Appendix B7

Construction Waste and Energy Management Plan

The Northern Road Upgrade –
Mersey Road, Bringelly to Glenmore Parkway, Glenmore Park

August 2018

NSW GOVERNMENT

Document control

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Approval and authorisation

Plan reviewed by:	Plan reviewed by:	Plan reviewed by:
		
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21/08/2018	*21/08/2018*	*21/08/2018*
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0	08/06/2018	Draft for consultation
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2		

Contents

Tables

Figures

Annexures

Glossary / Abbreviations

Term	Expanded text
CCS	Community Communications Strategy
CEMP	Construction Environmental Management Plan
CMS	Complaints Management System
CoA	Condition of approval
Compliance audit	Verification of how implementation is proceeding with respect to a construction environmental management plan (CEMP) (which incorporates the relevant approval conditions)
CFFMP	Construction Flora and Fauna Management Plan
CSSI	Critical State Significant Infrastructure
CSMP	Construction Sustainability Management Plan
CSWMP	Construction Soil and Water Management Plan
CWEMP	Construction Waste and Energy Management Plan
DEC	Department of Environment and Conservation (NSW) (former)
DECC	Department of Environment and Climate Change (NSW) (former)
DEOH	Defence Establishment Orchard Hills
DoEE	Commonwealth Department of the Environment and Energy
DP&E	NSW Department of Planning and Environment
EIS	Environmental Impact Statement
EMS	Environmental Management System
ENM	Excavated Natural Material, as defined in *The excavated natural material exemption*
Environmental aspect	Defined by AS/NZS ISO 14001:2015 as an element of an organisation's activities, products or services that can interact with the environment
Environmental impact	Defined by AS/NZS ISO 14001:2015 as any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's environmental aspects
Environmental incident	An unexpected event that has, or has the potential to, cause harm to the environment and requires some action to minimise the impact or restore the environment
Environmental objective	Defined by AS/NZS ISO 14001:2015 as an overall environmental goal, consistent with the environmental policy, that an organisation sets itself to achieve
Environmental policy	Statement by an organisation of its intention and principles for environmental performance
Environmental Representative (ER)	A suitably qualified and experienced person independent of project design and construction personnel employed for the duration of Construction. The principal point of advice in relation to all questions and complaints concerning environmental performance

Term	Expanded text
Environmental target	Defined by AS/NZS ISO 14001:2015 as a detailed performance requirement, applicable to the organisation or parts thereof, that arises from the environmental objectives and that needs to be set and met in order to achieve those objectives
EPA	NSW Environment Protection Authority
EP&A Act	*NSW Environmental Planning and Assessment Act 1979*
EPBC Act	*Commonwealth Environment Protection and Biodiversity Conservation Act 1999*
EPI	Environmental Planning Instrument
EPL	NSW Environment Protection Licence under the *Protection of the Environment Operations Act 1997*
EPRM	Excavated Public Road Material
EWMS	Environmental Work Method Statement
Federal-CoA	Condition of the Federal Department of the Environment and Energy Approval Decision
GHG	Greenhouse gas
Hold point	A point beyond which a work process must not proceed without express written authorisation from Roads and Maritime
NGER	National Greenhouse and Energy Reporting
NGER Act	*National Greenhouse and Energy Reporting Act 2007*
Non-compliance	Failure to comply with the requirements of the Project approval or any applicable licence, permit or legal requirements.
Non-conformance	Failure to conform to the requirements of Project system documentation including this OACEMP or supporting documentation
NSW-CoA	Condition of the NSW DP&E Infrastructure Approval
NSW Infrastructure Approval	The infrastructure approval for the Northern Road Upgrade issued by the New South Wales Government on 30 May 2018
OACEMP	Overarching Construction Environmental Management Plan
POEO Act	*Protection of the Environment Operations Act 1997 (NSW)*
Principal, the	NSW Roads and Maritime Services
Project, the	The Northern Road Upgrade – Mersey Road, Bringelly to Glenmore Parkway, Glenmore Park
REMM	Revised Environmental Management Measure as provided in the Final EIS / SPIR
Resource	Resource covers energy, fuel, oil, water and other materials used for Construction of the Project
Roads and Maritime, RMS	NSW Roads and Maritime Services
SEARs	Secretary's Environmental Assessment Requirements
Secretary	Secretary of the NSW Department of Planning and Environment, or delegate
SPIR	Submissions and Preferred Infrastructure Report

Term	Expanded text
STP	Sewage Treatment Plant
TNR	The Northern Road
VENM	Virgin Excavated Natural Material
WARR Act	*Waste Avoidance and Resource Recovery Act 2001*

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1 Introduction

1.1 Context

This Construction Waste and Energy Management Plan (CWEMP) forms part of the Overarching Construction Environmental Management Plan (OACEMP) for The Northern Road Upgrade – Mersey Road, Bringelly to Glenmore Parkway, Glenmore Park (the Project).

This CWEMP has been prepared to address the requirements of:

- the NSW Minister's Infrastructure Approval dated 30 May 2018 and Federal Minister for the Environment and Energy's Approval dated 25 June 2018
- the environmental management measures listed in *The Northern Road Upgrade – Mersey Road, Bringelly to Glenmore Parkway, Glenmore Park NSW Environmental Impact Statement / Commonwealth Draft Environmental Impact Statement* (EIS) (prepared by Jacobs for Roads and Maritime, 2017) as amended by *The Northern Road Upgrade – Mersey Road, Bringelly to Glenmore Parkway, Glenmore Park Submissions and Preferred Infrastructure Report* (SPIR) (prepared by Jacobs for Roads and Maritime, 2017)
- Roads and Maritime specifications
- all applicable legislation.

Construction of the Project will be undertaken in three stages:

- Stage 4 - Mersey Road, Bringelly, to Eaton Road, Luddenham
- Stage 5 - Littlefields Road, Luddenham, to Glenmore Parkway, Glenmore Park
- Stage 6 - Littlefields Road, Luddenham to Eaton Road, Luddenham

An overview of the Project, including the extent of the Project stages, is shown on Figure 1-1 and Figure 1-2.

Each stage will be delivered in a separate Construction package that will include all activities needed to complete the stage. Details of the proposed Project staging, including construction activities and submission of corresponding environmental plans, strategies and protocols, is documented in the Project Staging Report.

The Construction Contractors will develop stage-specific environmental management documentation to address the operational control requirements outlined in the OACEMP that apply to the stages that they are delivering. Stage-specific CWEMPs will be updated, tailored and finalised by the Contractors. Roads and Maritime will review the Contractors' CWEMPs for compliance with the approved OACEMP.

It should be noted that the CWEMP is also referred to in the Project environmental documents as:

- Resource Use and Waste Management Plan
- Waste Management Plan
- Resource and Waste Management Plan.

A full list of alternative and interchangeable sub-plan names is included in Appendix A5 of the OACEMP.

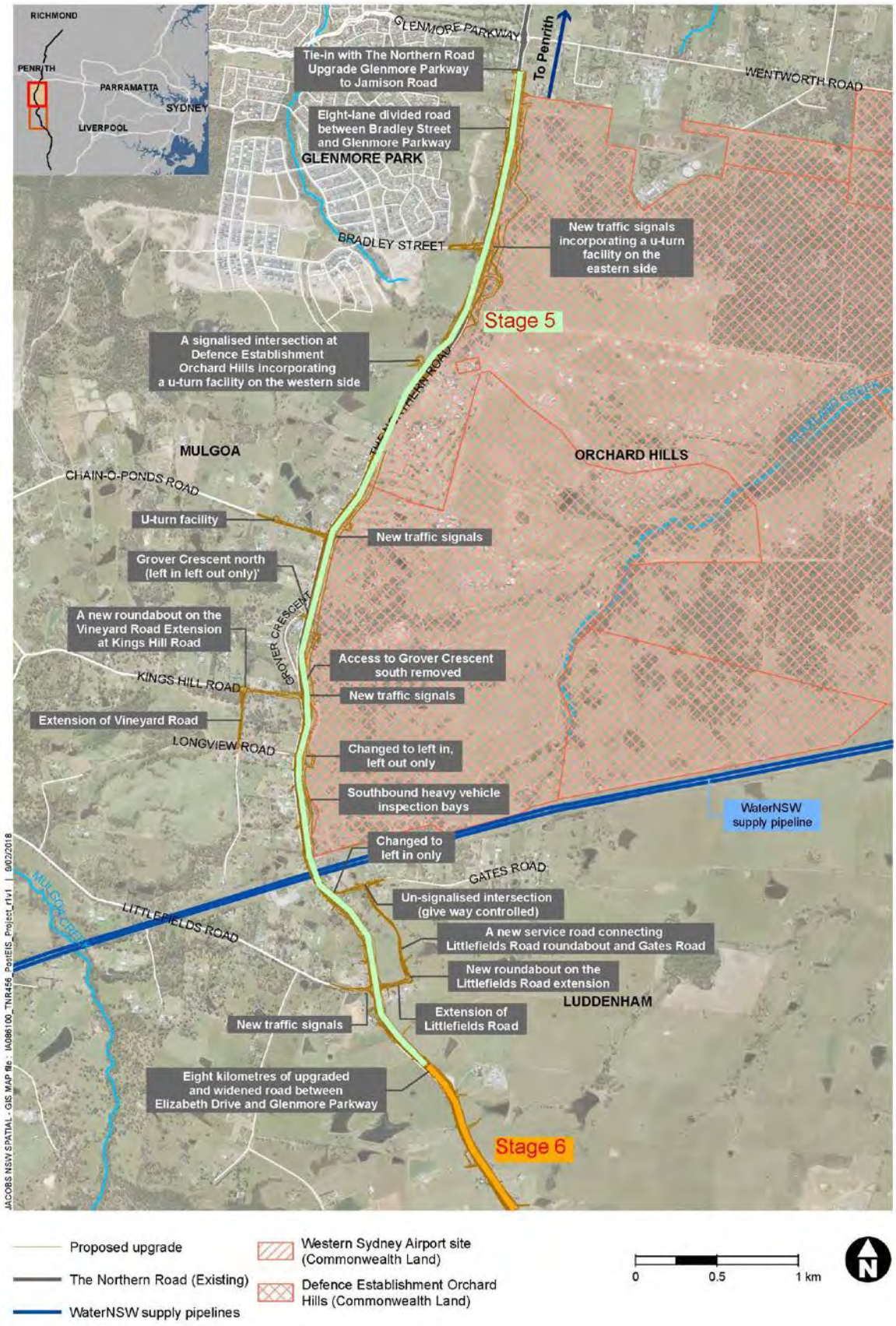

Figure 1-1: Overview of the Project (northern section)

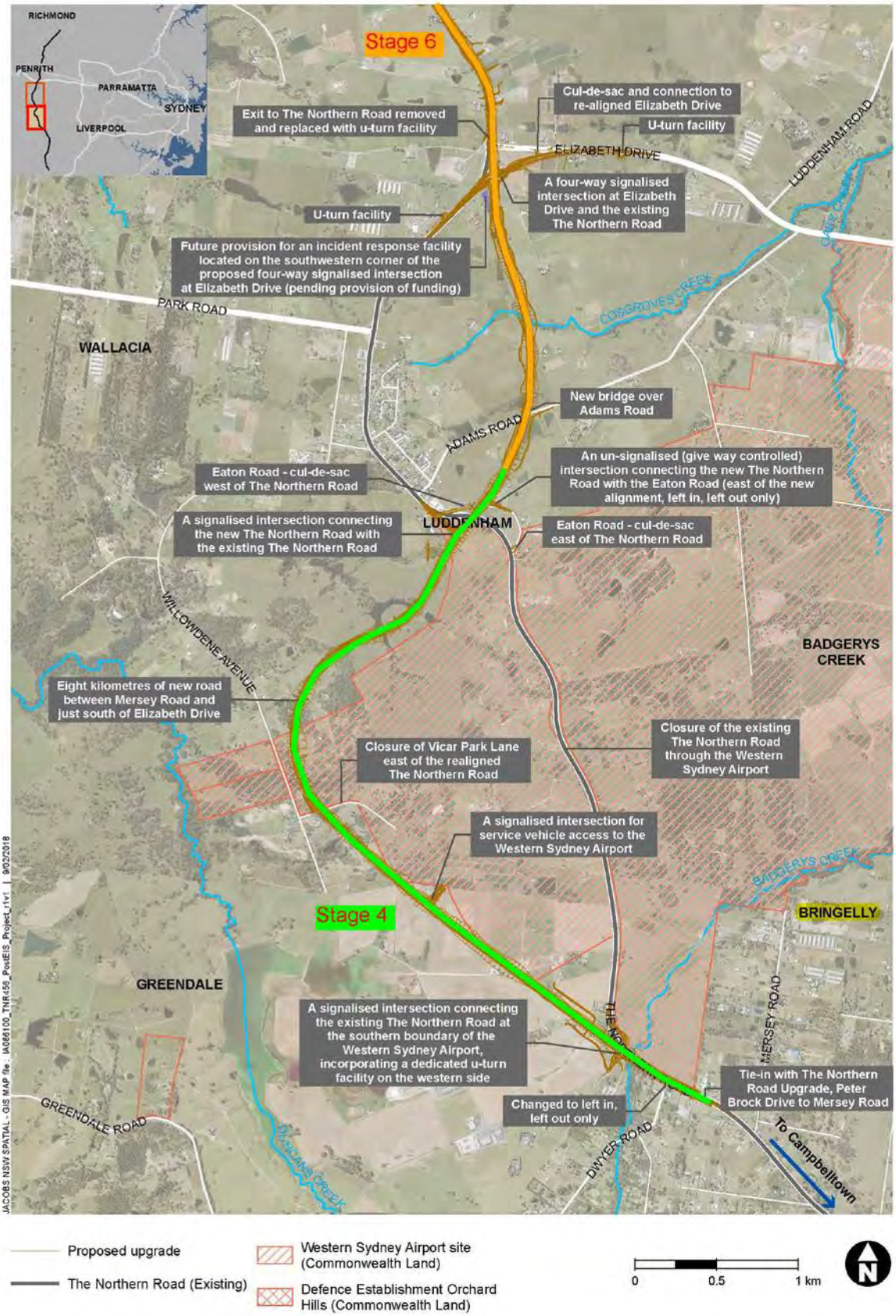

Figure 1-2: Overview of the Project (southern section)

1.2 Background

The EIS assessed the impacts of Construction of the Project in terms of waste generation and management, and resource and energy use within Section 8.7. Greenhouse gas (GHG) emissions were assessed in the EIS in Section 8.8.

The EIS identified the various waste streams that would be generated during the Construction of the Project, including construction and demolition waste, vegetation waste, packaging materials, liquid wastes, and excavated material. It also identified opportunities to avoid, reduce, and recycle waste.

The EIS identified potential impacts in regard to GHG emissions. Measures to reduce GHG emissions and conserve energy during Construction were identified.

1.3 Environmental management system overview

The overarching Environmental Management System (EMS) for the Project is described in Section 3 of the OACEMP. The Contractors delivering the Project will have certified EMSs consistent with the overarching EMS described in the OACEMP. The Contractors will develop stage-specific CWEMPs in accordance with the OACEMP and their EMS.

This overarching CWEMP forms part of the environmental management framework for the Project, as described in Section 3.3 of the OACEMP.

The Contractors will be required to develop, as part of their stage-specific CWEMPs, detailed registers, strategies and plans to address specific requirements of the conditions of approval and REMMs identified in this overarching CWEMP. The purpose of these environmental management documents in regard to minimisation and management of waste and energy impacts associated with the Project is outlined in Section 5 of this CWEMP.

Templates and guidance information for the environmental documentation to be prepared by the Contractors are provided in the following annexures to this overarching CWEMP:

- Annexure A: Location of Waste Facilities
- Annexure B: Template Waste Management Register
- Annexure C: Spoil Management Strategy (table of contents)
- Annexure D: Coal Tar Asphalt Management Plan (table of contents).

The Contractors will complete the preparation of the documentation contained in the annexures with stage specific information and include the updated annexures in their CWEMPs. Where appropriate, the Contractors may provide Roads and Maritime with an alternative equivalent register, strategy or plan that meets the requirements identified in this CWEMP and the relevant Roads and Maritime specifications. Roads and Maritime will review the Contractors' documentation to confirm compliance with the requirements of this CWEMP and specifications.

The Contractors will ensure all waste management, waste transport and waste disposal is carried out in accordance with this CWEMP and the Contractor's CWEMP. A copy of all waste management plans will be kept on the Contractors' premises.

The CWEMP should be read in conjunction with the Construction Sustainability Management Plan (CSMP) (refer Appendix B10 of the OACEMP). The CSMP includes objectives and targets to deliver on the Project commitments to sustainability and that are relevant and complementary to the management measures outlined in this CWEMP. Stage specific plans and strategies to be prepared by the Contractors for the Contractors' CSMPs include:

- Energy Management Plan
- Workforce Travel Plan
- Resource Use and Procurement Plan
- Water Reuse Strategy.

Management measures identified in this CWEMP may also be incorporated into site or activity specific Environmental Work Method Statements (EWMS). EWMS incorporate appropriate mitigation measures and controls and identify key procedures to be used concurrently with the EWMS. A template EWMS for use by the Contractors is provided in Appendix A9 of the OACEMP.

EWMS will be prepared by the Contractor Environmental Site Representatives and reviewed by the Roads and Maritime Environmental Manager (or delegate) and independent Environmental Representative (ER) prior to the commencement of the construction activities to which they apply. Construction personnel undertaking a task governed by an EWMS will undertake the activity in accordance with the mitigation and management measures identified in the EWMS.

Used together, the OACEMP, strategies, procedures and EWMS form management guides that clearly identify required environmental management actions for reference by Roads and Maritime and its Contractors.

The review and document control processes for this CWEMP are described in Section 6.7 and 6.8 of the OACEMP.

1.3.1 CWEMP preparation, endorsement and approval

This overarching CWEMP has been prepared to satisfy the NSW and Federal conditions of approval (CoA) in relation to waste and energy management during Construction of the Project.

This CWEMP will be reviewed by the Roads and Maritime Senior Project Manager, Senior Environment Officer and ER.

1.4 Consultation

1.4.1 Consultation for preparation of the CWEMP

No consultation under the NSW Minister's Infrastructure Approval was required for the preparation of this CWEMP.

1.4.2 Ongoing consultation during Construction

Consultation between Roads and Maritime and its Contractors, and stakeholders, the community and relevant agencies regarding the management of waste and energy during Construction of the Project will occur as required. The process for the consultation will be documented in the Community Communication Strategy (CCS).

In accordance with NSW-CoA E5, prior to the commencement of vegetation clearing, Roads and Maritime and its Contractors will consult with community groups, the Mulgoa Valley Landcare Group, Liverpool City Council, Penrith City Council and relevant government agencies to determine if retained timber and root balls could be used for environmental rehabilitation projects, before pursuing other disposal options.

2 Purpose and objectives

2.1 Purpose

The purpose of this CWEMP is to describe how waste and energy consumption will be minimised and managed during Construction of the Project.

2.2 Objectives

The key objective of the CWEMP is to ensure that waste for disposal and energy use are minimised. To achieve this objective, the Contractors will:

- ensure measures are identified and implemented to minimise waste, manage waste and conserve energy throughout the Construction of the Project
- ensure the preferred waste management hierarchy of avoidance, minimisation, reuse, recycling and finally disposal, is followed
- provide site personnel with an increased level of understanding and awareness of waste and resource use management issues
- ensure appropriate measures are implemented to address the requirements of the conditions of approval outlined in Table 3-1 and the revised environmental management measures detailed in Table 7-1
- ensure appropriate measures are implemented to comply with all relevant legislation and other requirements as described in Section 3 of this CWEMP.

2.3 Targets

Roads and Maritime and its Contractors 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 impacts during the Project 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, the Contractors aim to efficiently reduce resource use, reduce costs, and reduce 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 Project:

- minimise / reduce the quantities of resources to be used
- achieve the waste reuse / recycling targets nominated in Table 2-1.

Table 2-1: Construction waste streams and targets

Construction activity	Material	Target description	Target
Demolition	Uncontaminated non-spoil	Beneficial reuse on site Recycling off-site	85%
Excavation	Usable spoil	Beneficial reuse on site Recycling off-site	90%
Construction	Uncontaminated non-spoil	Beneficial reuse on site Recycling off-site	85%
	Concrete	Use of cement replacement material in concrete (by mass) whilst maintaining specified quality and whole-of life-costs	10%
	Road base, sub-base	Recycled material use in base whilst maintaining specified quality and whole-of-life costs	10%
	Steel	Source from suppliers certified under Australian Certification Authority for Reinforcing Steels or similar international association or organisation	80%
Vegetation clearance	Uncontaminated material	Beneficial reuse on site Recycling off-site	85%
Energy use	Electricity	Renewable energy generated on-site or from accredited green power (when connected to the grid)	10%
Water use	Potable water	Non-potable water use	15%

The overarching CSMP embeds sustainability objectives, commitments and targets into the Project delivery management systems. The CSMP complements the purpose, objectives and targets of the CWEMP.

3 Environmental requirements

3.1 Relevant legislation and guidelines

3.1.1 Legislation and regulatory requirements

Legislation and regulations relevant to waste and energy management includes:

- *Environmental Planning and Assessment Act 1979*
- *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)
- *Noxious Weeds Act 1993*
- *Environmentally Hazardous Chemicals Act 1985*

Relevant provisions of the above legislation are explained in the register of legal requirements included in Appendix A1 of the OACEMP.

3.1.2 Guidelines and standards

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

- Roads and Maritime QA Specification G1 – Job Specific Requirements for The Northern Road Upgrade
- Roads and Maritime QA Specification G36 – Environmental Protection (Management System)
- *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)
- *Management of Wastes on Roads and Maritime Services Land* (Roads and Maritime, 2014)
- *Management of road construction and maintenance wastes* (Roads and Maritime, 2016)
- *Technical Direction: Legal offsite disposal of Roads and Maritime Services Waste* (Roads and Maritime, 2015)
- *Technical Direction: Coal tar asphalt handling and disposal* (Roads and Maritime, 2015)
- *Stockpile Site Management Guideline* (Roads and Maritime, 2011)
- Roads and Maritime 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.*

Roads and Maritime specifications are a key source of environmental protection management processes relevant to this CWEMP. The specifications set out environmental protection requirements, including Hold Points, that must be complied with by the Construction Contractors during Construction of the Project. A Hold Point is a point beyond which a work process must not proceed without express written authorisation from Roads and Maritime.

3.2 Conditions of approval

This overarching CWEMP provides a consistent approach to address the requirements of both the State and Federal approvals in the one document. The Project is located on both NSW and Federal (Stages 4 and 5 only) land. However, the NSW Infrastructure Approval conditions apply to both NSW and Federal land within the Project. The Federal approval conditions also apply to both NSW and Federal land within the Project. The extent of Federal land located in the vicinity of the Project is shown on Figure 1-1 and Figure 1-2.

The State (NSW-CoA) and Federal (Federal-CoA) conditions of approval relevant to this CWEMP and their applicability to each stage of the Project are listed in Table 3-1. A cross reference is also included to indicate where the condition is addressed in this CWEMP or other project management documents.

Table 3-1: Conditions of approval relevant to the CWEMP

CoA no.	Condition requirement	Applicability					Reference
		Stage 4		Stage 5		Stage 6	
		Cth	NSW	Cth	NSW	NSW	
Federal conditions of approval							
Federal-CoA 1	The approval holder must undertake the action, including those parts of the action that occur on Commonwealth Land, in accordance with all conditions in the NSW Infrastructure Approval.	✓	✓	✓	✓	✓	This CWEMP
Federal-CoA 7	No waste material generated outside the DEOH site may be used within the bounds of DEOH as soil, fill, or a component of soil or fill, within the boundaries of DEOH nor within 10 metres of the DEOH boundary, unless: a. the material is Virgin Excavated Natural Material, and b. the material is sourced from a location that appropriate testing demonstrates is free of weed propagules and/or *Phytophthora cinnamomi*. Details of the material source and testing undertaken must be provided to the Minister before the material is taken onto the DEOH site. The Minister may write to the approval holder at any time and advise that the Minister is not satisfied with the testing undertaken. If the Minister provides such advice, the approval holder must not source any further material from that site without the Minister's written agreement. Between 10 m and 30 m of the DEOH boundary, the approval holder is to make all reasonably practical efforts to ensure that material used is free of weed propagules and/or *Phytophthora cinnamomi*.	✓	✓	✓	✓	✓	Section 5.1 App B2 CFFMP Annexure D – Weed and Pathogen Management Plan

CoA no.	Condition requirement	Applicability					Reference
		Stage 4		Stage 5		Stage 6	
		Cth	NSW	Cth	NSW	NSW	
Federal-CoA 8	No topsoil material generated outside the DEOH site may be used as soil, fill, or a component of soil or fill, within the boundaries of DEOH nor within 30 metres of the DEOH boundary, unless: a. the approval holder can make all reasonable practical efforts to ensure the topsoil material is free from contaminants that would adversely affect the environment and b. the topsoil material is sourced from a location that appropriate testing demonstrates is free of weed propagules and/or *Phytophthora cinnamomi*. Details of the topsoil material source and testing undertaken must be provided to the Minister before the topsoil is taken onto the DEOH site. The Minister may write to the approval holder at any time and advise that the Minister is not satisfied with the testing undertaken. If the Minister provides such advice, the approval holder must not source any further topsoil material from that site without the Minister's written agreement.	✓	✓	✓	✓	✓	App B2 CFFMP Annexure D – Weed and Pathogen Management Plan
Federal-CoA 11	The person taking the action must maintain accurate records substantiating all activities associated with or relevant to the conditions of approval, including measures taken to implement all management plans required by this approval, and make them available upon request to the Department. Such records may be subject to audit by the Department or an independent auditor in accordance with section 458 of the EPBC Act, or used to verify compliance with the conditions of approval. Summaries of audits will be posted on the Department's website. The results of audits may also be publicised through the general media.	✓	✓	✓	✓	✓	Section 8.8

CoA no.	Condition requirement	Applicability					Reference
		Stage 4		Stage 5		Stage 6	
		Cth	NSW	Cth	NSW	NSW	
State conditions of approval							
NSW-CoA E5	During vegetation clearing, timber and root balls must be retained where practicable for reuse in habitat enhancement and rehabilitation work. The retained timber and root balls may be used on or off the CSSI site. Prior to the commencement of vegetation clearing, the Proponent must consult with community groups, the Mulgoa Valley Landcare Group and relevant government agencies to determine if retained timber and root balls could be used for environmental rehabilitation projects, before pursuing other disposal options.	✓	✓	✓	✓	✓	Section 5.2 CCS App B2 - CFFMP
NSW-CoA E67	Waste generated in the delivery of the CSSI must be dealt with in accordance with the following priorities: (a) waste generation is to be avoided and where avoidance is not reasonably practicable, waste generation is to be reduced; (b) where avoiding or reducing waste is not possible, waste is to be re-used, recycled, or recovered; and (c) where re-using, recycling or recovering waste is not possible, waste is to be treated or disposed of at a waste management facility or premises lawfully permitted to accept the materials.	✓	✓	✓	✓	✓	Section 5.7 Section 7
NSW-CoA E68	Waste generated outside the site must not be received at the site 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.	✓	✓	✓	✓	✓	Section 7
NSW-CoA E69	All waste materials removed from the CSSI site must only be directed to a waste management facility or premise lawfully permitted to accept the materials or in accordance with a Resource Recovery Exemption or Order issued under the *Protection of the Environment Operations (Waste) Regulation 2014*, or to any other place that can lawfully accept such waste.	✓	✓	✓	✓	✓	Section 5.7.3 Section 7

CoA no.	Condition requirement	Applicability					Reference
		Stage 4		Stage 5		Stage 6	
		Cth	NSW	Cth	NSW	NSW	
NSW-CoA E70	All waste must be classified in accordance with the EPA's *Waste Classification Guidelines*, with appropriate records and disposal dockets retained for audit purposes.	✓	✓	✓	✓	✓	Section 5.8 Section 7
NSW-CoA E71	Where available and practicable, and of appropriate chemical and biological quality, stormwater, recycled water or other water sources shall be used in preference to potable water for the delivery of the CSSI, including dust control.	✓	✓	✓	✓	✓	Section 5.4

3.3 Environment protection licence

The Project is subject to a number of Environment protection licences (EPLs) for Scheduled Activities for extractive activities and road construction. The EPLs prescribe waste management requirements that must be complied with. The EPL conditions relevant to the management of waste are provided in Table 3-2. These requirements will be managed by the planned management measures specified in Table 7-1 and the Annexures to this CWEMP.

The EPLs also prescribe requirements for complaints handling, reporting and record keeping. These requirements will be implemented in accordance with the incident and complaints reporting outlined in Section 8 and Section 5.3 of the OACEMP.

Table 3-2: EPL requirements relevant to the management of waste

Ref.	Relevant requirement	Reference
O1	**Activities must be carried out in a competent manner**	
O1.1	Licensed activities must be carried out in a competent manner. This includes: b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.	Sections 5, 7
O5	**Waste Management**	
O5.1	The licensee must assess, classify and manage any waste generated at the premises in accordance with the *Waste Classification Guidelines Part 1: Classifying Waste, November 2014* prior to taking the waste off the premises.	Sections 5.8, 5.9
O5.2	The licensee must not cause, permit or allow any waste generated outside the licensed premises to be received at the licensed premises for storage, treatment, processing, reprocessing, or disposal on the licensed premises, except as expressly permitted by an environment protection licence or resource recovery order and resource recovery exemption under the POEO Act, if such a licence is required in relation to that waste.	Section 5.1
O5.3	**Waste Management Plans** Waste Management Plans must be prepared for all demolition/ construction/ excavation works undertaken on the premises that generate waste that will be disposed offsite (not including office paper or cardboard). The plan must be completed prior to waste being transported off the premises. The plans must include the following: (a) Estimations of the different waste types to be generated from the proposed works; and (b) Estimations of how much of each waste type will be generated from the proposed works; and (c) List of all places (full street address) where waste will be transported to; and	This CWEMP Section 4.1 Contractor's CWEMP Section 4.1 Contractor's CWEMP Annexure A Contractor's CWEMP

Ref.	Relevant requirement	Reference
	(d) Written confirmation from each place of disposal (listed in point c) that they can lawfully receive the types of waste proposed to be transported there; and (e) Where the place of disposal changes after the plan has been made, an amendment to the plan can be made as an addendum that includes an update points a) to d) above.	Contractor's CWEMP Contractor's CWEMP
O5.4	The licensee must ensure waste management, waste transport and waste disposal is carried out in accordance with the waste management plans prepared for the premises	Section 1.3
O5.5	A copy of all waste management plans must be kept on the premises.	Section 1.3
O5.6	**Waste Transport Documentation and Record Keeping** Legible copies of all receipts and/or weighbridge dockets in relation to disposal of waste from the premises must be collected from transporters and/or contractors and kept by the licensee.	Sections 5.7.4, 8.8, Annexure B

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:

- surplus spoil (excavated soil, sediment, rock) from bulk earthworks which is unable to be reused within backfilling or restoration
- contaminated materials that may be exposed during Construction
- existing stockpile sites located within the road reserve
- concrete, pavement, steel, and other materials from demolition of kerbs, medians, fencing, pavements
- cleared built structures, including fences, gates, livestock yards, redundant stormwater and pavement drainage systems, including disused culverts
- excess concrete or asphalt from batching plants
- waste generated from chemical/spill clean-up or remediation
- sediment/sludge from sediment basin desilting
- surplus material from Construction and general site reinstatement, such as fencing, sediment from temporary basins, concrete, steel, formwork, and sand bags
- packaging materials
- vegetative waste from clearing and grubbing
- acid sulfate soil and treated acid sulfate soil
- wastewater, such as from stockpiled materials, water captured in excavations, and de-watering
- plant and vehicle maintenance waste
- general office waste and litter
- sewage from construction compounds and ancillary facilities.

The Contractor's CWEMP will confirm the waste types to be generated and provide estimations of how much of each waste type will be generated for each stage of the Project.

4.2 Resource use

The main construction materials required for the Project 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 Project will include from the manufacture, processing and transport of materials (concrete, steel, asphalt, aggregate, timber, and piping), electricity use, diesel and other fuels use, waste generated, and land use and clearing.

Sources of Construction related energy consumption (fuel and power) for the Project include:

- procurement and delivery of materials to site
- vegetation removal
- site establishment, including compound and ancillary facility set up
- operation of 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 GHG emissions during Construction of the Project include:

- construction vehicles and plant
- use of construction materials
- vegetation clearing.

The GHG assessment presented in the EIS was undertaken in accordance with the Greenhouse Gas Protocol. 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 (eg 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 (eg 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 (eg business travel (by air or rail) and product usage).

Table 4-1 provides a summary of the construction GHG emissions estimated in the EIS. The Contractors will update the GHG Assessment in Table 4-1 as required for the Contractors' CWEMPs. Note that no Scope 2 GHG emissions, as defined by the GHG Protocol, are estimated for the Project.

Table 4-1: Estimated Project construction greenhouse gas emissions

GHG Source	Scope 1 (tCO_2e)[1]	Scope 3 (tCO_2e)[1]	Total (tCO_2e)[1]
Fuel Combustion – site vehicles	785	61	846
Fuel Combustion – Plant and equipment	27,780	2,125	29,905
Fuel Combustion – Demolition and earthworks	8,626	659	9,285
Material Usage – Aggregate	-	4,656	4,656
Material Usage – Concrete	-	5,242	5,242
Material Usage – Cement	-	3,670	3,670
Material Usage – Steel	-	3,208	3,208
Material Usage – Bitumen	-	16,269	16,269
Vegetation Removal	15,874		15,874
Total	53,065	35,890	88,955

[1] tCO_2e-: tonnes of CO_2 equivalent

4.5 Impacts

The potential environmental impacts associated with construction waste generation and energy use for the Project 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.

Refer also to the Aspects and Impacts Register included in Appendix A2 of the OACEMP.

Waste classification will be required during Construction to determine appropriate soil management and disposal.

A full list of management measures is included in Section 7 of this CWEMP.

5 Waste and energy management

5.1 Management of surplus material approach

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

Surplus material excavated from the Project may consist of virgin excavated natural material (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 Project boundary. Roads and Maritime will also investigate whether unused resources could be used on other Roads and Maritime or Western Sydney Infrastructure Program projects.

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 Project construction areas, including at the Defence Establishment Orchard Hills (DOEH), are included in the Construction Flora and Fauna Management Plan (refer Appendix B2 of the OACEMP).

Waste generated outside the site will not be received at the site 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.

The Contractors will prepare and implement a stage-specific Spoil Management Strategy prior to commencement of Construction of the Project to identify spoil disposal site(s) and the management of spoil on-site and during off-site transport. The Spoil Management Strategy will be prepared in accordance with relevant EPA guidelines, Roads and Maritime specifications and the Spoil Management Strategy table of contents provided in Annexure C of this CWEMP. The purpose of the Spoil Management Strategy 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

The Contractor's Spoil Management Strategy will include, but not be limited to:

- a description of spoil types on the Project
- an outline of the overall spoil strategy
- a list of spoil generating activities
- detail of volumes and sources of spoil
- classification of spoil on the Project
- the locations of spoil disposal and off-site storage / re-use sites
- the process for transportation of spoil
- the procedure for safe storage of spoil
- performance criteria
- potential impacts associated with spoil
- management measures and mitigation strategies relevant to spoil
- monitoring and reporting
- process for corrective action

The Contractors' Spoil Management Strategies will be reviewed by Roads and Maritime for consistency with the requirements of this overarching CWEMP and appended to the Contractors' CWEMPs.

5.2 Management of cleared vegetation waste

Vegetation cleared from the Project area to facilitate Construction works will be collected and reused on site wherever possible. Cleared tree hollows, dead wood, dead trees, fallen logs and cleared tree trunks greater than 200 mm in diameter which provide fauna microhabitats may, if agreed by the Roads and Maritime Environmental Manager (or delegate), be relocated under the supervision and direction of an Ecologist to adjacent vegetated areas outside roadway clear zones for use in conjunction with soil erosion and sediment control measures. Native tree materials may also be reused on-site as fencing material or for other suitable purposes. A Vegetation Clearing Procedure that outlines the re-use of cleared vegetation will be prepared as part of the Construction Flora and Fauna Management Plan (refer Appendix B2 of the OACEMP).

During vegetation clearing, timber and root balls will be retained where practicable for reuse in habitat enhancement and rehabilitation work. The retained timber and root balls may be used on or offsite. Prior to the commencement of vegetation clearing, the Contractor will consult with community groups, the Mulgoa Valley Landcare Group, Liverpool City Council and Penrith City Council and relevant government agencies to determine if retained timber and root balls could be used for environmental rehabilitation projects, before pursuing other disposal options.

Non-reusable vegetation, such as exotic plant species and noxious weeds will be disposed off-site. Off-site disposal of exotic plant species and noxious weeds will be at a licensed landfill facility in accordance with the requirements of the local Council. Disposal of noxious weeds will be carried out in accordance with their category under the *Noxious Weeds Act 1993* and following NSW Department of Primary Industry guidelines.

Contractors will prepare a Clearing and Grubbing EWMS to detail the procedures for the disposal of weeds and exotic plants and for the recycling and disposal of all other materials from clearing and grubbing operations during Construction of the Project (refer to Appendix B4 of the OACEMP). The Contractors will prepare a Clearing and Grubbing EWMS prior to undertaking any clearing activities.

5.3 Mulch

Native trees removed during clearing and grubbing that are not reused in conjunction with soil erosion and sediment control measures will be converted to mulch and stockpiled for use during landscape planting. The use of native vegetation for mulch for use 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 that will be inside the DEOH boundary fence once the action is completed, or on land that will be within 30 m of the DEOH boundary fence once the action is completed, 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 and *Phytophthora cinnamomi* will be implemented in accordance with the Construction Flora and Fauna Management Plan (refer to Appendix B2 of the OACEMP).

5.4 Water

Construction activities that 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 (eg treated water from sediment basins, harvested rainwater) will be used in preference to potable water, in accordance with NSW-CoA E71. The Project target is to source at least 15% of non-potable water use (e.g. dust suppression, concrete mixing) from non-potable sources. No surface or groundwater will be extracted for Construction of the Project.

5.5 Management of cleared disused asbestos pipes, conduits and pits

Demolition activities for Construction of the Project may require disposal of asbestos pipes, conduits and pits. EWMS will be prepared to document the procedure for disposal of asbestos pipes, conduits and pits. Removal of asbestos materials will be carried out by a licensed asbestos removalist holding a current licence issued by WorkCover NSW.

Off-site disposal of the asbestos material will be at facilities legally authorised to accept such material (refer to Annexure A).

5.6 Coal tar asphalt management

Coal tar asphalt may be present in the existing asphalt pavement to be removed or cold milled during Construction of the Project. Coal tar is classified within the Australian Hazardous Substances regulatory regime as a Category 1 Carcinogen.

On identification of coal tar asphalt within the Project area, construction activities will cease and the Contractors will notify the Roads and Maritime Environmental Manager (or delegate). If required, testing of the material will be undertaken in accordance with Roads and Maritime Test Method T542.

The Contractors will prepare stage-specific Coal Tar Asphalt Management Plans prior to commencement of Construction in accordance with the requirements of *Technical Direction: Coal tar asphalt handling and disposal* (Roads and Maritime, 2015), Roads and Maritime specifications, and the Coal Tar Asphalt Management Plan table of contents provided in Annexure D of this CWEMP. The purpose of the Coal Tar Asphalt 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 Project to minimise adverse impacts on the surrounding environment and human health resulting from coal tar management

The Contractor's Coal Tar Asphalt 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.

The Contractors' Coal Tar Asphalt Management Plans will be reviewed by Roads and Maritime for consistency with the requirements of this overarching CWEMP, the CoA and the REMMS and appended to the Contractors' CWEMPs.

5.7 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 5-1. The aspects of the hierarchy applicable to the construction of the Project are outlined below.

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

Figure 5-1: The waste hierarchy

5.7.1 Avoiding and reducing 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 10% of recycled material used in road base and sub-base, whilst maintaining current quality and whole-of-life costs (Table 2-1).

5.7.2 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 transport to off-site facilities
- **Waste separation off-site at an appropriately licenced facility** – where space is not available for placement of multiple bins, wastes will be deposited into one bin and sorted off-site by a waste contractor
- **Water recovery** – in accordance with NSW-CoA E71 and Section 5.4.

5.7.3 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 measures apply:

- 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 Construction Soil and Water Management Plan (refer Appendix B4 of the OACEMP)
- 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
- 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.

5.7.4 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. Wastes that are unable to be reused or recycled will be disposed of off-site to an appropriately licenced waste management facility following classification. Locations of waste management and disposal facilities are included in Annexure A. Details of waste types, volumes and destinations will be recorded in the Waste Management Register (a template register is included in Annexure B). The Contractor 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.

Where the Contractors are to dispose of waste in an off-site location that is not a licensed waste facility (private property), the Contractors will complete a section 143 notice under the POEO Act for submission to the Roads and Maritime Environmental Manager (or delegate). Waste in this context refers to spoil, VENM, ENM, crushed rock, reclaimed asphalt pavement, mulch, waste concrete or any other construction waste material. The section 143 notice will include evidence that the waste site has the appropriate planning consent for receiving waste.

Transport of materials classified under the *Waste Classification Guidelines Part 1: Classifying Waste* (EPA, 2014) as hazardous, including those materials outlined in Table 5-1, during Construction will be 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).

5.8 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 condition NSW-CoA E70. 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).

5.9 Classification of potential waste streams

The construction activities and types of wastes which may be generated during the Construction of the Project are outlined within classifications in Table 5-1.

Table 5-1: Classification of potential waste streams

Construction activity	Waste type	Classification	Proposed reuse / recovery / recycling / disposal methods
Demolition / site clearing	Vegetation (logs, mulched timber, weeds)	General solid waste (non-putrescible)	Beneficial reuse on site where possible. Reuse in soil erosion and sediment control. Stockpile for landscape planting. Beneficial reuse off-site. Green waste to be diverted from landfill
	Concrete, asphalt and gravel	General solid waste (non-putrescible)	Beneficial reuse on site where possible. Beneficial reuse off-site
	Scrap metal	General solid waste (non-putrescible)	Recycling off-site
	Structures demolition waste	General solid waste (non-putrescible)	Effective source separation to enable reuse / recycling to be undertaken off-site.
	Demolition waste from heritage listed items	General solid waste (non-putrescible)	Beneficial reuse on site where possible. Beneficial reuse off-site

Construction activity	Waste type	Classification	Proposed reuse / recovery / recycling / disposal methods
	Coal tar asphalt	General solid waste (non-putrescible)	Off-site disposal at an approved facility
	Hazardous and contaminated waste, asbestos	Hazardous waste	Off-site disposal at an approved facility
Bulk earthworks and bridgeworks (including piling and foundation treatment)	ENM (Excavated Natural Material) Potentially contaminated soils VENM (Virgin Excavated Natural Material) Excavated Public Road Material (EPRM)	If material is taken off site classification will be carried out, based on soil tests carried out pre-construction and in accordance with the *EPA Waste Classification Guidelines: Parts 1 and 2 (DECC 2008)*	Beneficial reuse on-site (such as noise mounds). Balance cut and fill earthworks, where possible, to optimise reuse. Off-site disposal at an approved facility
	Acid sulfate soil	Hazardous waste	Off-site disposal at an approved facility
Road and bridge construction	Steel reinforcing	General solid waste (non-putrescible)	Recycling off-site
	Conduits and pipes	General solid waste (non-putrescible)	Recycling off-site
	Concrete (solids and washouts) and asphalt	General solid waste (non-putrescible)	Beneficial reuse on site where possible. Beneficial reuse off-site
	Timber formwork	General solid waste (non-putrescible)	Recycling off-site
	Packaging materials, including wood, plastic, cardboard and metals	General solid waste (non-putrescible)	Recycling off-site
	Empty oil and other drums	General solid waste (non-putrescible)	Off-site disposal at an approved facility
	Pesticides, herbicides, spill clean ups, paints and other chemicals	Hazardous waste	Off-site disposal at an approved facility
	Metals and electrical cabling	General solid waste (non-putrescible)	Off-site disposal at an approved facility
Compounds, ancillary facilities and workshop operation	Excess concrete from concrete batching plant	General solid waste (non-putrescible)	Beneficial reuse on site where possible. Beneficial reuse off-site
	Tyres	Special waste	Reuse and recycling where possible. Off-site disposal at an approved facility
	Waste generated by the maintenance of equipment including air and oil filters and rags	General solid waste (non-putrescible)	Off-site disposal at an approved facility

Construction activity	Waste type	Classification	Proposed reuse / recovery / recycling / disposal methods
	Oils, grease, fuel, chemicals and other fluids	Liquid	Off-site disposal at an approved facility
	Batteries	Hazardous waste	Off-site disposal at an approved facility
	Radiator fluid	Hazardous waste	Off-site disposal at an approved facility
	Hydraulic fluid	Hazardous waste	Off-site disposal at an approved facility
	Domestic waste generated by workers	General solid waste (putrescible)	Off-site disposal at an approved facility
	Sewage	General solid waste (putrescible)	Black water treatment or trade waste agreement
Office operation	Paper, cardboard and plastic	General solid waste (non-putrescible)	Recycling off-site
	Glass bottles and aluminium cans	General solid waste (non-putrescible)	Recycling off-site
	Ink cartridges	General solid waste (non-putrescible)	Recycling off-site
	Food waste	General solid waste (non-putrescible)	Recycling off-site
	Effluent (e.g. STP)	Liquid	Off-site disposal at an approved facility

5.10 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. The EPA has issued general exemptions 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 5-2 below. These are general gazette exemptions that do not require approval. A specific exemption may be granted where an application is made to the EPA.

Table 5-2: Waste Recovery Exemptions and Orders

Exemption / Order	General conditions
Effluent Exemption 2014	The effluent can only be applied to land for the purposes of irrigation or as a soil amendment material.
Effluent Order 2014	The consumer must apply the effluent within a reasonable period of time.

Exemption / Order	General conditions
The Excavated Natural Material Exemption 2014 The Excavated Natural Material Order 2014	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.
The Excavated Public Road Material Exemption 2014 The Excavated Public Road Material Order 2014	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.
The Mulch Exemption 2016 The Mulch Order 2016	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.
The Recovered Aggregate Exemption 2014 The Recovered Aggregate Order 2014	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 • 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.
The Blast Furnace Slag Exemption 2014 The Blast Furnace Slag Order 2014	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.

Exemption / Order	General conditions
The Reclaimed Asphalt Pavement Exemption 2014 The Reclaimed Asphalt Pavement Order 2014	Reclaimed asphalt can only be applied to land for road related activities including road construction or road maintenance
Treated Drilling Mud Exemption 2011	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.
Stormwater Exemption 2014	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.

6 Resource management and conservation

6.1 Energy conservation

Roads and Maritime and its Contractors are 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 use of renewable energy sources to power electronic equipment
- conducting awareness programs for all site personnel regarding energy conservation methods.

The Contractors will monitor and report on energy use during Construction of the Project. The Contractors will implement an appropriate energy use monitoring tool, such as the Transport for NSW Carbon Estimation Reporting Tool. The Contractors will also prepare Quarterly Project Sustainability Reports during Construction outlining actual performance against the nominated sustainability targets, the works that have been undertaken and the achievements that have been met, as well as identifying those areas where improvements were made (refer to the CSMP Appendix B10 of the OACEMP).

6.2 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 (biodiesel, ethanol, or blends such as E10 or B80) which can considerably reduce the greenhouse gas 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.

7 Environmental mitigation and management measures

A range of environmental requirements and management measures are identified in the EIS and SPIR, the conditions of approval and relevant Roads and Maritime documents.

Specific measures and requirements to address waste management and energy use issues are outlined in Table 7-1.

Table 7-1: Waste and energy revised environmental management and mitigation measures

ID	Measure / requirement	When to implement	Responsibility	Applicability					Reference
				Stage 4		Stage 5		Stage 6	
				Cth	NSW	Cth	NSW	NSW	
Waste management									
WR-1	The waste minimisation hierarchy principles of avoid/reduce/reuse/ recycle/dispose would be used	Pre-Construction and Construction	Contractor Environmental Site Representative	✓	✓	✓	✓	✓	Section 5.7
WR-2 GHGC-9	A project-specific Construction Waste and Energy Management sub-plan (CWEMP) would be prepared before construction. The plan would adopt the Resources Management Hierarchy principles of the WARR Act and include:		Contractor Environmental Site Representative	✓	✓	✓	✓	✓	This CWEMP
	• the major construction related waste streams expected to be generated from the project	Pre-Construction	Contractor Environmental Site Representative	✓	✓	✓	✓	✓	Section 4.1
	• the major sources of construction related energy consumption (fuel and power)	Pre-Construction	Contractor Environmental Site Representative	✓	✓	✓	✓	✓	Section 4.3
	• classification of waste streams	Pre-Construction	Contractor Environmental Site Representative	✓	✓	✓	✓	✓	Section 5.8
	• waste orders and exemptions	Pre-Construction	Contractor Environmental Site Representative	✓	✓	✓	✓	✓	Section 5.10

ID	Measure / requirement	When to implement	Responsibility	Applicability					Reference
				Stage 4		Stage 5		Stage 6	
				Cth	NSW	Cth	NSW	NSW	
	• re-use and recycling practices to be implemented	Pre-Construction	Contractor Environmental Site Representative	✓	✓	✓	✓	✓	Section 5.7.2
	• measures to be applied where waste is required to be handled and stored on-site prior to on-site reuse or off-site recycling/disposal	Pre-Construction	Contractor Environmental Site Representative	✓	✓	✓	✓	✓	Section 5.7.3
	• specific measures to manage vegetation waste	Pre-Construction	Contractor Environmental Site Representative	✓	✓	✓	✓	✓	Sections 5.2, 5.3 Appendix B4 - CSWMP
	• Energy conservation best practice and the reduction of greenhouse gases by adopting energy efficient work practices	Pre-Construction	Contractor Environmental Site Representative	✓	✓	✓	✓	✓	Section 6, Appendix B10 - CSMP
	• A resource management strategy detailing beneficial reuse options for surplus and/or unsuitable material	Pre-Construction	Contractor Environmental Site Representative	✓	✓	✓	✓	✓	This CWEMP Appendix B10 - CSMP
	• Procedures for the identification, handling and disposal of hazardous materials including potential asbestos waste	Pre-Construction	Contractor Environmental Site Representative	✓	✓	✓	✓	✓	Section 5.7.3
	• Protocols for engaging with and notifying residents of any work processes that may impact them	Pre-Construction	Contractor Community Relations Manager	✓	✓	✓	✓	✓	Section 8.2

ID	Measure / requirement	When to implement	Responsibility	Applicability					Reference
				Stage 4		Stage 5		Stage 6	
				Cth	NSW	Cth	NSW	NSW	
	• A complaints mechanism so that residents may contact the project manager	Pre-Construction	Contractor Community Relations Manager	✓	✓	✓	✓	✓	Section 8.3
	• A protocol to enable the project to respond quickly to non-compliances.	Pre-Construction	Contractor Environmental Site Representative	✓	✓	✓	✓	✓	Section 8.5
WR-3	All wastes, including contaminated wastes, would be identified and classified in accordance with the Waste Classification Guidelines: Part 1 Classifying Waste.	Construction	Contractor Environmental Site Representative	✓	✓	✓	✓	✓	Section 5.8
WR-4	Disposal of any non-recyclable waste would be in accordance with the POEO Act and Waste Classification Guidelines: Part 1 Classifying Waste.	Construction	Contractor Environmental Site Representative	✓	✓	✓	✓	✓	Section 5.9
WR-5	Trees and plant material would be mulched or chipped on-site and used in landscaping where practicable to stabilise disturbed soils where possible.	Construction	Contractor Environmental Site Representative	✓	✓	✓	✓	✓	Section 5.3
WR-6	Where possible and fit for purpose, spoil would be beneficially reused within the project before off-site reuse of disposal options is pursued	Construction	Contractor Environmental Site Representative	✓	✓	✓	✓	✓	Section 5.1 Annexure C – Spoil Management Strategy TOC
WR-7	Excavated material that is not suitable for on-site reuse or recycling would be transported to a site that may legally accept that material for reuse or disposal.	Construction	Contractor Environmental Site Representative	✓	✓	✓	✓	✓	Section 5.7.4 Annexure A – Location of waste facilities

ID	Measure / requirement	When to implement	Responsibility	Applicability					Reference
				Stage 4		Stage 5		Stage 6	
				Cth	NSW	Cth	NSW	NSW	
WR-8	Before being transported from construction sites, excavated spoil would be classified in accordance with the Waste Classification Guidelines: Part 1 Classifying Waste (EPA, 2014) to ensure appropriate reuse of disposal	Construction	Contractor Environmental Site Representative	✓	✓	✓	✓	✓	Section 5.8
WR-9	A Spoil Management Strategy would be developed prior to the commencement of construction and implement during construction. The strategy would identify spoil disposal site(s)and describe the management of spoil on-site and during off-site transport	Construction	Contractor Environmental Site Representative	✓	✓	✓	✓	✓	Annexure C
WR-10	Wherever feasible and reasonable, construction material would be sourced from within the Sydney region.	Construction	Contractor Environmental Site Representative	✓	✓	✓	✓	✓	Section 6.2
WR-11	Where water is sourced from farm dams, it would be done so in consultation with landowners	Construction	Contractor Environmental Site Representative	✓	✓	✓	✓	✓	Community Communication Strategy
Greenhouse gas and energy conservation									
GHGC-1	Identify recycled materials (such as recycled aggregates in road pavement and surfacing; steel with recycled content) for use in construction or operation of the project where they are cost, quality and performance competitive.	Construction	Contractor Environmental Site Representative	✓	✓	✓	✓	✓	Contractor's CWEMP
GHGC-2	Use of modern diesel engine equipment, to ensure highest fuel efficiency ratings.	Construction	Contractor Superintendent	✓	✓	✓	✓	✓	Section 6.2

ID	Measure / requirement	When to implement	Responsibility	Applicability					Reference
				Stage 4		Stage 5		Stage 6	
				Cth	NSW	Cth	NSW	NSW	
GHGC-3	Specification of the use of biofuels, or biofuel blends in construction plant and equipment	Pre-Construction	Contractor Construction Manager	✓	✓	✓	✓	✓	Section 6.2
GHGC-4	Provision of clear guidance to construction staff on equipment start up and shut down procedures to ensure that they are not left idling when not in use.	Pre-Construction	Contractor Construction Manager	✓	✓	✓	✓	✓	Section 8.4
GHGC-5	Review of cut and fill balances for earthworks to ensure material is transported the least possible distances.	Construction	Contractor Construction Manager	✓	✓	✓	✓	✓	Section 6.2
GHGC-6	Review of local options for import and export of fill materials as needed to reduce excess fuel used during transport	Construction	Contractor Construction Manager	✓	✓	✓	✓	✓	Section 6.2
GHGC-7	Specification and certification of steel from recycled sources where suitable for offsetting virgin steel	Construction	Contractor Construction Manager	✓	✓	✓	✓	✓	Section 2.3 Section 6.2
GHGC-8	Specification of materials with low embodied energy / embodied GHG content, such as: • replacement of Portland cement in concrete mixes with low carbon alternatives such as flyash • use of warm mix asphalt versus hot mix.	Construction	Contractor Construction Manager	✓	✓	✓	✓	✓	Section 6.2

8 Compliance management

8.1 Roles and responsibilities

The Project organisational structure and overall roles and environmental responsibilities are outlined in Section 5.1 of the OACEMP. Specific responsibilities for the implementation of construction waste and energy management measures are detailed in Section 6 of this CWEMP.

8.2 Communication

Roads and Maritime will prepare and implement a Community Communication Strategy (CCS) in accordance with the requirements of NSW-CoA B1 to document the approach to stakeholder and community communications for the Project. The CCS will identify opportunities and tools for providing information and consulting with the community and stakeholders during the Construction of the Project. The Contractors will support the delivery of the CCS.

Waste and energy management information will be communicated to the community and stakeholders in accordance with the principles and procedures outlined in the CCS.

Further detail about the CCS is provided in Section 5.5.3 of the OACEMP.

8.3 Complaints management

Roads and Maritime will develop a Complaints Management System (CMS) to document the overall approach to complaints management for the Project. The Contractors will adopt the requirements of the CMS, including reporting requirements. The CMS will include a Complaints Register which will record the details of all complaints relating to the Project.

Further detail about the CMS is provided in Section 5.5.3 of the OACEMP.

8.4 Training

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

- existence and requirements of this overarching CWEMP, the Contractor's CWEMP and all plans and procedures prepared under the CWEMPs
- 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 prior to the commencement of Construction and monitor implementation.

Daily pre-start meetings conducted by the Contractor Foreman 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 OACEMP.

8.5 Monitoring and inspections

The Contractors will carry out regular monitoring and inspections of activities with the potential to generate waste for the duration of Construction of the Project. Table 8-1 outlines the monitoring and inspection activities that will be undertaken during Construction by Roads and Maritime, Construction Contractors and waste contractors.

Weekly and other routine inspections by the Roads and Maritime Environmental Manager (or delegate), Environmental Review Group (ERG) representatives and ER will occur throughout Construction. Detail on the nature and frequency of these inspections are documented in Section 6.1 of the OACEMP.

Table 8-1: Program for waste and energy monitoring and inspections

Item	Frequency
Roads and Maritime	
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 Roads and Maritime Specifications	For disposal of waste off-site

Item	Frequency
Review collated waste disposal data and maintain the project waste register	Review monthly
Construction Contractor	
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
Maintain a Waste Management Register of all waste collected for disposal and/or recycling until final completion in accordance with the Roads and Maritime G36 specification	Monthly
Verify licences and permits for handling, transporting and disposal of wastes in accordance with Roads and Maritime 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 works (e.g. energy, water, fuel, oil, etc)	Monthly
Waste contractor	
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 7-1 and Table 8-1, are documented in Sections 6.1 and 6.2 of the OACEMP.

8.6 Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of waste and energy management measures, and compliance with this CWEMP, conditions of approval and other relevant approvals, licenses and guidelines.

Audit requirements are detailed in Section 6.4 of the OACEMP.

8.7 Non-conformances

A non-conformance is the failure or refusal to comply with the requirements of project system documentation, including this CWEMP. Any member of the Contractors' Project team may raise a non-conformance or improvement opportunity.

When a non-conformance is detected, the process described in Section 6.6 of the OACEMP will be implemented. The Contractor's Quality Plan will describe the process for managing non-conforming work practices and initiating corrective/preventative actions or system improvements in accordance with the process outlined in Section 6.6.1 of the OACEMP.

8.8 Reporting

Reporting requirements and responsibilities are documented in Section 6.5 of the OACEMP.

The Contractors will maintain accurate records substantiating all construction activities associated with the Project or relevant to the conditions of approval, including measures taken to implement this CWEMP. Records must be made available to the DP&E and DoEE upon request, within the timeframe nominated in the request.

The Contractor 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. The Construction Contractors will relay the required information in the form of regular reporting to Roads and Maritime and other stakeholders as required. Waste and energy use records will feed into the sustainability reporting under the CSMP. Refer to the CSMP for further detail.

Table 8-2 outlines the reporting requirements for Roads and Maritime, Construction Contractors and waste contractors.

Table 8-2: Waste reporting requirements

Item	Frequency
Roads and Maritime	
Report power consumption (green power and other) in the Construction Compliance Reports	Six monthly
National Greenhouse and Energy Reporting of waste and energy will be undertaken in accordance with legislative requirements under the NGER Act	Monthly
Construction Contractor	
Monthly waste register provided to Roads and Maritime (prepared in accordance with the template in Annexure B or Contractor's approved alternative register)	Monthly
Records of resource usage during Construction works (e.g. energy, water, fuel, oil, etc.) in the Quarterly Project Sustainability Report provided to Roads and Maritime (refer also to the CSMP)	Quarterly
Records of energy use and emissions in the Quarterly Project Sustainability Report provided to Roads and Maritime (refer also to the CSMP)	Quarterly

Item	Frequency
Records of waste management, take-back, and recycling in the Quarterly Project Sustainability Report provided to Roads and Maritime (refer also to the CSMP)	Quarterly
Waste Avoidance and Resource Recovery Report in accordance with G36/F provided to Roads and Maritime	Annually
Waste contractor	
Service provider waste reports provided to the Construction Contractor	Monthly

9 Review and improvement

9.1 Continuous improvement

Continuous improvement of this CWEMP 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 Contractors will be responsible for ensuring Project environmental risks are identified and included in the risk register and appropriate mitigation measures implemented throughout the Construction of the Project as part of the continuous improvement process. The process for ongoing risk identification and management during Construction is outlined in Section 4.3.2 of the OACEMP.

9.2 CWEMP update and amendment

The processes described in Section 6.8 of the OACEMP may result in the need to update or revise this CWEMP. This will occur as needed.

Any revisions to this CWEMP will be in accordance with the process outlined in Sections 1.6 and 6.8 of the OACEMP.

A copy of the updated CWEMP and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure (refer to Section 1.5 of the OACEMP).

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Annexure A – Location of Waste Facilities

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Building waste recycling and disposal

Business Name	Address	Accepts
Blaxland Waste Management Facility	Attunga Road Blaxland	• Asbestos • Bricks • Ceramics • Concrete • Timber - Untreated
Genesis Eastern Creek	Honeycomb Drive Eastern Creek	• Asbestos (Recycle, Dispose Safely) • Asphalt & Bitumen • Bricks (Dispose Safely) • Ceramics • Concrete • Fibro - Non Asbestos • MDF, Masonite & Villaboard (Recycle, Dispose Safely) • Pallets - Wood (Recycle, Dispose Safely) • Particleboard • Plasterboard • Sand • Solid Fill - Soil • Timber - Untreated
Rock & Dirt Recycling	Lot 306 Racecourse Road South Windsor	• Bricks • Concrete
Benedict Recycling	33-39 Riverside Road Chipping Norton	• Asphalt & Bitumen • Bricks • Ceramics • Concrete • Fibro - Non Asbestos • Glass Sheets • Pallets - Plastic • Pallets - Wood • Particleboard • Plasterboard • Sand • Solid Fill - Soil • Timber - Untreated
Bingo Recycling Centre	3-5 Duck Street Auburn	• Bricks (Dispose Safely) • Ceramics • MDF, Masonite & Villaboard • Pallets - Wood • Particleboard • Plasterboard • Sand • Solid Fill - Soil • Timber - Untreated

Business Name	Address	Accepts
Concrete Recyclers (Group)	14 Thackeray Street Camellia	• Asphalt & Bitumen • Bricks • Ceramics • Concrete
Waste Transfer Stations Pty Ltd	13 Pembury Road Minto	• Bricks • Concrete • Glass Sheets • Solid Fill - Soil • Timber - Untreated
Katoomba Waste Management Facility	Woodlands Road Katoomba	• Bricks • Concrete
Enviro Recycling	37-51 Violet Street Revesby	• Asphalt & Bitumen • Bricks • Ceramics • Concrete • Fibro - Non Asbestos • MDF, Masonite & Villaboard • Pallets - Plastic • Pallets - Wood (Recycle, Reuse,) • Particleboard • Plasterboard • Sand • Solid Fill - Soil • Timber - Untreated
Sydney Transwaste Industries	160 Arthur Street Homebush West	• Asbestos • Asphalt & Bitumen • Bricks • Ceramics • Concrete • Fibro - Non Asbestos • Pallets - Plastic • Pallets - Wood • Sand • Solid Fill - Soil • Timber - Untreated

Annexure B – Template Waste Management Register

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Date / time	Waste classification	Description of waste (e.g. concrete, asphalt, vegetation)	Amount of spoil / waste collected (tonnes)	Transporter (name and waste transport licence, if applicable)	Receiving facility	Waste use (reused, recycled, stockpiled or disposed)	Invoice no. / tip docket reference

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Annexure C – Spoil Management Strategy table of contents

A table of contents for the Contractors' Spoil Management Strategy is provided below. The Contractors will prepare a Spoil Management Strategy as part of the Contractors' CWEMPs in accordance with the legislation, guidelines and standards identified in Section 3 of this overarching CWEMP, the requirements contained in Section 5.1 and consistent with this Spoil Management Strategy table of contents.

Where appropriate, the Contractors may supply a Spoil Management Strategy with an alternative structure provided it meets the requirements identified in this CWEMP and the relevant Roads and Maritime specifications. Roads and Maritime will review the Contractors' documentation to confirm consistency with the applicable requirements.

Contents

Annexure D – Coal Tar Asphalt Management Plan table of contents

A table of contents for the Contractors' Coal Tar Asphalt Management Plan is provided below. The Contractors will be prepare a Coal Tar Asphalt Management Plan as part of the Contractors' CWEMPs. The Coal Tar Asphalt Management Plan will be prepared in accordance with the legislation, guidelines and standards identified in Section 3 of this overarching CWEMP, the requirements contained in Section 5.6 and consistent with this Coal Tar Asphalt Management Plan table of contents.

Where appropriate, the Contractors may supply a Coal Tar Asphalt Management Plan with an alternative structure provided it meets the requirements identified in this CWEMP and the relevant Roads and Maritime specifications. Roads and Maritime will review the Contractors' documentation to confirm consistency with the applicable requirements.

Contents

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NSW GOVERNMENT
Transport
Roads & Maritime
Services