

Appendix B9: Construction Waste and Resources Management Sub-plan

M12 Motorway – East Package

July 2023

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Revision prepared by:	
Environmental Approvals	
Date:27/07/2023	
Revision reviewed by:	
Environmental Site Representative	
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John Holland approval:	
Project Director	
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Table of Contents

Glossary/Abbreviations	v
1 Introduction	1
1.1 Planning context.....	1
1.1.1 M12 East package.....	1
1.1.2 M7-M12 Integration Project.....	1
1.2 Background	1
1.2.1 M12 Motorway.....	1
1.2.2 Statutory context.....	1
1.2.3 M12 Motorway delivery strategy	2
1.3 Scope of the Plan	3
1.4 Environmental Management Systems overview.....	3
1.4.1 CWRMP preparation, endorsement, and approval	4
1.4.2 Interactions with other management plans.....	4
1.5 Consultation	5
1.5.1 Consultation for preparation of the OCWRMP	5
1.5.2 Consultation for preparation of the M7-M12 Integration project CEMP.....	5
1.5.3 Ongoing consultation during construction.....	5
2 Purpose and objectives.....	6
2.1 Purpose	6
2.2 Objectives.....	6
2.3 Targets.....	6
3 Environmental requirements	10
3.1 Relevant legislation and guidelines	10
3.1.1 Legislation	10
3.1.2 Guidelines and standards.....	10
3.2 NSW Conditions of Approval.....	11
3.3 Revised Environmental Management Measures	12
3.4 TfNSW Specifications	14
3.5 Environmental Protection Licence	14
3.6 Sustainability commitments.....	14
4 Environmental aspects and impacts	16
4.1 Construction waste streams.....	16
4.2 Resource use	19
4.3 Energy use.....	19
4.4 Greenhouse gas emissions.....	19
4.5 Impacts.....	20
4.6 Waste management	21
4.6.1 Waste management hierarchy	21

4.6.2	Avoiding and reusing waste.....	21
4.6.3	Reuse and recycling	22
4.6.4	Waste handling and storage	22
4.6.5	Waste transportation	22
4.6.6	Waste disposal.....	23
4.7	Classification of waste streams	23
4.7.1	Waste sampling and classification (for offsite disposal).....	24
4.7.2	Deconstruction	25
4.8	Classification and management of potential waste streams	26
4.9	Waste management register	32
4.10	Waste exemption	32
4.11	Management of surplus material approval.....	34
4.12	Management of cleared vegetation waste	35
4.13	Mulch	36
4.14	Water.....	36
4.15	Management of asbestos.....	36
4.16	Coal tar management.....	36
4.17	Illegal dumping management	37
5	Resource management strategy	38
5.1	Energy conservation.....	40
5.2	Greenhouse gas emissions.....	40
5.3	Procurement	41
6	Environmental control measures.....	42
7	Compliance management	47
7.1	Roles and responsibilities.....	47
7.2	Training.....	47
7.3	Monitoring and inspections	47
7.4	Hold points	48
7.5	Auditing.....	49
7.6	Compliance management and monitoring	51
7.7	Reporting and identified records	51
8	Review and improvement	52
8.1	Continuous improvement	52
8.2	CWRMP update and amendment	52
	Appendix A. Secondary CoA and REMMs	53
	Appendix B. Template Waste Management Register	54
	Appendix C. Spoil Management Plan	56
	Appendix D. Potential Local Waste Facilities	57

Tables

Table 2-1: Construction waste streams and targets	7
Table 3-1: Environmental management measures relevant to this CWRMP	12
Table 3-2: Waste specific sustainability targets	14
Table 4-1: Potential construction waste streams and classifications.....	17
Table 4-2: Construction GHG emissions (tonnes of CO ₂ equivalent (tCO ₂ -e)) presented in the Amendment Report for the Project	20
Table 4-3: Management of waste streams	26
Table 4-4: Waste Recovery Exemptions and Orders, and associated conditions relevant to the M12 East package.....	32
Table 5-1: Resource conservation opportunities	39
Table 6-1: Waste, energy, and water management and mitigation measures	43
Table 7-1: Program for waste and energy monitoring and inspections.....	47
Table 7-2: Hold points and witness points applicable to this Plan	48
Table 7-3: Waste Audits	50
Table 7-4: Waste reporting requirements	51

Glossary/Abbreviations

Abbreviations	Expanded text/Meaning
AEIs	Areas of Environmental Interest
AMP	Asbestos Management Plan
AR	Amendment Report
ARSR	Amendment Report to the Submissions Report
ASS	Acid Sulfate Soil
CCLMP	Construction Contaminated Land Management Sub-plan
CFFMP	Construction Flora and Fauna Management Sub-plan
CMS	Complaints Management System
CoA	Conditions of Approval
Construction	Includes all activities required to construct the CSSI as described in the documents listed in Condition A1, including commissioning trials of equipment and temporary use of any part of the CSSI, but excluding Low Impact Work which is carried out to complete prior to the approval of the CEMP, works approved under a Site Establishment Management Plan, demolition of acquired residential houses, structures and sheds, and works specified in Appendix A and approved under an environmental management plan(s) in accordance with Condition A24.
CSSI	Critical State Significant Infrastructure
CWRMP	Construction Waste and Resources Management Sub-plan
CWSMP	Construction Soils and Water Management Plan
D&C	Design and Construct
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DfD	Designing for Deconstruction
DPE	NSW Department of Planning and Environment
DPI	Department of Primary Industries
EHG	Environment and Heritage Group (a part of NSW DPE)
EIS	Environmental Impact Statement
ESCP	Erosion and Sediment Control Plan
EMS	Environmental Management System
ENM	Excavated Natural Material, as defined in <i>The excavated natural material exemption</i>
Environmental Assessment Documentation (EAD)	The set of documents that comprise the Division 5.2 Approval: • Roads and Maritime Services (October, 2019) M12 Motorway, Environmental Impact Statement (EIS) • Transport for NSW (October, 2020) M12 Motorway, Submissions Report (the Submissions Report) • Transport for NSW (October, 2020) M12 Motorway, Amendment Report (AR)

Abbreviations	Expanded text/Meaning
	• Transport for NSW (December, 2020) M12 Motorway, Amendment Report submissions report (ARSR) • Transport for NSW (March, 2021) The M12 Motorway Amendment Report Submissions Report – Amendment (ARSR amendment) • WSP (October, 2021) M12 Motorway – West Package Detailed Design Consistency Assessment • GHD (October, 2021) M12 Motorway – Central Package Detailed Design Consistency Assessment • Arcadis (June, 2022) M12 Motorway – Sydney Water Crossings Consistency Assessment • Arcadis (July, 2022) M12 Motorway – Design Boundary Changes Consistency Assessment • Arcadis (August, 2022) M12 Motorway – Minor Change Consistency Assessment. The documents that comprise the EPBC referral: • Submission #3486 – The M12 Motorway Project between the M7 Motorway, Cecil Hills and The Northern Road, Luddenham, NSW • Notification of referral decision and designated proponent - controlled action; date of decision 19 October 2018; ID: 2018-8286.
EDC	Elizabeth Drive Connection
Environmental Representative (ER)	A suitably qualified and experienced person independent of project design and construction personnel employed for the duration of construction. A key point of contact for the Planning Secretary in relation to environmental performance of the CSSI.
ESR	John Holland Environmental Site Representative
EPA	NSW Environment Protection Authority
EPI	Environmental Planning Instrument
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPL	Environmental Protection Licence
ERG	Environmental Review Group
ESM	Transport for New South Wales Environment and Sustainability Manager
EWMS	Environmental Work Method Statements
FSC	Forest Stewardship Council
GHG	Greenhouse Gas
GREP	NSW Government Resource Efficiency Policy
ISC	Infrastructure Sustainability Council
IS	Infrastructure Sustainability
M7 CoA	Minster's Conditions of Approval for the M7 Motorway (Modification 6 Widening; SSI-663-Mod-6)

Abbreviations	Expanded text/Meaning
M7-M12 Integration Project	The M7-M12 Integration project incorporates the following: • M7 Motorway (Mod 6 Widening) (SSI 663 Mod 6) – modification (mod) to the M7 Motorway approved on 17 February 2023 under Division 5.2 of the EP&A Act • M12 Motorway (CSSI 9364) – approved on 23 April 2021 under Division 5.2 of the Environmental Planning and Assessment Act 1979 (EP&A Act) and split into three packages (West, Central and East). The M12 Motorway is also subject to a federal approval under the Environment Protection and Biodiversity Conversation Act 1999. The M7-M12 Integration project incorporates the M12 East package only.
NGER Act	<i>National Greenhouse and Energy Reporting Act 2007</i>
OCEMP	Overarching Construction Environmental Management Plan
OCS	Overarching Communication Strategy
PEFC	Programme for the Endorsement of Forest Certification
PGO	Pasteurised Garden Organics
POEO Act	<i>Protection of the Environment Operations Act 1997 (NSW)</i>
Planning Secretary	Secretary of the NSW Department of Infrastructure, Planning and Environment, or delegate
Primary CoA/REMM	CoA/REMM that are specific to the development of this Plan
RAP	Reclaimed asphalt pavement
REMM	Revised Environmental Management Measures
Resource	Resource covers energy, fuel, oil, water, and other materials used for construction of the Project
RID Squad	Regional illegal dumping squad
Roads and Maritime	Former NSW Roads and Maritime Services. Now Transport for NSW
SAP	Sensitive Area Plan
Secondary CoA/REMM	CoA/REMM that are related to, but not specific to, the development of this Plan
SEMP	Site Establishment Management Plan
SMP	Spoil Management Plan
SMART	Specific, Measurable, Achievable, Realistic and Timely
tCO ₂ -e	Tonnes of CO ₂ equivalent
TfNSW	Transport for New South Wales (formerly Roads and Maritime Services (RMS))
VENM	Virgin Excavated Natural Material
WARR Act	<i>Waste Avoidance and Resource Recovery Act 2001 (NSW)</i>
Work	Any physical work to build or facilitate the building of the CSSI, including low impact work, environmental management measures and utility works.

Abbreviations	Expanded text/Meaning
	However, it does not include activities that inform or enable detailed design of the CSSI and generate noise that is no more than 5 dB(A) above the rating background level at any sensitive receiver.
WRAPP	Waste Reduction and Purchasing Policy
WSO Co	Western Sydney Orbital Company, joint venture between Transurban Group, Queensland Investment Corporation and Canada Pension Plan Investment Board
WSIA	Western Sydney International Airport

1 Introduction

1.1 Planning context

1.1.1 M12 East package

This Construction Waste and Resources Management Sub-plan (CWRMP or Plan) forms part of the Construction Environmental Management Plan (CEMP) for the M12 Motorway – East package (M12 East package).

This CWRMP has been prepared under the Overarching Construction Environmental Management Plan (OCEMP) and relevant sub-plans developed for the M12 Motorway to address the requirements of the Commonwealth Conditions of Approval (Commonwealth CoA), the Minister's Conditions of Approval (M12 CoA), Revised Environmental Management Measures (REMMs) listed in the Environmental Impact Statement (EIS), Amendment Report (AR), Amendment Report Submissions Report (ARSR), ARSR Biodiversity Amendment, relevant consistency assessments, all applicable legislation, and Transport for New South Wales (TfNSW) specifications.

1.1.2 M7-M12 Integration Project

The M12 East package of the M12 Motorway Project (SSI 9364) (refer to CEMP Section 5.2.4 for additional detail) will be delivered with the M7 Motorway (Modification 6 Widening; SSI-663-Mod-6) (M7 Widening) scope of work under what is referred to as the M7-M12 Integration project. The M7 Widening involves widening of approximately 26 kilometres of the M7 Motorway between Prestons and Oakhurst/Glendenning. The M7-M12 Integration project is being delivered by WSO Co and John Holland.

The M12 East package and M7 Widening have a complex interface in the vicinity of Cecil Hills and Cecil Park where the M7-M12 interchange is proposed.

Due to construction programming and development of the OCEMP, the CEMP and sub-plans will be prepared in a two-step process:

- M12 East package CEMP and sub-plans (including this CWRMP)
- M7-M12 Integration project CEMP and sub-plans.

This CWRMP focusses on the requirements of the M12 East package and will be updated to incorporate the relevant information and requirements of the M7 Widening. The re-branded M7-M12 Integration project CWRMP will also address the requirements of the M7 Widening CoAs and the REMMs listed in the Westlink M7 Widening Modification Report and Appendix B of the Westlink M7 Widening Submissions Report.

Once the M7-M12 Integration project CWRMP is approved, this M12 East package CWRMP will be superseded.

1.2 Background

1.2.1 M12 Motorway

TfNSW constructing and will operate the M12 Motorway Project to provide direct access between the Western Sydney International Airport (WSIA) at Badgerys Creek and Sydney's motorway network. The M12 Motorway will run between the M7 Motorway at Cecil Hills and The Northern Road at Luddenham for about 16 kilometres and is expected to be opened to traffic prior to opening of the WSIA.

A detailed M12 Motorway Project description is provided in Section 5.1 of the CEMP.

1.2.2 Statutory context

The M12 Motorway Project is subject to an approval under Division 5.2 of the Environmental Planning and Assessment Act 1979 (EP&A Act) as Critical State Significant Infrastructure (CSSI). The M12 Motorway

Project is also a controlled action under Section 75 of the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), requiring a separate approval from the Australian Minister for the Environment.

The M12 Motorway Project was assessed as part of an EIS, Submission Report, Amendment Report, ARSR and ARSR Biodiversity Amendment report and subsequent consistency assessments:

- WSP (October 2021) M12 Motorway – West Package Detailed Design: Proposed changes between east of Badgerys Creek and The Northern Road Consistency Assessment
- GHD (October 2021) M12 Motorway – Central Package Detailed Design: Design and boundary changes between Cecil Park and east of Badgerys Creek Consistency Assessment
- Arcadis (June 2022) M12 Motorway – West and Central Package Sydney Water Pipeline Crossings: Proposed Sydney Water pipelines crossings for M12 West and Central Consistency Assessment
- Arcadis (July 2022) M12 Motorway – Design Boundary Changes: Proposed construction and operational design boundary changes for the M12 Project Consistency Assessment
- Arcadis (August 2022) M12 Central Boundary Changes: Proposed construction design boundary changes for M12 Central – Minor Change Consistency Assessment
- WSP (in preparation) Proposed construction and operational design boundary changes for the M12 Project (East) Consistency Assessment.

These documents are collectively referred to as the Environmental Assessment Documentation (EAD). The CSSI must also be carried out in accordance with all procedures, commitments, preventative actions, performance outcomes and mitigation measures set out in the EAD as required by NSW CoA A2.

Approval for the M12 Motorway Project under the EP&A Act was granted by the Minister for Planning on 23 April 2021 (CSSI 9364). Approval for the M12 Motorway Project under the EPBC Act was granted by the Australian Minister for the Environment on 3 June 2021 (EPBC 2018/8286).

This section will be updated to include the relevant M7 Widening information and requirements in the re-branded M7-M12 Integration project CWRMP (as described in Section 1.1.2).

1.2.3 M12 Motorway delivery strategy

The Project will be constructed in separate stages or work packages:

- **M12 West** – between The Northern Road, Luddenham and about 250 metres east of Badgerys Creek
- **M12 Central** – between about 250 metres east of Badgerys Creek and the Western Sydney Parklands at Duff Road, Cecil Park,
- **M12 Central temporary roundabout installation** (package delivered by TfNSW Sydney Roads Asset Performance Contractor)
- **M12 East** (the subject of this Plan) as part of the M7-M12 Integration project:
 - Elizabeth Drive connections (EDC) – a connection between the M12 Motorway and Elizabeth Drive at Cecil Park
 - the M7/M12 interchange – a grade separated motorway to motorway connection between the M7 and M12 Motorways.

Each M12 Motorway package of work is being delivered under separate contracts on behalf of the proponent, TfNSW. There will be periods during which the works associated with the M12 Central and M12 East packages will overlap. Coordination between the contractors will be required to manage cumulative impacts.

1.3 Scope of the Plan

The scope of this CWRMP is to describe how potential waste and resource impacts will be managed during construction of the M12 East package. This Plan has been prepared under, and is consistent with the OCEMP, and in particular the Overarching Construction Waste and Resources Management Sub-Plan (OCWRMP) considering relevant issues and construction activities. SMART (Specific, Measurable, Achievable, Realistic and Timely) principles are to be considered and applied during the preparation and implementation of this Plan.

This Plan is applicable to all activities during construction of the M12 East package, including all areas where physical works will occur or areas that may be otherwise impacted by the construction works, and under the control of John Holland. All John Holland staff and subcontractors are required to comply with the requirements of this Plan and related environmental management plans, over the full duration of the construction program.

The scope of this CWRMP will be updated to also include the relevant M7 Widening information and requirements in the re-branded M7-M12 Integration project CWRMP (refer also to Section 1.1.2).

A copy of this CWRMP will be kept on the premises for the duration of construction.

Operational waste and resources impact and operation measures do not fall within the scope of this CWRMP and are therefore not included within the processes contained within the CWRMP.

1.4 Environmental Management Systems overview

The Environmental Management System (EMS) for the M12 East package is described in Section 3 of the CEMP. The EMS is consistent with the overarching EMS described in Section 3 of the OCEMP.

To achieve the intended environmental performance outcomes, John Holland have established, implemented, maintained, and continually improved an EMS in accordance with the requirements of ISO14001:2015. The John Holland EMS will be adopted as the guiding environmental management framework for the M12 East package.

The EMS consists of governance documentation, incorporating environmental management plans, policies, procedures, and tools including:

- **John Holland Environment Policy.** Outlines the commitments and intentions established by John Holland as a business to ensure environmental performance and targets are achieved. The policy applies to the M12 East package. (Appendix A3 of the CEMP)
- **M12 East package CEMP.** Details the processes and procedures to be implemented during construction to comply with applicable CoA, REMMs, any Environment Protection Licence (EPL), legislative obligations and contractual requirements. The relevant compliance obligations are detailed in Appendix A1 of the CEMP, with a cross reference to where they are met in this Plan
- **M12 East package Environmental Management Sub-plans.** These documents describe procedures and controls for specific environmental aspects requiring more rigorous management strategies
- **M12 East package Monitoring Programs.** Details the monitoring regime to be implemented during construction to compare the actual performance of construction against the objectives outlined in the relevant Plan, including setting specific triggers and associated responses
- **M12 East package Sensitive Area Plans (SAPs).** A series of maps providing key features of the alignment and relevant environmental constraints. Features include waterways, heritage, biodiversity contamination and sensitive receivers amongst other site relevant features
- **Environmental Work Method Statements.** Management measures identified in this Plan may also be incorporated into site or activity specific Environmental Work Method Statements (EWMS) for activities assessed as having high environmental risk or other activities as required in TfNSW Specification G36.

EWMS incorporate appropriate mitigation measures and controls and identify key procedures to be used concurrently with this Plan. Construction personnel undertaking a task governed by an EWMS must undertake the activity in accordance with the mitigation and management measures identified in the EWMS. EWMS will be reviewed by WSO Co/TfNSW Environment and Sustainability Manager (ESM) (or delegate) and independent Environmental Representative (ER) before the commencement of the construction activities to which they apply. See Section 3.3.3 of the CEMP for details of the EWMS preparation and approval requirements

- **M7-M12 Integration project Energy and Greenhouse Gas Emissions Strategy Sub-plan.** A Sub-plan of the Sustainability Management Plan that defines the processes and methods to improve energy efficiency and identifies greenhouse gas reduction initiatives for construction
- **Procedures, strategies, and protocols.** Detailed procedures for inclusion in work packs.

1.4.1 CWRMP preparation, endorsement, and approval

The OCWRMP has been prepared to satisfy the NSW CoA in relation to management of waste and resources during construction of the M12 Motorway Project, particularly NSW CoA E100-E104 and subsequently approved by the Planning Secretary. This stage specific CWRMP for the M12 East package has been developed under and is consistent with the approved OCWRMP.

This CWRMP and Spoil Management Plan (Appendix C) will be reviewed by WSO Co and TfNSW ESM (or delegate) and the independent Environmental Representative (ER) to confirm they are consistent with, and incorporate, all relevant elements of the approved OCEMP prior to submission to the Planning Secretary for information.

Construction of the M12 East package will not commence until the CWRMP and the Spoil Management Plan are endorsed by the ER and provided to the Planning Secretary for information.

1.4.2 Interactions with other management plans

This Plan has the following interrelationships with other management plans and documents:

- M12 East package Construction Soil and Water Management Plan (CWSMP) addresses the erosion and sedimentation impacts associated with waste storage and handling as well as procedures for minimising water usage and managing wastewater and any contaminated waste including Acid Sulfate Soils (ASS) encountered during construction works
- M12 East package Spoil Management Plan (SMP) provides specific details for the management of spoil from construction works
- M12 East package Construction Contaminated Land Management Plan (CCLMP) provides detail for pre- and post-construction waste found within the M12 East package footprint, reuse and disposal methods for any contaminated waste
- M12 East package Construction Flora and Fauna Management Plan (CFFMP) addresses reuse and recycling of green waste generated from vegetation clearing operations
- M12 East package Construction Transport and Traffic Management Plan addresses the transportation and traffic impacts of waste transport and disposal
- M7-M12 Integration project Sustainability Management Plan sets out a framework covering energy management, workforce travel, resource use and procurement and water reuse
- Construction Water Reuse Strategy sets out a framework to address Environmental Assessment Documentation and Infrastructure Sustainability Council of Australia (ISCA) requirements
- M7-M12 Integration project Site Establishment Management Plan(s) (SEMP) include details of specific waste management locations as well as site specific management requirements.

1.5 Consultation

1.5.1 Consultation for preparation of the OCWRMP

The OCEMP was prepared in consultation with relevant Councils including Penrith City Council, Liverpool City Council and Fairfield City Council. Key matters raised by stakeholders and how they have been addressed are outlined in the OCEMP including consultation evidence in accordance with NSW CoA C4 and CoA A5.

This stage specific CWRMP has been prepared under and consistent with the OCWRMP and therefore no further consultation is required as part of the preparation of this Plan.

1.5.2 Consultation for preparation of the M7-M12 Integration project CEMP

As described in Section 1.1.2, the CEMP will be developed in a two-step process. This M12 East package CEMP will be updated to incorporate the relevant information and requirements of the M7 Widening. The relevant Sub-plans of the re-branded M7-M12 Integration project CEMP will be subject to consultation requirements as identified in M7 Widening CoA C4 and C9.

There are no requirements for a CWRMP in the M7 Widening CoA, and therefore no consultation requirements. The M7-M12 Integration project CWRMP will not require consultation with any stakeholders.

1.5.3 Ongoing consultation during construction

Ongoing consultation between John Holland, WSO Co, TfNSW, the M12 Central package, other construction projects, stakeholders, the community, and relevant agencies regarding the management of waste and resource will be undertaken during the construction of the M12 East package as required. The process for the consultation will be consistent with the OCS and as described in the Communication Management Plan.

The M7-M12 Integration project Communication Management Plan has been prepared under, and is consistent with the M12 Motorway OCS. References are made throughout this Plan to both documents. All works will be undertaken in accordance with the OCS until such time as the M7-M12 Integration project Communication Management Plan is approved by the Planning Secretary.

Waste and resources management information will be communicated to the community and stakeholders in accordance with the principles and procedures outlined in the OCS. John Holland will provide timely, accurate, relevant, and accessible information about construction activities that may impact upon management of waste and resource, with provision for feedback through a complaints line during construction.

John Holland will adopt the requirements of the Complaints Management System, including reporting requirements, detailed in the Communication Management Plan, and summarised in Section 6.5.5 of the CEMP.

2 Purpose and objectives

2.1 Purpose

The purpose of this CWRMP is to describe how John Holland will manage waste and protect resources during construction of the M12 East package.

2.2 Objectives

The key objective of this CWRMP is to ensure that waste is minimised in accordance with the waste hierarchy and to appropriately manage resource use throughout construction of the M12 East package. To aid in achieving this objective all CoA, REMMs and licence/permit requirements relevant to waste and resources are described, scheduled, and assigned responsibility as outlined in:

- Environmental Assessment Documentation (EAD) for M12 Motorway
- Infrastructure Approval CoA (SSI 9364) granted on 23 April 2021
- Commonwealth CoA granted on 3 June 2021
- Environment Protection Licence
- TfNSW specifications
- All relevant legislation and other requirements described in Section 3 of this Plan.

2.3 Targets

TfNSW and John Holland are committed to ensuring the responsible management of unavoidable waste and promoting the reuse of such waste in accordance with the resource management hierarchy principles outlined in the *Waste Avoidance and Resource Recovery Act 2001* (WARR Act). The targets established for the management of waste and resources impacts during the M12 East package are consistent with these resource management hierarchy principles, which are, in order of priority:

- Avoid the unnecessary production of waste during construction
- Resource recovery (including reuse, reprocessing, recycling, and energy recovery)
- Dispose of waste materials in accordance with legislative requirements.

By adopting the above principles, John Holland aims to efficiently reduce resource use, costs, and environmental harm in accordance with the principles of ecologically sustainable development.

The following additional targets have been established for the management of waste impacts during construction of the M12 East package:

- Minimise energy use and greenhouse gas emissions
- Optimise resource efficiency and waste management
- Efficiently manage water
- Minimise pollution generated by the M12 East package.

Additionally, the M12 East package will achieve the Project waste reuse / recycling targets nominated in Table 2-1, building on targets established in the TfNSW Sustainability Strategy 2019-2023 for resource use and waste management targets (TfNSW, 2021).

Table 2-1: Construction waste streams and targets

Construction activity	Material	Minimum requirement	M7-M12 Integration project nominated target	Target description	Deed Reference
Demolition - Existing pavement, bridges, and buildings	Uncontaminated non-spoil (clean concrete and asphalt)	100% of clean concrete will be beneficially reused or diverted to a licenced facility where it will be recycled. 100% of clean reclaimed asphalt pavement will be recycled or diverted to a licenced facility where it will be recycled 80% of construction and demolition waste will be diverted from landfill	100% of clean concrete will be beneficially diverted from landfills. 100% of clean asphalt pavement will be reclaimed / diverted from landfill >90% of construction and demolition waste will be diverted from landfill	- Minimise the use of non-renewable resources and substitute with recycled or reused materials, cost effective and affordable, where possible. - Minimise the quantity of waste disposed to landfill. - Minimise the quantity of construction and demolition waste (defined as 'Building and demolition waste' in the NSW EPA's Classifying Waste Guidelines 2014) diverted from landfill	SWTC, Appendix D.5 No. 5, 6 & 7
Excavation - earthworks	Usable spoil	100% of uncontaminated VENM will be reused on site. - An average of 95% of usable spoil (non-VENM) will be reused and/or recycled across each stage	100% of usable spoil (uncontaminated surplus excavated material) diverted from landfill (not including VENM) - An average of 100% of VENM will be diverted from landfill	- Minimise the use of non-renewable resources and substitute with recycled or reused materials, cost effective and affordable, where possible. - Minimise the quantity of waste disposed to landfill.	SWTC, Appendix D.5 No. 3, 4
Construction – pavement / road works	Concrete	An average of 10% cement replacement material in concrete (by mass) whilst maintaining specified quality and whole-of life-costs will be used for each stage	- An average of 30% cement replacement material in concrete (by mass), used in concrete (TfNSW Specifications R53, B80) 40% cement replacement material in concrete (by mass) (TfNSW Specifications R82, R83)	- Minimise the use of non-renewable resources and substitute with recycled or reused materials, cost effective and affordable, where possible. - Minimise the quantity of waste disposed to landfill. - Procure goods, services, materials and works for infrastructure development	SWTC, Appendix D.5 No. 15

Construction activity	Material	Minimum requirement	M7-M12 Integration project nominated target	Target description	Deed Reference
	Road base, sub-base	An average of 10% of recycled material used in road base and sub-base will be used for each stage of the Project	An average of 10% of recycled material used in road base and sub-base will be used.	and maintenance Projects that over their lifecycle deliver value for money and contribute to the environmental, social, and economic wellbeing of the community.	SWTC, Appendix D.5 No. 16
	Steel	Source from suppliers certified under Australian Certification Authority for Reinforcing Steels or similar international association or organisation	Source from suppliers certified under Australian Certification Authority for Reinforcing Steels or similar international association or organisation		Best practice
Vegetation clearance – clearing for construction	Uncontaminated material	Green waste will be reused and/or recycled where possible	Green waste will be reused and/or recycled where possible	- Minimise the use of non-renewable resources and substitute with recycled or reused materials, cost effective and affordable, where possible - Minimise the quantity of waste disposed to landfill	SWTC, Appendix D.5 Section 2.6 (e)
Energy use – ancillary facilities, lighting, construction equipment.	Electricity	- An average of 20% of renewable energy generated will be onsite and/or accredited GreenPower - A reduction of carbon emissions will be adopted for each stage of the Project	- An average of 100% of construction stage electricity will be sourced from renewable energy generated onsite and/or accredited renewable energy - A reduction of carbon emissions will be adopted in line with Ene-1 credit.	- Minimise energy use and reduce carbon emissions without compromising the delivery of services to our customers - Reduce greenhouse gas emissions from construction energy use versus a business-as-usual baseline	SWTC, Appendix D.5 No. 8 Best practice
	Greenhouse Gas	Greenhouse gas emissions from construction energy use reduced 10% from business-as-usual baseline	Greenhouse gas emissions from construction energy use reduced 20% from business-as-usual baseline		SWTC, Appendix D.5 No. 18

Construction activity	Material	Minimum requirement	M7-M12 Integration project nominated target	Target description	Deed Reference
Water use – site amenities	Potable water	- An average of 15% of non-potable water across each stage - An average of 5% rainwater will be collected and recycled across each stage	- An average of 15% of water is sourced from non-potable water sources during construction - An average of 5% rainwater will be collected and recycled	Minimise noise, water, and land pollution from TfNSW construction, operation, and maintenance activities	SWTC, Appendix D.5 No. 11 RMS, 2021
Use of project offices	Office Waste	40% of office waste will be diverted from landfill	>60% of office waste diverted from landfill	Minimise the quantity of office waste diverted from landfill	SWTC, Appendix D.5 No. 26

The Sustainability Management Plan and overarching Sustainability Strategy embeds sustainability objectives, commitments and targets into the M12 East package delivery management systems. The Sustainability Management Plan complements the purpose, objectives and targets of the CWRMP.

3 Environmental requirements

3.1 Relevant legislation and guidelines

3.1.1 Legislation

Legislation and regulations relevant to waste and resource management includes:

- Environmental Planning and Assessment Act 1979 (EP& A Act)
- Protection of the Environment Operations Act 1997 (POEO Act)
- Protection of the Environment Operations (General) Regulation 2009
- Protection of the Environment Operations (Waste) Regulation 2005
- *Waste Avoidance and Resource Recovery Act 2001* (WARR Act)
- *Dangerous Goods (Road and Rail Transport) Act 2008 (NSW)*
- Dangerous Goods (Road and Rail Transport) Regulation 2014 (NSW)
- *Contaminated Land Management Act 1997*
- *National Greenhouse and Energy Reporting Act 2007* (NGER Act)
- *Biosecurity Act 2015*
- *Environmentally Hazardous Chemicals Act 1985.*

Relevant provisions of the above legislation are identified in the register of legal requirements included in Appendix A1 of the CEMP.

3.1.2 Guidelines and standards

The main guidelines, specifications, and policy documents relevant to this CWRMP include:

- NSW Waste Avoidance and Resource Recovery Strategy 2014-21 (Environment Protection Authority (EPA), 2014)
- *Waste Classification Guidelines* (EPA, 2014) *NSW Government Resource Efficiency Policy* (Office of Environment and Heritage, 2014)
- *Australian Code for the Transport of Dangerous Goods by Road and Rail* (National Transport Commission, 2008)
- *Environmental Sustainability Strategy 2019-2023* (Roads and Maritime, 2021)
- *Management of wastes on TfNSW land* (TfNSW, 2014)
- *Management of road construction and maintenance wastes* (TfNSW, 2016)
- *Technical Direction: Legal offsite disposal of TfNSW waste* (TfNSW, 2015)
- *Technical Direction: Coal tar asphalt handling and disposal* (TfNSW, 2015)
- *Stockpile Site Management Guideline* (TfNSW, 2011)
- *Greenhouse Gas Protocol* (World Business Council for Sustainable Development and World Resources Institute, 2004)
- Transport for NSW waste fact sheets:
 - Waste Fact Sheet 1 - Virgin Excavated Natural Material
 - Waste Fact Sheet 2 - Excavated Natural Material
 - Waste Fact Sheet 3 - Excavated Public Road Materials
 - Waste Fact Sheet 4 - Recovered Aggregates
 - Waste Fact Sheet 5 - Asbestos Waste
 - Waste Fact Sheet 6 - Waste Sampling
 - Waste Fact Sheet 7 - Reclaimed Asphalt Pavement
 - Waste Fact Sheet 9 - Re-use of Waste Off-site.
- NSW EPA orders and exemptions, including:

- Compost Exemption 2016
- Effluent Exemption 2014
- Pasteurised Garden Organics Exemption 2016
- The Excavated Natural Material Exemption 2014
- The Excavated Public Road Material Exemption 2014
- The Mulch Exemption 2016
- The Recovered Aggregate Exemption 2014
- The Blast Furnace Slag Exemption 2014
- The Reclaimed Asphalt Pavement Exemption 2014
- Treated Drilling Mud Exemption 2011
- Stormwater Exemption 2014.

3.2 NSW Conditions of Approval

There are no primary NSW CoA relevant to the development of this Plan. Secondary conditions relevant to this Plan have been listed in Appendix A.

3.3 Revised Environmental Management Measures

The primary REMMs relevant to the development of this Plan are listed in Table 3-1 below. Secondary REMMs relevant to this Plan are listed in Appendix A. A cross reference is also included to indicate where the REMM is addressed in this Plan or other Project management documents.

Table 3-1: Environmental management measures relevant to this CWRMP

ID	Measure/requirement	Timing	CWRMP Reference
W01	A Construction Waste and Resources Management Plan (CWRMP) will be prepared for the Project and outline appropriate management procedures. It will include, but not be limited to:	Prior to construction	This CWRMP
	• Identification of the waste types and volumes that are likely to be generated by the Project		Section 4.1
	• Adherence to the waste minimisation hierarchy principles of avoid/reduce/ reuse/recycle/dispose		Section 4.6.1
	• Waste management procedures to manage the handling and disposal of waste, including unsuitable material or unexpected waste volumes		Section 4.6
	• Identification of reporting requirements and procedures for of waste types and quantities		Section 7.7 Section 4.6.5 Section 4.9
	• A resource management strategy detailing the process to identify reuse options for surplus materials		Section 4.11
	• A procurement strategy to minimise unnecessary consumption of materials and waste generation in accordance with relevant legislation and guidelines.		Section 5.3
W02	A Spoil Management Plan (SMP) will be prepared for the Project as part of the CWRMP and in line with the CSWMP. The SMP will outline appropriate management procedures for the generation and importation of spoil. It will include, but not be limited to:	Prior to construction	Appendix C
	• Procedures for classification of spoil		
	• Identification of spoil reuse measures		
	• Spoil stockpile management procedures		
	• Spoil haulage routes		

ID	Measure/requirement	Timing	CWRMP Reference
	Spoil disposal and reuse locations		
	Imported spoil sources and volumes		

3.4 TfNSW Specifications

The TfNSW Specifications set out the minimum requirements for the detailed outcomes in terms of quality or performance expected in the finished product for construction projects and are relevant to various construction activities on work sites to minimise impacts to the environment.

This CWRMP incorporates the relevant requirements to waste and resource management from the TfNSW Specifications prepared for the M12 East package, including:

- TfNSW Specification D&C G36 – Environmental Protection
- TfNSW Specification D&C R178 – Vegetation
- TfNSW Specification D&C R179 – Landscape Planting.

Details of the Hold Points and Witness Points relevant to this Plan are outlined in Section 7.4.

Cross references are included in Appendix A, to indicate where the relevant TfNSW specifications have been addressed in this Plan or other Project document.

3.5 Environmental Protection Licence

The M12 East package is subject to an EPL as a Scheduled Activity for ‘road construction’. Waste Management will be addressed in the conditions of M7-M12 Integration Project EPL, currently lodged with the EPA. Conditions typically relate to waste management, waste transport and waste disposal. The M12 East package will be constructed to meet waste requirements identified in the M7-M12 Integration project EPL.

3.6 Sustainability commitments

The M12 East package will employ an integrated approach to sustainability to ensure effective implementation and tracking of initiatives. This approach includes the identification of requirements in Plans for clarity of objectives and transparency in implementation. While the M12 East Sustainability Management Plan details the overall requirements and targets for the M12 East package, Table 3-2 summarises the sustainability requirements for waste to demonstrate compliance with Infrastructure Sustainability Council (ISC) Infrastructure Sustainability (IS) Version 1.2 Rating Tool credit benchmarks.

Table 3-2: Waste specific sustainability targets

ISC Reference	Commitment	Document Reference
Was-1	Predictions for waste quantities and types have been developed for construction and operation.	Section 4.1
Was-1	Measures to minimise waste during construction and operation have been identified and implemented	Section 6
Was-1	A Waste Management Plan (or similar) must demonstrate that the waste hierarchy was applied: 1.Avoid; 2.Reduce; 3.Reuse; 4.Recycle; 5.Disposal If an option less favourable than the first option is selected, then justification for not selecting options higher on the hierarchy must be provided.	Section 4.6.1
Was-1	Monitoring of all wastes is undertaken during construction and operation.	Section 7.3
Was-1	The monitoring needs to be regular (e.g. monthly) throughout the relevant rating phases as well as showing totals for the whole rating period.	Section 7.3

ISC Reference	Commitment	Document Reference
Was-1	Monitoring of waste should include the waste types generated, quantities (volumes) and destinations during construction. Summaries of (a) spoil, (b) inert and non-hazardous, and (c) office waste groups should be provided.	Section 7.6
Was-1	Waste monitoring and management must be managed, reviewed, or audited by a suitably qualified professional.	Section 7.3
Was-1	If review or audit is undertaken, it should be at least annually for construction or at least once for durations less than one year. The review or audit should cover both systems and data i.e. the systems used to manage waste and the data recording and reporting. The scope of the waste review/audit should include an objective assessment of the accuracy and completeness of reported waste information with the aim to provide confidence that the reported information represents a faithful, true, and fair account of waste management practices and performance.	Section 7.5
Was-1	Waste handling and disposal/recycling all the way to final destination has been audited at appropriate intervals. Auditing to final destination must be undertaken at least 6 monthly for construction. Final destination means at least to a waste facility where the waste is transformed into another product or material or into landfill. The audit should include a physical/visual verification of waste destinations. The audit need only focus on the significant waste streams and each audit may cover particular significant waste stream(s) as long as the full set is covered over the rating period. 'Significant' waste streams are to be justified taking into account the volume and nature of the wastes	Section 7.5
Was-2	All of the following targets for landfill diversion have been achieved or bettered: >100% by volume of spoil >90% by volume of inert and non-hazardous waste >60% by volume of office waste material	Section 2.3
Was-3	A Deconstruction Plan will be implemented based on best practice.	Section 4.7.2
Lan-3	95% of all topsoil (by volume) retains its productivity and is beneficially re-used on or nearby to the project.	CSWMP

4 Environmental aspects and impacts

4.1 Construction waste streams

Waste generated during construction will primarily be from civil works associated with site preparation, relocation of utilities, construction of road infrastructure and landscaping.

The following construction related waste streams have been identified within the Environmental Assessment Documentation and are expected during construction of the M12 East package:

- Excavated materials including spoil.
- Vegetation waste from the removal of trees, shrubs, and ground cover
- Excavated spoil unsuitable for reuse on-site including contaminated spoil.
- Contaminated water
- Demolition materials including concrete, bricks, road base, tiles, timber (untreated and treated), metals, plasterboard, carpets, electrical and plumbing fittings, and furnishing (doors, windows). May also include tyres, asbestos, and lead paint.
- General construction waste including timber formwork, scrap metal, steel, concrete, plasterboards, and packaging material (crates, pallets, cartons, plastics and wrapping material)
- Surplus construction material including fencing, sediment, gravel/crushed rock, asphalt, concrete, steel, aggregate, formwork, asphalt, landscaping material and sandbags.
- Sediment and sludge within sediment basins
- General waste from site offices including putrescibles, paper, cardboard, e-waste plastics, glass, site litter, cigarette butts, printer cartridges and sewage waste.
- Waste from operation and maintenance of construction vehicles and machinery including adhesives, lubricants, waste fuels, cleaning products and chemicals, and oils, engine coolant, batteries, hoses, and tyres.
- Clean up waste in the event of an accidental spill of fuel or chemicals.

An estimate of potential waste types to be generated during the M12 East package are provided in Table 4-1. A register of potential waste transporters and waste facilities is provided in Appendix E.

Table 4-1: Potential construction waste streams and classifications

Construction activity	Material	Waste Classification	Estimated Quantity to remain onsite and re-use	Estimated Quantity for offsite disposal
Construction	Asphalt, Road base, Steel, concrete and timber framework	General Solid Waste Non-Putrescible (pre-classified)		7,500m ³
Demolitions	Timber, steel, fibre sheeting, bricks, concrete, asphalt, road base, glass	General Solid Waste Non-Putrescible (pre-classified)		300m ³
Excavation	Topsoil – to be reused on site and landscape mounds	General Solid Waste Non-Putrescible (pre-classified)	46,229 m ³	
	Usable spoil (VENM or ENM) All to be used on site for road construction	General Solid Waste Non-Putrescible (pre-classified)	368,700 m ³	
	Contaminated spoil	Chemical Assessment/ Hazardous Waste	Nil Identified to date	
Basins / farm dams	Sediment and sludge (to be used as part of landscape mounds)	General Solid Waste Non-Putrescible (pre-classified)	7,280 m ³	
Vegetation clearance	Vegetation material (weed free - trees, grass etc)	General Solid Waste Non-Putrescible (pre-classified)	4,000 m ³	10,000 m ³
	Vegetation material (containing weeds -trees, grass etc)	General Solid Waste Non-Putrescible (pre-classified)	Nil	1,000 m ³
Wash-down and maintenance of equipment	Oils and lubricants	Liquid Waste		10,000l
	Used chemicals (adhesives, cleaning products, engine coolant,	Chemical Assessment Required		300l
	Batteries	Special Waste		10 units
	Tyres	Special Waste		50 units

Construction activity	Material	Waste Classification	Estimated Quantity to remain onsite and re-use	Estimated Quantity for offsite disposal
Sewage	Sewage	Liquid Waste – Chemical Assessment may be required		1.2ML
Office activities	Food scraps	General Solid Waste (putrescible)		1,250m ³
	Glass, paper, cardboard, plastic, packaging	General Solid Waste (non-putrescible)		375m ³

4.2 Resource use

The main construction materials required for the M12 East package include:

- Fill for earthworks (general and select)
- Sand and soils for landscaping
- Geotextile materials
- Pavement materials including road base and sub-base.
- Materials for lining drainage channels
- Aggregate for concrete, asphalt, and bitumen
- Cement and concrete and pre-cast concrete (pipes, culverts, barriers)
- Steel
- Wood for use in formwork and other temporary structures
- Water for dust suppression, compaction of excavated fill material, gravel pavements, road sweepers, office amenities and landscape establishment
- Mechanical and electrical equipment for Variable Message Signs.

4.3 Energy use

Energy use during construction of the M12 East package will result from the manufacture, processing, and transport of materials (concrete, steel, asphalt, aggregate, timber, and piping), from the use of electricity, diesel and other fuels, waste generated, and land use and clearing.

Sources of construction related energy consumption (fuel and power) includes:

- Procurement and delivery of materials to site
- Vegetation removal
- Site establishment, including compound and ancillary facility set up.
- Operation of the concrete batching plant
- Relocation and protection of services
- Earthworks including earth and rock cuttings and retaining walls.
- Removal, relocation, and compaction of excavated material in fill embankments
- Construction of pavements, bridges, and culverts
- Demolition of structures and pavements
- Operation of site compounds, ancillary facilities, and lighting
- Construction plant including cranes, rollers, excavators, bulldozers, graders, and water trucks.
- Removal of waste from site.

4.4 Greenhouse gas emissions

The main sources of greenhouse gas (GHG) emissions during construction of the M12 East package includes:

- Construction vehicles and plant
- Use of construction materials
- Vegetation clearing.

The GHG Assessment presented in the Environmental Assessment Documentation was undertaken in accordance with the Greenhouse Gas Protocol (World Business Council for Sustainable Development and World Resources Institute, 2004). The Protocol provides guidance on the calculation and reporting of carbon footprints and defines three categories for GHG emissions:

- **Scope 1** – direct emissions from sources that are owned or operated by a reporting organisation (e.g. combustion of diesel in company owned vehicles or used in on-site generators)

- **Scope 2** – indirect emissions associated with the import of energy from another source (e.g. importation of electricity or heat)
- **Scope 3** – other indirect emissions (other than Scope 2 energy imports) which are a direct result of the operations of the organisation but from sources not owned or operated by them (e.g. business travel (by air or rail) and product usage).

Table 4-2 provides a summary of the construction GHG emissions estimated for the Project based on the estimated totals in the AR. These values will be reviewed and revised for the M12 East package as required as detailed design progresses. Further detail on the GHG Assessment is outlined in the Sustainability Management Plan. Note that no Scope 2 GHG emissions, as defined by the GHG Protocol, are estimated for the Project.

Table 4-2: Construction GHG emissions (tonnes of CO₂ equivalent (tCO₂-e)) presented in the Amendment Report for the Project

Emission Source	Scope 1 emission (tCO ₂ -e)	Scope 2 emission (tCO ₂ -e)	Scope 3 emissions (tCO ₂ -e)	Total emissions (tCO ₂ -e)	% of total emissions
Amendment report total construction emissions	12,553.5	-	51,258	63,811.5	100
Per cent of total	19.7%	0%	80.3%	100%	-

4.5 Impacts

The potential environmental impacts associated with construction waste generation and energy use for the M12 East package include:

- Generation of large volumes of construction waste, such as excavated soil and rock
- Mixing of suitable and unsuitable material/contaminated material leading to materials that would have ordinarily been reused being rendered as waste.
- Generation of vegetation waste from corridor clearing
- Generation of domestic waste from construction personnel
- Inappropriate disposal of hazardous waste
- Generation or spread of contaminated waste/soils, e.g. groundwater, used or expired chemicals, or construction materials
- Disturbance of contaminated soils
- Adverse effects on flora and fauna due to contamination of water or soils
- Water pollution due to sediment runoff from soil excavation and excess spoil storage
- Weed infestation from dispersion of seeds and so forth during clearing and access upgrading activities.
- Odour impacts and increases in vermin from inappropriate general waste storage and disposal.
- Consumption of non-renewable resources such as energy, diesel, and other chemicals
- Greenhouse gas emissions due to consumption of energy from non-renewable resources.

The mismanagement of waste streams has the potential to result in the following impacts:

- Excessive waste being directed to landfill.
- Various type of waste being generated and stored on site, with the potential for misclassification.
- Water pollution
- Land contamination.

Waste classification will be required during construction to determine appropriate soil management and disposal, as detailed in Section 4.7 and Section 4.8.

A full list of management measures is included in Section 6 of this CWRMP.

4.6 Waste management

4.6.1 Waste management hierarchy

The general approach to the hierarchy of waste management for the Project is in accordance with the *NSW Waste Avoidance and Resource Recovery Strategy 2014-21* (EPA, 2014). The waste hierarchy provides guidance on the order of preference of approaches to achieve efficient resource use, as shown in Figure 4-1. The aspects of the hierarchy applicable to the construction of the M12 East package are outlined below.



Source: NSW Waste Avoidance and Resource Recovery Strategy 2014-21 (EPA, 2014)

Figure 4-1: The waste hierarchy

4.6.2 Avoiding and reusing waste

Waste generation will be avoided and where avoidance is not reasonably practicable, waste generation will be reduced. This is because it preserves resources, avoids the use of additional resources to manage waste that would have been generated and aims to eliminate disposal costs. The goal is to maximise efficiency and avoid unnecessary consumption by:

- Selecting items with the least packaging or that require the least resources to produce.
- Avoiding single-use materials or disposable goods
- Using products and materials that are recycled, recyclable, repairable, refillable, reusable, or biodegradable.

Best endeavours will be used to target at least an average of 40% of recycled material used in granular base and sub-base, whilst maintaining current quality and whole-of-life costs (Table 2-1).

This will be supported by the procurement processes outlined in Section 5.3 for the M12 East package which will support negotiation with prospective suppliers and subcontractors around opportunities to avoid waste that can be incorporated into subcontractor agreements. This includes arrangement for excess material to minimise packaging or returning packaging or excess material to the supplier (such as concrete, asphalt and aggregates).

4.6.3 Reuse and recycling

Where avoiding or reducing waste is not possible, waste will be reused, recycled, or recovered. Waste separation and segregation will be promoted on-site to facilitate reuse and recycling as a priority of the waste management program as follows:

- **Waste segregation on-site** – waste materials, including spoil and demolition waste, will be separated on-site into dedicated bins/areas for either reuse on-site or collection by a waste contractor and transported to off-site facilities.
- **Water recovery** – in accordance with Section 4.14
- **Wood reuse** – woody debris will be reused in a manner that enhances habitat for native fauna (refer to Section 6.5 of the CFFMP).

The use of recycled-content materials will be investigated and proposed as part of the Sustainability Management Plan where they are cost and performance competitive and are at least the environmental equivalent of the non-recycled alternatives.

4.6.4 Waste handling and storage

Where waste is required to be handled and stored on-site prior to on-site reuse or off-site recycling/disposal, the following will occur:

- Spoil, topsoil, and mulch will be stockpiled on-site in allocated areas, where appropriate, and mitigation measures for dust control and surface water management will be implemented as per the CSWMP.
- Liquid wastes will be stored in appropriate containers within bunded areas until transported off-site. Bunded areas will have the capacity to hold 110% of the 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 appropriately qualified and licensed contractors, in accordance with the requirements of the *Environmentally Hazardous Chemicals Act 1985* and EPA waste disposal guidelines.
- If asbestos or other hazardous materials are identified, they will be managed in accordance with the Asbestos Management Plan (AMP), Appendix C of the CCLMP
- 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 contractors commissioned to regularly remove/empty the bins to approved disposal or recycling facilities
- Suitable areas will be identified (in accordance with the approved Stockpile Management Procedure) to allow for contingency management of unexpected waste materials, including contaminated materials. These suitable areas will be hardstand or lined areas that are appropriately stabilised and bunded, with sufficient area for stockpile storage at ancillary construction facilities or within the construction footprint. Contingency areas may be interchanged for similarly prepared areas (e.g. a portion of a parking lot), as construction progresses and the construction footprint develops.

4.6.5 Waste transportation

Waste being transported between site and/or a disposal facility will be covered. Uncovered loads of waste can spill onto the road that create litter or dust and can wash into waterways via stormwater drain.

Materials classified under the Waste Classification Guidelines Part 1: Classifying Waste (EPA, 2014) as hazardous during construction will be transported in accordance with the Dangerous Goods (Road and Rail Transport) Act 2008 (NSW), Dangerous Goods (Road and Rail Transport) Regulation 2014 (NSW) and Australian Code for the Transport of Dangerous Goods by Road and Rail (National Transport Commission, 2008).

The transportation of asbestos waste will be completed in accordance with Asbestos Management Plan (AMP) (Appendix C of the CCLMP).

The NSW EPA guidelines will be followed for regulations when transporting hazardous and/or liquid wastes. An EPL and waste tracking are required to transport higher risk wastes and some liquid wastes (other than water or oil) that may be potentially hazardous or potentially harmful to human health or the environment.

Waste tyres and asbestos waste may be required to be tracked using the NSW EPA WasteLocate in accordance with clauses 76 and 79 of the *Protection of the Environment Operations (Waste) Regulation 2014*. WasteLocate will be used when:

- Consigning, transporting, or accepting tyres with a total weight of more than 200 kilograms, or 20 or more tyres, in any single load.
- Consigning, transporting, or accepting more than 100 kilograms of asbestos waste, or more than 10 square metres of waste asbestos sheeting, in any single load.

For further detail on the transportation of asbestos waste, refer to the AMP.

4.6.6 Waste disposal

Where re-using, recycling, or recovering waste is not possible, waste will be treated or disposed of at a waste management facility or premises lawfully permitted to accept the materials. Disposal of waste (and spoil) will be in accordance with the POEO Act and the WARR Act.

The selection of waste disposal and recovery facilities will be dependent on the nature and volume of waste streams generated and the capacity of the receiving facilities at the time of the waste generation. Waste that is unable to be reused or recycled will be disposed of off-site to an appropriately licenced waste management facility following classification. Appendix D provides a list of potential waste transporters and licenced waste facilities. A register of waste facilities will be maintained throughout construction and updated with information of the intended reuse, recycling or disposal locations against actual reuse, recycling, and disposal locations. This register will be document controlled separately from this CWRMP. All waste receival facilities will be assessed to ensure that they can legally accept the waste prior to material being transported off-site.

John Holland will verify the licences and permits of each proposed waste transporter and disposal facility prior to transport and disposal of waste offsite. A copy of the facilities license, at the date of disposal, will be maintained in the M12 East package document management system to verify that the facility was permitted to receive the waste type at the time of disposal.

Where waste is to be disposed of in an off-site location that is not a licensed waste facility (i.e. private property), John Holland will complete a section 143 notice under the POEO Act for submission to WSO Co / TfNSW. Waste in this context refers to spoil, virgin excavated natural material (VENM), excavated natural material (ENM), crushed rock, reclaimed asphalt pavement, mulch, waste concrete or any other construction waste material. The section 143 notice will include evidence required to meet TfNSW Specification G36, including that the waste site has the appropriate planning consent for receiving waste.

4.7 Classification of waste streams

Where waste cannot be avoided, reused, recovered, or recycled it will be classified and disposed of appropriately. The classification of waste will be undertaken in accordance with the *Waste Classification Guidelines Part 1: Classifying Waste* (EPA, 2014) with appropriate records and disposal dockets retained for audit purposes in accordance with NSW CoA E103.

The EPA guidelines identify six classes of waste: Special, Liquid, Hazardous, Restricted Solid, General Solid (putrescible) and General Solid (non-putrescible) and describe a six-step process to classifying waste:

Step 1: Is it 'special waste'?

Establish if the waste should be classified as special waste. Special wastes include clinical and related waste, asbestos waste, and waste tyres.

Note: Asbestos and clinical wastes must be managed in accordance with the requirements of Clauses 42 and 43 of the *Protection of the Environment Operations (Waste) Regulation 2005*.

Step 2: If not special, is it 'liquid waste'?

If it is established that the waste is not special waste, it must be decided if it is 'liquid waste'. Liquid waste means any waste that: has an angle of repose of less than 5° above the horizontal, becomes free flowing at or below 60°C or when it is transported, and is generally not capable of being picked up by a spade or shovel.

Liquid wastes are sub-classified into:

- Sewer and stormwater effluent
- Trackable liquid waste according to Protection of the Environment Operations (Waste) Regulation 2005 Schedule 1 Waste to which waste tracking requirements apply.
- Non-trackable liquid waste.

Step 3: If not special or liquid, has the waste already been pre-classified by the NSW EPA?

The EPA has pre-classified several commonly generated wastes in the categories of hazardous, general solid waste (putrescibles) and general solid waste (non-putrescibles). If a waste is listed as 'pre-classified', no further assessment is required.

Step 4: If not pre-classified, is the waste hazardous?

If the waste is not special waste (other than asbestos waste), liquid waste or pre-classified, establish if it has certain hazardous characteristics and can therefore be classified as hazardous waste.

Hazardous waste includes items such as explosives, flammable solids, substances liable to spontaneous combustion, oxidizing agents, toxic substances, and corrosive substances.

Step 5: If the waste does not have hazardous characteristics, undertake chemical assessment to determine classification

If the waste does not possess hazardous characteristics, it must be chemically assessed to determine whether it is hazardous, restricted solid or general solid waste (putrescible or non-putrescible). If the waste is not chemically assessed, it must be treated as hazardous.

Waste is assessed by comparing Specific Contaminant Concentrations of each chemical contaminant, and where required, the leachable concentration using the Toxicity Characteristics Leaching Procedure, against Contaminant Thresholds.

Step 6: Is the general solid waste putrescible or non-putrescible?

If the waste is chemically assessed as general solid waste, a further assessment is available to determine whether the waste is putrescible or non-putrescible. The assessment determines whether the waste is capable of significant biological transformation. If this assessment is not undertaken, the waste must be managed as general solid waste (putrescible).

4.7.1 Waste sampling and classification (for offsite disposal)

Waste sampling and classification must occur if waste is intended for re-use or disposal off site. Waste sampling for offsite re-use of soils and aggregates shall be in accordance with the Roads and Maritime

‘Waste Sampling’ Environment Fact sheet. All offsite disposal of waste will be subject to classification of the material in accordance with the NSW EPA Waste classification guidelines (2014), and relevant Resource Recovery Orders (Section 4.10).

Waste sampling and classification must be completed by a suitably qualified professional. Each Waste Classification Report will report on the sampling density and methods used to determine the waste classification in accordance with the guidelines and standards relevant to the material being classified.

Where material will be characterised under NEPM and reused on site, refer to the Soil and Water Management Plan for guidance.

4.7.2 Deconstruction

In line with sustainability targets (refer Sustainability Management Plan for more detail), John Holland will develop a deconstruction plan based on Designing for Deconstruction (DfD) principles. The primary goal of this process is to responsibly manage end-of-life infrastructure materials to minimise consumption of raw materials. The ISC manual guidance for Was-3 is that 0 to 50% by value of components or prefabricated units used can be easily separated on disassembly/ deconstruction into material types suitable for recycling or reuse.

For every increment of deconstructability up to 50% for Level 3, fractions of levels may be achieved on a sliding scale. The precise percentage and target level for this credit will be further determined as the deconstruction plan develops.

4.8 Classification and management of potential waste streams

The construction activities and types of wastes which may be generated during the construction of the Project are outlined and classified in Table 4-3.

Table 4-3: Management of waste streams

Construction activity	Waste type	Waste classification	Reuse options and waste management approach	Potential waste requiring removal offsite
General works (including site establishment activities, installation of office accommodation, utilities, and other facilities and minor earthworks).	Surplus construction material including fencing, geofabrics sediment, concrete, steel, timber, and sandbags	General solid waste (non-putrescible)	Materials that are potentially recyclable would be disassembled and removed carefully to maximise reuse and recycling. To ensure diversion from landfill, materials would be clearly separated and stored temporarily on-site for reuse or removal to a recycling facility. Stockpiled materials would be monitored and managed in accordance with the CSWMP and/or Site Establishment Management Plan (SEMP). Surplus construction materials will be stored for reuse on the M7-M12 Integration project or be transferred to other sites for use in other TfNSW or John Holland projects. On-site assessment/treatment of surplus construction materials, such as visual assessment, screening/removal of oversized material, mixing and moisture conditioning, would facilitate the potential reuse of this material in the M7-M12 Integration project. Surplus construction materials may be recycled where possible. Sending surplus materials to landfill is to be avoided where possible.	Minimal surplus construction material is expected. Excess construction material would be avoided, where possible. Surplus construction material would be reused on-site or reused at alternate TfNSW or John Holland projects
	Excavated materials including spoil	General solid waste (non-putrescible), restricted solid waste, hazardous waste and/or special waste	Excavation associated with establishment of ancillary facilities is to be minimised through selection of suitable ancillary facility locations that are as flat as possible. Excavated materials suitable for reuse are to be appropriately segregated and stored for future use on the Project. On-site assessment/treatment of these surplus construction materials, such as visual assessment, screening/removal of oversized material, mixing and moisture conditioning, would facilitate the potential reuse of this material as general fill or for landscaping. Earthworks waste is discussed further in the section below.	Minimal surplus excavated material is anticipated, as the M12 East package would reuse excavated material where feasible.

Construction activity	Waste type	Waste classification	Reuse options and waste management approach	Potential waste requiring removal offsite
Earthworks ¹ , drainage works (including topsoil stripping, cut and fill preparation, and vegetation clearance)	Vegetation waste from the removal of trees, shrubs, and ground cover	General solid waste (putrescible)	Where possible, vegetation clearing is to be minimised through Project design. Vegetation that is cleared would be mulched and reused where possible, including consideration of the Mulch Order and Mulch Exemption allowing for reuse on other TfNSW projects. This may include the reuse of timber for fauna habitat and root balls in the rehabilitation of waterways. Remaining vegetation that is not reused is to be sent to an approved facility for sale or disposal. Weeds would be disposed of off-site at an appropriate licensed disposal facility. On-site assessment/treatment of these surplus construction materials, such as visual assessment, screening/removal of oversized material, mixing and moisture conditioning, would facilitate the potential reuse of this material as general fill or for landscaping.	Minimal A majority of cleared vegetation is expected to be reused on-site or on other TfNSW projects, other than weed species.
	Excavated spoil unsuitable for reuse (including contaminated spoil)	General solid waste (non-putrescible), restricted solid waste, hazardous waste, and/or special waste	Material that is identified as contaminated is to be segregated from uncontaminated material on-site to prevent cross-contamination and removed off-site to a licensed disposal facility. On-site assessment/treatment of surplus excavated materials, such as visual assessment, screening/removal of oversized material, mixing and moisture conditioning, would facilitate the potential reuse of this material as general fill or for landscaping. If asbestos or other hazardous materials are identified, they are to be disposed off-site to a licensed facility or managed in accordance with a	Minimal excavated material is anticipated, as the M12 East package would reuse excavated material where feasible. As an estimate, about 12,900 m³ of material may need to be removed from site.

These activities will not necessarily be carried out concurrently and will include low impact works such as investigations including archaeological and cultural salvage, minor vegetation clearing and minor excavation across the Project.

Construction activity	Waste type	Waste classification	Reuse options and waste management approach	Potential waste requiring removal offsite
			Remedial Action Plan. Where reasonable and feasible, asbestos may be emplaced under the road pavement in accordance with a Remedial Action Plan. The excavation, handling, storage, movement and disposal of waste material that is identified as being contaminated would be carried out in accordance with the procedures detailed in this CWRMP in accordance with the <i>Work Health and Safety Regulation 2011 (NSW)</i>.	In addition, areas of historical fill will be further investigated to determine if there is any contaminated material that would require excavation.
	Contaminated water (e.g. generated by a spill leading to contamination of surface water or encountering (already) contaminated groundwater)	Liquid waste	Erosion and sediment controls, appropriate bunding of all chemicals and use of water quality control measures would be implemented to minimise potential risk of surface water contamination. Contaminated water quantities are anticipated to be negligible or minor and are to be collected and disposed of by a suitably licensed contractor. Where contaminated water can be treated, it may be reused on-site for construction activities, including dust suppression, where possible.	Minimal quantities anticipated for the M12 East Project due to limited contamination in the corridor.
Demolition of existing structures on acquired/leased land and farm structures	Demolition materials including concrete, bricks, road base, tiles, timber (untreated and treated), metals, plasterboard, carpets, electrical and plumbing fittings and furnishing (doors, windows). May also include tyres,	General solid waste (non-putrescible), special waste and/or hazardous waste	Concrete and bricks are to be demolished using low impact techniques where practicable, so as to maintain the structure of the material, and thus its reusability. Materials are to be disassembled and removed carefully to maximise the potential for reuse and recycling. Where practical, removed road pavement is to be re-processed and used to provide sub-pavement layers for the M12 East package or another TfNSW project under a waste order or exemption where applicable. Where practical, concrete is to be recycled. Remaining material is to be disposed of at an offsite facility. Waste disposal locations are discussed in the following sections below under 'waste disposal locations' Hazardous waste is to be removed by a qualified handler for recycling or recovery of energy where possible. If asbestos or other hazardous	Minimal quantities anticipated for the M12 East Project as one dwelling to be demolished.

Construction activity	Waste type	Waste classification	Reuse options and waste management approach	Potential waste requiring removal offsite
	asbestos, and lead paint.		materials are identified, they are to be managed in accordance with a Remedial Action Plan or disposed of offsite at a licenced facility.	
Construction of pavements and bridges, retaining structures, including finishing works (e.g. line marking, installation of roadside furniture, landscaping and demobilisation and rehabilitation of construction facilities and disturbed areas)	General construction waste including timber formwork, scrap metal, steel, concrete, plasterboards, and packaging material (crates, pallets, cartons, plastics and wrapping material)	General solid waste (non-putrescible)	Materials that are potentially recyclable are to be disassembled and removed carefully to maximise further reuse and recycling. To ensure diversion from landfill, waste materials are to be clearly separated and temporality stored onsite for reuse or removal to a recycling facility. Stockpiled materials would be monitored and managed in accordance with the CSWMP and SEMP. Where possible, the amount of packaging waste is to be minimised by avoiding the ordering of unnecessary or excess supplies and by buying in bulk. Where reasonable and feasible, cost-effective suppliers that use sustainable, recycled and/or recyclable material are to be used. Packaging waste generated is to be sorted for recycling or disposal at an approved facility. In the event of excess supplies due to accidental over-ordering or design changes, excess material would be reused, returned to the supplier, or recycled where feasible. Remaining material would be disposed of at a licenced facility.	Minimal quantities anticipated for the M12 East Project.
	Surplus construction material including fencing, sediment, gravel/crushed rock, asphalt, concrete, steel, aggregate, formwork, asphalt, landscaping material and sandbags.	General solid waste (non-putrescible)	Materials that are potentially recyclable would be disassembled and removed carefully to maximise further reuse and recycling. To ensure diversion from landfill, waste materials would be clearly separated and stored temporarily on-site for reuse or removal to a recycling facility. Stockpiled materials would be monitored and managed in accordance with the CSWMP and SEMP. Surplus construction materials may be transferred to other sites for use or stored for future use as a priority. Surplus construction materials may be recycled where possible. Surplus materials would be diverted from, landfill where possible. On-site assessment/treatment of surplus construction materials, such as visual assessment, screening/removal of oversized material, mixing and moisture conditioning, would facilitate the potential reuse of this material in the M12 East package.	Surplus construction material would be reused on-site or reused at an alternate TfNSW or John Holland project where possible

Construction activity	Waste type	Waste classification	Reuse options and waste management approach	Potential waste requiring removal offsite
			In the second instance, surplus construction materials may be recycled where possible. Sending surplus materials to landfill is to be avoided where possible.	
Temporary works including the construction of work platforms, hardstand areas, and sediment basins	General construction waste including timber formwork, scrap metal, steel, concrete, plasterboards, and packaging material (crates, pallets, cartons, plastics and wrapping material)	General solid waste (non-putrescible)	To ensure diversion from landfill, waste materials would be clearly separated and stored onsite, monitored, and managed in accordance with this CWRMP. Where possible, the amount of packaging waste would be minimised by avoiding the ordering of unnecessary or excess supplies and by buying in bulk. Where reasonable and feasible, cost-effective suppliers that use sustainable, recycled and/or recyclable material would be used. Packaging waste generated would be sorted for recycling or disposal at an approved facility. In the event of excess supplies due to accidental over-ordering or design changes, excess material would be reused, returned to the supplier, or recycled where feasible. Materials that are potentially recyclable would be disassembled and removed carefully to maximise further reuse and recycling.	Minimal quantities anticipated for the M12 East Project.
	Sediment and sludge within sediment basins	General solid waste (non-putrescible)	Sediment removed from basins would be dewatered and may be reused on-site (e.g. in landscaping works) or in non-structural fill embankments. If the material cannot be reused on-site, it would be disposed of at an appropriately licensed facility.	Minimal quantities anticipated for the M12 East Project from basins Any sediment/ sludge is expected to be treated and reused on-site in formations.
Activities at site offices	General waste from site office including putrescibles, paper, cardboard, e-waste plastics, glass, site litter, cigarette butts, printer	General solid waste (non-putrescible)	Waste and recycling generated by the site offices would be source-separated into dedicated bins, such as: • General waste • Co-mingled recycling • Paper/cardboard • Toner/cartridges • E-waste • Food waste (where practicable).	Volumes of waste produced will be dependent on the number of workers onsite at any one time

Construction activity	Waste type	Waste classification	Reuse options and waste management approach	Potential waste requiring removal offsite
	cartridges and sewage waste		The segregation of recyclables from the general waste stream would maximise resource recovery and minimise materials sent to landfill. Bins will be clearly labelled and coloured to reflect the correct stream. Staff will be trained about the internal office waste management system to ensure adequate understanding across all employees. Sewage will be directed to the sewage mains or pumped out for disposal at an appropriately licensed facility.	
Operation of plant and equipment	Waste from operation and maintenance of construction vehicles and machinery including adhesives, lubricants, waste fuels, cleaning products and chemicals, and oils, engine coolant, batteries, hoses, and tyres	Hazardous waste, special waste, liquid waste	Liquid waste will be collected and transferred to a dedicated recycling facility where possible, to ensure diversion from landfill. Batteries will be collected and recycled by a qualified handler.	Minimal quantities anticipated for the M12 East Project.
Incident Management	Clean up waste in the event of an accidental spill of fuel or chemicals	Hazardous waste, Liquid waste	Materials collected during clean-up will be disposed of at an appropriately licensed facility	Any waste from spills will be dependent on the size and nature of the spill

4.9 Waste management register

Details of waste types, volumes and destinations will be recorded in a waste management register in accordance with NSW CoA E104. A template waste management register is included in Appendix B. The waste management register will detail the following:

- The quantity of each type of waste generated including its classification and source location (recorded using latitude and longitude coordinates)
- The destination location/s for all wastes generated until the completion of works for the M12 East package.
- The quantities of any waste types imported onto any Project site, including their classification and emplacement location (recorded using latitude and longitude coordinates)
- The quantities and types of wastes that are subject to a Resource Recovery Order and/or Exemption.
- Disposal records demonstrating that receiving facilities have lawfully accepted the waste type.

John Holland will collect and keep legible copies of all receipts and/or weighbridge dockets from transporters and/or contractors in relation to disposal of waste from the premises.

The Waste Management Register will be document controlled separately to this CWRMP, and will be made available to the Planning Secretary and EPA on request.

4.10 Waste exemption

Clause 51 of the *Protection of the Environment Operations (Waste) Regulation 2005* enables the EPA to grant exemptions to the licensing and payment of levies for the land application or use of waste from some of the requirements under the *Protection of the Environment Operations Act 1997* and Regulation for certain wastes and resource recovery activities where it can be demonstrated that waste reuse would not cause harm to human or environmental health. Under these provisions, the NSW EPA requires two separate applications, either or both of which may be applicable to the M12 East package:

A Resource Recovery Order made under Clause 93 of the Regulation, which covers the requirements for the generation and/or processing of material for reuse.

A Resource Recovery Exemption made under clauses 91 and 92 of the Regulation, which relates to the consumption of any material for reuse.

The general Resource Recovery Exemptions and Orders that the EPA has issued for a range of commonly recovered, high volume and well characterised waste materials that allow their use as fill or fertiliser at unlicensed, off-site facilities. The general Resource Recovery Exemptions and Orders that may be applicable to the Project are defined in Table 4-4 below and at [EPA Current Orders and Exemptions](#). These are general gazette exemptions that do not require approval. A specific exemption may be granted where an application is made to the EPA.

Each Resource Recovery Exemption and Order includes specific sampling requirements, test methods, notifications and record keeping requirements. Prior to the implementation of any Resource Recovery Exemptions and Orders, a suitably qualified person should develop and implement a sampling plan to address the specific requirements of the Resource Recovery Exemptions and Orders.

Table 4-4: Waste Recovery Exemptions and Orders, and associated conditions relevant to the M12 East package

Exemption/Order	General conditions
Compost Exemption 2016	The chemical concentration or other attributes of compost listed in the Compost Exemption must not be exceeded. The compost can only be applied to land as a soil amendment.

Exemption/Order	General conditions
	The consumer must ensure that they do not cause or permit the migration of leachate from the site. The consumer must ensure that any application of compost to land occurs within a reasonable period of time.
<i>Effluent Exemption 2014</i>	The effluent can only be applied to land for the purposes of irrigation or as a soil amendment material. The consumer must apply the effluent within a reasonable period of time.
<i>Pasteurised Garden Organics Exemption 2016</i>	The chemical concentration or other attributes of the Pasteurised Garden Organics (PGO) listed in the Pasteurised Garden Organics Exemption must not be exceeded. The PGO can only be applied to land as a soil amendment. The consumer must ensure that they do not cause or permit the migration of leachate from the land application site. The consumer must ensure that any application of pasteurised garden organics to land occurs within a reasonable period of time.
<i>The Excavated Natural Material Exemption 2014</i>	The chemical concentration or other attributes of the excavated natural material listed in the Excavated Natural Material Exemption must not be exceeded. The excavated natural material can only be applied to land as engineering fill or used in earthworks. ENM handling, processing, and testing requirements are outlined in detail in the exemption.
<i>The Excavated Public Road Material Exemption 2014</i>	The excavated public road material can only be stored within the road corridor at the site where it is to be applied to land. The excavated public road material can only be applied to land within the road corridor for public road related activities including road construction, maintenance, and installation of road infrastructure facilities. This exemption does not apply to the land application of excavated public road material on any land outside the road corridor. The excavated public road material cannot be applied on private land. The consumer must land apply the relevant waste within a reasonable period of time.
<i>The Mulch Exemption 2016</i>	The raw mulch can only be applied to land for the purposes of filtration or as a soil amendment material or used either singularly or in any combination as input material(s) to a composting process. The consumer must land apply the raw mulch within a reasonable period of time.
<i>The Recovered Aggregate Exemption 2014</i>	The chemical concentration or other attribute of the recovered aggregate listed in the Recovered Aggregate Exemption must be met. The recovered aggregate can only be applied to land for road making activities, building, landscaping, and construction works. This approval does not apply to any of the following applications: Construction of dams or related water storage infrastructure • Mine site rehabilitation • Quarry rehabilitation • Sand dredge pond rehabilitation • Back-filling of quarry voids • Raising or reshaping of land used for agricultural purposes and

Exemption/Order	General conditions
	- Construction of roads on private land unless: - the relevant waste is applied to land to the minimum extent necessary for the construction of a road and - a development consent for the development has been granted under the relevant Environmental Planning Instrument (EPI) or - it is to provide access (temporary or permanent) to a development approved by a Council or - The works undertaken are either exempt or complying development.
<i>The Blast Furnace Slag Exemption 2014</i>	Blast furnace slag or blended slag can only be applied to land in cementitious mixes such as concrete or in non-cementitious mixes such as an engineering fill in earthworks or roadmaking activities.
<i>The Reclaimed Asphalt Pavement Exemption 2014</i>	Reclaimed asphalt can only be applied to land for road related activities including road construction or road maintenance
<i>Treated Drilling Mud Exemption 2011</i>	At the time the treated drilling mud is received at the premises, the material must meet all chemical and other material requirements for treated drilling mud which are required on or before the supply of treated drilling mud under 'the treated drilling mud order 2014'. The treated drilling mud can only be applied to land as engineering fill or for use in earthworks. The consumer must keep a written record of the following for a period of six years: - the quantity of any treated drilling mud received; and - the name and address of the supplier of the treated drilling mud received. The consumer must make any records required to be kept under this exemption available to authorised officers of the EPA on request. The consumer must ensure that any application of treated drilling mud to land must occur within a reasonable period of time after its receipt.
<i>Stormwater Exemption 2014</i>	The stormwater can only be applied to land within the definitions of "application to land". The consumer must ensure that any application of stormwater to land must occur within a reasonable period of time after its receipt.

4.11 Management of surplus material approval

Earthworks will be required for construction activities, including road construction, bridge construction and drainage. To ensure the amount of waste is minimised, earthwork requirements will be managed across the M12 East package, with construction staging taking into account efficient resource use and opportunities for reusing materials to limit waste generation.

Material excavated from the M12 East package may consist of VENM (being natural rock, soil, sand, and clay), excavated natural material (at least 98% natural soil or rock material) or excavated public road materials (typically asphalt or concrete pavement materials). The preferred approach to managing surplus material is to re-use or recycle the material as fill on-site (with the exception of contaminated material) and within the M12 East package boundary. TfNSW will also investigate whether unused resources could be used on other TfNSW projects.

Priority will be given to recycled materials of higher quality; materials of a higher standard are to be considered first for reuse on the M12 East package.

Unsuitable material is surplus material that cannot be used beneficially elsewhere on-site. Off-site disposal of unsuitable material will be required. Surplus spoil that is unable to be reused on-site will be transported for beneficial reuse off-site in accordance with a relevant EPA resource recovery exemption or disposed of at a licensed waste facility.

Before any surplus material is disposed off-site, it will be classified in accordance with the *Waste Classification Guidelines Part 1: Classifying Waste* (EPA, 2014) and the POEO Act.

Measures to avoid the risk of importation of pathogens or weeds into M12 East package construction areas are included in the Section 6.7 and Appendix E of the CFFMP.

Waste generated outside the site will not be received for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence or waste exemption under the POEO Act, if such a licence is required in relation to that waste.

A Spoil Management Plan (SMP) is provided in Appendix C to identify spoil disposal sites and management protocols for spoil reuse on-site and during off-site transport. The SMP has been prepared in accordance with relevant EPA guidelines, TfNSW Specifications and the overarching SMP provided in Appendix C of the OCWRMP. The purpose of the SMP is to:

- Identify the environmental management issues associated with the sourcing, handling, transportation, stockpiling, disposal, and reuse of spoil material.
- Document and describe the systems and procedures developed to mitigate environmental impacts.
- Provide practical measures that will be implemented during construction of the Project to minimise adverse impacts on the surrounding environment resulting from spoil management.

WSO Co and TfNSW will review the SMP for consistency with the requirements of this CWRMP.

4.12 Management of cleared vegetation waste

Vegetation cleared from the M12 East package area to facilitate construction works will be collected and reused on- and off-site wherever possible.

The Habitat Compensation Plan (CFFMP Appendix F) has been prepared to identify opportunities to salvage natural resources including coarse woody debris (logs and root balls), hollows, deadwood and mulch that can be used in habitat reinstatement or restoration projects within the M12 East package corridor, or by natural resource management agencies off site in consultation with local landowners and stakeholders. Where agreed by WSO Co / TfNSW, these resources may be relocated under the supervision and direction of an Ecologist within the construction footprint for use in conjunction with soil erosion and sediment control measures. Native tree materials may also be reused on-site for other suitable purposes.

A Vegetation Clearing Procedure (CFFMP Appendix B) that outlines the re-use of cleared vegetation has been prepared as part of the CFFMP.

Non-reusable vegetation, such as exotic plant species and priority weeds will be disposed off-site, at a licensed landfill facility. Disposal of priority weeds will be carried out in accordance with their category under the *Biosecurity Act 2015* and following Department of Primary Industry guidelines.

A vegetation clearing and grubbing EWMS (refer to Section 3.3.3 of the CEMP) will be prepared before undertaking any clearing activities to detail the procedures for the disposal of priority weeds and exotic plants and for the recycling and disposal of all other materials from clearing and grubbing operations during construction of the M12 East package.

If cleared native trees and vegetation cannot be reused John Holland (in discussion with TfNSW) will consult with relevant councils, Western Sydney Parklands Trust, landcare groups and relevant government agencies,

to determine if others in habitat enhancement, beneficial re-use and rehabilitation work could use the cleared vegetation instead of other disposal options.

Unless otherwise agreed with WSO Co and TfNSW, all materials cleared, pruned, demolished, cleaned, removed, and grubbed, must be removed from the site in accordance with this plan.

4.13 Mulch

Native trees removed during clearing and grubbing that are not reused in conjunction with soil erosion and sediment control measures or other identified purposes will be converted to mulch and stockpiled for use during landscape planting. Native vegetation used for mulch in the landscaping works will take priority over the use of native vegetation in soil erosion and sediment control measures.

Excess mulch will be disposed off-site for beneficial reuse where practical. Any mulch material applied or stockpiled on land must fulfil the requirements of the Mulch Exemption and the Mulch Order as if the mulch were being applied to an environmentally sensitive area.

Preventative actions to control the potential spread of weeds will be implemented in accordance with Section 6.3 of the CFFMP.

4.14 Water

Construction activities may require the use of water, both non-potable and potable, include dust suppression, compaction of fill, pavement works, road finishing works, landscaping, and use of office amenities.

Where available and practicable, and of appropriate chemical and biological quality, stormwater, recycled water, or other water sources (e.g., treated water from sediment basins, harvested rainwater) will be used in preference to potable water. The relevant target is to source 33% of water from non-potable sources.

A Construction Water Reuse Strategy has been prepared as part of the CSWMP in accordance with REMM SWH03. This strategy details considerations of the estimated future demand of potable water within the M12 East package corridor and considers possible alternate water sources to be used for construction, where potable water may not be required.

4.15 Management of asbestos

Demolition activities for construction of the M12 East package may require disposal of asbestos pipes, conduits, and pits. The EIS (Chapter 8.1) also identified Areas of Environmental Interest (AEIs) in 2017 that may potentially contain asbestos, including historical structures, fill sites and illegally dumped stockpiles.

EWMS will be prepared to document the procedure for disposal of asbestos pipes, conduits, pits, structures, fill and stockpiles in accordance with the AMP. The AMP also outlines requirements for the encapsulation of asbestos to be carried out in accordance with relevant Remedial Action Plans. The AMP is found in Appendix C of the CCLMP. Removal of asbestos materials will be carried out by a licensed asbestos removalist (where required) holding a current licence issued by SafeWork NSW. Removal of asbestos materials must comply with the *Work, Health and Safety Act 2019* and the SafeWork Australia code of practice for [‘How to Safely Remove Asbestos’](#). Off-site disposal of the asbestos material will be at facilities legally authorised to accept such material.

4.16 Coal tar management

Coal tar is classified within the Australian Hazardous Substances regulatory regime as a Category 1 Carcinogen. The presence of coal tar asphalt, as distinct from bitumen, is commonly identified by the distinctive odour it gives off when heated. This odour occurs when the coal tar asphalt is milled and the friction heat from the milling machine releases coal tar fumes.

As described in Section 4.2.1 of the CCLMP, an isolated location within the M12 East package site was identified as containing coal tar asphalt within a pavement core. Further investigations are required to define the extent of the known location. Following the outcomes of these investigations, a Coal Tar Management Plan may be required prior to any removal of the material. The plan will be prepared in accordance with the requirements of Technical Direction: Coal tar asphalt handling and disposal (TfNSW, 2015) and TfNSW specifications.

The purpose of the Coal Tar Management Plan is to:

- Identify the environmental management issues associated with the handling, transportation, and disposal of coal tar.
- Document methods for the investigation, sampling and testing of materials potentially containing coal tar, including records of surveyed locations.
- Provide practical measures that will be implemented during construction of the M12 East package to minimise adverse impacts on the surrounding environment and human health resulting from coal tar management.

If required, the Coal Tar Management Plan will include, but not be limited to:

- Outline of potential sources of coal tar
- Procedure for the identification of coal tar
- Process for the testing and classification of coal tar
- Measures for the safe handling of coal tar
- Locations of off-site disposal facilities
- Process for safe transportation of coal tar
- Performance criteria
- Potential impacts associated with spoil.
- Management measures and mitigation strategies relevant to spoil
- Monitoring and reporting
- Process for corrective action.

If required, the Coal Tar Management Plan will be submitted to WSO Co and TfNSW for review, including to confirm consistency with the requirements of the overarching CWRMP, this CWRMP, the CoA and the REMMs.

Further coal tar deposits may be present in other areas of the existing pavement and around utilities to be removed or cold milled during construction of the M12 East package, however, it is not expected to be widespread or occur at depth underground.

The identification of coal tar and contingency response measures will be included in the EWMS prepared for contingency response measures and targeted toolbox training will be provided to personnel involved in milling of asphalt.

If additional unexpected coal tar is identified within the M12 East package works area, construction activities will cease, and the Environmental Site Representative (ESR) will notify WSO Co / TfNSW. If required, testing of the material will be undertaken in accordance with TfNSW Test Method T542.

4.17 Illegal dumping management

Illegally dumped waste is defined as the disposal of waste larger than litter on land or in water without the correct approvals (an EPL or planning approval). John Holland will actively inform NSW EPA and/or the local regional illegal dumping squad (RID Squad) of any potential fly-tipping and/or illegally dumping identified during construction.

5 Resource management strategy

John Holland is dedicated to implementing resource conservation best practice and the reduction of greenhouse gases through energy efficient work practices. Initial resource conservation opportunities that have been identified are detailed in Table 5-1. These opportunities will be further explored during construction. Opportunities that indicate resource reduction (materials, water, waste, and energy) will be logged, tracked and managed through the Sustainability Opportunities Register (M12 East package Sustainability Management Plan). The Sustainability Opportunity Register is a stand-alone register which will remain live until construction completion is achieved.

Resources are to be appropriately managed during construction to minimise wastage, including through the identification of reuse options for surplus materials. Waste management strategies to be implemented, where feasible and reasonable, include:

- Waste generation to be avoided
- Where avoidance is not reasonably practicable, waste generation to be reduced
- Where avoiding or reducing waste is not possible, waste to be reused, recycled, or recovered. Surplus construction material could be reused on-site, or reused at other Project packages, and/or reused at alternate TfNSW projects
- Waste will be handled and appropriately stored on-site before on-site reuse
- Waste that cannot be reused on-site, but can be recycled or recovered, will be removed off-site for recycling or recovering at an appropriately licenced facility
- As a final approach, waste that cannot be reused, recycled, or recovered, will be removed off-site for disposal at an appropriately licenced facility.

As stated in the Environmental Assessment Documentation, significant quantities of materials, water and electricity are expected to be required for the construction of the Project, including M12 East package. Consequently, resource consumption and waste generated would contribute to the emission of greenhouse gases during construction.

Construction materials would likely be sourced from offsite suppliers, however locally sourced construction materials (e.g. from within the Sydney region) will be prioritised for use where practical to minimise haulage distances and the associated impacts on traffic in the area.

Water for the M12 East package, for example, will be sourced (in order of general preference) from stormwater harvesting (non-potable water), on site construction water treatment and reuse (non-potable water) and mains supply (potable water). It is anticipated that the local water supply network would have sufficient capacity to accommodate water requirements.

Similarly, power requirements are expected to be significant during construction of the M12 East package, however local substations are expected to have the required capacity to supply the construction ancillary facilities without affecting the local supply network. Monitoring and reporting of energy use will be carried out throughout construction the M12 East package. This will include the implementation of the TfNSW Carbon Estimation Reporting Tool for energy use monitoring. Quarterly Sustainability Reports will be prepared during construction providing the actual performance against the nominated sustainability targets, the work that has been undertaken and the achievements that have been met, as well as identifying those areas where improvements were made. Further details are provided in the M7-M12 Integration project Sustainability Management Plan.

Table 5-1: Resource conservation opportunities

Resource	Conservation opportunities
Potable water	• A Construction Water Reuse Strategy for the M12 East package has been developed in accordance with REMM SWH03 (refer to CSWMP Appendix I). The Strategy details considerations of the current and future demand of potable water within the M12 East package and considers possible alternate water sources to be used for construction, where potable water may not be required. Construction will be managed in accordance with the Construction Water Reuse Strategy. Section 2-1 of the Water Reuse strategy lists the potential re-use options. • Use of non-potable alternatives (e.g. stormwater, harvested rainwater, recycled water or treated water from sediment basins) for construction activities, where possible • Use of water efficient taps and fittings • Application of dust suppressant polymers.
Electricity	• Use of energy efficient fittings and fixtures where feasible • Using LED and low energy equipment for signals and signage
Fuel	• Promote efficient operator behaviour; switch off construction plant, vehicles, and equipment when not in use to minimise idling. • Use of mains connections for site facilities (where feasible) • Optimise haulage distances and material handling practices. • Regular maintenance of construction plant and equipment to maximise fuel efficiency. • Reporting on and aiming to achieve compliance with air emissions standards for mobile non-road diesel plant and equipment as per the NSW Government Resource Efficiency Policy • Reviewing cut and fill balances for earthworks to minimise transportation distances for materials. • Reviewing local options for import and export of fill materials to reduce transportation distances. • Procuring of locally manufactured goods/ materials.
Cement	• Specifying lower embodied energy concrete, for example concrete that contains less Portland cement (which would be replaced with fly-ash) for lower strength concrete applications where possible. • Incorporate glass content into fine aggregate within pavement mixes where practicable.
Steel	• Source from suppliers certified under Australian Certification Authority for Reinforcing Steels or similar international association or organisation • Specifying recycled steel in-place of virgin steel • Use macro-synthetic fibre non-steel reinforcement, subject to approval.
Cleared vegetation	• Limiting vegetation clearance where feasible and revegetating with native species in accordance with the CFFMP • Cleared vegetation (excluding exotic plant species and priority weeds) from the construction footprint is to be collected and reused on site wherever possible, for example as habitat for fauna under the supervision and direction of an ecologist • Native tree materials may also be reused on-site as fencing material or for other suitable purposes (e.g. soil erosion and sediment control measures) or will be converted to mulch to use during landscape planting • Excess mulch not used for landscaping will be disposed off-site for beneficial reuse where practical, and where the requirements of the Mulch Exemption and the Mulch Order are fulfilled.

Resource	Conservation opportunities
Asphalt and road base	• Use of TonerPave (low CO2 asphalt) (where feasible) • Use of PlastiPave (asphalt product utilising waste soft plastics) (where feasible) • Incorporate maximum permissible glass content in asphalt where practicable.
Timber	• Use reusable and/or recycled timber formwork, or Forest Stewardship Council (FSC) or Programme for the Endorsement of Forest Certification (PEFC) certified timber, where practicable
Aggregates	• Use of recycled and recyclable materials where possible • Use of spoil as alternative to virgin quarry products (subject to specific Resource Recovery Exemption) • Use of crushed glass as utility bedding sand (engineered fill) • Reuse of suitable site won material.

5.1 Energy conservation

John Holland is dedicated to implementing energy conservation best practice and the reduction of GHG by adopting energy efficient work practices including:

- Developing and implementing procedures to minimise energy use, including:
 - Using LED and low energy equipment for signals and signage
 - Investigating options for using renewable energy sources to power electronic equipment
- Conducting awareness programs for all site personnel regarding energy conservation methods
- Regular maintenance of construction plant and equipment to maximise fuel efficiency.

John Holland will monitor and report on energy use during construction of the Project. John Holland will implement an appropriate energy use monitoring tool, such as the TfNSW Carbon Estimation Reporting Tool. John Holland will also prepare Quarterly Project Sustainability Reports during construction outlining actual performance against the nominated sustainability targets, the work that has been undertaken and the achievements that have been met, as well as identifying those areas where improvements were made (refer to the Sustainability Strategy). In addition, detail on energy use reduction and efficiency will be further elaborated within the Sustainability Management Plan.

5.2 Greenhouse gas emissions

Opportunities to reduce GHG emissions during construction exist through investigating alternative, lower embodied carbon options for construction including:

- Specifying lower embodied energy concrete, for example concrete that contains less Portland cement (which would be replaced with fly-ash) for lower strength concrete applications
- Specifying recycled steel which has about half the embodied emissions of virgin steel
- Using modern diesel engine equipment, to ensure highest fuel efficiency ratings
- Using biofuels (e.g. biodiesel, ethanol, or blends such as E10 or B80) which can considerably reduce the GHG emissions for construction equipment
- Reporting on and aiming to achieve compliance with air emissions standards for mobile non-road diesel plant and equipment as per the NSW Government Resource Efficiency Policy
- Reviewing cut and fill balances for earthworks to minimise transportation distances for materials
- Reviewing local options for import and export of fill materials to reduce transportation distances
- Preparing a construction workforce travel plan to reduce travel emissions
- Limiting vegetation clearance where feasible and revegetating with native species
- Taking a whole of life costing approach to identify and implement a range of opportunities with a financial payback of four years or less

- Use of on-site renewables i.e. solar
- Purchasing of green power
- Procuring of locally manufactured goods/ materials.

John Holland will identify those opportunities that are reasonable and feasible to reduce the Projects GHG emissions to meet the sustainability targets outlined in the Sustainability Strategy.

5.3 Procurement

The M7-M12 Integration project Procurement Plan has been developed in accordance with REMM W01. The plan includes details on the minimisation of unnecessary consumption of materials and waste generation in accordance with relevant legislation and guidelines. This includes sustainable procurement of materials. The procurement of goods and services for the construction of the M12 East package will consider goods and services that:

- Are from local suppliers
- Make use of recycled materials or materials with a low embodied energy content
- Are energy efficient or have low embodied energy
- Minimise the generation of waste.

6 Environmental control measures

A range of environmental requirements and management measures are identified in the Environmental Assessment Documentation, and relevant TfNSW documents. Specific measures and requirements to address waste impacts are outlined in Table 6-1.

Table 6-1: Waste, energy, and water management and mitigation measures

ID	Management Measure	When to implement	Responsibility for implementation	Reference or source	Evidence of implementation
WR1	The waste minimisation hierarchy principles of avoid/reduce/reuse/recycle/dispose will be used.	Prior to construction and during construction	Area Manager ESR	NSW CoA E100	Construction documentation
WR2	A Waste Management Register will be developed prior to any waste generation.	Prior to construction	Supervisors ESR	NSW CoA E104 TfNSW G36	Appendix B Waste Management Register
WR3	All wastes, including contaminated wastes, will be identified and classified in accordance with the EPA's <i>Waste Classification Guidelines: Part 1 Classifying Waste</i> , with appropriate records and disposal dockets retained for audit purposes. Disposal of waste will be completed in accordance with the POEO Act, <i>Protection of the Environment Operations (Waste) Regulation 2014</i> .	During construction	Area Manager ESR	NSW CoA E101 to E103 REMM SC03 and SC08	Waste Classification Reports Disposal dockets
WR4	Where feasible and reasonable, construction material will be sourced from within the Sydney region.	During construction	Commercial Manager Area Manager Supervisors ESR	REMM W03	M7-M12 Procurement Plan
WR5	Suitable areas will be identified to allow for contingency management of unexpected waste materials, including contaminated materials. Suitable areas will be required to be hardstand or lined areas that are appropriately stabilised and bunded, with sufficient area for stockpile storage. Contingency areas may be interchanged for similarly prepared areas (e.g. a portion of a parking lot, or other hardstand/lined area), as construction progresses and the construction footprint develops.	During construction	Area Manager Supervisors ESR	REMM W04	Construction documentation
WR6	The Spoil Management Plan will be implemented for the M12 East package as part of the CWRMP.	During construction	ESR	REMM W02	Appendix C - Spoil

ID	Management Measure	When to implement	Responsibility for implementation	Reference or source	Evidence of implementation
					Management Plan
WR7	A monthly Waste Avoidance and Resource Recovery Report will be prepared and submitted to WSO Co / TfNSW.	During construction	ESR	TfNSW G36	Waste Avoidance and Resource Recovery Report
WR8	Comply with s143 of the POEO Act when transporting and/or depositing of waste including: • A completed Section 143 notice • A copy of the letter sent to the owner and/or occupier receiving the waste. • Evidence that the waste classification in accordance with the EPA Waste Classification Guideline is consistent with that stated in the “s.143 Notice. • Evidence of legal right to receive the described waste and identify the approval or regulatory clauses relating to the receipt site	During construction	ESR	TfNSW G36	s143 Form and supporting documentation
WR9	The importation of waste and the storage, treatment, processing, reprocessing or disposal of such waste will comply with the conditions of the current EPL, or be done in accordance with a Resource Recovery Exemption or Order issued under the <i>Protection of the Environment Operations (Waste) Regulation 2014</i> .	During construction	Area Manager Supervisors ESR	NSW CoA E101	Site inspection records Waste Management Register
WR10	Waste will only be exported to a site licensed by the EPA for the storage, treatment, processing, reprocessing or disposal of the subject waste, or in accordance with a Resource Recovery Exemption or Order issued under the <i>Protection of the Environment Operations (Waste) Regulation 2014</i> , or to any other place that can lawfully accept such waste.	During construction	Area Manager Supervisors ESR	NSW CoA E102	s143 Form and supporting documentation Disposal dockets Waste Management Register
WR11	A procurement strategy will be implemented with the objective of minimising unnecessary consumption of materials and waste generation in accordance	Prior to and during construction	Area Manager Supervisors ESR	REMM W01	M7-M12 Procurement Plan

ID	Management Measure	When to implement	Responsibility for implementation	Reference or source	Evidence of implementation
	with relevant legislation and guidelines. Including encouraging procuring goods and services that: • Are from local suppliers • Make use of recycled materials or materials with a low embodied energy content. • Are energy efficient or have low embodied energy • Minimise the generation of waste				
WR12	Waste auditing to final destination will be carried out at least every six months during construction, or in response to risk profile. Final destination means at least to a waste facility where the waste is transformed into another product or material or into landfill.	During construction	ESR	G36 ISC Was-1	Waste audits
WR13	The site will be maintained in a clean and tidy condition and rubbish will be regularly removed from site. The site will be left in a clean and tidy condition at the end of construction.	During construction Prior to completion	Area Manager Supervisors	G36	Site inspections
WR14	Use EPA WasteLocate for all special waste transported off-Site	During construction	Area Manager ESR	G36	Waste Management Register
WR15	Remove any hard rubbish within 500 mm of existing surface levels on, or within, the limits of clearing defined in TfNSW Specification G40 Clauses 2.1, 2.2 and 2.3 whenever topsoil stripping is undertaken	During construction	Area Manager ESR	G40	Site inspections
WR16	Recycle, reuse, or otherwise dispose of all surplus material, including offcuts, timber logs, boulders, stumps, roots, undergrowth, rubbish, and other debris resulting from the clearing and fencing work	During construction	Area Manager ESR	G36 R201	Site inspections Waste register
WR17	Prior to completion of construction, restore any areas disturbed by the works including removal of extraneous excavated materials (such as but not limited to imported earthworks materials, aggregates, concrete, loose rock, surplus spoil), unused construction materials and other wastes including rubbish.	Prior to completion	Area Manager ESR	G36	TfNSW pre-completion audit report

ID	Management Measure	When to implement	Responsibility for implementation	Reference or source	Evidence of implementation
GHG1	Implement the Vegetation Clearing Procedure (Appendix B of the CFFMP) to minimise vegetation removal	During construction	ESR Area Manager	REMM GG03	Site inspection records
GHG2	The procurement of goods and services will consider goods and services that: • Are from local suppliers. • Make use of recycled materials or materials with a low embodied energy content. • Are energy efficient or have low embodied energy. • Minimise the generation of waste.	During construction	ESR Project Manager Area Manager	REMM GG04	M7-M12 Procurement Plan
GHG3	Construction plant and equipment will be well maintained to maximise fuel efficiency.	During construction	Superintendent Foreman/Site Supervisor	REMM GG05	Plant inspection records

7 Compliance management

7.1 Roles and responsibilities

The organisational structure for the M12 East package and overall roles and environmental responsibilities are outlined in Section 5.1 of the CEMP. Specific responsibilities for the implementation of construction waste and energy management measures are detailed in Section 6 of this CWRMP.

7.2 Training

To ensure that this CWRMP is effectively implemented, all site personnel (including sub-contractors) will undergo site induction training relating to waste and energy management issues before commencing construction works on-site. The induction training will address elements related to waste and energy management, including:

- Existence and requirements of the OCWRMP, this CWRMP and all plans and procedures prepared under the CWRMPs.
- Relevant legislation and regulations
- Incident response, management, and reporting
- Waste reporting requirements
- Waste minimisation principles
- Requirements of the waste hierarchy
- Waste/recycle storage requirements.
- Best practice energy efficiency
- Equipment start up and shut down procedures
- Location of refuse and recycling bins
- Other specific responsibilities for waste and reuse management
- Other specific responsibilities for energy management.

Targeted training in the form of toolbox talks or specific training will also be provided to personnel with a key role in waste and energy management or those undertaking an activity with a high risk of environmental impact. Site personnel will undergo refresher training at not less than six monthly intervals.

The ER will review and approve the induction and training program before the commencement of construction and will monitor implementation.

Daily pre-start meetings conducted by the Area Manager / Site Supervisor (or other delegate) will inform the site workforce of any environmental issues relevant to waste and energy that could potentially be impacted by, or impact on, the day's activities.

Further details regarding staff induction and training are provided in Section 5.3 of the CEMP.

7.3 Monitoring and inspections

Regular monitoring and inspections of activities with the potential to generate waste for the duration of construction.

Table 7-1 outlines the monitoring and inspection activities that will be undertaken during construction of the M12 East package.

Weekly and other routine inspections by WSO Co / TfNSW, Environmental Review Group (ERG) representatives and ER will occur throughout construction. Detail on the nature and frequency of these inspections are documented in Section 7.1 and Section 7.2 of the CEMP.

Table 7-1: Program for waste and energy monitoring and inspections

Item	Frequency
WSO Co / TfNSW	
Review waste and energy requirements during inspections	As required during inspections
Review recorded results of any soil, surface, or groundwater sampling	As required
Review records of waste contractors and landfill facilities used to ensure waste management can be traced from cradle to grave	Review monthly
Review licences and permits for handling, transporting and disposal of wastes in accordance with TfNSW Specifications	For disposal of waste off-site
Review collated waste disposal data	Review monthly
John Holland	
Undertake waste and energy inspections and record on the environment checklist, including inspections for litter, unauthorised disposal of construction waste, contamination of waste streams and adequacy of capacity of waste receptacles	Weekly
Maintain and document the types and volumes of wastes generated, re-used, recycled and disposed of	Daily/as required
Document the locations of stockpiled and stored waste	Daily/as required
Develop a Waste Management Register prior to any waste collected for disposal and/or recycling or imported to site, until final completion in accordance with the TfNSW G36 Specification	Prior to any work and then monthly
Verify licences and permits for handling, transporting and disposal of wastes in accordance with TfNSW Specifications	For disposal of waste off-site
Keep records of waste contractors and landfill facilities used to ensure waste management can be traced from cradle to grave	Monthly
Carry out waste management and energy use audits to assess extent of waste hierarchy and identify/address energy wastage and to assess compliance with waste targets / performance criteria	Six-monthly
Record results of any soil, surface, or groundwater sampling	As required
Maintain and record resource usage during construction work (e.g. energy, water, fuel, oil, etc)	Monthly
Waste contractors	
Maintain and document the types and volumes of wastes collected recycled and disposed of. Provide monthly reports on waste removal and disposal activities.	When waste is collected and report on a monthly basis

Requirements and responsibilities in relation to monitoring and inspections, additional to those identified in Table 6-1 and Table 7-1 are documented in Sections 7.1 and 7.2 of the CEMP.

7.4 Hold points

Hold points and witness points are identified in TfNSW Specifications. Hold points relevant to this Plan are outlined in Table 7-2.

Table 7-2: Hold points and witness points applicable to this Plan

TfNSW spec	Clause	Type	Description	Plan reference
G36	4.11.4	Hold Point	Transport of waste generated under the Contract to the “waste site”. Including Completion and signed copy of “approved notice” and supporting documents, as listed under items (a) to (g) in Clause 4.11.4	Section 4.6.6

7.5 Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of waste and energy management measures, and verify compliance with this CWRMP, CoA, REMMs, TfNSW Specification G36, and other relevant approvals, licenses, and guidelines. Audit requirements are detailed in Section 8.4 of the CEMP.

Auditing requirements relevant to the management of waste are identified in Table 7-3.

Waste to final destination audits will also be a key aspect of the sustainability management process. As per guidance in Was-1 of the Infrastructure Sustainability Manual, auditing to final destination must be undertaken at least six monthly for construction and annually for operation. Final destination means at least to a waste facility where the waste is transformed into another product or material or into landfill. Physical sorting of waste is not considered a final destination.

The audit should include a physical/visual verification of waste destinations. For final destinations that are quite distant (>250 km) from the project/asset site, auditing through examination of waste sub-contractor records or similar is sufficient. The audit need only focus on the significant waste streams and each audit may cover particular significant waste stream(s) as long as the full set is covered over the rating period. ‘Significant’ waste streams are to be justified taking into account the volume and nature of the wastes.

This process will be planned and tracked using the project audit and inspection schedule which is managed by the ESM.

Table 7-3: Waste Audits

Item	Frequency	Standards	External reporting	Responsibility
Waste Management Review/Audit	Annually	S TM Was-1 Waste Management. Assessment of the accuracy and completeness of reported waste information. The review or audit should cover both systems and data, i.e., the systems used to manage waste and the data recording and reporting. The waste management review should be completed by a suitably professional with at least five years' waste management experience.	ISC	Suitably qualified personnel
Waste to Destination Audit	Six monthly	IS TM Was-1 Waste Management. The audit should include a physical/visual verification of waste destinations. The audit needs to only focus on the significant waste streams, taking into account the volume and nature of the wastes. Each audit may cover particular significant waste stream(s) as long as the full set is covered over the rating period.	ISC	ESR

7.6 Compliance management and monitoring

The M12 East package CEMP describes the process for dealing with non-compliances. The CEMP describes an environmental Non-compliance as one or more of the following:

An occurrence, set of circumstances or development that is a breach of this approval but is not an incident (SSI 9364 Definitions and Terms)

Where environmental Non-compliances with this Plan are identified, they will be communicated to the ESR (Or delegate) and managed in accordance with Section 7.3 of the CEMP.

7.7 Reporting and identified records

Reporting requirements and responsibilities are documented in Section 7.5 of the CEMP.

John Holland will maintain accurate records substantiating all construction activities associated with the M12 East package or relevant to the conditions of approval, including measures taken to implement this CWRMP. Records will be made available to the DPE and Department of Climate Change, Energy, the Environment and Water (DCCEE) upon request, within the timeframe nominated in the request.

John Holland will collect and keep legible copies of all receipts and/or weighbridge dockets from transporters and/or contractors in relation to disposal of waste from the premises.

Waste contractors will report regularly on their waste management practices. John Holland will relay the required information through regular reporting to WSO Co, TfNSW and other stakeholders as required. Waste and energy use records will feed into the sustainability reporting under the Sustainability Management Plan.

Table 7-4 outlines the reporting requirements for WSO Co/TfNSW, John Holland and waste contractors.

Table 7-4: Waste reporting requirements

Item	Frequency
WSO Co / TfNSW	
Report power consumption (green power and other) in the monthly report	Monthly
National Greenhouse and Energy Reporting of waste and energy will be undertaken in accordance with legislative requirements under the NGER Act	Monthly
John Holland	
Monthly waste register provided to WSO Co and TfNSW (prepared in accordance with the template in Annexure B unless otherwise approved alternative register)	Monthly
Records of resource usage during construction work (e.g. energy, water, fuel, oil, etc.) in the Quarterly Project Sustainability Report provided to WSO Co and TfNSW	Quarterly
Records of energy use and emissions in the Quarterly Project Sustainability Report provided to WSO Co and TfNSW	Quarterly
Records of waste management, take-back, and recycling in the Quarterly Project Sustainability Report provided to WSO Co and TfNSW	Quarterly
Waste contractors	
Service provider waste reports provided to John Holland	Monthly

8 Review and improvement

8.1 Continuous improvement

Continuous improvement of this CWRMP will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives, and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance
- Identify environmental risks not already included in the risk register.
- Determine the cause or causes of non-conformances and deficiencies.
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies.
- Verify the effectiveness of the corrective and preventative actions.
- Document any changes in procedures resulting from process improvement.
- Make comparisons with objectives and targets.

The ESR is responsible for ensuring stage specific environmental risks are identified and included in the M12 East package risk register and appropriate mitigation measures are implemented throughout the duration of construction, as part of the continuous improvement process. The process for ongoing risk identification and management during construction is outlined in Section 4.1 of the CEMP.

8.2 CWRMP update and amendment

The processes described in Section 7.7 of the CEMP may result in the need to update or revise this CWRMP. This will occur as needed.

Any revisions to this CWRMP and other Sub-plans will be in accordance with the process outlined in Section 1.12 of the CEMP.

A copy of the updated Plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure.

Appendix A. Secondary CoA and REMMs

Appendix A: Secondary CoA and REMMs

M12 Motorway – East package

Construction Waste and Resources Management Sub-plan

M12 Motorway – East Package

July 2023

Document control

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Revision history

Revision	Date	Description
0	27/07/2023	For endorsement

CoA

CoA No.	Condition Requirements	CWRMP Reference
E15	Prior to vegetation clearing, the Proponent must identify where it is practicable for the CSSI to reuse native trees and vegetation that are to be removed. If it is not possible for the CSSI to reuse all removed native trees and vegetation, the Proponent must consult with the relevant council(s), Western Sydney Parklands Trust and Landcare groups and relevant government agencies to determine if: (a) Hollows, tree trunks, mulch, bush rock and root balls salvaged from native vegetation impacted by the CSSI; and (b) Collected plant material, seeds and/or propagated plants from native vegetation impacted by the CSSI, could be used by others in habitat enhancement, beneficial re-use and rehabilitation work, before pursuing other disposal options.	Section 5.7 CFFMP
E100	Waste generated during Work and operation must be dealt with in accordance with the following priorities: Waste generation must be avoided and where avoidance is not reasonably practicable, waste generation must be reduced; Where avoiding or reducing waste is not possible, waste must be re-used, recycled, or recovered; and Where re-using, recycling or recovering waste is not possible, waste must be treated or disposed of.	Section 5.1
E101	The importation of waste and the storage, treatment, processing, reprocessing or disposal of such waste must comply with the conditions of the current EPL for the CSSI, or be done in accordance with a Resource Recovery Exemption or Order issued under the Protection of the Environment Operations (Waste) Regulation 2014, as the case may be.	Section 5.5
E102	Waste must only be exported to a site licensed by the EPA for the storage, treatment, processing, reprocessing or disposal of the subject waste, or in accordance with a Resource Recovery Exemption or Order issued under the <i>Protection of the Environment Operations (Waste) Regulation 2014</i> , or to any other place that can lawfully accept such waste, except in accordance with Condition E15.	Section 5.1.5 Section 5.5 Table 7-1
E103	All waste generated by Works must be classified in accordance with the EPA's Waste Classification Guidelines, with appropriate records and disposal dockets retained for audit purposes.	Section 5.2 Table 7-1
E104	The Proponent must develop and implement a waste tracking register prior to waste generated by Work that details: The quantity of each type of waste generated, its classification and source location (recorded using latitude and longitude coordinates); The destination location(s) for all wastes generated during construction; The quantities of any waste types imported onto the CSSI site, including their classification and emplacement location (recorded using latitude and longitude coordinates); The quantities and types of wastes that are subject to a Resource Recovery Order and/or Exemption; and Disposal records demonstrating that receiving facilities have lawfully accepted the waste type. The waste tracking register must be made available to the Planning Secretary and EPA on request, within the timeframe stated in the request.	Section 5.4 Appendix B

REMMs

ID	Measure/requirement	CWRMP Reference
SC03	A contaminated land management plan (CLMP) will be prepared for the project. The CLMP will include: - Control measures to manage identified areas of contamination, including surface soils in the vicinity of TP303, TP304, TP310 and TP311 containing heavy metal and PAH concentrations - Procedures for unexpected contamination - Measures to manage potential ASS (as required based on testing results) within sediments of the creeks in the construction footprint to minimise impacts to the environment - Requirements for excavation of unexpected contaminants to be carried out in consultation with project Remedial Actions Plans. - Requirements for the disposal of contaminated waste in accordance with the POEO Act and the Protection of the Environment Operations (Waste) Regulation 2014.	CCLMP Section 1.4.2 Section 5.1 Section 5.2 Section 5.3
SC08	All waste will be classified in accordance with the NSW EPA's <i>Waste Classification Guidelines</i> , with appropriate records and disposal dockets retained for audit purposes.	Section 5.2 Section 5.3 Section 5.4 Appendix B
SWH03	A water reuse strategy will be developed for both construction and operational phases of the project to reduce reliance on potable water. This strategy will be prepared during the detailed design stage and implemented throughout the project and will outline the construction and operational water requirements and potential water sources to supply the water demand in consultation with Sydney Water. Alternative water supply options to potable water will be investigated, with the aim of reusing water using recycled water where feasible.	Section 5.9 CSWMP
W03	Wherever feasible and reasonable, construction material will be sourced from within the Sydney region.	Section 6 Section 6.3 Table 7-1 WR4
W04	Suitable areas will be identified to allow for contingency management of unexpected waste materials, including contaminated materials. Suitable areas will be required to be hardstand or lined areas that are appropriately stabilised and bunded, with sufficient area for stockpile storage.	Section 5.1.3 Table 7-1 WR5
GG03	Vegetation removal will be minimised where practicable.	Section 5.7 Table 7-1 GHG1 CFFMP
GG04	The procurement of goods and services will consider goods and services that: - Are from local suppliers - Make use of recycled materials or materials with a low embodied energy content. - Are energy efficient or have low embodied energy - Minimise the generation of waste	Section 6.3 Table 7-1 GHG2

ID	Measure/requirement	CWRMP Reference
GG05	Construction plant and equipment will be well maintained to maximise fuel efficiency.	Section 6 Table 6-1 (Fuel) Table 7-1 GHG3

Appendix B. Template Waste Management Register

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
	Zone	Excavation ID	Waste Classification	Material Description	Engineer	Team	Work activity description	Disposal Facility	Disposal Facility Address	Disposal Facility Licence	Docket #	Vehicle Rego	Haulage Company	EPA Waste Locate or Transport Certificate #	Comment	Weight	UOM	Volume (m3)
1																		
2	Elizabeth Driv	N/A	GSW	VENM	John Smith	Utilities	Low impact maintenance and clearing	The ABC Waste Facility	28 Waste Facility Drive	1234	123456	ABC 123	Waste Haulage P/L	1234-5678-ABCD-EDFG	N/A	26.10	tonnes	13.74
3																		
4																		
5																		
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Appendix C. Spoil Management Plan

Appendix C: Spoil Management Plan

Construction Waste and Resources Management Sub-plan

M12 Motorway – East Package

July 2023

Document control

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Table of Contents

Appendix C: Spoil Management Plan	i
Construction Waste and Resources Management Sub-plan.....	i
M12 Motorway – East Package	i
Glossary/Abbreviations	1
1. Introduction.....	2
1.1. Context	2
1.2. Scope of the SMP	2
2. Purpose and objectives	2
2.1. Purpose	2
2.2. Objectives	2
2.3. Targets	2
3. Environmental Requirements.....	2
3.1. Relevant Legislation and Guidelines	2
3.1.1. Legislation	2
3.1.2. Guidelines and standards	3
3.2. NSW Conditions of Approval	3
3.3. Revised environmental management measures	3
4. Environmental aspects and impacts.....	4
4.1. Required earthworks quantities	4
4.2. Construction spoil related impacts	4
5. Spoil Management.....	5
5.1. Procedures for classification of spoil	5
5.2. Identification of spoil reuse measures	5
5.3. Spoil stockpile management procedures	6
5.4. Spoil haulage routes	9
5.5. Spoil disposal and reuse locations	11
5.6. Imported spoil sources and volumes.....	11
5.7. Spoil management measures	11

Figures

Figure 5-1 Stockpile locations for spoil management	8
Figure 5-2: Spoil haulage routes relevant to the M12 East package	10

Tables

Table 3-1: Environmental management measures relevant to this SMP.....	3
Table 4-1: Approximate bulk earthworks quantities.....	4
Table 5-1: Spoil reuse and management options.....	5
Table 5-2: Stockpile locations for the M12 East package assessed in the EIS.....	6
Table 5-3: Stockpile locations for spoil management	6
Table 5-4: Spoil management and mitigation measures.....	12

Glossary/Abbreviations

Abbreviations	Expanded text
CoA	Conditions of Approval
Construction	Includes all activities required to construct the CSSI as described in the documents listed in Condition A1, including commissioning trials of equipment and temporary use of any part of the CSSI, but excluding Low Impact Work which is carried out to complete prior to the approval of the CEMP, works approved under a Site Establishment Management Plan, demolition of acquired residential houses, structures and sheds, and works specified in Appendix B and approved under an environmental management plan(s) in accordance with Condition A24.
CWRMP	Construction Waste and Resources Management Sub-plan
DPE	NSW Department of Planning and Environment
EIS	Environmental Impact Statement
EMS	Environmental Management System
ENM	Excavated Natural Material, as defined in <i>The excavated natural material exemption</i>
EPA	NSW Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPL	Environmental Protection License
ESR	Construction Contractor Environmental Site Representative
POEO Act	<i>Protection of the Environment Operations Act 1997 (NSW)</i>
Primary CoA/REMM	CoA/REMM that are specific to the development of this Plan
QA	Quality Assurance
REMM	Revised Environmental Management Measures
Resource	Resource covers energy, fuel, oil, water and other materials used for construction of the Project
RRE	Resource Recovery Exemption
RRO	Resource Recovery Order
Secondary CoA/REMM	CoA/REMM that are related to, but not specific to, the development of this Plan
SMP	Spoil Management Plan
TfNSW	Transport for New South Wales (formerly Roads and Maritime Services)
VENM	Virgin Excavated Natural Material

1. Introduction

1.1. Context

This Spoil Management Plan (SMP or Plan) is an appendix of the Construction Waste and Resources Management Sub-plan (CWRMP) and forms part of the Construction Environmental Management Plan (CEMP) for the M12 Motorway – East package (the M12 East package). It has been prepared in accordance with the overarching Spoil Management Plan presented in the Overarching CWRMP.

This Spoil Management Plan (SMP) has been prepared to address the requirements of the Revised Environmental Management Measures (REMM) listed in the M12 Motorway Environmental Assessment Documentation and all applicable legislation.

The purpose of this Plan is to describe how John Holland proposes to manage spoil during construction of the M12 East package.

1.2. Scope of the SMP

The scope of this SMP is to describe how John Holland proposes to manage potential impacts related to the management and transport of spoil generated during construction of the M12 East package.

2. Purpose and objectives

2.1. Purpose

The purpose of this Plan is to describe how John Holland proposes to manage spoil during construction of the M12 East package including:

- Identify the environmental management issues associated with the sourcing, handling, transportation, stockpiling, disposal and reuse of spoil material.
- Provide practical measures that will be implemented during construction of the Project to minimise adverse impacts on the surrounding environment resulting from spoil management.

2.2. Objectives

The objective of the SMP is to ensure that all avoidance, mitigation and management measures relevant to waste and resource use is managed as described in:

- The Environmental Assessment Documentation prepared for M12 Motorway
- NSW Conditions of Approval (CoA) granted to the Project on 23 April 2021
- Commonwealth CoA granted to the Project on 3 June 2021
- TfNSW Specifications.

2.3. Targets

TfNSW and John Holland are committed to ensuring the responsible management of unavoidable waste and promoting the reuse of such waste in accordance with the resource management hierarchy principles outlined in the Waste Avoidance and Resource Recovery Act 2001 (WARR Act). The targets established for the management of waste and resources impacts during the M12 East package are described in section 2.3 of the CWRMP.

3. Environmental Requirements

3.1. Relevant Legislation and Guidelines

3.1.1. Legislation

Legislation and regulations relevant to waste and resource management includes:

- *Environmental Planning and Assessment Act 1979* (EP& A Act)
- *Protection of the Environment Operations Act 1997* (POEO Act)

- Protection of the Environment Operations (General) Regulation 2009
- Protection of the Environment Operations (Waste) Regulation 2005
- *Waste Avoidance and Resource Recovery Act 2001* (WARR Act)
- *Dangerous Goods (Road and Rail Transport) Act 2008* (NSW)
- Dangerous Goods (Road and Rail Transport) Regulation 2014 (NSW)
- *Contaminated Land Management Act 1997*
- *National Greenhouse and Energy Reporting Act 2007* (NGER Act)
- *Biosecurity Act 2015*
- *Environmentally Hazardous Chemicals Act 1985*.

Relevant provisions of the above legislation are identified in the register of legal requirements included in Appendix A1 of the CEMP.

3.1.2. Guidelines and standards

The guidelines specifications and policy documents relevant to this plan are described in section 3.1.2 of the CWRMP.

3.2. NSW Conditions of Approval

There are no primary NSW CoA relevant to the development of this Plan.

3.3. Revised environmental management measures

The primary REMMs relevant to the development of this Plan are listed in Table 3-1 below.

Table 3-1: Environmental management measures relevant to this SMP

ID	Measure/requirement	Timing	SMP Reference
W02	A Spoil Management Plan will be prepared for the Project as part of the CWRMP and in line with the CSWMP. The Spoil Management Plan will outline appropriate management procedures for the generation and importation of spoil. It will include, but not be limited to:	Prior to construction	Section 5.1
	Procedures for classification of spoil		
	Identification of spoil reuse measures		Section 5.2
	Spoil stockpile management procedures		Section 5.3
	Spoil haulage routes		Section 5.4
	Spoil disposal and reuse locations		Section 5.5
	Imported spoil sources and volumes.		Section 5.6

4. Environmental aspects and impacts

4.1. Required earthworks quantities

Indicative quantities of spoil required to carry out earthworks for construction of the M12 East package are presented in Table 4-1.

Table 4-1: Approximate bulk earthworks quantities

Type of material	Approximate quantity (m ³)
Total fill material required	529,500 m ³
Total cut material to be excavated	368,700 m ³
Total fill deficit ¹ to be imported	150,000 m ³
Topsoil (balance)	46,229 m ³
Select material zone (SMZ) (import)	54,700 m ³
Pavement (import)	12,000 m ³

4.2. Construction spoil related impacts

The potential environmental impacts associated with construction spoil use for the M12 East package include:

- Generation of large volumes of construction waste, such as excavated soil and rock
- Mixing of suitable and unsuitable material/contaminated material leading to materials that would have ordinarily been reused being rendered as waste
- Inappropriate disposal of hazardous waste
- Generation or spread of contaminated waste/soils, e.g. groundwater, used or expired chemicals, or spoil
- Disturbance of contaminated soils
- Adverse effects on flora and fauna due to contamination of water or soils
- Water pollution due to sediment runoff from soil excavation and excess spoil storage
- Weed infestation from dispersion of seeds and so forth during clearing and access upgrading activities.

The mismanagement of waste streams has the potential to result in the following impacts:

- Excessive waste being directed to landfill
- Various type of waste being generated and stored on site, with the potential for misclassification
- Water pollution
- Land contamination.

Waste classification will be required during construction to determine appropriate spoil management and disposal, as detailed in Section 5.

Refer to the Initial Risk Register included in Appendix A2 of the CEMP and Section 4.5 of the CWRMP for further detail on construction spoil related impacts. A full list of management measures is included in Section 5.7 of this SMP to manage the construction spoil related impacts.

¹ Total fill material minus total cut material

5. Spoil Management

5.1. Procedures for classification of spoil

Spoil imported to the site will be restricted to:

- Virgin excavated natural material (VENM) defined in accordance with Schedule 1 of the *Protection of the Environment Operations Act 1997*
- Excavated natural material (ENM) classified in accordance with *The excavated natural material exemption* (NSW EPA 2014c)
- Other material approved in writing by EPA.

Approximately, 150,000 cubic metres (m³) of spoil is likely required to be imported to construct the M12 East package (refer to Section 5.6), and will be sourced from existing infrastructure projects within Sydney, most probably tunnel and station excavations. It is anticipated that approximately 75,000 m³ of material will be sourced from the M7 Widening project.

All imported spoil, entering the M12 East package site must be accompanied by a waste classification report completed by the supplier. Material characterisation will occur before being imported to the Project site in accordance with the *Waste Classification Guidelines: Part 1 Classifying Waste* (NSW EPA 2014). A s143 Notice and Waste Acceptance form will be completed before importation of spoil from each new spoil source. The section 143 Notice and Waste Acceptance form will be completed by the supplier and signed by the receiver of the imported spoil (refer to Table 5-4).

Before and during importation of VENM or ENM, visual inspection must be undertaken to verify that the appearance of the material is consistent with the source material description.

No imported spoil is permitted to enter the site without providing a waste classification report.

5.2. Identification of spoil reuse measures

Spoil reuse measures for the different types of material required for construction of the Project are presented in Table 5-1.

Table 5-1: Spoil reuse and management options

Type of material	Approximate quantity (m ³)	Reuse and management options
Total fill material	529,500 m ³	Where possible, source on-site from cuts required for the M12 East package. Alternatively, use imported material, to be sourced from other Project packages, and/or sourced locally from other TfNSW projects where practical.
Total cut material to be excavated	368,700 m ³	It is anticipated that all suitable excavated material would be reused within the site as general fill either within the same section of work or elsewhere along the Project. Cut-to-fill haulage of this nature will generally be carried out using internal haul roads, so that haulage does not contribute to traffic volumes on existing roads. Where it cannot be reused on site, material will be managed in the following order of priority: 1. Transfer to other TfNSW projects for reuse in accordance with the NSW EPA's excavated public road resource recovery order and exemption 2. Transport off-site for reuse by a third party in accordance with the relevant NSW EPA resource recovery order and exemption or to an NSW EPA licensed waste recovery facility 3. Dispose at an accredited materials recycling or waste disposal facility.

Type of material	Approximate quantity (m ³)	Reuse and management options
		Where excavated material is deemed unsuitable for reuse or emplacement due to contamination, it will be taken to a waste facility licensed to accept the waste.
Total fill deficit ² to be imported	150,000 m ³	Import material, locally sourced where practical
Total topsoil cleared and unsuitable for reuse	Nil identified to date	Where possible, topsoil stripped would be prioritised for reuse on site. Any material to be removed from site would be managed in accordance with the measures outlined in the CRWMP.
Select material zone (SMZ) (import)	54,700 m ³	Import material, locally sourced where practical
Pavement (import)	12,000 m ³	Import material, locally sourced where practical
Estimated cut material unsuitable for reuse, excluding topsoil (including contaminated material and surplus material)	12,900 m ³	Any material to be removed from site would be managed in accordance with the measures outlined in the CRWMP or CCLMP for contaminated material.

5.3. Spoil stockpile management procedures

Stockpiling of spoil was assessed in Section 5.2.3 of the EIS and Section 6.15.2.2 of the Amendment Report. Stockpiles will be established for the Project as detailed in Table 5-2.

Table 5-2: Stockpile locations for the M12 East package assessed in the EIS

Location (ancillary facility)	Approximate quantity (m ³)
AF9	233,000

John Holland has also identified indicative locations for spoil management detailed in Table 5-3 and locations shown in Figure 5-2.

Table 5-3: Stockpile locations for spoil management

Stockpile	Location	Capacity	In footprint	Treatment
SP.SE.01	Southbound M7 CH 10040-10240	61,000 m ³	Area immediately adjacent to M12 to M7 southbound fill.	Allows for form to tie into adjacent fill to improve urban design treatments. Proposed 3:H/1V batter.
SP. SW,02	CH 1700 westbound M12	27,000m ³	Yes, within existing cleared area.	3:H/1V batter for landscaping treatment.

² Total fill material minus total cut material

Stockpile	Location	Capacity	In footprint	Treatment
SP.NW.02	CH1000 to CH1400 Northbound M7	102,000 m ³	Yes, within area sterilised by M7 northbound carriageway and Wallgrove Road.	3:H/1V batter for landscaping treatment.
SP.NW.01	CH1000 to CH1400 Northbound M12	8,200 m ³	Yes, area of opportunity between sequential ramps entering the M7.	3:H/1V batter for landscaping treatment.

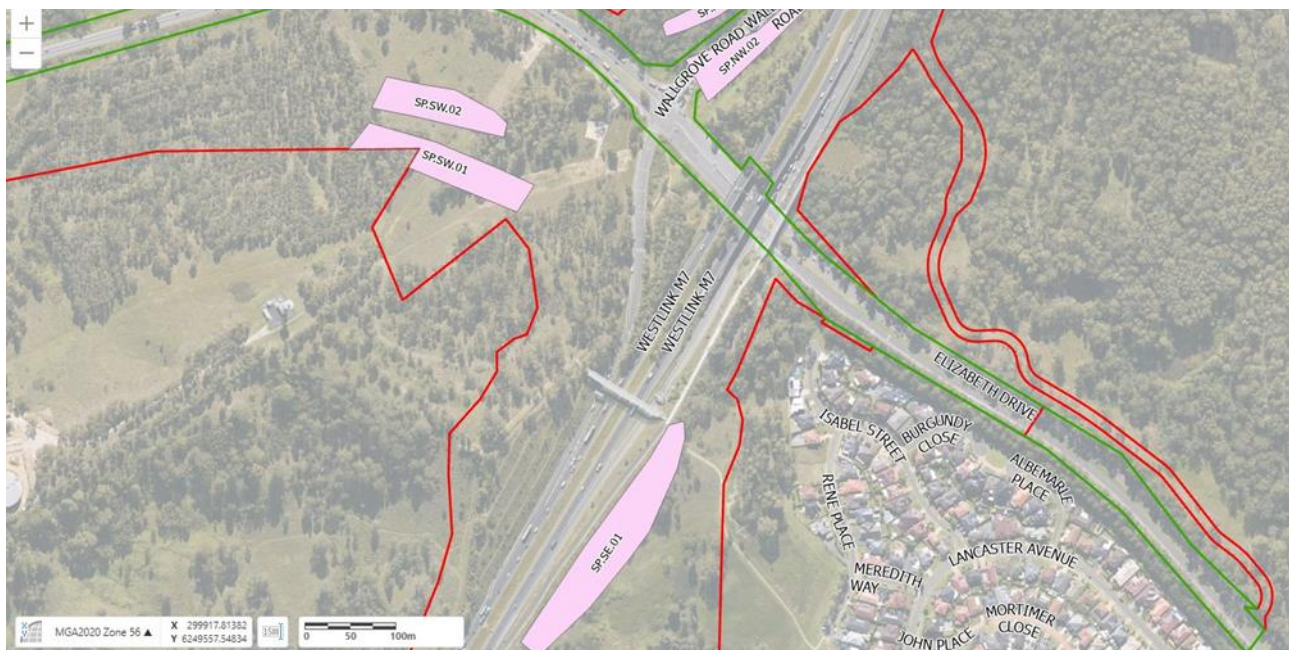
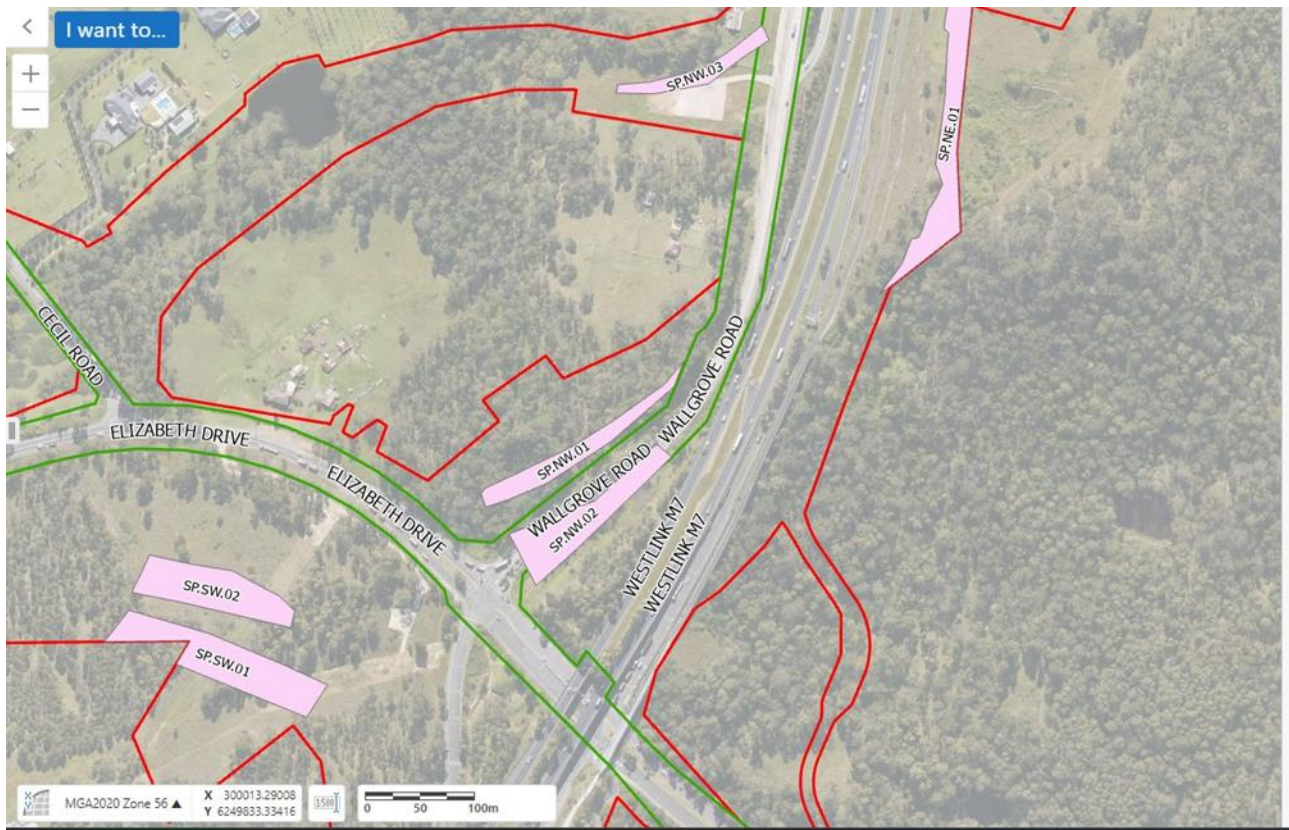


Figure 5-1 Stockpile locations for spoil management

Stockpiles for spoil will be established and managed in accordance with the M12 East package Stockpile Management Procedure (Construction Soil and Water Management Plan Appendix G) and *Stockpile Site Management Guideline* (TfNSW, 2011):

- At least 5 m from likely areas of concentrated water flows
- At least 10 m from waterways that are classified as Class 1 and Class 2 from the DPI Fisheries guideline “Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings” and above the 20 year flood levels
- Within or adjacent to land where the Project is being carried out
- Have ready access to the road network
- Are on relatively level land
- Do not require vegetation clearing beyond that already required for the Project
- Are above the one in 20–year ARI flood level unless a contingency plan to manage flooding is prepared and implemented
- Provide sufficient area for the storage of raw materials to minimise, to the greatest extent practical, the number of deliveries required outside standard construction hours.

Spoil will be transported between ancillary sites along the length of the Project and to offsite reuse or disposal locations (refer to Section 5.5). The location of ancillary sites, on or adjacent to land where the Project is being carried out and that have ready access to the road network, will minimise potential impacts associated with the transportation of earthworks.

Any additional ancillary sites will be established in accordance with the requirements of CoA A15 of the Planning Approval.

5.4. Spoil haulage routes

Haulage routes for the Project were assessed in the Environmental Assessment Documentation including Section 5.24.17 of the EIS and Section 4.2.6 of the Amendment Report. Refer to Figure 5-2 for the spoil haulage routes for the M12 East package.

Additional information regarding haulage route and the process for approval, is provided in section 5.2 of the Construction Traffic and Transport Sub plan.

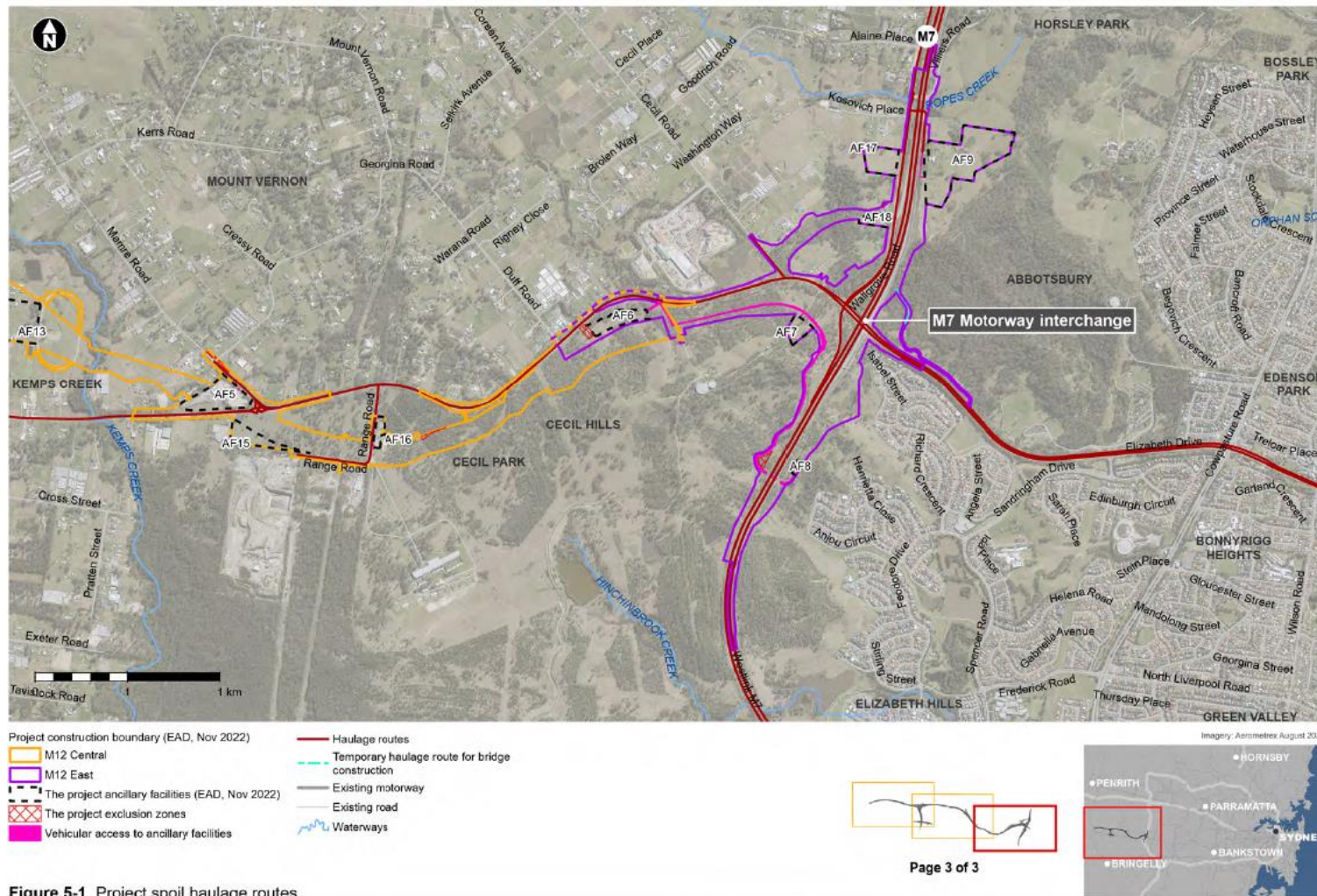


Figure 5-2: Spoil haulage routes relevant to the M12 East package

5.5. Spoil disposal and reuse locations

Potential spoil disposal and reuse options were assessed in Section 8.5.3 of the EIS and Section 16.5.2.3 of the Amendment Report. All potential locations were considered for the M12 East package with preferred locations listed below. The selection of waste disposal and recovery facilities would be dependent on the nature and volume of waste streams generated and the capacity of the receiving facilities at the time of the waste generation. The NSW EPA Recovery orders and exemptions will also be applied under s143 of the POEO Act for spoil reuse. The cumulative total volume will be monitored to ensure that volumes will meet the requirements stated in the “s.143 Notice. This includes the reuse of spoil for other projects or developments where approved.

Spoil disposal locations suitable for excess spoil include:

- St Marys Resource Recovery Facility
- Cleanaway Erskine Park Resource Management Facility
- Boral Widemere Resource Recovery Facility, Wetherill Park
- Bettergrow Resource Recovery Facility, Wetherill Park
- Demast, Smithfield
- BRS Ingleburn
- Bingo Eastern Creek Recycling Ecology Park, Eastern Creek.

5.6. Imported spoil sources and volumes

Approximately 130,000 to 150,000 cubic metres of spoil would need to be imported to facilitate the construction of the M12 East package. Where practicable this imported spoil would be locally sourced to minimise impacts to transport and traffic, air quality and waste and resources such as investigating opportunities to accept surplus material from the M7 Widening package of work. It is anticipated that approximately 75,000 cubic metres of soil will be sourced from the M7 Widening package.

The remaining amount of spoil (55,000 to 75,000 cubic metres) will be provided by the below different projects will depending on who will be producing spoil at the time it is needed:

- Sydney Metro West Eastern Tunnelling Package (ETP)
- Sydney Metro West Central Tunnelling Package (CTP)
- Sydney Metro West Western Tunnelling Package (WTP)
- M6 Stage 1
- WestConnex 3B Rozelle Interchange – Western Harbour Tunnel Southern Tunnelling Works
- Western Harbour Tunnel Project
- Western Sydney Airport – Station Boxes & Tunnel Excavation Package
- Upper South Creek Advanced Water Recycling Centre.

5.7. Spoil management measures

Specific measures and requirements to address spoil issues are outlined in Table 5-4 below.

Table 5-4: Spoil management and mitigation measures

ID	Management measure	When to implement	Responsibility for implementation	Reference or source	Evidence of implementation
SP1	Spoil imported to site is restricted to VENM or ENM, or other material approved under a Resource Recovery Order (RRO) and Resource Recovery Exemption (RRE). Material characterisation of the imported spoil will occur before being exported to the Project site by the producer of the material at source, in accordance with the latest version of the <i>Waste Classification Guidelines Part 1: Classifying Waste</i> (NSW EPA 2014) and this Plan.	During construction	ESR Supervisors Area Manager	NSW CoA E101 TfNSW Specification <i>Waste Classification Guidelines</i> (EPA, 2014)	s143 Form Waste Classification Reports Waste Management Register
SP2	A s143 Notice and Waste Acceptance form will be completed before importation of spoil from each new spoil source. The form will be completed by the supplier and signed by the receiver of the imported spoil. Volumes will be tracked to ensure they comply with the S.143.	During construction	ESR Supervisors Area Manager	TfNSW Specification	s143 Form Waste Acceptance Form
SP3	Waste generated outside the Project will not be received at the site for storage, treatment, processing, reprocessing, or disposal unless it satisfies the CoA or EPL.	During construction	ESR Supervisors Area Manager	NSW CoA E101 and E102	Site inspection records EPL Waste Acceptance Form
SP4	All sampling and waste classification reports will be retained for the life of the development in accordance with the requirements of the EPA.	During construction	ESR Supervisors Area Manager	NSW CoA E103 and E104 TfNSW Specification	Availability of records
SP5	Wherever feasible and reasonable, spoil will be sourced from within the Sydney region.	During construction	Procurement Team	REMM W03	Procurement Strategy
SP6	All trucks entering or leaving the site will have their loads covered.	During construction	Supervisors	TfNSW Specification	Induction and training records Site inspection records

ID	Management measure	When to implement	Responsibility for implementation	Reference or source	Evidence of implementation
SP7	Trucks will keep public roads clean and must not track dirt onto public roads.	During construction	ESR Supervisors Area Manager	TfNSW Specification	Induction and training records Site inspection records
SP8	All construction spoil haulage vehicles and construction plant must be clearly marked as being for the CSSI in such a manner to enable immediate identification by a person viewing the heavy vehicle. There must only be one CSSI form of signage on a heavy vehicle at any one time.	During construction	ESR Supervisors Area Manager	NSW CoA A49	Site inspection records
SP9	The management principles outlined in <i>Managing Urban Stormwater</i> ("The Blue Book") (Landcom, 2004) for sites with stockpiles will be implemented. Stockpiles for spoil will be established and managed in accordance with the following criteria: • More than 50 metres from a waterway • Within or adjacent to land where the Project is being carried out • Have ready access to the road network • Are on relatively level land • Do not require vegetation clearing beyond that already required for the Project • Are above the one in 20-year ARI flood level unless a contingency plan to manage flooding is prepared and implemented • Provide sufficient area for the storage of raw materials to minimise, to the greatest extent practical, the number of deliveries required outside standard construction hours.	Prior to construction and during construction	ESR Supervisors Area Manager	<i>Stockpile Site Management Guideline</i> (TfNSW, 2011) <i>Managing Urban Stormwater</i> (Landcom, 2004)	Site inspection records

Appendix D. Potential Local Waste Facilities

Type	Name	Address	Distance from Project (km)	Description
Resource recovery and landfill	SUEZ Kemps Creek Resource Recovery Park	1725 Elizabeth Drive, Kemps Creek	8.0	Accepts biosolids, contaminated waste, mixed putrescibles, and non-putrescibles
Landfill	Hi-Quality Group - Kemps Central	1503 – 1509 Elizabeth Drive, Kemps Creek	5.9	Accepts asphalt and VENM
Resource recovery and landfill	Wanless Sydney Recycling Park	16-23 Clifton Avenue, Kemps Creek	5.9	Accepts commercial/industrial waste, ENM/VENM and C&D waste.
Resource recovery and landfill	Brandown Quarries	Lot 90, Elizabeth Drive, Kemps Creek	4.2	Private resource recovery, GSW landfill and quarry facility
Landfill	Cleanaway Erskine Park Landfill	85-87 Quarry Road, Erskine Park	11.8	Accepts commercial/industrial waste, GSW, ENM/VENM and C&D waste
Resource recovery and landfill	Veolia Horsley Park Facility	752/716 Wallgrove Rd, Horsley Park	7.5	Accepts GSW (nonputrescible) wastes.
Centre Resource recovery and landfill	SUEZ Eastern Creek Waste Management	Wallgrove Road, Eastern Creek	7.5	Accepts GSW, ENM/VENM, organic wastes.
Landfill	Penrith Landfill Depot	842 Mulgoa Rd, Mulgoa	21.9	Accepts domestic and commercial wastes.
Resource recovery and transfer station	SUEZ Wetherill Resource Recovery Facility	20 Davis Rd, Wetherill Park	10.0	Accepts special, hazardous, and commercial/industrial waste, GSW, ENM/VENM and C&D waste.
Resource recovery and landfill	Bingo Eastern Creek Recycling Ecology Park (& Landfill)	1 Kangaroo Ave, Eastern Creek	11.1	Accepts GSW, ENM/VENM, organic wastes.
Waste management/treatment	Cleanaway St Marys Liquid	40 Christie St, St Marys	22.4	Waste Services Accepts hazardous liquid wastes.

Type	Name	Address	Distance from Project (km)	Description
Waste management/treatment	Solveco Waste Management and Treatment Facility	38 Links Rd, St Marys	23.4	Accepts hazardous, liquid, chemical and industrial wastes in liquid, sludge and solid states.
Resource recovery and transfer station	Doyle Bros Resource Recovery Facility	87-91 Lisbon St, Fairfield East	14.3	Accepts recyclable domestic and commercial wastes.
Landfill	Glenfield Waste	Services 2 Cambridge Ave, Glenfield	17.8	Accepts commercial/industrial waste, GSW, ENM/VENM and C&D waste.
Landfill	Blacktown Waste Services	25 Harris Ave, Marsden Park	21.2	Accepts domestic and commercial wastes.
Resource recovery and transfer station	SUEZ Seven Hills Resource Recovery Centre	29 Powers Rd, Seven Hills	21.0	Accepts GSW, ENM/VENM, organic wastes.
Landfill	Canterbury Bankstown Council Waste Management Centre	Panania NSW 2213	19.4	Accepts domestic and commercial wastes.
Resource recovery and landfill	Blaxland Waste Management Facility	28-30 Attunga Rd, Blaxland	38.5	Accepts domestic and commercial wastes.