resource recovery exemption to apply, all the conditions of the exemption must be met. These conditions include, but are not limited to, sampling and testing requirements, chemical thresholds, use restrictions and record keeping requirements.

The disposal of waste is to be treated as a last resort. Waste disposal will be in accordance with the POEO Act and the Waste Avoidance and Resource Recovery Act 2001.

Table 6.2 identifies likely waste streams to be generated by construction of the project, and waste classification requirements for materials to be disposed of off-site. Disposal is required at fully licenced facilities, with local facilities nominated below.

Table 6.2: Waste stream classification and disposal.

WASTE STREAM	WASTE CLASSIFICATIONS	DISPOSAL LOCATION(S)
Building and demolition waste (asphalt, concrete etc)	General solid waste (non-putrescible)	To be confirmed
General recyclables (glass, cans, paper, cardboard)	General solid waste (non-putrescible)	To be confirmed
Spoil	VENM / ENM	To be confirmed
Spoil	General solid waste (non-putrescible)	To be confirmed
Drilling mud	Liquid waste or treated drilling mud	To be confirmed
Concrete slurry	Liquid waste	To be confirmed
Asbestos containing material	Special waste	To be confirmed

It should be noted that the disposal locations nominated above are indicative and additional waste management facilities may be identified and used during construction of the project. All waste management facilities would be validated by the Planning & Environmental Manager as being permitted to accept the respective waste stream prior to disposal.

Spoil will be reported in the monthly sustainability data report (MSDR) with the final spoil locations will be audited by A W Edwards on a six monthly basis for all spoil contractors with the results included in the six month compliance tracking report.

6.3 UNEXPECTED CONTAMINATED LAND AND ASBESTOS FINDS PROCEDURE

Given that the station box was predominantly constructed in natural bedrock, the potential for substantial volumes of contaminated spoil to be generated during construction is expected to be low. Notwithstanding, there is potential to encounter contaminated soil during construction.

Construction personnel would be briefed on the potential for unexpected contamination to occur within the site and procedures to be implemented in the event contamination is identified or suspected.

If contamination is identified or suspected, all work in the vicinity of the find shall cease and the area isolated appropriately. A specialist consultant experienced in the identification, sampling and testing of contamination would be engaged to undertake an assessment of site conditions prior to re-commencement of works. The consultant should:

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- Sample and analysis of soil to determine the potential existence of contaminants. Analysis must be undertaken by a NATA accredited laboratory;
- Sample, analyse and determine classification of material to be disposed and/or confirm for re-use as backfill or transportation to another development suitably licensed to accept the material; and
- Report and provide advice on management options, re-use onsite and disposal criteria.

Once waste has been classified, appropriate management options would be considered and implemented in accordance with legislated requirements.

Only bonded asbestos may be received at some premises. There may also be limits on the quantity of asbestos that can be stored on some premises at any time.

Prior to engaging a contractor to collect, transport and dispose/re-process any special or hazardous waste, the Planning & Environmental Manager would obtain a copy of all relevant qualifications, accreditations, permits and licences from the nominated contractor to ensure the contractor and receiving facility are legally permitted to accept the waste type, as required by the POEO Act.

The asbestos waste is to be tracked and all dockets and receipts retained.

6.4 TRANSPORT AND HAULAGE

Spoil will be transported off site by registered trucks via approved construction traffic transport routes. Spoil leaving site will be document in terms of time and date, truck registration, classification, characterisation and location of disposal. The following will be recorded:

- Date.
- Docket number
- Haulage company/licence.
- Material classification.
- Quantity in tonnes.
- Truck identification number.
- Location of spoil receipt site.

7 COMPLIANCE MANAGEMENT

7.1 ROLES AND RESPONSIBILITIES

The overall roles and responsibilities for A W Edwards personnel are outlined in **Chapter 4** of the CEMP. The roles and responsibilities of construction personnel in terms of spoil management are described in Table 7.1.

Table 7.1: Roles and responsibilities

ROLE	RESPONSIBILITIES
Project Director	<ul style="list-style-type: none"> Managing the delivery of the project including overseeing implementation of spoil management measures.
Planning and Environment Manager	<ul style="list-style-type: none"> Oversee the implementation of all spoil management initiatives. Responsible for managing ongoing compliance with the CoA and environmental document requirements. Track and report spoil elements against sustainability targets. Manage the on-ground application of spoil management measures during construction. Monitor and report on spoil management during construction.
Construction/Site Managers, Foreman	<ul style="list-style-type: none"> Manage the delivery of the construction process, in relation to spoil management across all sites in conjunction with the Planning and Environment Manager. Ensure that relevant spoil management requirements are considered in procuring materials and services.
Project Engineer	<ul style="list-style-type: none"> Implement spoil management activities during construction works.

7.2 TRAINING

All site personnel will be inducted and trained as required in relation to spoil and waste management. This CSMP will be continuously improved by ongoing evaluation of environmental management performance against environmental policies, objectives and targets to identify opportunities for improvement.

The training will cover the following issues such as:

- Legislative requirements (POEO Act, EPL etc.) including Section 120 (offence to pollute waters).
- Duty to notify of environmental harm (or the potential for it) including chain of reporting.
- Spill containment and management procedure.
- Contamination and unexpected finds.
- Toolbox talks will also be used to further reinforce awareness of spoil issues.

Further details regarding staff induction and training are described in **Chapter 6** of the CEMP.

Construction Spoil Management Plan**7.3 MONITORING AND INSPECTIONS**

General requirements and responsibilities in relation to inspections and compliance monitoring are documented in **Chapter 9** of the CEMP. Routine environmental inspections will include determination of compliance with this CSMP.

Spoil will be monitored and reported in the monthly sustainability data report (MSDR), including:

- The volume of spoil reused within the Site, beneficially reused off-site amounts or disposed of off-site against the target in Section 4.1.
- Destinations for spoil which has been beneficially reused off-site or disposed of off-site.

7.4 NON-CONFORMANCES

Non-conformances will be identified, managed and documented in accordance with Section 9.4 of the CEMP.

7.5 COMPLAINTS

Complaints will be recorded and addressed in accordance with Section 7.4.2 of the CEMP and the Community and Stakeholder Engagement Plan.

7.6 AUDITS

Audits (both internal and external) will be undertaken to assess the effectiveness of management and mitigation measures, compliance with this CHMP, planning approval conditions and relevant guidelines. Audit requirements are detailed in Section 9.3 of the CEMP.

7.7 RECORD MANAGEMENT

Compliance records would be maintained as detailed in Section 11.2 of the CEMP and may include the following aspects regarding heritage management:

- Inspections undertaken in relation to spoil management measures;
- Results of any spoil testing and waste classification;
- Records detailing the beneficial re-use of spoil either within the project or at off-site locations;
- Spoil volumes and disposal locations; and
- Waste register and disposal dockets.

The above records will be made available to Sydney Metro.

8 REVIEW AND IMPROVEMENT

The CSMP will be reviewed annually to ensure compliance with legislative requirements and its suitability and effectiveness for the project.

The review may be in the form of:

- A formal management review;
- A second party audit; and/or
- Inclusion as a separate item at a site meeting.

The Planning & Environmental Manager may review and update the CSMP more regularly where:

- Significant changes in design or construction activities occur;
- Where targets are not being achieved; or
- In response to lessons learned, audits and non-conformity reports.

Any changes to the CSMP will be approved by Sydney Metro and endorsed by the ER in accordance with **Chapter 10** of the CEMP.