Belmont Desalination Plant

Construction Waste Management Sub-Plan

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Revisions and Distribution

Revisions

Draft issues of this document are identified as Revision A, B, C, etc. Upon initial issue (generally Contract Award) this will be changed to a sequential number commencing at Revision 0. Revision numbers will continue at Revision 1, 2, etc.

Rev	Date	Prepared By [Name]	[Signature]	Reviewed By [Name]	[Signature]	Approved By [Name]	[Signature]	Remarks
A	10.05.2024	Amber Grant	AG	J Nisbet	JN	J Nisbet	JH	HWC and ER Draft Submission
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0	17/09/2024	Amber Grant	AG	J Nisbet, N Cook	JN NC	S MacNish	SM	Update post HWC / ER comments
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Terms and Abbreviations

Term/Abbreviation	Definition/Expanded text
AMS	Activity Method Statements
CEMP	Construction Environmental Management Plan
CoA	Conditions of Approval
SSI	State Significant Infrastructure
CWMSP	Construction Waste Management Sub Plan
DPHI	Former Department of Planning, Industry and Environment, Now Department of Planning, Housing and Infrastructure
DPI	Department of Primary Industries
EIS	Environmental Impact Statement
EMS	Environmental Management System
ENM	Excavated Natural Material
Environmental Assessment Documentation	Hunter Water Corporation Belmont Desalination Plant Environmental Impact Statement, prepared by GHD dated 2019. Hunter Water Corporation Belmont Desalination Plant Amendment Report and Submissions Report prepared by GHD dated 2020. Hunter Water Corporation Belmont Desalination Plant Modification Report Environmental Impact Statement prepared by Jacobs dated 2024. Hunter Water Corporation Belmont Desalination Plant Modification Report – Submissions Report prepared by Jacobs dated 2024 and associated responses to RFI's
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPA	NSW Environment Protection Authority
EPI	Environmental Planning Instrument
EPL	Environment Protection Licence
ER	Environmental Representative
FOGO	Food Organics and Garden Organics
GREP	Government Resource Efficiency Policy
GSW	General Solid Waste
HWC	Hunter Water Corporation
JH	John Holland
NGER	National Greenhouse and Energy Reporting
NEPM	National Environmental Protection Measure
PESCP	Progressive Erosion and Sediment Control Plan
POEO	*Protection of the Environment Operations Act 1997*
RAP	Reclaimed Asphalt Pavement
REMM	Revised Environmental Management Measures
Resource	Energy, fuel, oil water and other materials used for the construction of the Project
RRE/REO	Recycled Recovery Exemption/ Order
SAPs	Sensitive Area Plans
SQP	Suitability Qualified Person
VENM	Virgin Excavated natural material
WARR Act	*Waste Avoidance and Resource Recovery Act 2001*
WRAPP	Waste Reduction and Purchasing Policy

Waste Management Sub-Plan

Plan Profile

Management System	The Project will use John Holland's (JH) Environmental Management System (EMS) and core Project plans to support Project delivery. Additional functional plans have been developed for the Project.
Name	Construction Waste Management Sub-Plan (CWMSP)
Authorisation	All personnel employed on the Project will perform their duties in accordance with the requirements of this Plan and in compliance with Project system procedures and any specific Project instructions. This Plan is authorised by the Project Director.
Review and update	This Plan will be regularly reviewed, developed, and updated: • For changes in design or construction sequence, staging, methodology or resourcing • To consider progress of the Project Company's Work • For changes in access to the Project Site • To consider changes directed by Hunter Water Corporation's (HWC) Representative under the Deed.

1. Introduction

1.1. Context

This Construction Waste Management Sub Plan (CWMSP or Plan) forms part of the Construction Environmental Management Plan (CEMP) for the Belmont Permanent Desalination Project (the Project).

This CWMSP has been prepared to address the requirements of the Minister's Conditions of Approval (CoA), the measures listed in the Environmental Impact Statement (EIS) as modified, the Response to Submissions and Amendment Report and all applicable legislation.

1.2. Background

1.2.1. The Project

The Belmont Drought Response Desalination Plant ('the Project') was approved as SSI-8896 by the then New South Wales (NSW) Minister for Planning on the 23 July 2021. The approved Project involves the construction and operation of a drought response desalination plant producing up to 30 megalitres per day (ML/d) including seawater intake infrastructure; desalination units; brine discharge via existing ocean outfall; electricity/water supply; and ancillary works.

The Belmont Desalination EIS (7.13), Submissions and Amendment Report (Appendix E - REMMs), and the Mod (Chapter 3.6) identified the potential impacts and risk of waste and resource management during construction of the Project typically associated with spoil and the sustainable management of waste products. They concluded residual risks from construction activities can be mitigated to the extent that waste, resources, and spoil impacts can be managed through implementation of the CoA and Revised Environmental Management Measures (REMMs).

1.3. Scope of the Plan

The scope of this CWMSP is to describe how the potential risks and impacts from waste or the mismanagement of waste will be minimised and managed during construction of the Project and the processes that will be followed for waste and materials management and site management. This CWMSP also contains procedures and responsibilities for waste handling and management.

This Plan is applicable to all activities during construction of the Project, including all areas where physical works will occur or areas that may be otherwise impacted by the construction works, and under the control of the John Holland (JH). All JH staff and sub-contractors are required to comply with the requirements of this Plan and related environmental management plans, over the full duration of the construction program. A copy of this CWMSP will be kept on the premises for the duration of construction.

Operational waste impacts and operational phase measures do not fall within the scope of this CWMSP and therefore are not included within the processes contained within this plan.

In accordance with Condition A12 of the CoA, JH have included specific items listed in the CoA for the Construction Waste Management plan in the text of the Soil and Water Management Plan (refer to Table 3-2).

1.4. Environment Management Systems Overview

The Environmental Management System (EMS) overview is described in the CEMP. The EMS also incorporates the Project-specific CEMP and sub-plans, strategies and procedures. The EMS provides overarching environmental management actions for implementation by Project personnel and contractors and will apply for the duration of construction.

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

- **CEMP**. Details the processes and procedures to be implemented during the Project to comply with applicable CoA, REMMs, Environment Protection Licence (EPL), legislative obligations and contractual requirements.
- **Environmental Management Sub-plans**. These documents describe procedures and controls for specific environmental aspects requiring more rigorous management strategies.
- **Work Health & Safety (WHS) Management Plan.** Details the processes and procedures to be implemented during the Project to comply with applicable work health and safety requirements.

1.4.1. CWMSP Endorsement and Approval

The CWMSP has been prepared to satisfy NSW CoA C20 and the updated mitigation measures in relation to the management of waste during construction of the Project.

This CWMSP will be reviewed by the JH Project Environment Manager (or delegate), Hunter Water Corporation (HWC) Representatives and the independent Environmental Representative (ER) to confirm it is consistent with, and incorporates, all relevant elements of the approved CEMP, prior to submission to the Planning Secretary for approval. Construction of the Project will not commence until the CWMSP has been endorsed by the ER and approved by the Planning Secretary.

1.4.2. Relationship between this Plan and other Project documents

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

- CEMP and associated Sub Plans
- Construction Management Plan.
- Safety Management Plan.
- Sustainability Management Plan.

The CEMP provides a full list of plans, procedures and other documents that form the EMS.

1.5. Consultation for Preparation

No specific consultation requirements are required for this CWMSP. However, waste and resource risks and controls were discussed with stakeholders through development and approval of the CEMP and this Plan.

Ongoing consultation with relevant stakeholders, including any unique local stakeholders, may be undertaken for specific issues, pertaining to the Project's impact waste and resource hazard/risk. feedback and complaints relating to waste and resource hazards/risks will be dealt with in accordance with the Communication Strategy and the Complaints Management System

2. Purpose and Objectives

2.1. Purpose

The purpose of this Plan is to describe how the Project will manage waste and resource impacts during construction of the Project.

2.2. Objectives

The key objective of the CWMSP is to ensure that impacts to the local community and the built environment from the mismanagement of wastes are minimised. To aid in achieving this objective all CoA, environmental mitigation measures and licence/permit requirements relevant to waste are described, scheduled and assigned responsibility as outlined in:

- Environmental Assessment Documentation
- Infrastructure State Significant Infrastructure (SSI) Approval
- Environment Protection Licence
- Hunter Water Sustainability Strategy 2024
- All relevant legislation and other requirements described in Section 3.1 of this Plan.

To achieve compliance with the conditions and objectives of the Project documents above, the Project will undertake the following:

- Ensure measures (Chapter 5 of this Plan) are implemented to address the relevant safeguards detailed in the REMMs in Section 3.3.
- Ensure management controls and procedures are documented, communicated, and implemented during construction activities to avoid or minimise waste impacts.

The Hunter Water Sustainability Strategy 2024 outlines under Objective 2; the following:

Care for the environment: across our operations and working towards healthier and more resilient ecosystems.

We have set ourselves the following aspirational goals to move us towards our future state:

- Reduce, reuse, recover, and recycle all non-hazardous waste.

3. Environment Requirements

In accordance with NSW CoA A21, references in the terms of this Plan to any guideline, protocol, Australian Standard or policy are to such guidelines, protocols, Standards or policies in the form they are in at the date of the Infrastructure Approval (SSI-8896).

3.1. Relevant Legislation and Guidelines

Table 3-1 lists the principal legislation, regulation, plans, policies, guidelines, and specifications that apply to waste management.

Table 3-1: Principal legislation and regulation relevant to waste management

Legislation	• *Protection of the Environment Operations Act 1997* (POEO Act) • Protection of the Environment Operations (Waste) Regulation 2014 • *Waste Avoidance and Resource Recovery Act 2001* • *Environmentally Hazardous Chemicals Act 1985* • National Environmental Protection Measure (Assessment of Site Contamination) 1999 (as amended 2013) (National Environment Protection Council 2013) • *Contaminated Land Management Act 1997* • *Biosecurity Act 2015* • *National Greenhouse and Energy Reporting Act 2007* • *Dangerous Goods (Road and Rail Transport) Act 2008* • Dangerous Goods (Road and Rail Transport) Regulation 2022 • *Work Health and Safety Act 2011* • *Work Health and Safety Regulation 2017*
Plans and Policies	• Australian Dangerous Goods Code (National Transport Commission 2020). • State Environmental Planning Policy No. 33 (SEPP 33) – Hazardous and Offensive Development (NSW) • State Environmental Planning Policy No 55 – Remediation of Land • National Waste Policy 2018 (Australian Government 2018b) • National Waste Policy Action Plan 2019 (Australian Government 2019) • NSW Circular Economy Policy (NSW Environment Protection Authority 2019b) • NSW Government Resource Efficiency Policy (OEH 2019b)
Guidelines and Specifications	• Acid Sulfate Soils Assessment Guidelines (Department of Planning 2008) • NSW Waste and Resource Recovery Strategy 2014-21 (EPA, 2014) • NSW Asbestos Waste Strategy 2019-2021 (NSW EPA, 2019) • NSW Circular Economy Policy (NSW EPA 2019b) • NSW Government Resource Efficiency Policy (GREP) (OEH 2014) • NSW Government Resource Efficiency Policy (OEH 2019b) • Waste Classification Guidelines: Part 1 Classifying Waste (NSW EPA 2014). • Waste Classification Guidelines, Part 1: Classifying Waste, Addendum (NSW EPA, October 2016) • Waste Classification Guidelines, Part 4: Acid Sulfate Soils (NSW EPA, November 2014) • Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom 2004).

3.2. Conditions of Approval – SSI-8896

The CoA relevant to this CWMSP are listed in Table 3-2. A cross reference is also included to indicate where the condition is addressed in this Plan or other Project management documents.

Table 3-2: Conditions of Approval (CoA) relevant to this CWMSP

CoA No.	Condition Requirements	Document Reference
C10	Management plans required under this approval must be prepared having regard to the relevant guidelines, including but not limited to the Environmental Management Plan Guideline: Guideline for Infrastructure Projects (DPIE, April 2020). Note: • The Environmental Management Plan Guideline is available on the Planning Portal at: https://www.planningportal.nsw.gov.au/major-projects/assessment/post-approval	Section 3.1
C11	Prior to the commencement of construction, the Proponent must submit a Construction Environmental Management Plan (CEMP) to the to the Planning Secretary for approval. The CEMP must include, but not be limited to, the following: (j) Construction Waste Management Sub Plan (see condition C20);	This Plan
C20	The Construction Waste Management Sub-Plan (CWMSP) must address, but not be limited to, the procedures for the management of waste including the following:	This Plan
	a) the recording of quantities, classification (for materials to be removed) and validation (for materials to remain) of each type of waste generated during construction and proposed use;	Table 5-1
	b) information regarding the recycling and disposal locations and the types of materials that can be deposited into recycling bins and general garbage bins; and	Section 5.6
	c) confirmation of the contamination status of the development areas of the site based on the validation results.	In accordance with Condition A12 of the CoA, JH have included this information in the SWMP) Refer to contamination Section 4.0 of the Soil and Water Management Plan (SWMP)
D8	The Proponent must carry out the construction of the development in accordance with the most recent version of the approved CEMP (including Sub-Plans).	This Plan
C23	Prior to the commencement of earthworks, the Proponent must prepare an unexpected contamination procedure to ensure that potentially contaminated material is appropriately managed. Where any material identified as contaminated is to be disposed off-site, the disposal location and results of testing submitted to the Planning Secretary prior to its removal from the site.	In accordance with Condition A12 of the CoA, JH have included this information in the SWMP) Refer to Appendix of the Soil and Water Management Plan
D21	The Proponent must: (a) ensure that only VENM, ENM, or other material approved in writing by EPA is brought onto the site; (b) keep accurate records of the volume and type of fill to be used; and (c) make these records available to the Planning Secretary upon request	Table 5-1
D27	All waste generated during construction must be secured and maintained within designated waste storage areas at all times and must not leave the site onto neighbouring public or private properties.	Table 5-1
D28	All waste generated during construction must be assess, classified and managed in accordance with the Waste Classification Guidelines Part 1: Classifying Waste (EPA, 2014).	Table 5-1
D29	The Proponent must ensure that concrete waste and rinse water are not disposed of on the site and are prevented from entering any natural or artificial watercourse.	Table 5-1

CoA No.	Condition Requirements	Document Reference
D30	The Proponent must record the quantities of each waste type generated during construction and the proposed reuse, recycling and disposal locations for the duration of construction.	Table 5-1
D31	The Proponent must ensure that the removal of hazardous materials, particularly the method of containment and control of emission of fibres to the air, and disposal at an approved waste disposal facility is in accordance with the requirements of the relevant legislation, codes, standards and guidelines.	Table 5-1

3.3. Updated Environmental Management Measures

Relevant environmental management measures are listed in Table 3-3 below. This includes reference to required outcomes, the timing of when the commitment applies and cross reference to indicate where the requirement is addressed in this Plan or other Project management documents.

Table 3-3: Environmental management measures relevant to this CWMSP

Impact	Ref	Commitment	Timing	Document Reference
Waste	WM2	Follow the resource management hierarchy principles: - Avoid unnecessary resource consumption as a priority - Re-use materials, reprocess, recycle and recover energy - Dispose as a last resort (in accordance with the Waste Avoidance and Resource Recovery Act 2001)	Construction	Table 5-1
	WM3	Manage all waste material in accordance with the POEO Act and Waste Classification Guidelines (EPA 2014) and the Waste Avoidance Resource Recovery Strategy for NSW (NSW EPA).	Construction	Table 5-1
	WM4	Manage and track waste in accordance with Hunter Water specifications, including recording of the total waste generated per month and the percentage recycled.	Construction	Table 5-1
	WM5	Tracking of vehicles transporting waste will be undertaken, including the origin and destination of the waste. Records will be kept for a minimum of four years.	Construction	Table 5-1
Generation of general construction waste	WM6	Provide labelled waste receptacles to promote the segregation of waste and recycle materials where appropriate.	Construction	Table 5-1
	WM7	Conduct and record site inductions as specified in the CEMP to ensure staff are aware of waste disposal protocols.	Construction	Table 5-1
	WM8	Preferentially procure materials with no or minimal packaging, or those where packaging is recyclable or able to be returned for re-use to the supplier.	Construction	Table 5-1
	WM9	Maintain all working areas by keeping free of rubbish and cleaning up at the end of each working day.	Construction	Table 5-1
	WM10	Do not accept waste from outside of the Project site.	Construction	Table 5-1
	WM11	Follow mitigation measures for weed disposal as defined in Section Table 7-7 of the EIS.	Construction	Table 5-1
	WM12	Provide portable toilets for construction workers and manage to ensure the appropriate disposal of sewage (i.e. removed by a licensed supplier). Portable toilets will be located away from drainage lines.	Construction	Table 5-1

Impact	Ref	Commitment	Timing	Document Reference
Generation of wastewater during commissioning	WM15	During commissioning, test any wastewater that is to be disposed of to the WWTW or to the outfall to ensure that parameters will not exceed the conditions of EPL 1771 or relevant marine water quality guidelines. Calculations will need to reflect dilution with the existing WWTW effluent.	Commissioning	Table 5-1
	WM16	Treat chlorinated water prior to release into the HCS to prevent chlorine impacts to fauna.	Commissioning	Table 5-1
	WM17	Release commissioning wastewater as slowly as possible to minimise the impact on the WWTW effluent quality and quantity.	Commissioning	Table 5-1

3.4. Baseline Waste related Sustainability Requirements

Waste related Sustainability Requirements are listed in Table 3-4. A cross reference is also included to indicate where the condition is addressed in this Plan or other Project management documents. The Sustainability Management Plan provides further guidance and explanation on how this Plan interfaces with design and construction activities.

In line with the sustainability objectives in the Project Sustainability Management Plan, construction works have set the following construction waste targets, through either onsite management or offsite handling and recycling:

Table 3-4: Wase related Sustainability targets relevant to this CWMSP

Description
Diverting >50% of construction and demolition waste (excluding clean concrete), generated by the Work under the Contract, from landfill through reduction, reuse and recycling.
Investigate and identify three opportunities to minimise waste generation.
Beneficially reuse >80% of reusable spoil and topsoil using a spoil management hierarchy in the order shown below: (a) Avoid and reduce spoil generation; (b) Reuse within the project; (c) Reuse for environmental Works; (d) Reuse on other development projects; (e) Reuse for land restoration; (f) Reuse for landfill management; and (g) Dispose offsite as waste.

3.5. Environment Protection Licence

During construction and commissioning, the Project will operate under the existing Belmont WWTW Environment Protection Licence (EPL) #1771 which will be modified to include construction of the Desalination Plant regarding waste streams – specifically water to the outfall during construction and brine and process water during commissioning.

Management and protection of waste is in the current EPL in sections L5.1-5.5 (noting 5.3-5.5 covers the processing of sewerage specifically). The Project will be constructed so as to meet requirements identified in EPL 1771.

4. Environmental Aspects and Impacts

During construction of the project, the following major wastes would be produced:

- Excess spoil
- Wastewater from groundwater dewatering during excavation
- General construction waste

4.1. Excess Spoil

Approximately 2,000 m^3 of excess spoil will be generated across the construction period. Excess spoil would be reused on-site as general fill where suitable and program permits, or will be used to create new landforms via permanent spoil emplacements across the project footprint. There is potential that excess spoil may be sent/gifted offsite provided the material meets applicable exemptions or Section 143 classifications. The remainder may be disposed offsite in accordance with the Waste Classification Guidelines (EPA, 2014), which could be up to the entire quantity of excess spoil depending on filling requirements.

The results of soil analysis completed for the contamination assessment were compared to the waste classification criteria from the Waste Classification Guidelines (EPA, 2014) to provide an indication of the potential waste classification for off-site disposal should excess spoil from construction works not be suitable for on-site re-use. Based on the results, soils were generally classified as General Solid Waste further sampling and analysis would be required prior to disposal off-site at an approved materials recycling or waste disposal facility.

4.2. Dewatered groundwater

Construction of the intake structures are predicted to generate groundwater from dewatering activities, which may be disposed of via the Belmont WWTW outfall following appropriate treatment to ensure that water quality limits are met (Refer to the Construction Groundwater Management Plan). The EPL was modified by Hunter Water to authorise the discharge of dewatered groundwater during construction via the Belmont WWTW outfall (Project outfall area).

4.3. General construction waste

General construction activities would result in the generation of a range of waste streams, including:

- Material packaging and offcuts
- Packaging and general waste from staff (lunch packaging, office waste, etc.)
- Concrete waste, including concrete washout
- Cleared vegetation which could include native green waste as well as declared weed material
- Removed structures such as fencing and guide posts
- Redundant erosion and sediment controls
- Sewage produced by the workforce
- Office Waste from compounds

Re-use of materials where possible would reduce the impact of the Project considerably, as remaining material would be sent to landfill.

The potential environmental impacts associated with construction waste generation include:

- Generation of construction waste, such as excavated soil, rock and demolition waste
- Generation of vegetation waste
- Generation of domestic waste from construction personnel
- Inappropriate or unnecessary disposal to landfill due to no beneficial onsite reuse
- Generation or spread of contaminated waste/soils, e.g. groundwater, used or expired chemicals, or construction materials
- 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.

Waste materials from construction works undertaken offshore will be managed in accordance with the Offshore Construction Works Management Sub-Plan.

4.4. Commissioning

4.4.1. Intake

Commissioning of the intake would involve pumping seawater through the newly installed intake structures at full capacity (up to 45 ML/day) for approximately one week. The key waste streams from the commissioning process are brine and any process water not suitable for the potable water stream. It is expected that the brine discharge pipeline between the desalination plant and the Belmont WWTW would be utilised to dispose of commissioning flows without going through the desalination process (in accordance with EPL for Belmont WWTW).

In the event that sufficient flows are not achieved, further commissioning would be required following installation of additional intakes, with flows discharged via the Belmont WWTW during each round of commissioning. Given the expected quality and volume of flow from the intake commissioning, an impact from disposal of this waste stream to the marine environment is not anticipated.

4.4.2. Water Treatment Process Plant

At commencement of commissioning of the water treatment process plant, there would be a period during which the raw feed water from the intake would bypass the water treatment process plant and be discharged directly to the ocean outfall. Commissioning flows are expected to be essentially seawater during this activity.

4.4.3. Reverse Osmosis Unit

During commissioning of the Reverse Osmosis Unit, all water would be returned to the ocean via the ocean outfall until it passes all specifications before discharging to the potable water pipeline and the water network.

The commissioning process would be required to demonstrate that the water produced by the desalination plant meets the quality requirements of the Australian Drinking Water Guidelines (National Health and Medical Research Council (NHMRC), 2011).

4.5. Waste Management Hierarchy

Waste generated during construction of the Project will be managed in accordance with the following priorities:

1. Waste generation must be avoided and where avoidance is not reasonably practicable, waste generation must be reduced
2. Where avoiding or reducing waste is not possible, waste must be re-used, recycled, or recovered
3. Where re-using, recycling, or recovering waste is not possible, waste must be treated or disposed of. This is captured in the EPA waste hierarchy, as shown in Figure 4-1.

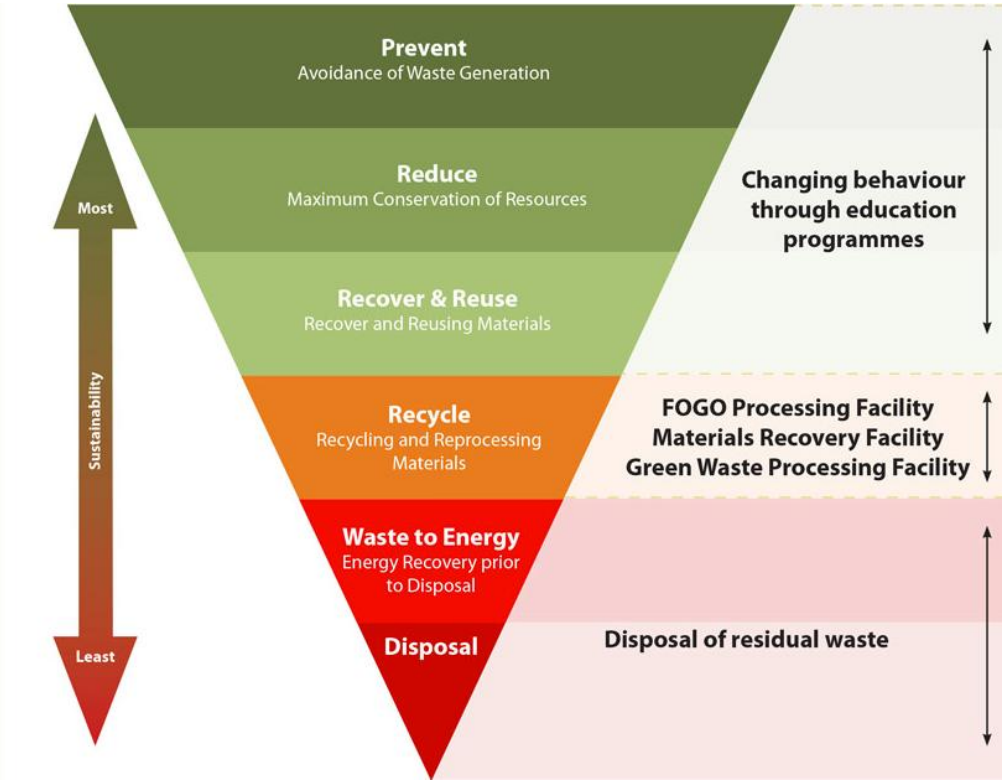

Figure 4-1: EPA Waste Management Hierarchy

4.5.1. Waste Avoidance/Reduction

As part of the design process, and during planning for delivery of the Project, the design team will identify opportunities to reduce wastage through a more efficient use of raw materials such that waste is eliminated through:

- Materials elimination
- Reduction in material usage
- Material reuse.

Consideration will be given to the potential reuse of materials. This includes:

- Materials available on site
- Materials available as a result of other contractors' works
- Materials available as an output from construction activities.

Particular consideration will be given to avoiding the production of hazardous waste where practical.

It should be noted that identified waste reduction opportunities for the project should not compromise the overall durability and life expectancy of the completed structures. Any waste reduction initiatives raised during detailed design that potentially affect compliance with the project durability requirements will be evaluated by the Durability Consultant for acceptability prior to implementation.

4.5.2. Reuse and Recycling

Every effort will be made to ensure that waste material is used, either onsite within the Project or offsite either on other projects or by other persons. The Waste Reuse Principles adopted are:

- Identifying materials for a reuse purpose
- Segregating materials at the source of generation to facilitate reuse, and store or reuse those items, either onsite or offsite
- Re-useable formwork will be used where practicable
- Compostable erosion and sediment control measures will be used where possible

- Recycled and recyclable materials will be used where possible, without compromise to the structural integrity, longevity and visual quality of materials and structure

4.5.3. Waste Disposal

All recyclable or non-recyclable wastes are to be stored in appropriate covered receptacles (e.g. bins or skips) in appropriate locations onsite and contractors commissioned to regularly remove/empty the bins to approved disposal or recycling facilities.

Waste (and spoil) disposal is to be in accordance with the *Protection of the Environment Operations Act 1997* and the *Waste Avoidance and Resource Recovery Act 2001*. Wastes that are unable to be reused or recycled will be disposed of offsite to an appropriately licenced waste management facility following classification (refer to Section 5.3).

Waste (and spoil) disposal is to be in accordance with the *Protection of the Environment Operations Act 1997 and the Waste Avoidance and Resource Recovery Act 2001.* There will be two types of waste disposal, being:

- Disposal to an EPA licensed facility, or
- Disposal to a receiving site under Section 143(3A) of the POEO Act.

Prior to transporting wastes to a receiving site where an EPA licence is not required (such as a beneficial reuse site), a completed and signed notice under section 143(3A) of the POEO Act (“s.143 Notice”) along with accompanying documentation confirming that the proposed disposal site holds appropriate licences / approvals to receive the waste will need to be reviewed by the Project Environment Manager (or delegate).

5. Environmental Mitigation and Management Measures

5.1. General Mitigation Measures

Performance outcomes, commitments and management measures were identified in the EIS, Submissions Report, the CoAs, and REMMs. All specific practicable measures and requirements to minimise waste impacts during construction are outlined in Table 5-1.

Table 5-1: Waste Management and Mitigation Measures

ID	Measure/Requirement	When to Implement	Roles	Reference	Evidence
WRMM1	The NSW Government's Waste Management Hierarchy of "avoid-reuse-reprocess-recycle-energy recovery-dispose" will be followed as the framework of waste management throughout the Project.	Pre-construction/ Construction	Construction Manager Project Environment Manager	WARR Act REMM WM2	Waste records
WRMM3	All staff and subcontractors will undergo a site induction and ongoing toolbox talks that will detail relevant waste legislation	Pre-construction/ Construction	Project Environment Manager	REMM WM7	Site induction records Toolbox talk records
WRMM4	All waste will be assessed, classified and managed in accordance with the EPA's Waste Classification Guidelines.	Construction	Project Environment Manager Construction Manager Foreperson	CoA D28 REMM WM3	Waste Classification Records
WRMM5	Cleared vegetation will be reused or recycled to the greatest extent practicable for example: • Mulching of cleared vegetation (not inclusive of weeds) for use in erosion and sediment control, soil stabilisation and landscaping. • Use of vegetation for habitat enhancement and rehabilitation work in suitable areas.	Construction	Project Environment Manager	Best Practice	Construction Management Records
WRMM6	Weeds will be managed, handled, and disposed of in accordance with the Biodiversity Management Plan. If disposal is appropriate, the weed material will be transferred to a licensed waste facility.	Construction	Foreperson	REMM WM11	Waste Register
WRMM9	JH will preferentially procure materials with no or minimal packaging, or those where packaging is recyclable or able to be returned for re-use to the supplier.	Construction	Foreperson	REMM WM8	Construction Management Plan
WRMM11	Waste generated outside the site will not be received on site unless a relevant licence is held or an exemption applies	Construction	Project Environment Manager Construction Manager	POEO Act 1997 REMM WM10	Licence Records and Waste Register
WRMM13	Regular visual inspections will be conducted to ensure work sites are tidy and to identify opportunities for reuse/recycling.	Construction	Project Environment Manager Foreperson	REMM WM9	Environment Weekly Inspection
WRMM14	Containers and/or skip bins for litter and other wastes are to be provided, with contents disposed of on a regular basis.	Construction	Foreperson	CoA D27	Environment Weekly Inspection

ID	Measure/Requirement	When to Implement	Roles	Reference	Evidence
	All waste generated during construction must be secured and maintained within designated waste storage areas at all times and must not leave the site onto neighbouring public or private properties				
WRMM15	Provide portable toilets for construction workers and manage to ensure the appropriate disposal of sewage (i.e. removed by a licensed supplier). Portable toilets will be located away from drainage lines.	Construction	Foreperson	REMM WM12	Environment Weekly Inspection
WRMM15	A Waste Register of all waste collected for disposal and/or recycling will be maintained monthly until final completion. The recording of quantities, classification (for materials to be removed) and validation (for materials to remain) of each type of waste generated during construction and proposed use;	Pre-Construction/ Construction	Construction Manager Project Environment Manager	POEO Act 1997 CoA C20a CoA D30 REMM WM4 REMM WM5	Waste Register Waste Tracking Register
WRMM16	Tracking of vehicles transporting waste will be undertaken, including the origin and destination of the waste. Records will be kept for a minimum of four years.	Construction	Construction Manager Project Environment Manager	REMM WM5	Waste Tracking Register
WRMM16	Waste streams will be segregated to avoid cross-contamination of materials and maximise reuse and recycling opportunities. JH will provide labelled waste receptacles to promote the segregation of waste and recycle materials where appropriate.	Construction	Construction Manager Foreperson	REMM WM6	Site Environmental Plan Environment Inspection records
WRMM17	JH will: (a) ensure that only VENM, ENM, or other material approved in writing by EPA is brought onto the site in accordance with an approved RRE/RRO; (b) keep accurate records of the volume and type of fill to be used; and make these records available to the Planning Secretary upon request	Construction	Construction Manager Foreperson	CoA D21	Imported materials register
WRMM18	JH will ensure that concrete waste and rinse water are not disposed of on the site and are prevented from entering any natural or artificial watercourse.	Construction	Construction Manager Foreperson	CoA D29	Environment Inspection records
WRMM19	JH will ensure that the removal of hazardous materials, particularly the method of containment and control of emission of fibres to the air, and disposal at an approved waste disposal facility is in accordance with the requirements of the relevant legislation, codes, standards and guidelines.	Construction	Construction Manager Foreperson	CoA D31	Hazardous Material Waste Removal Records

ID	Measure/Requirement	When to Implement	Roles	Reference	Evidence
Commissioning					
WRMM20	During commissioning, test any wastewater that is to be disposed of to the WWTW or to the outfall to ensure that parameters will not exceed the conditions of EPL 1771 or relevant marine water quality guidelines. Calculations will need to reflect dilution with the existing WWTW effluent.	Construction	Construction Manager Foreperson Project Environment Manager	REMM WM15	Commissioning records
WRMM21	Treat chlorinated water prior to release into the Hydraulic Control Structure to prevent chlorine impacts to fauna.	Construction	Construction Manager Foreperson	REMM WM16	Commissioning records
WRMM22	Release commissioning wastewater as slowly as possible to minimise the impact on the WWTW effluent quality and quantity.	Construction	Construction Manager Foreperson	REMM WM17	Commissioning records

5.2. Classification of Waste Streams

Where waste cannot be avoided, reused, or recycled it will be classified and disposal methods would be selected based on the classification of the waste material in accordance with the Waste Classification Guidelines: Part 1 Classifying Waste (NSW EPA 2014). This document identifies six classes of waste: Special, Liquid, Hazardous, Restricted Solid, General Solid (putrescible) and General Solid (non-putrescible) and describes a six-step process to classifying waste. That process is described below:

Step 1: Is it 'special waste'?

Establish if the waste should be classified as special waste. Special wastes are: clinical and related, asbestos, waste tyres. Definitions are provided in the guidelines.

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. Relevant WorkCover requirements will also be complied with and detailed further in Project WH&S documentation.

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

If it is established that the waste is not special waste, it must be decided whether it is 'liquid waste'. Liquid waste means any waste that: has an angle of repose of less than 5° above horizontal becomes free flowing at or below 60° Celsius or when it is transported 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 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 needs to be chemically assessed to determine whether it is hazardous, restricted solid or general solid waste (putrescible and non-putrescible). If the waste is not chemically assessed, it must be treated as hazardous.

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

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).

The Waste Classification Guidelines provide direction on the classification of waste, specifying requirements for management, transportation, and disposal of each waste category. All wastes would be managed in accordance with the waste provisions contained within the POEO Act and, where reused offsite, would comply with relevant NSW EPA resource recovery exemptions and requirements.

Once a classification has been established under the guidelines, will be managed accordingly.

5.3. Generation and Management of Construction Waste Streams

Table 5-2 summarises the anticipated construction waste streams that will be generated and classified during the Project.

Table 5-2: Management of waste streams

Construction Activity	Waste Type	Waste Classification	Proposed Reuse/Recycling/ Disposal Methods
Site establishment activities	Surplus construction material including fencing, geofabric, concrete, steel, timber and sandbags	• General Solid Waste (Non-putrescible)	• Reused onsite • Offsite disposal at an approved facility for recycle • Offsite disposal at an approved facility as waste
Earthwork and drainage work (including topsoil stripping, cut and fill preparation, and vegetation clearance)	Excavated contaminated materials	• Hazardous waste • Restricted Solid Waste (RSW) • Special Waste	• Offsite disposal at an approved facility • On site encapsulation / remediation • Final option to be developed in consultation with contamination consultant through the development of a Remedial Action Plan (RAP)
	Excavated non-contaminated materials	• General Solid Waste (Non-putrescible) • Virgin Excavated Natural Material (VENM) • Excavated Natural Material (ENM)	• Beneficial reuse onsite (such as landscape and noise mounds) • Beneficial reuse offsite (s143 requirement) • Balance cut and fill earthworks, where possible, to optimise reuse on the Project. • Relocate VENM or ENM to another construction project
		• Potential ASS	• Treated on site to neutralise acid generating potential, and re-used within non-structural earthworks element
	Mulch from vegetation removal of shrubs and trees	• General Solid Waste (Non-putrescible)	• Mulch – Reuse on site or offsite • Weeds – Offsite disposal
	Dewatered groundwater	• Liquid Waste	• Belmont WWTW
	Contaminated water (e.g. generated by a spill)	• Liquid waste	• Offsite disposal at an approved facility
Demolition of services (if encountered)	General demolition wastes, pipe work, pavements and concrete pathways Contaminated waste including asbestos	• General Solid Waste (Non-putrescible) • Hazardous Waste • Restricted Solid Waste • Special Waste	• Offsite disposal at an approved facility
Plant operation and Maintenance	Wastes produced from the operation and maintenance of various heavy construction equipment including liquid hazardous wastes from cleaning, repairing and maintenance	• Hazardous Waste • Liquid Hazardous Waste	• Offsite disposal at an approved facility
	Clean up waste in the event of an accidental spill of fuel or chemicals	• Hazardous waste • Liquid waste	

Construction Activity	Waste Type	Waste Classification	Proposed Reuse/Recycling/ Disposal Methods
Wash down of plant and equipment	Non-hazardous wastewater would be generated through the washing down of plant and equipment	• Recycled/treated or clean water (for discharge) • Liquid waste	• Offsite disposal at an approved facility
Operation of workers facilities	Non-hazardous wastes would be generated through the use of worker's facilities such as toilets, and wastewater.	• General Solid Waste (Putrescible) • Liquid waste	• Offsite (via pipe to the Waste Water Treatment Facility, or via pump-out) to disposal at an approved facility
Temporary work including the construction of work platforms, hardstand areas, and sediment traps	General construction waste including timber formwork, scrap metal, steel, concrete, plasterboards, and packaging material	• General Solid Waste (Non-putrescible)	• Reused onsite • Off-site recycling • Off-site disposal at an approved facility
	Wastewater and sediment/sludge	• Recycled/treated or clean water (for discharge to Belmont WWTW) • General Solid Waste (Non-putrescible)	• Reused onsite • Off-site disposal at an approved facility • Belmont WWTW
Operation of site offices	General waste from site office including putrescibles, paper, cardboard, e-waste plastics, metal, glass, site litter, cigarette butts, printer cartridges, e-waste, and sewage waste	• General Solid Waste (Non-putrescible)	• Off-site recycling • Off-site disposal at an approved facility
Resource Delivery	Packaging materials associated with items delivered to site such as pallets, crates, cartons, plastics and wrapping materials	• General Solid Waste (Non-putrescible)	• Offsite recycling

5.4. Waste exemption

Clause 91 *Protection of the Environment Operations (Waste) Regulation 2014* 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, offsite facilities. The general Resource Recovery Exemptions and Orders may be applicable to this project are defined in Table 5-3. 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 5-3: EPA Resource Recovery Exemptions and Orders and associated conditions – examples only; for a full/current list see the EPA website

Exemption/Order	General Conditions
Effluent Exemption 2014 Effluent Order 2014	• The effluent can only be applied to land for the purposes of irrigation or as a soil amendment material. • The consumer must apply the effluent within a reasonable period of time.
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 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 treated drilling mud exemption 2014 The treated drilling mud order 2014	• The material must meet all chemical and other material requirements for treated drilling mud • The treated drilling mud can only be applied to land as engineering fill or for use in earthworks. • The consumer must apply the effluent within a reasonable period of time.

5.5. Imported Material Management

Material imported to the site for filling activities would be managed according to the following principles:

1. Review refinements during detailed design to minimise the impact of spoil importation.
2. Confirm that only the appropriate volume of spoil is imported such that there is no excess of material.

Material would be classified as either VENM or ENM or meet the requirements of a resource recovery exemption prior to importation to the site. materials will be characterised in accordance with Waste Classification Guidelines: Part 1 Classifying Waste (EPA 2014) prior to importation. Material not classified as VENM or ENM will require written approval obtained from the EPA prior to importation.

Further detail on the spoil management is described in the Construction Soil and Water Management Plan.

5.6. Tracking of Resource and Waste Quantities

The Project will track the quantities of materials and resources used, quantities of waste to be beneficially reused, quantities of waste to be recycled and quantities of waste unable to be recycled or beneficially reused. This will assist in the management of resource consumption and identifying areas for improvement. Details to be tracked are obtained:

- Directly from the waste subcontractor for waste stream quantities and disposal location
- From site commercial and environment teams for asphalt, road base and water quantities used, from the commercial team for fuel quantities and energy captured through the National Greenhouse and Energy Reporting (NGER) Scheme
- Directly from suppliers (monthly) for concrete and steel quantities used.

These quantities will be reported on periodically in the monthly report.

6. Compliance Management

6.1. Roles and Responsibilities

The Project Team's organisational structure and overall roles and responsibilities are outlined in the CEMP. Specific responsibilities for the implementation of environmental controls are detailed in Section 6. Table 6-1 provides a summary of key roles and responsibilities relating to this CWMSP.

Table 6-1: Roles and responsibilities specific to this Plan

Role	Responsibility
Commercial Manager	Ensure contract provisions are made for procurement that includes waste management in accordance with the requirements of this Plan.
Project Environment Manager	Maintain compliance with the requirements of the CoA and REMMs including the CEMP and this CWMP.
Construction Manager (or delegate)	Maintain waste tracking registers and associated documentation as required by this Plan and the Project Earthworks Plan
Suitable Qualified Person (SQP)	Classifying waste in accordance with the Waste Classification Guidelines

6.2. Training

All Project personnel, including contractors working onsite, will undergo site induction training relating to waste management issues. The induction training will address elements related to waste management, including:

- Existence and requirements of this Plan
- Applicable and relevant legislative requirements
- Roles and responsibilities for waste management
- Typical construction activities that may impact waste, resourcing and associated environmental impacts
- Procedure to be implemented in the event of an incident (e.g. incorrect disposal of material from site)
- Waste and resource mitigation and management measures
- Requirements of other management plans and guidelines such as the Unexpected Finds Procedure for Contamination, the Sustainability Management Plan, Relevant legislation, and guidelines
- Waste Management Hierarchy
- Waste reporting requirements
- Requirements of the waste hierarchy
- Waste/recycle storage requirements
- Energy and resource use efficiency best practices
- Potential for contaminated material to be present on site and management requirements if such material is identified

Targeted training in the form of toolbox talks or specific training will be provided to personnel with a key role in waste and resource management. See Table 6-2 for details specific to this Plan.

Table 6-2: Training responsibilities relevant to this Plan

Training	Delivery
Project Induction, Toolbox and Pre-start topics	Project Environment Manager (or delegate)
Importance of waste segregation (e.g. avoiding cross contamination)	Project Environment Manager (or delegate)
Asbestos identification and handling	Suitability Qualified Person (SQP)

Further details regarding staff induction and training are outlined in the CEMP.

6.3. Monitoring and Inspection

Compliance with the requirements of this CWMSP, its implementation and effectiveness will be monitored through:

- Regular inspections of worksite and activities
- Environmental Inspections which occur weekly (or more depending on works/weather conditions),
- Internal and external audits.

Requirements and responsibilities in relation to inspections are documented in the CEMP. Regular monitoring and inspections will be carried out during construction in accordance with the CEMP. Inspection and monitoring requirements relevant to waste management for the Project are identified in Table 6-3.

Table 6-3: Monitoring and Inspection Requirements

Type	Frequency	Standards	Location	Reporting	Responsibility
Inspections					
Weekly inspections	Once a week during environmental inspections	Weekly inspections which, as part of the weekly environmental inspection further outlined in the CEMP, will include inspection of the environmental controls and mitigation measures outlined in Section 5 of this Plan. Action lists are to be produced to address any maintenance issues or additional controls required, and a register of all actions raised and detailing the close out of actions is to be maintained.	Site-wide	Weekly environmental inspection	Environment and Sustainability Manager (or delegate) Foreperson
Monitoring					
Waste Tracking register	As specified in this Plan	As specified in this Plan	Site-wide	Project Environment Manager (or delegate) Construction Manager	Project Environment Manager (or delegate) Construction Manager

All environmental monitoring equipment (if required) will be maintained and calibrated according to the manufacturer's specifications, and appropriate records will be kept.

6.4. Auditing

Audits (both internal and independent) will be undertaken to assess the effectiveness of environmental controls, compliance with this Plan, CoA and other relevant approvals, licenses, and guidelines. These audits will be undertaken at planned intervals to provide information on whether the Project:

- Is meeting its compliance obligations.
- Conforms to this Plan.
- Determines if this Plan is effectively implemented and maintained.

The approach to internal and independent audits, including audit requirements and the auditing schedule, are detailed the CEMP.

6.5. Reporting

Table 6-4 presents the reporting requirements specific to waste and resource management.

Table 6-4 Reporting requirements specific to waste and resource management

Report	Requirement	Timing	Responsibility	Recipient
Monthly Waste Report	Monthly waste report. The report must include: • Reused, recycled, landfilled or stockpiled wastes generated as part of the contract • Tracking of top three waste streams as per GREP, as applicable	Within 10 days from the beginning of each month	Project Environment Manager (or delegate)	HWC Environmental Representative
Incidents				
Incident reporting	Environmental incident classification, notification, and reporting in accordance with the CEMP.	As specified in the CEMP	Project Environment Manager (or delegate)	HWC Relevant Regulatory Agencies
	Environmental incident notification to the Planning Secretary that causes or threatens to cause material harm as defined within the CoA. Refer to CEMP	As soon as possible and no later than 24 hours after becoming aware.	Project Environment Manager (or delegate)	HWC