



Kooragang Island Waste Emplacement Facility Area 2 Closure

Hunter and Central Coast Development Corporation

Construction Environmental Management Framework

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1. Introduction

1.1 Purpose and Scope

This Construction Environmental Management Framework (CEMF) sets out the environmental, stakeholder and community management requirements in relation to the Kooragang Island Waste Emplacement Facility (KIWEF) Area 2 Closure Works. The CEMF provides a link between the environmental and planning regulatory documentation and the construction environmental management documentation to be developed by the Principal Contractors relevant to their scope of works. The Principal Contractors will be required to implement and adhere to the requirements of this CEMF. The requirements of this CEMF will be included as a contract document in all design and construction contracts.

1.2 Project Overview

The endorsed approach to the closure of KIWEF is to implement minimal change in site processes by maintaining similar site hydrology, vegetation and surface soils while further isolating potential contaminants. The isolation of contaminants is to be achieved through the reduction of surface water infiltration resulting from the installation of capping with reduced permeability and a moderation of site surface gradients.

The basic principles of the closure works are to reduce surface water infiltration into the groundwater by the following means:

- Re-grading of the site to a minimum 1% grade to prevent ponding of surface waters;
- Drainage improvements;
- Provision of a 0.5 metre (m) thick, low permeability cap; and
- Rehabilitation using existing topsoil and alternative low nutrient and Chytrid free imported growth medium.

These closure works are to be undertaken within a sensitive and complex environmental context. In particular, the works need to be delivered in a manner which:

- Complies with regulatory requirements;
- Avoids direct impacts to Matters of National Environmental Significance (MNES) in particular Green and Golden Bell Frogs (GGBF) but also migratory wading birds;
- Carefully manages indirect impacts to MNES through avoidance of spread of chytrid fungus and predatory aquatic species and through avoiding impacts to water quality of surrounding waterbodies; and
- Manages fill material such that higher risk materials are appropriately isolated from surface waters.

The closure works area is relatively isolated from sensitive human receptors and standard, reasonable and feasible mitigation measures are also to be deployed to minimise environmental impacts.

1.3 Background

Extensive background information has been prepared in relation to the Project and in the first instance the Contractor should refer to the Tender Specifications. The following background is provided for environmental context only.

KIWEF is a former industrial waste disposal area located off Cormorant Road, Kooragang Island, Newcastle New South Wales (NSW). KIWEF ceased operation in 1999 and until this time was used by Broken Hill Proprietary Company Limited (BHP) as a landfill for disposal of waste from their Mayfield steelworks and associated operations. KIWEF was subject to Environment Protection Licence (EPL) 6437 issued under the

Protection of the Environment Operations Act 1997 (PoEO Act) for the scheduled action of “Waste disposal by application to land” first issued in 1999 to BHP and subsequently transferred to Regional Land Management Corporation Pty Ltd in May 2003 and then Hunter and Central Coast Development Corporation (HCCDC (also referred to as HDC in quoted text and reports commissioned by HCCDC prior to the merger of the Hunter Development Corporation with the Central Coast Development Corporation) in January 2008.

HCCDC surrendered EPL 6437 on 8 December 2010 and the NSW Environment Protection Authority (EPA) issued a conditional Surrender Notice 1111840 with subsequent variation notices being issued on 2 May 2013 (notice number 1510956) and 17 April 2014 (notice number 1520063) collectively referred to as the Surrender Notice for the remainder of this report. The Surrender Notice conditions relate primarily to the closure process, and describe the capping that is required across much of the area, and cross reference the GHD (2009) Revised Final Landform and Capping Strategy (the Capping Strategy).

HCCDC are the NSW Public Authority currently assigned responsibility for the closure of KIWEF on behalf of the NSW Government (the State). The land on which KIWEF is located (the closure works area) is owned by the Port of Newcastle Lessor (a NSW Government entity) who has contracted HCCDC as an agent of the State, to complete the KIWEF remedial works in accordance with a Binding Terms of Agreement.

For the purposes of closure, KIWEF has been divided into three areas with Area 2 being the subject of this CEMF while Areas 1 and 3 closure have been completed. Area 2 is further divided into sub areas K3 to K8 with some sub-areas further divided into specific disposal cells.

1.4 Delivery Mechanism

1.4.1 Closure Works

The closure works are to be delivered as a Construction only contract. As such the Contractor is to refer to the Tender Specifications and Design information provided by HCCDC which incorporates and supersedes any design information provided in this CEMF and supporting environmental assessment and management documentation.

1.4.2 Wedge and Peninsular Access

The access track to the Wedge and Peninsular Borrow Pit will be delivered as a design and construct contract so that the Contractor can design the access to cater to their specific equipment access requirements. In addition to complying with the specific environmental performance expectations and mitigation measures contained in this CEMF, the Wedge and Peninsular access will be required to be designed, constructed and used to the satisfaction of ARTC as the owner of the land accommodating the access track.

2. Regulatory Requirements

The key environmental obligations for the closure works arise under the following legislation:

- *Protection of the Environment Operations Act 1997* (POEO Act);
- *Environmental Planning and Assessment Act 1979* (EP&A Act); and
- *Environmental Protection and Biodiversity Conservation Act 2000* (EPBC Act).

Various environmental assessments and management plans have been prepared under these Acts as follows:

- **POEO Act** - NSW EPA (2010), Approval of the Surrender of a Licence – License 6437, (Ref: 1111840, and as varied by notice number 1510956 and 1520063) and associated documents including:
 - Golders (2011), KIWEF Closure Works, Green and Golden Bell Frog Management Plan;
 - GHD (2009), Report on KIWEF, Revised Final Landform and Capping Strategy; and
 - RCA (2012) Materials Management Plan – Kooragang Island Waste Emplacement Facility.
- **EP&A Act** – Hunter Development Corporation Determination under Division 5.1 of the EP&A Act and associated assessment documentation including:
 - ERM (2016), Review of Environmental Factors, KIWEF Area 2 Closure Works; and
 - Jacobs (2018) Addendum Review of Environmental Factors, KIWEF Areas 2 Closure Works.
- **EPBC Act** – Notice of determination of referral number 2016/7670 dated 22 March 2019 and associated documentation including:
 - ERM (2015), KIWEF Area 2 Closure Works, EPBC Referral;
 - ERM (2016), Response to Request for Information, KIWEF Area 2 Closure Works; and
 - Ramboll (2018), EPBC Referral, Preliminary Documentation Package – KIWEF Area 2 Closure Works.

The conditions and commitments of these documents are consolidated in the attached sub-plans.

The Closure Works design has been prepared to comply with these requirements and the Contractor is responsible for implementing these designs. Where departures are proposed by the Contractor, it is the Contractor's obligation to demonstrate how compliance with all applicable environment regulations is achieved.

The Peninsular access track is to be designed and constructed by the Contractor to accommodate safe access for the Contractor's equipment, in a manner that achieves the general environmental performance expectations within this CEMF and to the satisfaction of ARTC.

Various other environmental legislation and requirements apply to the site as documented in Appendix A and their requirements are generally captured in the attached sub-plans.

3. General Environmental Management Requirements

3.1 Environmental and Sustainability Management System

The Contractor is required to have a corporate Environmental Management System certified under AS/NZS ISO 14001:2015.

3.2 Environmental Training

All Contractor personnel and sub-contractors will undergo environmental training before commencing works on site. Training will be undertaken in the following forms:

- Project Induction; and
- Regular (daily) pre-start discussions on environmental topics.

Records of induction and training will be kept on the Contractor's database including the topic of the training carried out, dates, names and trainer details. Inductees will be required to sign-off that they have been informed of the environmental issues and that they understand their responsibilities.

3.2.1 Induction

Prior to working on site, the Contractor will ensure that all staff and sub-contractors working on site are appropriately inducted. The Contractor's induction must communicate the environmental performance expectations of this CEMF and the specific mitigation measures to achieve these expectations as documented in the Contractor's CEMP. Induction content is expected to include:

- Legal and regulatory requirements including duty of care and potential consequences of infringements;
- Environmental responsibilities with detailed training on the implementation of hygiene protocols and the importance of GGBF;
- Identification of sensitive areas including threatened species habitat, waterways, asbestos impacted waste and other hazardous waste;
- Identification of boundaries for vegetation clearing, washing, refuelling and maintenance areas for vehicles, plant and equipment;
- Environmental management techniques for noise, air, surface and ground water, waste generation, contaminated land etc;
- Emergency plans and incident management including the use of spill kits;
- Reporting processes for environmental harm or environmental incidents;
- Roles and responsibilities in achieving conformance with environmental policies and requirements, including emergency preparedness and response requirements; and
- Identification and management of non-conformances.

3.2.2 Daily pre-start talks

Pre-start talks will help to ensure that timely and relevant information is communicated to the workforce and that feedback can be provided on issues of interest or concern. Pre-start talks should address weather forecasts with implications for daily site environmental management (dust or rainfall response requirements) as a minimum, and where necessary, should be used to provide refresher information on the environmental induction topics and associated environmental procedures.

In the event of environmental near misses or incidents, or changes to procedures that could result in changed levels of environmental risks, pre-start talks may be used to deliver updates.

3.3 Emergency Contacts and Response

An emergency response plan would be prepared and implemented during the Project by the Contractor. The emergency response plan should document the contractor's approach to managing potential hazards and risks, incidents and emergencies. In undertaking planning for emergencies, learning from past incidents, applying risk assessments and training methods should be documented.

3.3.1 Emergency Preparedness

The key to effective prevention of environmental incidents involves selecting the right personnel and subcontractors, promoting a positive attitude to the importance of environmental issues, training, controls, monitoring, and surveillance. During construction activities, inspections and preventative action should include:

- Daily inspections of active work sites;
- Completion of routine environmental checklists;
- Issue and timely and effective close-out of maintenance and non-compliance notices;
- Maintenance of constant supervision on site;
- On-going environmental training; and
- Environmental audits of work sites, subcontractors and compliance issues.

Environmental and safety information on hazardous substances (e.g. safety data sheets) should be made available at the main site office and near to where such substances are stored and used. These locations will be communicated to all personnel.

Testing of and training in environmental response procedures should be conducted in areas where a pollution risk is present, such as on site and near re-fuelling areas for spill awareness, or worksites near environmentally sensitive areas. Personnel involved in emergency response activities should be provided with specific training.

An up-to-date list of emergency response personnel and organisations should be developed and maintained at the Contractor's main project office.

4. Implementation

4.1 Risk Assessment

The consideration of potential environmental risks has been undertaken through the Environmental Impact Assessment Process. This process has drawn on a significant volume of information. As a minimum, the Contractor is required to have read and understood the documents listed in Chapter 2 such that they have an adequate understanding of the environmental context and management expectations for the Closure Works. In preparing the Contractor's Construction Environmental Management Plan, the Contractor is required to undertake any additional risk assessment they deem necessary to manage environmental risks, such that the performance expectations of the CEMF are achieved when implementing their nominated construction methodology.

Based on HCCDC's understanding of the site, the following priority environmental factors and aspects were identified:

- Flora and Fauna Management;
- Erosion and Sediment Control, and Water Management;
- Contaminated Materials Management; and
- Rehabilitation.

In addition to the above priority environmental management requirements, suggested mitigation measures for environmental risks including traffic, air quality, lighting, noise, waste, rehabilitation and heritage are addressed in the attached sub-plans and are to be incorporated into the Contractor's work methods.

4.2 Environmental Management Activities and Controls

The documents listed in Chapter 2 identify environmental management and monitoring measures that apply to the Closure Works. These documents include:

- Hunter Development Corporation - Report on KIWEF - Revised Final Landform and Capping Strategy - August 2009 - Revision 2, prepared by GHD (the Capping Strategy);
- 'Green and Golden Bell Frog Management Plan – Kooragang Island Waste Emplacement Facility Closure Works' dated 19 April 2011 and prepared by Golder Associates;
- 'Materials Management Plan - Kooragang Island Waste Emplacement Facility' dated November 2012 prepared by RCA Australia; and
- 'EPBC Referral Preliminary Documentation Package – KIWEF Area 2 Closure Works' June 2018 prepared by Ramboll (the PDP).

The Surrender Notice also requires that the implementation of these plans and strategies to be validated through a report provided to the NSW EPA to allow the lifting of the Surrender Notice obligations. The summary of the measures required to be implemented and when are presented in Appendix B.

Further detail on the above documents has been incorporated into sub-plans prepared as part of this CEMF. These have been prepared based on requirements of the Surrender Notice, EPBC Act Referral outcome, Review of Environmental Factors, previously completed capping works and current industry practice to provide guidance on how to manage certain aspects of environmental management during construction.

The suite of action plans addressing priority environmental aspects includes the following:

- Appendix C. Materials Management Plan
- Appendix D. Flora and Fauna Management Plan

- Appendix E. Revegetation Management Plan
- Appendix F. Water Quality Management Plan
- Appendix G. Traffic Management
- Appendix H. Air Quality Management
- Appendix I. Noise Management
- Appendix J. Heritage management

The Contractor is expected to be fully aware of the requirements of these sub-plans in preparing their tender and program and to be prepared such that extensive clearing and bulk excavation works on site do not commence prior to all required environment controls being in place for any given works area.

4.3 Environmental Control Plans or Maps

A Preliminary Environmental Control Map, reproduces Constraints Map prepared by SMEC, is provided below. This Preliminary Environmental Control Map is to be updated by the Contractor to address Contractor's specific work methods. The Environmental Control Map is to be specific to the site and outline the location of protection measures, monitoring requirements and environmentally sensitive areas. The Environmental Control Map forms the practical application of the proposed control measures contained within this CEMF.

The Environmental Control Map is to be used in project inductions, work site set-up, reviewing ongoing environmental performance and be included as information in tender documents to subcontractors where applicable.

The project Environmental Control Map is to be updated to include:

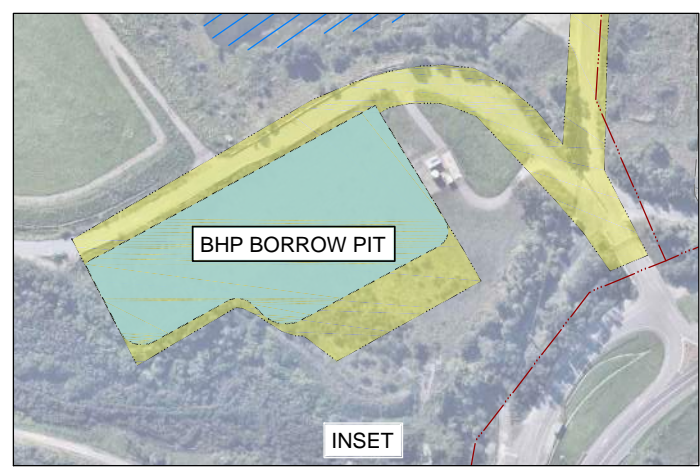
- The worksite layout and boundary, including entry/exit points and internal roads and clearing limits;
- Location of adjoining land-use and nearest noise sensitive receivers;
- Location and type of sediment and erosion control measures, including size / capacity of detention basins and wheel wash facilities;
- Location and type of fauna exclusion fences;
- Location of site offices;
- Location of spill containment and clean-up equipment;
- Location of worksite waste management facilities;
- Hours of work applicable to the worksite (including specific time windows for deliveries and any restrictions on high noise generating activities).
- Location of environmentally sensitive areas (e.g. threatened species, critical habitat, known contaminated areas, etc)
- Vegetation and trees to be protected;
- Location of stormwater drainage and watercourses leading to / from the worksite; and
- Summary of specific environmental management requirements from licenses, approvals or permit conditions.

The provisions of this plan apply in addition to any erosion and sediment control plans or other documentation that specify the location of environmental controls on site.



LEGEND

- AREA 2 - KIWEF SURRENDER NOTICE BOUNDARY
- AREA 2 - (POTENTIAL BORROW)
- AREA 2 - COMMONWEALTH APPROVAL BOUNDARY (REFER NOTE 1 - PLAN 0004)
- T4 SEPARATION LINE (2016#)
- T4 SEPARATION LINE WITH BUFFER (2016#)
(#) OBTAINED FROM IMAGE FILE - INDICATIVE ONLY
- SURVEY BOUNDARIES / LEASE BOUNDARY
- EXISTING BUND WALL LOCATIONS (INDICATIVE ONLY)
- KI WELLS (GROUND WATER MONITORING)
- BOS AREA (GHD 2010)
- HYDRO CARBON IMPACT AREA (DP 2011)
- PAH IMPACT BOUNDARY (GHD 2011)
- POND 5 BOUNDARY (GHD 2010)
- LIME
- LEADED DUST
- WASTE CLASSIFICATION (DAMES & MOORE 1991)
- GREEN & GOLDEN BELL FROG (GGBF) KNOWN AND POTENTIAL HABITAT AREAS (IGHD-2010)
- EXISTING CAP OR DRAIN - DO NOT DISTURB



DRAWING FILE LOCATION / NAME
D:\SMEC\30011921_KIWEF\CAD\DWG\0006_D.dwg

EXTERNAL REFERENCE FILES	REV	DATE	AMENDMENT / REVISION DESCRIPTION	WVR No.	APPROVAL	TITLE	NAME
X:\AH_Kooragang Image	A1	27.09.18	ISSUED FOR 90% PROGRESS REVIEW	-	-	DRAFTER	MLC
X:\Rev-C-01_30011921_KIWEF\CAD\DWG\0006_D.dwg	A2	5.10.18	ISSUED FOR 90% REVIEW	-	-	DRAFTING CHECK	EW
X:\SMEC MASTER BOM	B	13.11.18	ISSUED FOR 100% REVIEW	-	-	DESIGNER	MLC
X:\SMEC MASTER GEO	C	28.11.18	ISSUED FOR PRE-TENDER ESTIMATE	-	-	DESIGN CHECK	JH
X:\MFP_Survey 160477A	D	17.12.18	ISSUED FOR TENDER	001	EW	PROJECT MANAGER	EW
						PROJECT DIRECTOR	JK

SCALE	PHASE	PROJECT / DRAWING No.	REVISION
1:2000	TENDER	0006	D

NOTE: HABITAT AREA EXTENDED TO INCLUDE ALL WETLANDS IN THIS AREA REFER INSET

SCALE 1:2000 AT ORIGINAL SIZE

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CLIENT

Hunter & Central Coast
Development Corporation

TITLE

KOORAGANG ISLAND WASTE EMPLACEMENT FACILITY
STAGE 5 CLOSURE WORKS AREA 2 (K3/K5/K7) CONTRACT HCCDC 18/04
SEPARABLE PORTIONS 1 and 2 - GENERAL

CONSTRAINTS PLAN

4.4 Environmental Schedules

The Environmental Schedules set out below represent the records likely to be required to be kept during the Project.

- Weekly and post rainfall site inspection checklist;
- Daily materials tracking forms;
- Level 2 and Level 3 notification forms;
- Notified materials tracking register;
- Water quality monitoring results register;
- Dewatering form;
- Waste Register;
- Induction record;
- Internal Audit Register;
- Non-Conformance Register;
- Complaint Form; and
- Complaint Register.

The form and content of the Environmental Schedules is to be provided by the Contractor in accordance with their Environmental Management System.

5. Monitoring, Reporting and Review

5.1 Environmental Monitoring

As part of the overall environmental management of the site, during the landfill closure works, the Contractor is to conduct at least weekly inspections of all mitigation measures. The results of these inspections will be recorded on a weekly environmental inspection record. Should non-conformances be identified, the Contractor is required to undertake corrective action to address the issue.

The following construction monitoring is required:

- Daily prestart checks on amphibian-disease hygiene station functioning and supplies, and weather forecast noting predicted wind and rain;
- Real-time classification of materials to nominated thresholds in accordance with the Materials Management Plan decision matrix;
- Post rainfall checks of sediment dam water level and water quality, and erosion and sediment control functioning;
- Inspection covering sediment dam water levels and water quality, erosion and sediment control structures, frog fences, fuel and chemical storage, stockpile bunding and covers;
- Sediment basin discharge or dewatering water quality sampling and analysis suitable to demonstrate pollution of water has/will not occur;
- noise monitoring of any out of hours construction works in accordance with Interim Construction Noise Guidelines;
- visual observations of visible dust levels to confirm no off site dust impacts; and
- post capping defects and liabilities monitoring including revegetation success monitoring.

Where recommended actions are suggested, priorities should be set against these actions for site implementation. The list of actions should be distributed to the responsible personnel. A close out system must be included.

The defects and liabilities period is linked to a demonstration of performance against parameters to be negotiated with the HCCDC. These are likely to include revegetation success and surface water quality.

In accordance with notice of determination condition 11 and 12, accurate and complete compliance records are required to be maintained and provided to the Department of Environment and Energy on request.

5.1.1 Construction Water Quality Monitoring

The closure works are required to comply with the general duty not to pollute waters under section 120 of the POEO Act. The contractor will be required to take adequate precautions to ensure either that discharge/or dewatering is not required, or otherwise undertake sampling and analysis to demonstrate that pollution of water has or will not occur associated with water releases from sediment basins.

In the absence of an EPL, to avoid causing pollution and breaches of section 120, any water discharged from site must be of the same quality, or better, than the quality of the receiving waters (at the time of discharge) or able to be demonstrated to not have caused water pollution.

It is noted that water pollution or pollution of waters means:

- placing in or on, or otherwise introducing into or onto, waters (whether through an act or omission) any matter, whether solid, liquid or gaseous, so that the physical, chemical or biological condition of the waters is changed, or
- placing in or on, or otherwise introducing into or onto, the waters (whether through an act or omission) any refuse, litter, debris or other matter, whether solid or liquid or gaseous, so that the change in the condition of the waters or the refuse, litter, debris or other matter, either alone or together with any other refuse, litter, debris or matter present in the waters makes, or is likely to make, the waters unclean, noxious, poisonous or impure, detrimental to the health, safety, welfare or property of persons, undrinkable for farm animals, poisonous or harmful to aquatic life, animals, birds or fish in or around the waters or unsuitable for use in irrigation, or obstructs or interferes with, or is likely to obstruct or interfere with persons in the exercise or enjoyment of any right in relation to the waters, or
- placing in or on, or otherwise introducing into or onto, the waters (whether through an act or omission) any matter, whether solid, liquid or gaseous, that is of a prescribed nature, description or class or that does not comply with any standard prescribed in respect of that matter.

A summary of water quality monitoring including sample results is required to be submitted to the HCCDC following any dewatering or discharge event demonstrating that the Contractor has complied with the above obligations.

5.1.2 Environmental Auditing

Internal and external environmental audits should be undertaken throughout the construction process to ensure that the project environmental requirements and Contractors CEMP are implemented appropriately.

The auditing process should be designed to identify any non-conformances, providing an opportunity to apply corrective and / or preventative action where appropriate. The Audit schedule is to include:

- Internal environmental audit by the Contractor's Environmental Manager on a three monthly basis during construction;
- Regular attendance at the site by the KIWEF Area 2 Closure Works Independent Auditor; and
- Independent audit of compliance with the notice of determination conditions following the completion of onsite construction works and prior to completion of the project works period.

5.2 Reporting

The implementation of the Closure Strategy and contract requires the following reporting on environmental performance:

- Daily record of material management including notification of identification of potential Level 2, Level 3 or otherwise hazardous materials;
- Monthly progress reporting;
- Validation reporting following practical completion; and
- Annual compliance reporting against the notice of determination.

Detailed requirements of these reports are included in the Tender Specifications. The following summarises the expected content of each level of reporting.

5.2.1 Daily Record of Material Management

The daily record of material management is required to summarise material interaction for the day and include:

- Description of earthworks activity undertaken;

- Description of cut to fill or cut to stockpile activities including locations;
- Notification of HCCDC of suspected contaminated or otherwise hazardous material encountered and description of handling, current location, further assessment required; and
- Summary of any handling of previously notified material including update on current location.

All notifications are also to be tracked through a notifications register to record final disposal location.

5.2.2 Monthly Progress Reporting

Monthly Progress Reporting is to include details of the implementation environmental management requirements including:

- Update on any environmental risks and opportunities, and significant environmental impacts associated with the work;
- Progress against environmental objectives, targets and measures of performance; and
- Management actions, including environmental controls, training, inspections and testing.

Specifically, the environmental monthly reporting is to include such items as:

- Characterisation, site management and fate of contaminated material, collated materials tracking information;
- Quality assurance on placed material;
- Non-compliances and corrective actions;
- Environmental monitoring requirements; and
- Monthly logs and photographs and other records of the progressive compilation of information that will be integrated into the Validation Report on completion.

5.2.3 Validation Report

The Validation Report is required to satisfy Condition 4h of the Surrender Notice which requires that there is written confirmation that the cap was established in accordance with relevant specifications as follows:

“Within three months of completion of the installation of the final cap, the licensee must provide the EPA with a written Validation Report that includes:

- i) Advice that the final cap has been installed;*
- ii) Advice from a suitably qualified and experienced person as to whether or not the cap was installed in accordance with Chapter 7 of the Landform and Capping Strategy and relevant conditions of this Notice, or future variations to this Notice;*
- iii) Provision of the results of all relevant test results to validate that the permeability of the final capping layer is less than or equal to $K = 1 \times 10^{-7} \text{m/s}$. Permeability testing must be taken of the sealing layer material at a rate of not less than 1 per 2000T (or 1250m³);*
- iv) Provision of information that establishes the thickness of the installed sealing and revegetation layers in the format of either:*
 - (i) As constructed drawings, including cross sections, of the surfaces of the coal washery reject layer; and*
 - (ii) The results of surveys undertaken for each capping layer by a registered surveyor”.*

The Contractor is to allow for all effort necessary to assemble adequate validation evidence throughout the implementation of the Closure Works and for the preparation of the validation report. For the avoidance of doubt, the Contractor is required to validate that the Closure works have been delivered in accordance with the design and Tender Specification in relation to capping parameters and the Materials Management Plan in relation to materials handling and tracking. The environmental performance expectations within this CEMF must be achieved as part of the Contract but are not required to be incorporated into the Validation Report. Evidence of compliance is to be available on request by HCCDC.

5.2.4 Annual compliance reporting

During the performance of the contract, and as a condition of satisfaction of the care and maintenance obligations, the Contractor will be responsible for the preparation of an annual compliance report against the conditions of the notice of determination.

5.3 Corrective Action

Non-compliance may be identified through routine weekly site inspections, impromptu site inspections, via the CEMF or CEMP review or audit process or be incident based.

Environmental non-conformance include:

- non-compliance with environmental management controls or mitigation measures specified within the CEMP;
- environmental incidents not threatening material harm to the environment; and
- environmental emergencies threatening material harm to the environment.

Corrective actions may be triggered by any of the above and will include immediate steps taken to control event, investigation and development additional controls to prevent recurrence. Corrective actions will be developed in consultation with the HCCDC and will be assigned to the appropriate staff for close out. All corrective actions will be tracked through to completion through the non-conformance tracking register.

All environmental non-conformances with project approvals, this EMP or Contractor procedures is to be recorded as an incident, investigated and closed out by the Contractor. Close-out is required to include Construction supervisor sign-off that corrective actions have been implemented or alternative solutions substituted. A summary of all non-conformances and associated corrective actions is to be provided to the HCCDC.

In addition to the above, incidents causing or threatening material harm to the environment are regulated under the POEO Act, which defines material harm under section 147, as follows:

(1a) harm to the environment is material if

- (i) it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or*
- (ii) it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000 (or such other amount as is prescribed by the regulations), and*

(1b) loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment;

(2a) it does not matter that harm to the environment is caused only in the premises where the pollution incident occurs.

The POEO Act requires incidents causing or threatening material harm to the environment to immediately notify the relevant authorities, which include:

- the EPA;
- Newcastle Council;
- the Ministry of Health;
- the WorkCover Authority; and
- Fire and Rescue NSW.

The POEO Act outlines responsibilities down to an individual level to notify incidents threatening material harm to the environment immediately. In general terms all individuals are responsible for reporting such incidents to the Construction Project Manager who in turn will inform HCCDC. HCCDC would then notify relevant authorities. It also requires that an individual notify the incident where they cannot make contact with their employer. Relevant authority contact details are included in the table below and should be displayed where all site workers can access them easily in the event of a notifiable incident occurring.

Table 1 Relevant Authority Contact Details

Contact	Phone Number
The EPA Environment Line	131 555
The Ministry of Health via the Public Health Unit	1300 066 055
SafeWork NSW	13 10 50
Newcastle City Council	02 4974 2000
Fire and Rescue NSW	000

Environmental incidents relating to the *Environmental Protection and Biodiversity Conservation Act 1999* must be notified to the Secretary of the Department of the Environment and Energy. Specifically, conditions 16 and 17 of the Notice of determination require the following:

16. The approval holder must notify the Department in writing of any: incident; non-compliance with the conditions; or non-compliance with the commitments made in plans. The notification must be given as soon as practicable, and no later than two business days after becoming aware of the incident or non-compliance. The notification must specify:

- a. the condition which is or may be in breach; and*
- b. a short description of the incident and/or non-compliance.*

17. The approval holder must provide to the Department the details of any incident or non-compliance with the conditions or commitments made in plans as soon as practicable and no later than 10 business days after becoming aware of the incident or non-compliance, specifying:

- a. any corrective action or investigation which the approval holder has already taken or intends to take in the immediate future;*
- b. the potential impacts of the incident or non-compliance; and*
- c. the method and timing of any remedial action that will be undertaken by the approval holder.*

5.4 CEMF Review

This CEMF forms the basis on which the contractor's CEMP should be prepared and as such is to be reviewed/adapted or superseded based on the contractor's specific work methods and approach to environmental management. The Contractor's CEMP should be reviewed in accordance with the requirements of their environmental management system but should also be reviewed during implementation as and when required, including when the following situations arise:

- Client recommendations for changes (particularly following initial review);
- Opportunities for improvement or deficiencies in the project system are identified; or
- Following an audit of the system or the occurrence of significant incidents and non-conformances.

Appendix A. Legislative requirements

Legislation and administering authority	Requirement	Application to Closure Works
<p><i>Environment Protection and Biodiversity Conservation Act 1999</i> Commonwealth Department of the Environment and Energy</p>	<p>The relevant objective of the Act is to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance.</p> <p>A project may be defined as a controlled action under the Act due to impacts on matters of national environmental significance.</p>	<p>The Project was determined to be a Controlled Action due to potential impacts to the identified key population of Green and Golden Bell Frogs and associated impacts to the ecology of the Hunter Estuary Ramsar wetland should this population be threatened.</p> <p>The project was approved by the Commonwealth on 22 March 2019 on the basis of the preliminary documentation provided by HCCDC. Conditions of determination have been issued and are incorporated into this CEMF. Notwithstanding anything else within this CEMF and the contract documents, the Contractor is responsible for understanding and complying with the Conditions of determination.</p>
<p><i>Environmental Planning and Assessment Act 1979</i> Department of Planning and Environment</p>	<p>Encourages proper environmental impact assessment and management of development areas for the purpose of promoting the social and economic welfare of the community and a better environment.</p>	<p>The Project was assessed and determined under the former Part 5 (now referred to as Division 5.1) of the EP&A Act and found unlikely to significantly impact the environment subject to the implementation of a range of mitigation measures contained within the assessment documentation.</p> <p>These mitigation measures have been incorporated into this CEMF.</p>
<p><i>Protection of the Environment Operations Act 1997</i> Environment Protection Authority (EPA)</p>	<p>The relevant objective of the Act is to prevent environmental pollution.</p>	<p>The Project is regulated under the POEO Act through the Surrender Notice but does hold a current Environment Protection Licence (for activities listed under Schedule 1). In addition to complying with the conditions of the surrender notice the general duties to prevent air/ noise/ water pollution and manage waste correctly do apply.</p> <p>It is the contractor's obligation to undertake works in accordance with the surrender notice and in a manner that prevents pollution. Further, the Contractor is the occupant of the site under the POEO Act (as per HCCDC18/04 contract).</p>
<p><i>Contaminated Land Management Act 1997 NSW</i> EPA</p>	<p>The Act provides a process for the investigation and remediation of land where contamination presents a significant risk of harm to human health or some other aspect of the environment.</p>	<p>While the site is known to contain contamination it is not currently regulated under this Act as it is regulated by the EPA through the POEO Act and it is not the intention of the EPA to regulate the same site under both Acts concurrently.</p> <p>It is the contractor's obligation to manage contaminated materials in accordance with the</p>

Legislation and administering authority	Requirement	Application to Closure Works
		Materials Management Plan such that contaminated materials encountered is appropriately managed to avoid exacerbation and such that the fate of such material is documented.
<p><i>Dangerous Goods (Road and Rail Transport) Act 2008</i> EPA / SafeWork NSW</p>	A licence is required for the storage (SafeWork NSW) and /or transport (EPA) of prescribed quantities of dangerous goods.	The Contractor is required to ensure that the transport and storage of dangerous goods exceeding licensable quantities is lawfully undertaken.
<p><i>Environmentally Hazardous Chemicals Act 1985</i> EPA</p>	Management of Environmentally Hazardous Chemicals.	<p>Should any material generated or encountered at the site contain chemicals that are the subject of NSW's five (5) current Chemical Control Orders (CCO), then the material will need to be managed in accordance with that CCO.</p> <p>Current CCO include:</p> <ul style="list-style-type: none"> • Chemical control order in relation to aluminium smelter wastes containing fluoride and/or cyanide (1986) • Chemical control order in relation to dioxin-contaminated waste materials (1986) • Organotin waste materials chemical control order 1989 • Polychlorinated biphenyl (PCB) chemical control order 1997 • Scheduled chemical wastes chemical control order 2004.
<p><i>Heritage Act 1977 NSW</i> Office of Environment and Heritage (OEH)</p>	The Act aims to encourage the conservation of the State's heritage and provides for the identification and registration of items of State heritage significance.	Not expected to impact any items on the State Heritage Register (SHR). Should the project unexpectedly find any heritage artefacts, the relevant notifications and management actions may need to be taken.
<p><i>National Parks and Wildlife Act 1974</i> OEH</p>	The objectives of the Act are for the conservation of nature and the conservation of objects, places or features (including biological diversity) of cultural value within the landscape.	The proposal would not affect any area declared as a National Park, historic site, nature reserve or Aboriginal area nor would it impact any historic Aboriginal object or place, threatened species, population or endangered ecological community. The potential exists for unexpected objects to be found of significance to Aboriginal people. The Chief Executive of the OEH is the authority responsible for the protection of all Aboriginal objects and places in NSW, whether they are on national park estate or not.

Legislation and administering authority	Requirement	Application to Closure Works
<p><i>Threatened Species Conservation Act 1995</i> OEH</p>	<p>Provides for the protection of any threatened species on-site.</p>	<p>Impacts to Threatened Species are assessed through the REF and mitigation measures to prevent significant impacts are incorporated into this EMP. Any unexpected species encountered during construction may require further assessment.</p>
<p><i>Biodiversity Conservation Act 2016</i> OEH</p>	<p>The purpose of this Act is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development. The BC Act commenced on 25 August 2017 repealing the <i>Threatened Species Conservation Act 1995</i> (TSC Act).</p>	<p>The proposal would be considered a pending Part 5 assessment if it commences within 18 months of August 2017. Under Clause 29 of the BC (ST) Regulations, the former planning provisions continue to apply (and Part 7 of the new Act does not apply) to a pending Part 5 assessment, with the former planning provisions defined as the provisions of the EP&A Act that would be in force if that Act had not been amended by the BC Act and which call-up guidelines established under the TSC Act.</p>
<p><i>Biosecurity Act 2015</i> OEH</p>	<p>The primary object of this Act is to provide a framework for the prevention, elimination and minimisation of biosecurity risks which includes the management of plant and animal pests.</p>	<p>The following pests are known to be present on site and will require appropriate management</p> <ul style="list-style-type: none"> • Bitou Bush (<i>Chrysanthemoides monilifera</i> subsp <i>rotundata</i>), • Crofton Weed (<i>Ageratina adenophora</i>); • Pampas Grass (<i>Cortaderia selloana</i>). • African Olive (<i>Olea europaea</i>), • Lantana (<i>Lantana camara</i>); and • Groundsel Bush (<i>Baccharis halimifolia</i>). <p>In accordance with the Act all plants are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable.</p> <p>Surrounding ponds are also populated by Mosquito Fish (<i>Gambusia Holbrooki</i>) and the works are required to avoid any transfer or connection of water bodies that could lead to their spread.</p>
<p><i>Water Management Act 2000</i> Department of Lands - Water</p>	<p>The relevant objective of the Act is to protect, enhance and restore water sources, their associated ecosystems, ecological processes and biological diversity and their water quality.</p>	<p>Clause 38 of the Water Management (General) Regulation 2011 provides that a public authority is exempt from section 91E (1) of the WM Act in relation to all controlled activities that it carries out in, on or under waterfront land. As such a</p>

Legislation and administering authority	Requirement	Application to Closure Works
		<p>controlled activity approval is not required for the proposed activity.</p> <p>The water within the fill aquifer is not considered to occur naturally, no use of water in surface water bodies is proposed and no use of other naturally occurring water sources is proposed and as such a water use approval is not deemed necessary.</p> <p>The proposed works do not include aquifer interference and it is understood that the Aquifer interference requirements of the Act are yet to commence and as such aquifer interference approval is not deemed necessary.</p>
<p><i>State Environmental Planning Policy (Three Ports) 2013</i> Department of Planning and Environment</p>	<p>The aim of this Policy is to provide a consistent planning regime for the development and delivery of infrastructure on land in Port Botany, Port Kembla and the Port of Newcastle.</p>	<p>The closure works are within the land application area and Lease Area and Environmental Management Works / Environmental Protection works are permissible without consent in the Three Ports Lease Area. The Project has been assessed under the former Part 5 (Division 5.1) of the EP&A Act (refer above).</p>
<p><i>State Environmental Planning Policy 55</i> Department of Planning and Environment / Council</p>	<p>The object of this Policy is to provide for a Statewide planning approach to the remediation of contaminated land.</p>	<p>While the closure works also meet the definition of remediation works under this policy, the Three Ports SEPP prevails to the extent of any inconsistency.</p> <p>Clause 8 (4) requires that a person who carries out a remediation work must ensure that the Council notification requirements of clause 16, 17 and 18 are complied with in relation to the work.</p> <p>Notification of Council required 30 days in advance of commencement of Category 2 remediation. Notification of Council following completion.</p>
<p><i>State Environmental Planning Policy (Coastal Management) 2018</i></p>	<p>The aim of this Policy is to promote an integrated and co-ordinated approach to land use planning in the coastal zone in a manner consistent with the objects of the Coastal Management Act 2016, including the management objectives for each coastal management area, by:</p> <ul style="list-style-type: none"> · managing development in the coastal zone and protecting the environmental assets of the coast, and 	<p>The closure works area is surrounded by, but does not include, land mapped as coastal wetlands. Parts of the closure works area are mapped as proximity area for Coastal Wetlands, Coastal Environment Area and Coastal Use Area. Importantly, the closure works area is within the Lease Area under the Three Ports SEPP and the Coastal Management SEPP does not apply through the workings of Clause 7 of the Coastal Management SEPP.</p>

Legislation and administering authority	Requirement	Application to Closure Works
	<ul style="list-style-type: none"> establishing a framework for land use planning to guide decision-making in the coastal zone, and mapping the 4 coastal management areas that comprise the NSW coastal zone for the purpose of the definitions in the Coastal Management Act 2016. 	
<p><i>Newcastle Local Environment Plan</i> Newcastle Council</p>	<p>This Plan aims to make local environmental planning provisions for land in the City of Newcastle in accordance with the relevant standard environmental planning instrument under the EP&A Act.</p>	<p>While located within the Newcastle Local Government Area the site is not located on land to which the <i>Newcastle Local Environmental Plan 2012</i> (NLEP) applies.</p>

Appendix B. Environmental Obligation Interface

Sequence of Work Activities	Controls/Mitigation Measures	Primary Responsible
Tender and award	<ul style="list-style-type: none"> • Establish all required approvals under EPBC Act and EPA Act. • Finalise Closure Works design to comply with approvals. • Integrate above requirements into CEMF and Tender Specifications. • Scheduling works to the extent possible to occur outside of the core GGBF breeding period (that is, September to March), especially in areas adjacent to known and potential breeding habitat. 	State. Contractor responsible for review of approvals in place and obtaining any additional necessary approvals.
Peninsular / Wedge Access	<ul style="list-style-type: none"> • Complete access upgrade design to accommodate Contractor equipment in agreement with ARTC. 	Contractor in consultation with ARTC
Pre-earthworks monitoring and ongoing EPL Surrender Notice monitoring.	<ul style="list-style-type: none"> • Update relevant GGBF abundance survey data and water level and salinity logger data. • Undertake annual surface and groundwater monitoring as per EPL Surrender notice. 	State Contractor to facilitate access through Closure Works Area as required.
Auditor oversight	<ul style="list-style-type: none"> • Undertake all necessary site inspections, provide input into materials management decision making to allow auditor sign-off of Closure Works completion. 	State to appoint auditor. Contractor to facilitate access and provide validation information as requested by Auditor.
Site Establishment	<ul style="list-style-type: none"> • Implement hygiene protocol as required for the closure works area (NSW Threatened Species Management Information Circular No.6 (April 2008)). • Establish any controls necessary to prevent works from occurring outside the referral boundary. • Temporary frog exclusion fencing to surround the Closure Works site and ensure GGBF habitat protected from unauthorised access prior to works commencing in those works areas or their parts. • Conduct pre-clearance surveys by a qualified ecologist in week prior to works commencing in works areas or their parts. • Apply erosion and sediment controls as per sensitive environments (Managing Urban Stormwater – Soils and Construction (Landcom 2004)) and complete and line permanent basins as per designs provided by the State. 	Contractor

Sequence of Work Activities	Controls/Mitigation Measures	Primary Responsible
	<ul style="list-style-type: none"> • Prepare stockpile area with adequate space for 'topsoil' level 1, 2 and 3 material and erosion and sediment controls as per ESCP and Materials Management Plan (RCA Australia 2012). • Level 2 and level 3 stockpile areas are to be lined in accordance with materials management plan (RCA Australia 2012) as necessary. • Store all hazardous liquids and chemicals in covered, bunded areas with capacity to retain 110% of largest container in the event of a spill. Proprietary available spill mats, drip trays and pallets can be used as appropriate. • Provide fully stocked spill kit/s and ensure that operators are aware of the location of these kits and are trained in their use. 	
Bulk earthworks	<ul style="list-style-type: none"> • Undertake weed management in advance of broad scale clearing and bulk earthworks. • Win and transport site derived capping and land forming materials. • Use of imported capping material assessed as having a low risk of containing Chytrid Fungus. • Use of revegetation medium materials demonstrated to be low in nutrients and assessed as having a low risk of containing Chytrid Fungus. • Works are to be staged to reduce area of exposure and minimise dust, infiltration and sediment laden run-off. • Qualified ecologist to be available on call during earthworks in the event that any GGBF individuals are encountered during works, the ecologist must be called in to capture and relocate the individuals. • Materials will be managed in accordance with the approved Materials Management Plan and GGBF management plan within each area and no transport of fill, capping or topsoil between areas is to occur. • Strip topsoil to a minimum of 100mm following material management plan decision matrix for suitability for re-use. • Topsoil to be stored separately in prepared stockpile areas as per detailed design documentation. • Stockpiles to be stored for long periods are to be wrapped, covered, re-seeded or wet to minimise dust generation. • Cut to base of excavations as per detailed design documentation insuring minimum 1% grade. Cut material to be used as fill and capping in accordance with materials management plan decision matrix. • The final surface of both capped and uncapped areas will be protected by a vegetative layer. The extent of the revegetation will depend on the proposed site use (i.e. undeveloped, commercial development or habitat areas). 	Contractor

Sequence of Work Activities	Controls/Mitigation Measures	Primary Responsible
	<ul style="list-style-type: none"> · The use of imported topsoil is to be avoided where possible. · Upon completion of the works, the works areas must be rehabilitated in accordance with Rehabilitation Management Plan. · Dispose of materials unsuitable for reuse in accordance with materials management plan. · All waste to be removed upon completion. · Upon completion, site facilities, frog exclusion fencing and security fencing shall be removed as necessary. · Non-permanent erosion and sediment controls are to remain in place until they are no-longer required. · Sediment basins and drains will remain in place as landscape features until they are no longer required. · Refuelling is not to occur in the vicinity of sediment dams, drainage lines or water bodies. · Refuel plant using drip trays/spill mats and other spill containment devices. · Store all hazardous liquids and chemicals in covered, bunded areas with capacity to retain 110% of largest container in the event of a spill. Proprietary available spill mats, drip trays and pallets can be used as appropriate. · Do not leave chemical containers open outside or inside of the bunded areas. · Provide fully stocked spill kit/s and ensure that operators are aware of the location of these kits and are trained in their use. · Spills are to be immediately contained and absorbed using materials provided in the spill kit. · All personnel are to be trained in the appropriate use and disposal of spill kit materials. 	
<p>Construction Monitoring</p>	<ul style="list-style-type: none"> · Daily prestart checks on amphibian disease hygiene station functioning and supplies and weather forecast noting predicted wind and rain. · Real-time classification of soils to nominated thresholds in accordance with the Materials Management Plan decision matrix. · Post rainfall checks of sediment dam water level and water quality and erosion and sediment control functioning. 	<p>Contractor</p>

Sequence of Work Activities	Controls/Mitigation Measures	Primary Responsible
	<ul style="list-style-type: none"> • Weekly site inspection checklist covering sediment dam water levels and water quality, erosion and sediment control structures, frog fences, fuel and chemical storage, stockpile bunding and covers. • Pre-discharge physical water quality condition (temperature; dissolved oxygen; pH; electrical conductivity (EC)) and chemical water quality condition in sediment dams. • Noise monitoring of any out of hours construction works in accordance with interim construction noise guidelines. • Reference to available PWCS/NCIG dust monitoring results to determine off site dust levels. 	
Defect Liability period	<ul style="list-style-type: none"> • Check and maintain the erosion and sediment controls regularly, especially after rainfall, to ensure that they remain effective including: <ul style="list-style-type: none"> ○ Collected sediment is to be removed from the controls as necessary to ensure they remain effective. ○ Collected sediment is to be combined with planting medium for reuse on the site – if appropriate. ○ All vehicle wheels, tracks and undercarriages must be cleaned prior to exiting the site and travelling on public roads. • Three month vegetation maintenance program to include, watering, weeding as appropriate but excluding the use of fertilisers and pesticides and herbicides. • Pre and post discharge surface water monitoring in sediment dams and receiving waters. • Revegetation monitoring and maintenance to ensure adequate cover. • Preparation of an annual compliance report against the conditions of the notice of determination. 	Contractor

Appendix C. Materials Management Plan

Hazardous / Contaminated Material	
Objective	To comply with legislative requirements and ensure that hazardous / contaminated material from construction activities does not cause an environmental nuisance / harm and is handled, categorised, tracked and placed in accordance with the RCA (2012) Materials Management Plan.
Targets	No exacerbation of contamination during construction No environmental incidences involving contaminated/ hazardous materials No pollution events of the surrounding environmental and water ways by contaminated material The movement and ultimate fate of materials is fully tracked
Key Documents	<p>State Documents</p> NSW EPA (2010), Approval of the Surrender of a Licence – License 6437, (Ref: 111840, and as varied by notice number 1510956 and 1520063) GHD (2009), Report on KIWEF, Revised Final Landform and Capping Strategy (Ref: 22/14371/85882 R4) RCA (2012) 'Materials Management Plan - Kooragang Island Waste Emplacement Facility' dated November 2012.
Material Classification	<p>Level 1 material is any material not exhibiting characteristics indicative of other categories.</p> <p>Level 2 material is identified as material with any of the following characteristics: strong hydrocarbon odour, ammonia odour, asbestos containing material, evidence of PCB impact (dark staining and phenolic odour), materials with an average concentration of >2,000 mg/kg PAH or material represented by individual PAH concentration >2,500 mg/kg.</p> <p>Level 3 material is material containing Separate Phase Hydrocarbons.</p>
Mitigation Measures and Controls	The following is generally reproduced from RCA (2012).
Contaminated material identification and management	<p>The Contractors Materials Management Plan is to be adequate to ensure that material management is undertaken in accordance with RCA (2012) in addition to meeting the performance expectations of the Contract Specifications and this CEMF.</p> <p>The Contractors Materials Management Plan is to incorporate a protocol for identification and management of Contaminated Materials that is to include the following:</p> <ul style="list-style-type: none"> · Appropriate resourcing for real-time supervision of all ground disturbance activities by a suitably qualified and environmental practitioner;

Hazardous / Contaminated Material	
	<ul style="list-style-type: none"> · Stop work requirements (localised) if any soils are encountered which have distinguishing Level 2 or Level 3 characteristics. · Characterising and delineated Level 2 and Level 3 materials in-situ or at the place of storage following excavation including input from occupational hygienist or other appropriately qualified specialist (Contractor’s Specialist) to identify the substance. · Consultation with third party advisors, the State and the auditor to confirm management expectations. <p>All contaminated material encountered during the landfill closure works will be assessed and categorised in accordance with RCA (2012).</p> <p>All material is to be adequately tracked such the that the composition and location of all Level 2, Level 3 and asbestos waste fate is documented and able to be validated.</p> <p>Uncovering of suspected level 2, level 3 or otherwise hazardous material requires the following steps to be undertaken:</p> <ul style="list-style-type: none"> · Immediately cease work and contact the Site Supervisor · Demarcate the ‘unexpected find’ to prevent access and install appropriate environmental and safety controls. · Follow the management steps specified below in relation to each material classification; and · If substance is assessed as level 1 material not presenting an unacceptable risk to human health the Site Supervisor to remove controls and continue work.
Level 1 Material management	<p>There is no specific management required for Level 1 material on the site and Level 1 material has unrestricted onsite re-use classification (Section 5.6.1 of RCA 2012). Level 1 material may be used for:</p> <ul style="list-style-type: none"> · Topsoil where sourced from top 100mm of existing landform; · General land forming; · Buffer material to be placed above Level 2 and Level 3 Material; · Interim bunding for stockpiled material; and · Site capping material. <p>Level 1 material properties are to be validated in accordance with the Tender Specifications for testing and analysis.</p>
Level 2 Material management	<p>Level 2 material is designated as having restricted site use and where encountered is to be managed as follows:</p> <ul style="list-style-type: none"> · Where suspected Level 2 soils are encountered then the nature and extent of the materials should be validated by laboratory testing to assess whether the materials are still to be classified as Level 2 or Level 3 materials. · If Level 2 material is encountered but is to remain in place and will have sufficient cap (ie >500mm), the vertical extent does not need to be validated.

Hazardous / Contaminated Material	
	<ul style="list-style-type: none"> • The Contractor is to develop a notification detailing material type, location, estimated quantity and potential contaminants. • The Contractor is to notify the State or its representative within 24 hours of encountering Level 2 material. • Level 2 material may be relocated to a lined and covered short-term stockpiling or skip-bin for further quantification, characterisation and categorisation. • Confirmed Level 2 contaminated material is to be isolated by covering with at least 500mm of Level 1 material, plus 500 mm of cap with preference for material to be left in situ provided there is no immediate risk to the environment or community or otherwise be relocated to an on-site location.
Level 3 Material Management	<p>Level 3 material is designated as having restricted site use and must managed as follows:</p> <ul style="list-style-type: none"> • The Contractor is to develop a notification detailing material type, location, quantity and potential contaminants. • The contractor is to notify the HCCDC as soon as possible and on the day the material is encountered. • HCCDC will then notify the EPA; • Level 3 material may be relocated to a lined and covered stockpile or skip bin for further characterisation and categorisation and while a decision is made by HCCDC on the preferred manner of ultimate disposal. <p>The HCCDC will provide direction as to the required treatment of Confirmed Level 3 contaminated material which may include:</p> <ul style="list-style-type: none"> • Isolated by covering with at least 1000mm of Level 1 material, plus 500mm of cap with preference for material to be left in situ provided there is no immediate danger to the environment or community or otherwise be relocated to an on-site location with the area having appropriate controls in place; or • Transported off-site for disposed in a legal manner.
Asbestos Management	<p>Asbestos materials (and ACM) should be managed generally as follows as specified in RCA MMP (2012):</p> <ul style="list-style-type: none"> • Where at all possible, materials containing bonded asbestos wastes would be fully delineated, be assessed to be at least 1m below final capping, and remain as undisturbed materials managed by in-situ containment; • Should any fill materials containing bonded asbestos wastes require excavation as they are not in-situ more than 1m from the final cap in the earthworks, then consideration would be given to removing the materials and emplaced at a depth of 1m; • Friable asbestos would be assessed and considered for emplacement at a depth of 2.5m below the underside of the capping layer within a purpose built excavation at a location to be agreed with HCCDC; • Final location of any asbestos discovered shall be thoroughly documented including accurate survey of the emplacement area;

Hazardous / Contaminated Material	
	<ul style="list-style-type: none"> · Where asbestos waste is found in fill that also contains volatile organic compounds or separate phase hydrocarbons, appropriate treatment for recorded contaminants will be required; and · All asbestos is to be managed and handled in accordance with the recommendations of an appropriately licensed Asbestos Assessor/handler. <p>The use of in-situ or ex-situ treatment approach for any materials containing bonded and friable asbestos wastes will be assessed on a case by case basis in relation to volume and risk to human health.</p>
Other waste management	<p>Minimal volumes of material requiring off-site disposal have been encountered in previous stages of KIWEF closure works. In the event that such material is encountered it will be classified in accordance with the Waste Classification Guidelines (2015) and disposed of to a landfill legally able to accept the waste. Wastes generated in completing the capping works are also required to be disposed of off-site.</p> <p>All other contaminated materials will be managed on site in accordance with the Materials Management Plan.</p> <p>Waste management measures to be implemented include:</p> <ul style="list-style-type: none"> · Licensed waste contractors will be utilised to remove waste. · All waste is to be disposed of at a lawful facility (Note: A lawful facility includes one that has the appropriate Development Consent, Environment Protection Licence or is complying with EPA approved conditions and requirements). · Waste must be classified prior to disposal – refer to NSW EPA Waste Classification Guidelines (2015). · Records of the quantity and final locations of all on and offsite waste will be maintained · Provision of skip bins (or equivalent) to be used to collect all general wastes generated during the works. · Provide an adequate number of skip bins on site to contain all general waste generated throughout the works. · Provide bins to enable waste segregation · Provide recycling services (e.g. Paper, Concrete, Steel, Cardboard, Timber). · Ensure housekeeping is maintained and waste is disposed of to the appropriate bin. · Retain waste disposal permits and figures on the amount of waste that has been removed from site.
Monitoring & Reporting	<p>Real-time Supervision - Real-time observation of all ground disturbances by a suitably qualified environmental practitioner to identify and manage suspected contaminated material.</p> <p>Sampling and analysis of material properties for categorisation and validation purposes in accordance with the tender specifications.</p> <p>The daily record of material management is required to summarise material interaction for the day and include:</p> <ul style="list-style-type: none"> · Description of earthworks activity undertaken;

Hazardous / Contaminated Material	
	<ul style="list-style-type: none"> · Description of cut to fill or cut to stockpile activities including locations; · Notification to HCCDC of suspected contaminated or otherwise hazardous material encountered and description of handling, current location, further assessment required; and · Summary of any handling of previously notified material including update on current location. <p>All notifications are also to be tracked through a notifications register to record final disposal location.</p> <p>Monthly Progress Reporting is to include details of the implementation environmental management requirements including:</p> <ul style="list-style-type: none"> · Update on any environmental risks and opportunities, and significant environmental impacts associated with the work; · Progress against environmental objectives, targets and measures of performance; and · Management actions, including environmental controls, training, inspections and testing. <p>Specifically, the environmental monthly reporting is to include such items as:</p> <ul style="list-style-type: none"> · Characterisation, site management and fate of contaminated material, collated materials tracking information; · Quality assurance on placed material; · non-compliances and corrective actions; · environmental monitoring requirements; and · monthly logs and photographs and other records of the progressive compilation of information that will be integrated into the Validation Report on completion. <p>A Validation Report is required to satisfy Condition 4h of the Surrender Notice which requires that there is written confirmation the cap was established in accordance with relevant specifications.</p>
Actions	<p>The Contractor's CEMP is to include specific procedure for monitoring, management and documentation of materials management suitable for implementation to achieve the intent of the Materials Management Plan and Surrender Notice under the Contractors specific construction methodology.</p>
Responsibilities	<p>The Contractor is to ensure that appropriate resources and processes are in place and that appropriate records are kept to allow validation that materials have been managed in accordance with the Surrender Notice.</p>
Timeframe	<p>Duration of site activities where works may encounter potentially contaminated fill materials.</p>

Appendix D. Flora and Fauna Management Plan

Flora and Fauna	
Objective	To comply with contractual and legislative requirements and ensure that native fauna and flora are protected from construction activities.
Targets	No death or injury to fauna including the Green and Golden Bell Frog No unapproved destruction of flora
Legal, Contractual & Other Requirements	<i>Environmental Protection and Biodiversity Conservation Act 1999</i> <i>Threatened Species Conservation Act 1995 (repealed)</i> <i>Biodiversity Conservation Act 2016 (Transitional Arrangements).</i>
Site specific planning / approval conditions / licence conditions	State Documents NSW EPA (2010), Approval of the Surrender of a Licence – License 6437, (Ref: 1111840, and as varied by notice number 1510956 and 1520063) Golders (2011), KIWEF Closure Works, Green and Golden Bell Frog Management Plan (Ref: 117623029-001-R-Rev0) Jacobs (2018) Addendum Review of Environmental Factors, KIWEF Area 2 Closure Works Commonwealth Documents Ramboll (2018), EPBC Referral, Preliminary Documentation Package – KIWEF Area 2 Closure Works (Ref: 318000395)
General Flora and Fauna Mitigation Measures and Controls	General mitigation measures to be considered include: <ul style="list-style-type: none"> • Adequate run-off, erosion and sedimentation controls should be in place during construction, particularly in areas where run-off has the potential to impact on nearby waterways, surrounding native vegetation, EEC regrowth, and existing drainage line and dam areas. • Care should be taken that any noxious weeds occurring on the site are not further dispersed as a result of the Proposal. A follow up Weed Control Program may be necessary to control the encroachment of these species into surrounding areas. The landowner has a legal responsibility to control and suppress these species on their property under the <i>Noxious Weeds Act 1995</i>. The Weed Control Program should be remove weeds by physical means and avoid the use of herbicides. • Stockpiling of soil that may contain seeds of exotic species shall be stockpiled away from adjacent vegetation or drainage lines where they could be spread during rainfall events. • Placement of soil stockpiles away from vegetated areas. • Utilising existing disturbed corridors such as cleared areas, roads, tracks and existing easements, where possible for set up of equipment, stockpile areas and site facilities.

Flora and Fauna	
	<ul style="list-style-type: none"> • Noxious weeds to be managed in accordance with the expectations under the <i>Biosecurity Act 2018</i>. It is recommended that the plants be removed by physical removal, as herbicides may impact GGBFs and their habitat. • Open excavations and storage areas to be inspected regularly for the presence of fauna species. • Plant and equipment brought on to site must be cleaned and free of deleterious material, mud and other material that may harbour weed seeds • Proposed hours of construction are to be maintained to restrict noise and light impacts on nocturnal fauna. • Utilise an onsite ecologist during construction to re-locate any native fauna which may be displaced. • Avoid rubbish and other waste build up to deter feral animals. • Habitat features such as woody debris that may be utilised by fauna within the construction area would be retained and set-aside during the construction period for reinstatement at completion of works. • Any water required for dust suppression will be drawn from ponds established for the purpose. No water for dust suppression will be drawn from existing ponds on the site. The establishment of dedicated dust suppression ponds will be undertaken to prevent the potential spread of Plague Minnow into ponds currently free of this species. The location and procedure for those dedicated dust suppression ponds will be communicated during the site induction and training. • No night works are permitted without additional assessment of potential noise and light impacts. • Lighting of site compounds, if required for safety and security, will avoid light spill outside of the construction works footprint and will be undertaken in accordance with <i>Australian Standard 4282—1997 Control of the obtrusive effects of outdoor lighting</i>.
GGBF Management	<p>GGBF impact avoidance is to be based on the following:</p> <ul style="list-style-type: none"> • Establishment and use of Chytrid Hygiene procedures such that the Chytrid fungus is not brought to site or transferred between areas of the site; • Appropriate levels of GGBF pre-clearance/disturbance surveys and relocation to ensure to the extent possible that direct disturbance areas are free of GGBF on commencement of works in each area; • Establishment of GGBF exclusion fencing such that the risk of GGBF re-entering surveyed areas is prevented; • Establishment of clear boundaries of works areas such that unnecessary disturbance is avoided, particularly adjacent to existing ponds; • Establishment of appropriate erosions and sediment controls to prevent sedimentation and pollution of waters; • Implementation of GGBF risk consideration to all decision making such that unintended consequences to GGBF can be avoided. This includes in considering suitability of imported materials from a Chytrid risk and nutrient perspective and use of chemicals including flocculants, herbicides and pesticides; and • Rehabilitation using species preferred by GGBF (refer to rehabilitation management plan).

Flora and Fauna	
Chytrid Fungus hygiene protocol	<p>A Chytrid Hygiene procedure in accordance with the NSW Threatened Species Management Information Circular No.6 – Service Hygiene Protocol for the Control of Disease in Frogs (April (2008) or most recent revision of that document, must be implemented on the Closure Works site during all works and any other activities undertaken as part of the action. This procedure is to include:</p> <ul style="list-style-type: none"> • Dedicated disinfection bays established at site entry and all vehicles required to enter via this bay; • All disinfection processes will be monitored and controlled at the Closure Works entry point; • The location of these disinfection bays, and the obligations of disinfection, will be communicated during the site induction and training; • Cleaning and disinfection of workers boots upon entry and exit from the site; • Procedures will be implemented to inspect mobile plant entering the Project site during construction activities to control soil and/or organic matter and to disinfect tyres and wheels of vehicles entering the Project site; and • Vehicles arriving at site muddy will be sent away for more intensive cleaning prior to disinfection.
Chytrid Fungus Risk Assessment Process	<p>The contractor is to demonstrate that suitable risk assessment has been undertaken by an appropriately qualified and experienced ecologist on all imported capping and revegetation materials to demonstrate that it contains a low risk of containing Chytrid. Risk assessment should consider as a minimum:</p> <ul style="list-style-type: none"> • Material not sourced from known, suspected or likely amphibian habitat areas; • Material unlikely to have had contact with amphibians and no amphibians present in material; and • Material are not to be stored in, or come in contact with material sourced from, areas of known, suspected or likely amphibian habitat prior to transport.
Pre-clearance survey design and clearance methodology.	<p>The Contractor will be responsible for developing a pre-clearance survey and clearing methodology suitable for implementation with the contractors specific construction methods that minimises potential harm to GGBF species. The survey methodology should give consideration to the following factors:</p> <ul style="list-style-type: none"> • Level of effort warranted in different areas and habitats; • Seasonal factors on GGBF use of habitat; and • Need for night time surveys. • Survey effort required is likely to include: <ul style="list-style-type: none"> ○ Targeted active searches of potential GGBF habitat located within the disturbance footprint; ○ Conducted to minimise disruption of breeding activities: relocated tadpoles or metamorphs; • Be conducted in accordance with hygiene protocol;

Flora and Fauna	
	<ul style="list-style-type: none"> • Habitat resources including all wet areas as well as rocks, logs, tussock forming vegetation, and other cover will be searched during diurnal visual inspections. • A nocturnal habitat search including visual search, spotlighting and call playback may be conducted to assess nocturnal use (breeding/calling) in the habitat supported in disturbance area, if the surveys are conducted during core breeding season (spring/summer); • Any GGBF observed within the disturbance footprint will be relocated in accordance with relocation procedure provided in the GGBF Management Plan prior to commencement of disturbance; and • The survey methodology implemented should allow the qualified and experienced ecologist to confirm that the risk of GGBF mortality has been reduced to the extent reasonable and feasible for the applicable habitat type/area. <p>The clearing methodology should include the following:</p> <ul style="list-style-type: none"> • Consideration of most appropriate time to install frog exclusion fences; • Presence of an appropriately qualified and experienced ecologists during clearing; • Gradual degradation of higher risk habitat areas progressing from areas furthest away from pond towards areas of refuge; • Relocation of cleared vegetation to areas away from immediate works that allow remaining amphibians to escape; and • Ability to open amphibian fences during clearing at key times to allow fauna to escape.
Amphibian Relocation	<p>If any frog specimens thought to be a GGBF are observed and are within project disturbance area the following relocation procedure will be implemented:</p> <ul style="list-style-type: none"> • Observer to notify Site supervisor who in turn is to notify the HCCDC, a suitably qualified ecologist, and the Contractor’s supervisor of the frog’s location immediately; • Contractor supervisor to halt work in the immediate vicinity to prevent accidental interaction with the frog; • The ecologist or HCCDC’s environmental representative will determine whether the frog is likely to be harmed by works or is likely to migrate to an area that it could be harmed; • If likely to be harmed by works the GGBF will be captured by the ecologist or suitably trained frog handler following GGBF handling and Hygiene procedures; • A one frog per bag policy will be observed with disinfection of all equipment undertaken immediately following any contact with frogs of any description; • If healthy the frog will be held in a cool, dark, moist place until nightfall before being released to a suitable location in the immediate vicinity of capture but outside the disturbance footprint;

Flora and Fauna	
	<ul style="list-style-type: none"> · GGBF showing Chytrid symptoms and deemed unlikely to survive transportation will be euthanized and preserved prior to dispatch to a designated sick or dead frog recipient in accordance with Appendix 2 of the National Parks and Wildlife Service's Hygiene protocol for the control of disease in frogs (NPWS, 2008); · If deemed likely to survive transportation GGBF will be placed in a damp cloth bag or partially inflated plastic bag with leaf litter; · Dead frogs will be preserved in accordance with the approved GGBF management plan including cutting open stomach and preserving in 10 times the volume of the specimen of 65% ethonol or 10% buffered formalin · The designated sick or dead frog recipient will be contacted prior to transport to confirm appropriate procedures; · Containers used for storing frogs will be labelled with date, location and species if known; and · A standardised collection form must be completed and a copy sent with the specimen.
Actions	The contractors CEMP is required to establish the actual pre-clearance and clearance methodology, exclusion fence designs and Chytrid Risk assessment and documentation proposed.
Responsibilities	<p>Contractor's Ecologist is responsible for ensuring risks to Fauna is minimised to the extent reasonable and feasible.</p> <p>Contractor's Project Manager is responsible for allowing sufficient time within program to conduct pre-clearance and clearance in a manner that maximises survival of GGBF and other fauna following the advice of the Ecologist.</p> <p>Contractor is responsible for notifying the Principal of any sick or dead GGBF.</p> <p>All personnel are responsible for ensuring that the clearing limits are addressed and native flora and fauna species are protected.</p> <p>All site personnel to undertake toolbox talks in relation to the reporting process for injury/ death to fauna or clearing of flora occurring beyond the required limits for construction.</p>
Timeframe	Duration of the works.
Monitoring & Reporting	<p>Daily visually monitoring by site supervisors for obvious signs of fauna and the functioning of controls including fences and Chytrid hygiene stations.</p> <p>Weekly inspections to be documented on a Weekly Environmental Inspection Checklist.</p> <p>Outcomes of pre-clearance surveys are to be documented and provided to the HCCDC.</p> <p>Observed sick or dead GGBF are to be notified to the Principal immediately.</p>

Appendix E. Revegetation Management Plan

Revegetation Management Plan	
Objective	To comply with State and Commonwealth approvals requirements and related conditions. To provide a post construction environment that is revegetated to stabilise the capping surface; and planted with species known to be favoured by GGBF.
Targets	The capped surface is stabilised and vegetated within 12 months of construction completion. Provide a revegetated capped surface that includes species of flora known to be favoured by GGBF.
Key Documents	<p>State Documents</p> <p>NSW EPA (2010), Approval of the Surrender of a Licence – License 6437, (Ref: 1111840, and as varied by notice number 1510956 and 1520063)</p> <p>Golders (2011), KIWEF Closure Works, Green and Golden Bell Frog Management Plan (Ref: 117623029-001-R-Rev0)</p> <p>GHD (2009), Report on KIWEF, Revised Final Landform and Capping Strategy (Ref: 22/14371/85882 R4)</p> <p>Jacobs (2018) Addendum Review of Environmental Factors, KIWEF Area 2 Closure Works</p> <p>Commonwealth Documents</p> <p>Ramboll (2018), EPBC Referral, Preliminary Documentation Package – KIWEF Area 2 Closure Works (Ref: 318000395)</p>
Mitigation Measures and Controls	<p>General mitigation measures to be considered include:</p> <ul style="list-style-type: none"> • Care should be taken that any noxious weeds occurring on the site are not further dispersed as a result of the Proposal. A follow up Weed Control Program may be necessary to control the encroachment of these species into surrounding areas. The landowner has a legal responsibility to control and suppress these species on their property under the <i>Noxious Weeds Act 1995</i>. The Weed Control Program should be remove weeds by physical means and avoid the use of herbicides • Stockpiling of soil that may contain seeds of exotic species shall be stockpiled away from adjacent vegetation or drainage lines where they could be spread during rainfall events. • Placement of soil stockpiles away from vegetated areas. • Utilising existing disturbed corridors such as cleared areas, roads, tracks and existing easements, where possible for set up of equipment, stockpile areas and site facilities • Bitou Bush and Crofton Weed would be managed by following the Local Noxious Weed Control Plans (NCC 2006). It is recommended that the plants be removed by physical removal, as herbicides may impact GGBFs and their habitat.

Revegetation Management Plan	
	<ul style="list-style-type: none"> • Plant and equipment brought on to site must be cleaned and free of deleterious material, mud and other material that may harbour weed seeds • Works associated with the closure of the KIWEF must only occur within the closure works area (project footprint); and must be restricted to the extent required to satisfy the Surrender Notice requirements. • All disturbed surfaces will be revegetated within 1 month of final land forming and in compliance with the landscaping plans. • Any capping materials that are imported from outside the KIWEF facility must be sourced from an area that is assessed as having a low risk of containing Chytrid Fungus. The Chytrid Assessment Process will follow the below procedure: • The contractor is to demonstrate that suitable risk assessment has been undertaken by an appropriately qualified and experienced ecologist on all imported capping and revegetation materials to demonstrate that it contains a low risk of containing chytrid. Risk assessment should consider as a minimum: <ul style="list-style-type: none"> ○ Material not sourced from known, suspected or likely amphibian habitat areas; ○ Material unlikely to have had contact with amphibians and no amphibians present in material; and ○ Material stored in a dry location prior to transport. • Topsoil to be used for surface layers must be sourced from within KIWEF to the extent possible and will otherwise be assessed as low in nutrients and having a low risk of containing Chytrid Fungus to be protective of adjacent MNES habitat. • Upon completion of works, the works area will be rehabilitated with vegetation species known to be favoured by GGBF. • Open stormwater infrastructure across the KWIEF site will be planted with species known to be favoured by GGBF. This revegetation and rehabilitation strategy will include a 2m wide buffer on either side of the stormwater drains. The intention is to provide movement corridors for GGBF across the site. • Drainage culverts will, where practicable, be vegetated and lined with rocks and objects that may provide temporary frog refuge, in the event that a frog seeks to traverse the future capped area of KIWEF. • Habitat features such as woody debris that may be utilised by fauna within the construction area would be retained and set-aside during the construction period for reinstatement at completion of works. • Prior to the Construction Completion dates the Contractor is required to seed the vegetation layer above the capping layer and reseed areas where sparse vegetation coverage is achieved by the end of the care and maintenance period.
Species Mix	<p><u>Aquatic vegetation:</u></p> <ul style="list-style-type: none"> • Selection of reeds that provide good habitat cover such as Typha, Bolboschoenus, Phragmites, and Juncus; • A mixed community is preferable to single species stands;

Revegetation Management Plan	
	<ul style="list-style-type: none"> • GGBF prefer wetlands with sections of open water. Water depth should be deep enough to prevent Typha spreading across the entire pond area; the reeds should be mainly at the edge of ponds; <p>Substrate at edges should be suitable for reed growth (i.e. not too many pebbles, sandbags, etc.);</p> <ul style="list-style-type: none"> • Areas of low blanketing vegetation are also desirable for GGBF breeding, for example, Paspalum grass and Shoenoplectus rush; • Establishing aquatic plants with planting after Closure Works: will maximise structural suitability of wetland to immigrating GGBF as soon as construction is completed. <p><u>Terrestrial vegetation:</u></p> <ul style="list-style-type: none"> • Stabilise new works with sterile millet (or other suitable cover crop); • Retain seed bank in fill taken from site (to be reused); • Avoid large tree species (as roots may potentially compromise the cap); <p>Allow terrestrial species to re-colonise Drainage culverts will, where practicable, be vegetated and lined with rocks and objects that may provide temporary frog refuge, in the event that a frog seeks to traverse the future capped area of KIWEF.</p>
Performance Criteria	<p>Establish adequate vegetation coverage across the closure area. Where vegetation regrowth is sparse (ie less than 50% growth) in areas of greater than 10m², the performance criteria will be considered to have failed and contingency measures are required.</p> <p>No deep-rooted vegetation (ie large shrubs or trees) on top of capped surface</p>
Contingency Measures	<p>Where Vegetation Coverage has been identified to be insufficient, the area will be reseeded.</p> <p>Where deep-rooted vegetation is identified on top of capped surface. The vegetation will be removed (mechanically where possible).</p>
Responsibilities	<p>The Contractor is responsible for undertaking the work, monitoring and maintenance of all elements of the revegetation management plan, until the completion of the construction maintenance period (indicatively 3 months post construction completion).</p> <p>The State (or its agent) is responsible for the monitoring and maintenance of all elements of the revegetation management plan and any rectification works, following the completion of the construction maintenance period.</p>
Timeframe	<p>For the duration of the construction works; and the construction maintenance period.</p>
Monitoring & Reporting	<p>Vegetation establishment will be visually monitored monthly during the construction works and construction maintenance period to identify any areas where vegetation is failing to establish. Should vegetation not establish within the construction maintenance period then targeted seeding and/or planting would be undertaken.</p>

Appendix F. Water Quality Management Plan

Water Quality Management Plan	
Objective	<p>To comply with State and Federal approval requirements.</p> <p>To prevent water discharges from construction works area to the extent possible.</p> <p>To manage water discharged to avoid impact to receiving waters.</p>
Targets	No sediment or water quality impacts to the surrounding environment and waterways from the construction works.
Key Documents	<p>State Documents</p> <p>NSW EPA (2010), Approval of the Surrender of a Licence – Licence 6437, (Ref: 1111840, and as varied by notice number 1510956 and 1520063).</p> <p>GHD (2009), Report on KIWEF, Revised Final Landform and Capping Strategy (Ref: 22/14371/85882 R4)</p> <p>Commonwealth Documents</p> <p>Ramboll (2018), EPBC Referral, Preliminary Documentation Package – KIWEF Area 2 Closure Works (Ref: 318000395)</p>
Controls	<p>Erosion and sediment control will be designed, installed and managed as follows:</p> <ul style="list-style-type: none"> • Progressive erosion and sediment control plans (ESCPs) will be developed by the Contractor and implemented prior to the commencement of topsoil stripping and earthworks. • The for construction design for permanent sediment basins is to be in accordance with the environmental protection standards for sensitive environments based on Managing Urban Stormwater - Soils and Construction, (Landcom, 2004), as well as documents from other States and internationally (such as “International Erosion Control Association – Australasia”). • The Contractor is required to install the permanent sediment basins as per the for construction design and any necessary temporary erosion and sediment control measures in advance of bulk-earthworks reporting to each basin. • Alternative arrangements proposed by the Contractor are also required to be in accordance with these standards. • Erosion and sediment control structures are to be regularly inspected and maintained, particularly in advance of and following significant rainfall events. • Any water discharges are required to be managed to avoid pollution of waters having regard to the sensitivity of the receiving environment. In particular, any flocculants are to be demonstrated as being both effective and safe for amphibians prior to use. • Top soil/mulch stockpiles to be not greater than 2.0m in height. All stockpiles will be located clear of watercourses and drainage works. • Wastewater management facilities shall only be provided through proprietary storage and pump out systems. • All disturbed surfaces will be revegetated as soon as possible.

Water Quality Management Plan	
	<ul style="list-style-type: none"> • All temporary ESC works will be removed immediately prior to final completion and all surfaces will be returned to pre-existing condition. • Provision of shaker grids or rumble strip at site egress points. • if contaminated materials are encountered, they are to be managed in accordance with Materials Management Plan, and as a minimum isolated and covered to avoid runoff.
Performance Criteria	<p>Discharge quality must comply with Performance Criteria:</p> <ul style="list-style-type: none"> • TSS: < 50mg/Lt (~Turbidity 30NTU). • pH: Between 6.5 and 8.5. • Otherwise able to be demonstrated not to have caused pollution of waters.
Contingency Measures	<p>If Water Quality performance criteria is not suitable for discharge, other management measures must be implemented prior to discharge. These may include such things as:</p> <ul style="list-style-type: none"> • the trapped sediment laden water may be treated with flocculants at a rate demonstrated in advance to be effective on the local material properties and using substances safe for amphibians; • Dosing with appropriate buffers to neutralise water; • Other mitigation measures deemed appropriate which may include a purpose constructed soak-away where HCCDC advises a suitable location such that contamination in fill is not likely to be mobilised.
Responsibilities	<p>The Contractor is responsible for undertaking the work, monitoring and maintenance of all elements of the water quality management plan until the completion of the construction maintenance period (indicatively 3 months post construction completion). The State (or its agent) is responsible for the monitoring described under the KIWEF Annual Water Monitoring and the KIWEF Continuous Data Logging.</p>
Timeframe	<p>Construction Water Quality and Erosion Sediment Controls will be maintained and monitored throughout the duration of site works.</p>
Monitoring and Reporting	<p>Daily visual monitoring by site supervisors. Documented post rainfall checks of sediment basin water level and water quality and erosion and sediment control functioning. Weekly documented inspections. Maintenance activities for ESCPs shall be documented. Sediment basin discharge or dewatering water quality sampling and analysis suitable to demonstrate pollution of water has/will not occur. All water quality data including quantity, quality and dates of water release will be maintained within the project records.</p>

Appendix G. Traffic Management

Traffic Management	
Objective	To ensure that additional traffic from construction activities does not cause an environmental nuisance.
Targets	No valid complaints resulting from congestion from construction traffic Comply with traffic management standards
Legal, Contractual and Other Requirements	<i>Protection of the Environment Operations Act 1997</i> <i>Roads Act 1993</i> RTA Traffic Control at Worksites Roads (General) Regulation 2000 <i>Local Government Act 1993</i>
Site specific planning / approval conditions / licence conditions	Not applicable.
Controls (means and resources)	<p>The Contractor is required to develop a Traffic Management Plan detailing the route to the site, times of activity, types of machinery, signage, traffic control measures, once the source of any imported materials has been identified. The following traffic management control measures to be implemented are to be detailed in Construction Traffic Management Procedures (CTMP):</p> <ul style="list-style-type: none"> • Traffic will be required to adhere to routes and speed limits designated by the Contractor, in consultation with the HCCDC, ARTC, NCIG and RMS and the RMS Contractor for the Tourle Street / Cormorant Road upgrade works (if ongoing); • Worksite speed limits will be determined for areas of the site based on road type, road condition and adjacent work activity; • Normal road rules apply unless specifically stated otherwise; • Barrier systems may be used at the discretion of the Contractor to define the designated routes; • All project personnel will be required to undertake the site induction that will specify appropriate traffic practices on site; • Site staff with responsibilities for control of construction activities will perform site inspections aimed at maintaining traffic at determined worksite speed limits; • Following site surface stabilisation/ rehabilitation works to control erosion, foot and vehicular traffic will be avoided on recently stabilised areas wherever practical; • Water spraying (where appropriate) will be used to minimise the generation of dust from roadway surfaces; • An inspection system will be established by the Contractor to assess effectiveness of traffic control measures. The assessments will determine if any modification is required to practices on site or the CTMP; and • An incident management procedure for emergencies relating to traffic management for the project works.

Traffic Management	
Actions	Contractor to incorporate the above traffic management measures into Contractor's Traffic Management Plans.
Responsibilities	The Contractor is responsible for ensuring traffic management plans are developed, approved and implemented.
Timeframe	Duration of site works.
Monitoring and Reporting	Daily inspection, checks and regular maintenance to be completed for traffic control measures.

Appendix H. Air Quality Management

Dust and Air Quality	
Objective	To ensure that dust and other air emissions from construction activities do not cause impacts on sensitive receivers and equipment.
Targets	No visible dust (or offensive odours) leaving site and reaching: <ul style="list-style-type: none"> · Identified or potential GGBF habitat, particularly water bodies and fringing vegetation; and · Cormorant Road or neighbouring coal loader operations.
Legal, Contractual and Other Requirements	Contract specification Review of Environmental Factors Kooragang Island Waste Emplacement Facility Area 2 Closure Works (ERM 2016) <i>Protection of the Environment Operations Act 1997</i> <i>Protection of the Environment Operations (Clean Air) Regulation 2002</i>
Site specific planning / approval conditions / licence conditions	All activities associated with the closure, capping, rehabilitation and post-closure maintenance and monitoring at the premises must be carried out in a manner that will minimise the emission of dust from the premises.
Controls (means and resources)	Mitigation measures include amending the nature of work in the event that construction works do not meet the above Objective. Operation of all facilities and equipment on the site will be performed so as to minimise reduce the emission of dust, odour and other air impurities including: <ul style="list-style-type: none"> · Use of water sprays to reduce dust emission from trafficable areas, work areas, stockpiles and other exposed areas but not to draw water from existing ponds as per the flora and fauna management plan; · Where necessary, stabilisation of long term stockpiles; · Reduce the number and extent of disturbed areas at a given time during the remediation activity on site; · Control of haul loading vehicles, whereby the load will not exceed the height of the haul boards and tailboards on the vehicles; · The vehicle speed shall be restricted along the haul roads on site to minimise dust generation and potential spilling of hauled material; · Cleaning/maintenance of the access and haul roads where they interface with public roads to prevent sediment tracking; · Loads of soil or contaminated material entering and leaving site will be covered. Internal material transport will also require a cover if material is likely to or observed to be generating dust; · Any excavated material likely to generate odours will be covered; · Maintenance and servicing of plant and vehicles to minimise reduce emission of air pollutants; · Observations of prevailing (and forecast) weather conditions, to program site activities in order to minimise air quality issues;

Dust and Air Quality	
	<ul style="list-style-type: none"> · Modify work practices during dry and windy conditions; · Progressively stabilise and/or revegetate as areas of works as completed; · Provide shaker grids or rumble strip at site egress points and where aggregate is used, minimum size is 150mm; · Remove mud from haul vehicles prior to entering public roads; · Remove spilt mud by construction equipment or vehicles on public roads; and · Provide awareness training in the need to minimise dust during site inductions and toolbox talks.
Actions	Contractor to implement reasonable and feasible measures from the above to achieve air quality goal.
Responsibilities	Contractor
Timeframe	<p>Duration of site works.</p> <p>Water tankers and other measures available at the commencement of earthworks.</p> <p>Spilt mud and sediment to be removed from public roads as soon as practicable, and at least prior to the end of each shift.</p>
Monitoring and Reporting	<p>Daily observations of dust generation, mud tracking, vehicle emissions, site generated odours and weather conditions (wind direction and strength).</p> <p>Weekly inspect to record functioning of air quality controls.</p>

Appendix I. Noise Management

Noise and Vibration	
Objective	To ensure that noise and vibration from construction activities does not cause environmental nuisance or unnecessarily disturb fauna.
Targets	No valid noise / vibration complaints resulting from construction works. No unreasonable noise or vibration. No noise and vibration impacts on external receptors.
Legal, Contractual and Other Requirements	Works are to be undertaken in accordance with the Interim Construction Noise Guidelines with works to be restricted to: <ul style="list-style-type: none"> · 7 am to 6 pm Monday – Friday · 8 am to 1 pm Saturdays No work outside of these hours without HCCDC's approval (except for emergency situations). <i>Protection of the Environment Operations Act 1997</i> <i>Protection of the Environment Operations (Noise Control) Regulation 2000</i>
Site specific planning / approval conditions / licence conditions	All activities associated with the closure, capping, rehabilitation and post-closure maintenance and monitoring at the premises must be carried out in a competent manner. This includes: <ul style="list-style-type: none"> · The processing, handling, movement and storage of materials and substances used at the premises; and · The treatment, storage, processing, reprocessing, transport and disposal of any waste generated by the activity. All plant and equipment installed at the premises or used in connection with the closure, capping, rehabilitation and post-closure maintenance and monitoring activities at the premises must be: <ul style="list-style-type: none"> · Maintained in a proper and efficient condition; and · Operated in a proper and efficient manner.

Noise and Vibration	
Controls (means and resources)	<p>No work will be undertaken outside of the agreed hours without prior approval (except in an emergency situation). Delivery operations or other noise generating activities at compound and storage areas will take place during the designated construction hours nominated above, unless specifically required by Police or RTA requirements.</p> <p>Reasonable and feasible mitigation measures to be considered as required include:</p> <ul style="list-style-type: none"> · Avoiding where practical the use of noisy plant simultaneously close together or adjacent to sensitive receptors; · All plant will be maintained in accordance with the manufacturer's requirements; · Stationary noise generating equipment to be orientated away from sensitive areas; · Undertaking loading and unloading activities away from sensitive areas and during designated construction hours; · Selection of the most appropriate plant and equipment to minimise noise generation and include where necessary screening and enclosures; · Regular checks are to be undertaken to ensure all equipment and vehicles are in good working order and are operated correctly; and · Awareness training and information will be provided to project personnel in relation to the vibration requirements on the project and the need to minimise vibration when in close proximity to operational areas (rail corridor).
Responsibilities	Contractor
Timeframe	Duration of site works.
Monitoring and Reporting	Vehicle inspections to be recorded on daily vehicle pre-start checks.

Appendix J. Heritage management

Heritage Management Archaeology and Heritage	
Objective	To ensure that undiscovered heritage and archaeological items are protected from construction activities.
Targets	Unknown or undocumented heritage sites are not knowingly destroyed, defaced or damaged. Identify and protect any new artefacts or heritage sites before any harm can take place.
Legal, Contractual & Other Requirements	<i>Heritage Act 1977</i> <i>National Parks and Wildlife Act 1974</i>
Controls (means & resources)	No known heritage items or areas have been identified within the project site or surrounds. As such, heritage mitigation measures are limited to restricting access beyond the project boundary and the implementation of the following 'chance find' protocol: <ul style="list-style-type: none"> · In the event that potential Aboriginal and Historic heritage items are discovered, STOP ALL WORK in the vicinity of the find and immediately notify the relevant Construction Supervisor and Environmental Manager; · Contact HCCDC to notify of the find as soon as they receive notification; · In the event of uncovering remains that are potentially human, the NSW Police are also to be contacted immediately; · Record the details and take non-intrusive photos of the find and relay information to HCCDC; · HCCDC will contact a qualified archaeologist to get advice regarding the nature and potential significance of the find; · If the qualified archaeologist advises that the find is not a potential heritage item, work will recommence in consultation with HCCDC; · If the qualified archaeologist advises that the find is a potential heritage item HCCDC will contact and notify the relevant authority; and · Work is not to recommence in the area of the identified find until clearance is received from HCCDC.
Responsibilities	All persons are responsible for reporting items of potential cultural or heritage value. Contractor's representative will ensure the implementation of the above chance finds protocol in the event that items of potential cultural or heritage value are uncovered.
Timeframe	Duration of site works
Monitoring & Reporting	Ongoing visual observations for previously unidentified items. Reporting of any chance finds in accordance with the above protocol.