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Hydro Aluminium Kurri Kurri Pty Ltd

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Containment Cell

Long Term Management Plan

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Containment Cell
Long Term Management Plan

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Date	**03/09/2024**
Made by	**S Taylor**
Checked by	**K Greenfield (CEnvP Site Contamination Specialist SC40104)**
Approved by	**F Robinson (CEnvP Site Contamination Specialist SC40100)**
Description	**The purpose of this document is to describe the ongoing management, monitoring and maintenance activities to occur at the Containment Cell located off Hart Road, Loxford.**

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GLOSSARY

Containment Cell Advisor (Consultant)	An appropriately qualified consultant who shall complete inspections, monitoring and development of contingency actions (if required), report on cell performance and review of the performance of the LTMP, including a review of the inspection and monitoring results, to determine if the LTMP requires revision
Containment Cell Manager (Consultant)	An appropriately qualified consultant who shall perform the management actions outlined in this LTMP
Containment Cell Owner	Hydro for initial five years from Remediation Works Completion Date, then NSW Government
Engineered Containment Cell	The constructed Engineered Containment Cell at the former Hydro Aluminium Kurri Kurri Pty Ltd aluminium smelter at Hart Road, Loxford.
GMP	Gas Monitoring Plan
Hydro	Hydro Aluminium Kurri Kurri Pty Ltd
LTMP	Long Term Management Plan
Management Period	A period of not less than 5 years commencing on the Remediation Works Completion Date
Practical Completion	The date on which Hydro awarded completion of works under the Voluntary Planning Agreement to the Remediation Contractor – 1 August 2024
Remediation Works Completion Date	The date on which the Minister provides the Developer with a notice in accordance with clause 3.2(f) of Schedule 4 of the Voluntary Planning Agreement
SMP	Sump Monitoring Procedure
Ramboll	Ramboll Australia Pty Ltd
Voluntary Planning Agreement	Planning agreement made under the Environmental Planning and Assessment Act 1979 between the Minister for Planning and Public Spaces and Hydro Aluminium Kurri Kurri Pty Ltd

1. Introduction

This Containment Cell Long Term Management Plan (LTMP) provides a system to establish and maintain management controls for the Containment Cell located at the former Aluminium Smelter site at Hart Road, Loxford New South Wales (NSW).

1.1 The Containment Cell

The Containment Cell is located within Lot 3 DP 1286098 off Hart Road Loxford NSW.

The final Containment cell covers approximately six hectares and includes the following key characteristics:

- Base liner including a clay subgrade, dual barrier system including several layers of geosynthetic liners, two drainage layers, a network of leachate collection pipes and two leachate collection sumps
- Dry entombment of waste materials comprising soils and wastes contaminated with a range of substances primarily including asbestos, fluoride, cyanide, and polycyclic aromatic hydrocarbons
- Multi-layered capping system, including clay liner, geosynthetic liners, a drainage layer, subsoils, top soil and vegetation cover.
- Drainage infrastructure and an access road encircling the Containment Cell
- A fauna proof fence encircling the access road.

1.2 Outline of Long Term Activities

Following completion of the material placement, construction of the capping layer and the establishment of the vegetation, activities at the Containment Cell would be limited to the following categories:

- Visual inspections of the condition of the Containment Cell capping (including vegetation) and associated infrastructure
- Monitoring and reporting of key Containment Cell performance elements
- Contingency actions (such as maintenance and repairs) that may be required as a result of the outcomes of the inspections and monitoring

The inspection and monitoring activities are described in **Table 4-1**. The contingency action process required in response to identification of non-compliance during these inspections and monitoring is described in **Section 4.3**.

Hydro will complete an initial five years of management and monitoring, following which NSW Government will complete long term management and monitoring. NSW Government (the Minister) will issue a notice that the Remediation Works Completion Date has been achieved and the five years of management and monitoring by Hydro shall commence from that date. Hydro will complete management and monitoring as per this LTMP in the period between Practical Completion, achieved on 1 August 2024, and the Remediation Works Completion Date.

1.3 Purpose of the LTMP

The primary purpose of the LTMP is to comply with the requirements of:

- The development consent for State significant development (SSD) 6666 issued by the Minister for Planning on 23 December 2020:

The development consent for SSD 6666 includes the following relevant conditions:
B7. Two months prior to the completion of filling of the containment cell, the Applicant must prepare a LTEMP for the containment cell, to the satisfaction of the Site Auditor and the Planning Secretary. The LTEMP must:
(a) be prepared by a suitably qualified and experienced person(s) whose appointment has been agreed to by the Planning Secretary;
(b) be prepared in consultation with Council, the EPA and Director, Environmental Services Group of H&P Group or its successors;
(c) include, but not be limited to:
(i) identification of all relevant statutory and other obligations, including all approvals, licences, agreements and financial arrangements;
(ii) details of ongoing management roles and responsibilities;
(iii) details of all monitoring, inspections, environmental controls, requirements and measures to manage the ongoing integrity and performance of the containment cell;
(iv) details of the contingency measures and responses to be implemented for any identified issues with the containment cell; and
(v) mechanisms for performance reporting and auditing in line with the relevant legislation and guidelines;
(d) incorporate a programme for ongoing review of the LTEMP to ensure it remains contemporary with relevant environmental standards.
B8. As part of the LTEMP required under Condition B7, the Applicant must include the following:
(a) Landscaping Management Plan (see Condition B45); and
(b) Gas Monitoring Plan (see Condition B33).
B9. Upon completion of the construction, filling and capping of the containment cell, the Applicant or any succeeding landowner(s) whose landholding includes the containment cell, must:
(a) implement the approved LTEMP; and
(b) manage the containment cell in perpetuity in accordance with the LTEMP as required by Condition B7.

- The Voluntary Planning Agreement (VPA) between Hydro and the Minister for Planning and Public Spaces (on behalf of the NSW Government) signed in May 2021.

This LTMP reflects the requirements of the development consent for SSD 6666 and the VPA.

1.4 Objectives of the LTMP

The objectives of the LTMP are to:

- Provide an easily interpreted reference document that outlines the environmental commitments, safeguards and management measures to be undertaken to provide for the ongoing integrity of the Containment Cell
- Incorporates the management requirements of:
  - Relevant legislation, regulations, planning instruments and licences (if applicable);
  - Commitments made in the Remediation Environmental Impact Statement (EIS), Response to Submissions Report, and the applicable conditions of the Development Consent
- Describe the mechanisms to be implemented to:
  - Restrict activities on the Containment Cell to prevent unacceptable development over the Containment Cell
  - Bind existing and future owners of the Containment Cell to implement this LTMP

Provide a transparent reporting and review process (as outlined in this LTMP) to confirm the ongoing integrity of the Containment Cell.

1.5 Agency Consultation

As required by condition B7 of the development consent for SSD 6666 Hydro consulted with Cessnock City Council. The Environment Protection Authority (EPA), Property and Development NSW (the successor to the H&P Group), and the Department of Planning, Housing and Infrastructure (DPHI).

Table 1-1 identifies the date and form of communication with the agencies, the comments from the agencies, and Hydro's response. Evidence of the consultation is presented in **Appendix 1**.

Table 1-1: Agency Comments on LTMP and Response

Agency and Communication Details	Comment	Response
Property and Development NSW Request for Comment on Draft LTMP issued 28 November 2023	Response received 12 December 2023 No changes requested	Noted
EPA Request for Comment on Draft LTMP issued 28 November 2023 (and follow up 23 January 2024)	No response received as of 14 March 2024	N/A
Department of Planning, Housing and Infrastructure Request for Comment on Draft LTMP issued 23 January 2024	No response received as of 14 March 2024	N/A
Cessnock City Council Request for Comment on Draft LTMP issued 23 January 2024	Response received 7 February 2024	
	Condition B1 of Development Consent SSD 6666 requires the appointed Site Auditor to consider the suitability of the Long-Term Environmental Management Plan. While the Draft Management Plan is considered preliminary there is no documentation provided that the appointed Site Auditor has reviewed the suitability of the plan.	The Site Auditor has reviewed and endorsed the draft Long Term Management Plan submitted to the Department as part of the Response to Submissions Report prepared for SSD 6666. The Department has received written evidence from the Site Auditor.
	The Draft Management Plan notes the existing Environmental Protection Licence (EPL) issued under the Protection of the Environment Operations Act 1997 is likely to be surrendered for the containment cell contamination works. Council recommends that the EPL surrender be confirmed with the NSW EPA to ensure the on-going regulatory responsibilities for the containment cell are identified in the Management Plan.	Hydro is in consultation with the EPA regarding the Environment Protection Licence (EPL). These discussions concluded that the EPL would remain in place for the period that Hydro is the Containment Cell Owner and the five years monitoring and management period has been completed.

Agency and Communication Details	Comment	Response
	Table 4-1 of the Draft Management Plan identifies the containment cell capping should be inspected annually for the first five years. Council recommends this surveying be undertaken twice a year (6-monthly) to assist in ensuring the integrity of the capping works. This time period should also be undertaken for inspection of the fauna fencing around the containment cell.	In addition to the annual inspection, Table 4-1 notes that an inspection of the containment cell capping would also occur in response to the following: Immediately following a 5% Annual Exceedance Probability or greater storm event as determined by BOM 061260, Cessnock Airport Immediately following an earthquake event of a magnitude of ≥ 5 recorded within a 20km radius In response to a report of potential damage The annual inspection, and those in response to the above events, would be sufficient. Table 4-1 lists several monitoring and management activities to be undertaken. This includes quarterly and monthly monitoring activities: it is expected that any potential adverse conditions at the containment cell would be noted during such activities, and reported to allow for an inspection to be completed.
	Table 4-2 identifies contingency process as a management control for a number of identified risks. While Section 4.3 provides some detail on what is considered contingency process further detail should be provided. Council suggests that detail regarding re-establishment of capping design or improved measures for capping in response to identified issues be included in the Management Plan to address Condition B7(c)(iv) of SSD 6666.	In reviewing the containment cell and the potential risks, it was determined that there were numerous scenarios that (while highly unlikely) could occur that would need to be addressed. The response to such events would need to firstly identify the cause of the issue, and then address that/ them. Having appropriately qualified people (the Containment Cell Advisor) to undertake these investigations at the time, and work with the Containment Cell Owner to develop the appropriate response, is considered the appropriate approach.

Agency and Communication Details	Comment	Response
	Table 4-2 identifies leachate management as a potential management risk. However, no details on on-going leachate management or monitoring is provided outside of compliance with standards (**Section 4.2**) and a sump monitoring procedure (Appendix 5 not included in documentation) Council recommends that further detail regarding long-term leachate monitoring, including monitoring sites, and management be provided in the Management Plan to ensure adequate processes/monitoring is in place to address the potential water catchment risk.	**Appendix 5** presents the Sump Monitoring Procedure, which includes leachate monitoring.

2. Containment Cell Management Controls

The management of the Containment Cell (through implementation of this LTMP) will be enforceable through the requirements of the:

- development consent for SSD 6666 issued by the Department of Planning and Environment (the Department)
- relevant conditions of the environment protection licence (EPL) No. 1548 issued by the Environment Protection Authority (EPA)
- the licence granted by the EPA under the Environmentally Hazardous Chemicals Act 1985 for the storage and disposal of aluminium smelter waste (applicable until completion of cell filling and closure, at which time it will no longer apply)
- the VPA.

These are described in **Section 2.1**.

This LTMP reflects the relevant requirements and commitments of these documents, and anticipates the likely management and monitoring requirements that may apply in the future.

2.1 Approvals and Licences

The Development Consent and licences applicable to the ongoing management of the Containment Cell are provided in **Appendix 2**.

2.1.1 Development Consent

Condition B7 of the development consent for State significant development (SSD) 6666, which states the following:

B7. Two months prior to the completion of filling of the containment cell, the Applicant must prepare a LTEMP for the containment cell, to the satisfaction of the Site Auditor and the Planning Secretary. The LTEMP must:

(a) be prepared by a suitably qualified and experienced person(s) whose appointment has been agreed to by the Planning Secretary;

(b) be prepared in consultation with Council, the EPA and Director, Environmental Services Group of H&P Group or its successors;

(c) include, but not be limited to:

(i) identification of all relevant statutory and other obligations, including all approvals, licences, agreements and financial arrangements;

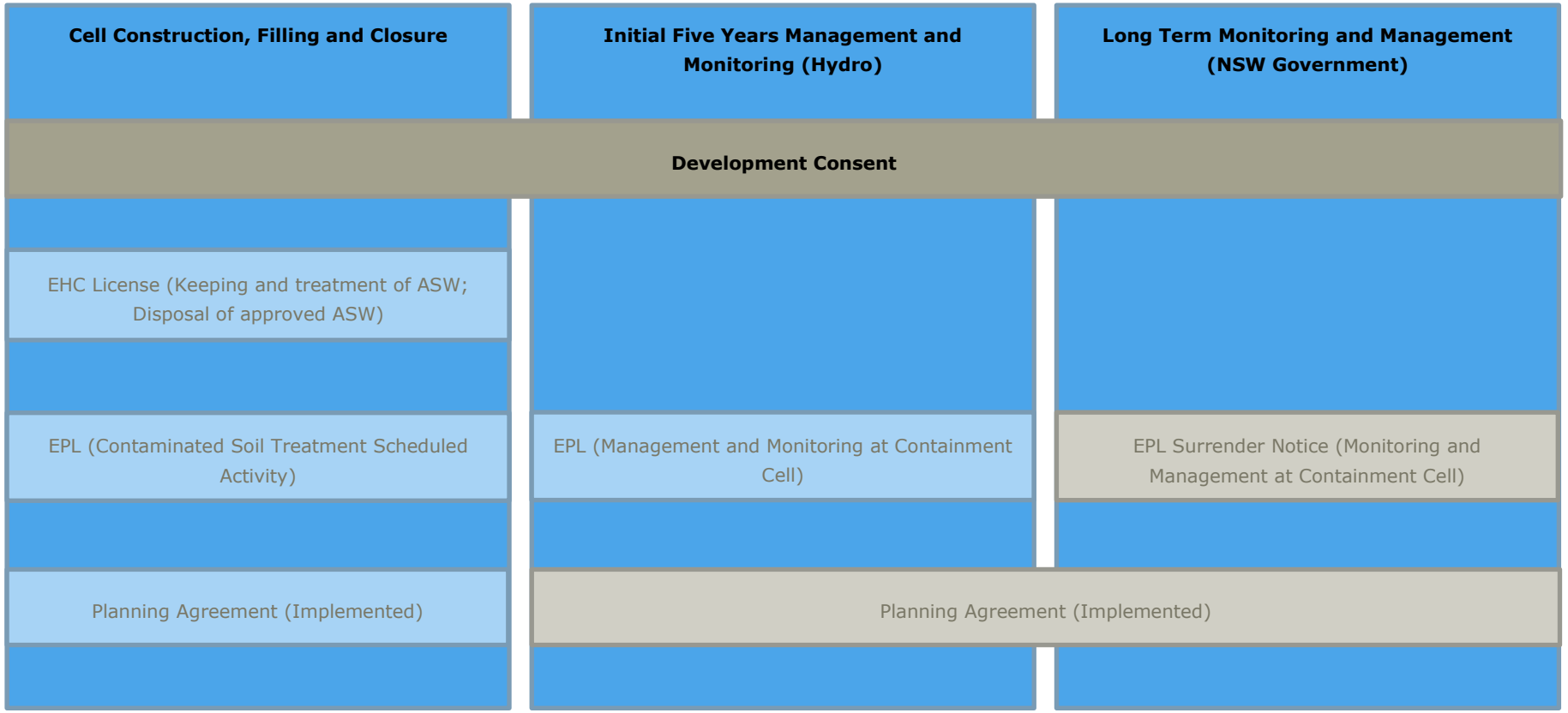
(ii) details of ongoing management roles and responsibilities;

(iii) details of all monitoring, inspections, environmental controls, requirements and measures to manage the ongoing integrity and performance of the containment cell;

(iv) details of the contingency measures and responses to be implemented for any identified issues with the containment cell; and

(v) mechanisms for performance reporting and auditing in line with the relevant legislation and guidelines;

(d) incorporate a programme for ongoing review of the LTEMP to ensure it remains contemporary with relevant environmental standards


Cell Construction, Filling and Closure
Initial Five Years Management and Monitoring (Hydro)
Long Term Monitoring and Management (NSW Government)
Development Consent
EHC License (Keeping and treatment of ASW; Disposal of approved ASW)
EPL (Contaminated Soil Treatment Scheduled Activity)
EPL (Management and Monitoring at Containment Cell)
EPL Surrender Notice (Monitoring and Management at Containment Cell)
Planning Agreement (Implemented)
Planning Agreement (Implemented)
LEGEND
Issued to Hydro, remains with land in perpetuity
Containment Cell Constructor
Containment Cell Land Owner

In addition, the Containment Cell is subject to a Voluntary Planning Agreement (VPA) between Hydro and the Minister for Planning and Public Spaces (on behalf of the NSW Government). Condition A5 of the development consent for 6666 states:

A5. The Applicant must enter into a planning agreement with the Minister in the terms of the offer made to the Minister by the Applicant in connection with SSD 6666 by letter dated 11 December 2020 and no later than before the commencement of the Stage 1A Works within the meaning of the planning agreement attached to the letter.

This LTMP addresses this condition.

2.1.2 Licences

The Environment Protection Authority (EPA) will be responsible for administering two licences to regulate the Containment Cell during the Containment Cell construction and capping:

- Environment Protection Licence (EPL) under the Protection of the Environment Operations Act 1997 (POEO Act)
- A Licence granted under the Environmentally Hazardous Chemicals Act 1985 (EHC Act) to permit activities under the Aluminium Smelter Waste Chemical Control Order (EHC Licence).

2.1.2.1 Environment Protection Licence

The EPL addresses the scheduled activities ("*contaminated soil treatment*", as listed in Schedule 1 of the POEO Act) that are permitted to occur, and be regulated under, the EPL.

The EPA may decide to issue a surrender notice (in accordance with Section 80 of the POEO Act) to the Containment Cell Owner on completion of the initial five years maintenance and monitoring, following ownership transfer to the NSW Government. The surrender notice may include ongoing management and monitoring requirements. This LTMP reflects the existing EPL and anticipates the likely management and monitoring requirements that may apply in the event the EPA issues a surrender notice.

2.1.2.2 EHC Licence

An EHC Licence is required for the disposal of approved aluminium smelter waste under the Aluminium Smelter Waste Chemical Control Order. This applies to the material contained within the Containment Cell.

Hydro understands that on completion of the placement of the approved aluminium smelter waste within the Containment Cell disposal is complete, and the EHC Licence is no longer required (Hydro does not store any other aluminium smelter waste at the site that requires an EHC Licence). Hydro will progress negotiations with the EPA to facilitate the surrender of the EHC Licence, and cessation of associated obligations under the licence.

2.1.3 Planning Agreement

The primary purpose of the VPA was to establish the mechanisms for funding of the Containment Cell construction and ongoing management, and the requirements to be implemented during construction, however it also establishes:

- The ownership structure of the completed Containment Cell (Hydro to retain ownership and responsibility for the Containment Cell for five years, or until it is operating in accordance with agreed criteria, at which time ownership transfers to the NSW Government). To facilitate the transfer the planning agreement will be released and no longer applicable to the Containment Cell land

- Clause 3.2 of Schedule 4 of the VPA notes that the NSW Government (the Minister) will issue a notice in response to a Remediation Validation Report that the Remediation Works Completion Date has been achieved.

The monitoring program that Hydro must undertake to confirm the Cell is operating in accordance with the agreed criteria.

3. Management roles and responsibilities

The parties responsible for the implementation of the Containment Cell LTMP are described in **Table 3-1**.

Table 3-1: LTMP Roles and Responsibilities

Party	Responsibilities
Containment Cell Owner	Management of, and compliance with, the Containment Cell Management Controls described in **Section 4** Management of, and compliance with, reporting requirements in **Section 5**.
Containment Cell Advisor (Consultant)	All inspections, monitoring and development of contingency actions (if required) as described in **Section 4** Report on the performance of the Containment Cell and the LTMP as described in **Section 5** Review of the performance of the LTMP, including a review of the inspection and monitoring results, to determine if the LTMP requires revision (as described in **Section 5.3**)
Containment Cell Manager (Contractor)	Perform the management actions described in **Section 4** Perform the contingency actions (if required) developed by the Containment Cell Advisor as described in **Section 4**

4. Inspections and monitoring

4.1 Inspections

Inspections of various elements of the Containment Cell would be undertaken in accordance with the schedule outlined in **Table 4-1**. The regularity of the inspections is based on the potential risks associated with the particular elements.

Inspections would be undertaken by the Containment Cell Advisor (Consultant) following Practical Completion of capping of the Containment Cell.

4.2 Monitoring

The Containment Cell Advisor will undertake inspection and monitoring as described in **Table 4-1** to determine that the Containment Cell is:

- functioning in accordance with the design and the requirements of the VPA and development consent for SSD 6666
- not resulting in a detrimental environmental impact
- functioning in compliance with relevant approvals and licences.

Environmental monitoring will be undertaken by suitably qualified and experienced personnel, in accordance with relevant procedures and guidelines (or their future equivalents as applicable), including but not limited to:
Guidelines that are made under Section 105 of the CLM Act
Approved Methods for Sampling and Analysis of Water Pollutants in NSW (EPA, 2004).
Australian Standard *AS 5667.1:1998 Water Quality – Sampling – Part 1: Guidance on the Design of Sampling Programs, Sampling Techniques and the Preservation and Handling of Samples* (Standards Australia, 1998).
Standard Methods for the Examination of Water and Waste Water, 20th Edition, section 1060 (American Public Health Association, 1998).
A*pproved Methods for Sampling of Air Pollutants in New South Wales Guideline* (DEC, 2007).

The monitoring results will be collated, reported and retained in accordance with the requirements outlined in **Section 4**.

4.3 Contingency Response

There is the potential that the monitoring or inspections identify potential non-compliances with the LTMP (and therefore the Development Consent, any applicable licences and the CLM Act).

A Containment Cell Risk Workshop identified cell performance risks that may occur in the future and evaluated these in accordance with a risk ranking process. Mitigation measures were developed and have been incorporated in **Table 4-2** of the LTMP. The Risk Register has been included in **Appendix 3**.

If the inspections or monitoring identify non-compliance, one of the following will be undertaken (as specified in **Table 4-2**):

1. Implementation of the specific remedial action to repair or replace readily identifiable damage to infrastructure
2. Where a specific remedial action is not readily identifiable, the following process (identified as Contingency Process in **Table 4-2**) will be implemented:
   - Implement temporary safety and environmental controls (as appropriate) to control environmental impacts and/ or potential safety risks resulting from the non-compliance
   - Review the notification requirements of the approvals and licences described in Section 2 and report the incident if/ as required.
   - Investigation of the potential source/ sources of the non-compliance

- Assess the environmental and safety risk associated with the impacts of the non-compliance
- Develop and implement a Contingency Strategy to address the non-compliance
- Assess the performance of the Contingency Strategy implementation in addressing the non-compliance
- Prepare and submit a report that describes this process and its outcomes. The report will be submitted to one or more of the following (as required by the CLM Act, the Development Consent and/ or any applicable licences):
    - The Containment Cell Owner
    - DPHI
    - EPA

Table 4-1: Containment Cell Inspection and Monitoring Requirements

Issue/ Key Task	Inspection/ Monitoring Activity	Indicative Frequency	Person/s Responsible
Containment Cell Vegetation Cover			
To inspect the condition of the Containment Cell vegetation cover	Refer to the requirements of the Landscaping Plan (**Appendix 4**)	Refer to the requirements of the Landscaping Plan (**Appendix 4**)	
Containment Cell Capping			
Inspect the condition of the Containment Cell capping	Undertake a Containment Cell walkover to determine that: The capping layers are stable: no visual evidence that slumping or erosion is occurring along the top surface layer or water egress is occurring out through the surface layer (i.e. piping)	Annual Immediately following a 5% Annual Exceedance Probability or greater storm event as determined by BOM 061260, Cessnock Airport Immediately following an earthquake event of a magnitude of ≥ 5 recorded within a 20km radius In response to a report of potential damage	Containment Cell Advisor
Survey the level of the Containment Cell capping	Establish a network of four survey points on the Containment Cell cap to monitor any settlement/ change in ground level (Australian Height Datum)	Annual for first five years Biennial after five years	Containment Cell Advisor
Containment Cell Infrastructure			
Inspect the condition of the Containment Cell gas vent	Undertake a visual inspection to determine that the gas vent is undamaged	Quarterly (when gas monitoring undertaken) Annual (following cessation of gas monitoring) In response to a report of potential damage	Containment Cell Advisor
Inspect the condition of the fauna fencing encircling the Containment Cell	Undertake a visual inspection to determine that the fencing is in a safe working condition to suitably restrict access	Annual Immediately following an earthquake event of a magnitude of ≥ 5 recorded within a 20km radius In response to a report of potential damage	Containment Cell Advisor
Inspect the Containment Cell final perimeter road and access road	Inspect the condition of the Containment Cell perimeter road for damage and is fully accessible	Annual Immediately following a 5% Annual Exceedence Probability or greater storm event Immediately following an earthquake event of a magnitude of ≥ 5 recorded within a 20km radius	Containment Cell Advisor

Issue/ Key Task	Inspection/ Monitoring Activity	Indicative Frequency	Person/s Responsible
Leachate Monitoring			
Inspect the leachate collection system for the generation of leachate	Following the Sump Operating Procedure **Appendix 5**	Monthly for the first 12 months following completion of deposition and install of cap, followed by quarterly Review frequency and continuance of monitoring depending on results in accordance with Section 5. One week following a 5% Annual Exceedance Probability or greater storm event One week following an earthquake event of a magnitude of ≥ 5 recorded within a 20km radius	Containment Cell Advisor
Groundwater and Leak Detection Sumps Monitoring			
Monitoring the subsurface groundwater and leak detection sumps	Following the Sump Operating Procedure **Appendix 5**	Monthly for the first 12 months following completion of deposition and installation of the cap, followed by quarterly Review frequency and continuance of monitoring depending on results in accordance with **Section 5**. One week following a 5% Annual Exceedance Probability or greater storm event One week following an earthquake event of a magnitude of ≥ 5 recorded within a 20km radius	Containment Cell Advisor
Gas Monitoring			
Monitor the gases generated from the Containment Cell vent	Undertake Containment Cell gas monitoring in accordance with the procedure included in **Appendix 5**	Quarterly Review frequency and continuance of monitoring depending on results in accordance with **Section 5**.	Containment Cell Advisor

Table 4-2: Containment Cell Contingency Response

Issue	Potential Cause/s	Management Control	Possible Strategy/ Strategies	Follow Up Monitoring/ Response	Person/s Responsible
Containment Cell Capping					
Physical damage to the Containment Cell capping is identified during visual inspection	Vandalism and/ or public activities Erosion/ slippage Material Settlement	Contingency Process	Reconstruct the damaged capping layer/s	As required by the Contingency Strategy	Containment Cell Manager
Containment Cell Vegetation Cover					
Vegetation cover is not appropriately established	Drought/ low rain Disease Excessive animal grazing Inappropriate plant species used Bushfire Vandalism and/ or public activities	Contingency Process	Topsoil reconditioning Irrigation/ watering of vegetation Additional planting Replant with suitable species Use of herbicides/ pesticides	As required by the Contingency Strategy	Containment Cell Manager Containment Cell Advisor
Vegetation cover is not maintained as required	Drought/ low rain Disease Excessive animal grazing Inappropriate plant species used Bushfire Vandalism and/ or public activities	Contingency Process	Topsoil reconditioning Irrigation/ watering of vegetation Additional planting Replant with suitable species Use of herbicides/ pesticides	As required by the Contingency Strategy	Containment Cell Manager Containment Cell Advisor
Propagation of inappropriate vegetation species	Seeds of trees/ deep rooted species spread from surrounding area to Cell and germinates	Physically remove inappropriate vegetation species, ensuring that roots have been removed. Minimise damage to vegetation to be retained. Compact soils if they have been loosened/ disturbed through plant removal. Cover disturbed weed removal area with mulch.	Refer to Management Control	When undertaking vegetation cover annual inspection, revisit removal area to confirm that no regrowth has occurred or seedlings have propagated	Containment Cell Manager Containment Cell Advisor
Grazing animals (or evidence of their presence) are identified on the Containment Cell		Contingency Process	Permitted animal control Installation of fencing around the Containment Cell	As required by the Contingency Strategy	Containment Cell Manager Containment Cell Advisor
Containment Cell Infrastructure					
Inspection identifies damage to gas vent	Vandalism and/ or public activities (damage to or blocking of vent) Storm damage Bushfire	Damage to gas vent repaired by an appropriately qualified person	Refer to Management Control	Inspect following completion of repairs to confirm repairs have been satisfactorily completed	Containment Cell Manager Containment Cell Advisor
Inspection identifies damage to barrier fencing, including gate	Vandalism and/ or public activities Storm damage Erosion Vehicle Accident Bushfire	Damage to barrier fencing/ bollards repaired by an appropriately qualified person	Refer to Management Control	Inspect following completion of repairs to confirm repairs have been satisfactorily completed	Containment Cell Manager Containment Cell Advisor
Inspection identifies that unauthorised vehicular access to the Containment Cell has occurred	Unsuitable design of fencing	Contingency Process	Damage to fencing/ repaired by an appropriately qualified person Identify location/s of breach and make required changes to the fencing	As required by the Contingency Strategy	Containment Cell Manager
Inspection identifies damage to the Containment Cell access or perimeter road that makes it inaccessible for maintenance vehicles	Storm damage Erosion	Road repairs undertaken by an appropriately qualified person back to the as-built standard	Refer to Management Control	Inspect following completion of repairs to confirm repairs have been satisfactorily completed	Containment Cell Manager Containment Cell Advisor
Leachate					
Monitoring identifies that leachate is at a level requiring removal and treatment	Residual moisture within the material has entered the leachate collection system	Leachate is removed and treated using one of the following methods:			
		A licensed waste contractor would collect in truck for off-site treatment and disposal.	Refer to Management Control	Contractor required to provided waste dockets/ evidence of licensed treatment and disposal	Containment Cell Advisor Containment Cell Manager
Monitoring identifies that leachate volume is increasing outside of naturally expected variation as determined by a statistical test	Excess water entered the material during material placement and cap construction Moisture remains within the Containment Cell Breach of all the Containment Cell capping layers	Contingency Process	Review rainfall/ climate data for material placement period to assess likelihood of excess moisture in the material Increased rate of leachate monitoring, pump out and treatment. Identify and repair breaches to damaged Containment Cell capping layers if required	As required by the Contingency Strategy	Containment Cell Advisor Containment Cell Manager

Issue	Potential Cause/s	Management Control	Possible Strategy/ Strategies	Follow Up Monitoring/ Response	Person/s Responsible
Monitoring identifies that leachate extraction points are damaged and inaccessible	Damage due to vandals or truck movement	Contingency Process	Repair pipework		
Gas					
Monitoring identifies: LELs for any gases are reached or exceeded OR Ammonia concentrations are ≥15% overall gas discharges AND Concentrations have increased over four monitoring rounds as determined by a statistical test.	Moisture remains within the Containment Cell Gas capture and ventilation system damaged	Contingency Process	Assess risk to human health and the environment as well as containment cell performance Install new (taller or additional) gas ventilation stack Install scrubbers Maintain prohibition of public access to the top of the Containment Cell	Continue gas monitoring as described in **Table 5-1**	Containment Cell Advisor
Monitoring identifies that gas concentrations and/or volume is increasing outside of naturally expected variations as determined by a statistical test	Moisture remains within the Containment Cell Gas capture and ventilation system damaged	Contingency Process	Assess risk to human health and the environment as well as containment cell performance Install new (taller or additional) gas ventilation stack Install scrubbers Pump out of gas from the Containment Cell Maintain prohibition of public access to the top of the Containment Cell	As required by the Contingency Strategy	Containment Cell Advisor Containment Cell Manager
Leachate, Groundwater and Leak Detection Sumps					
Monitoring identifies leachate has entered a sump/s	Breach of one or more of the Containment Cell base layers	Contingency Process	Assess risk to human health and the environment as well as containment cell performance Identify potential location/s of breach to Containment Cell base layers Implement pump out and treatment of sump if required. Assess capping system currently in-place	As required by the Contingency Strategy	Containment Cell Advisor Containment Cell Manager

5. Performance reporting and auditing

5.1 Reporting

5.1.1 Annual Return

The EPL will require the preparation and submission of an Annual Report in accordance with the POEO Act that includes the following:

- Statement of Compliance
- Monitoring and Complaints Summary
- Statement of Compliance - Licence Conditions
- Statement of Compliance - Load based Fee
- Statement of Compliance - Requirement to Prepare Pollution Incident Response Management Plan
- Statement of Compliance - Requirement to Publish Pollution Monitoring Data
- Statement of Compliance - Environmental Management Systems and Practices.

This reporting is expected to be required for as long as the EPL is in place, and may apply for a period in the event that a Surrender Notice has been issued by the EPA (as a condition of the surrender).

5.1.2 Incident Reporting

Under the EPL and the POEO Act the EPA must be notified of incidents that have the potential to cause environmental harm. In addition, the CLM Act imposes a Duty to Report contamination as soon as practical following becoming aware of the contamination.

As part of the Contingency Response Process (refer to **Section 4.3**) the Containment Cell Owner (in consultation with the Containment Cell Advisor) will need to determine (in accordance with a Pollution Incident Response Management Plan) if the EPA needs to be notified of an incident at the Containment Cell and/ or contamination beyond the Containment Cell.

5.1.3 Retention of Monitoring Results

The Containment Cell Owner (through the Containment Cell Advisor) will be required to maintain a record of all monitoring results for the Containment Cell as required by the Development Consent, any licences issued by the EPA or the other mechanisms described in Section 2 of this LTMP.

5.2 Performance Auditing

Table 4-1 identifies monitoring activities and with indicative monitoring frequencies. Over time monitoring may show certain conditions that would support a reduction in monitoring frequencies. **Table 5-1** identifies parameters and the conditions that should be met to support a reduced monitoring frequency. In some circumstances the need to continue monitoring would be assessed.

These parameters and conditions will be described in the EPL.

Table 5-1: Monitoring Parameters and Condition to Reduce Monitoring Frequency

Monitoring Parameter	Current Frequency	Condition	Proposed Revised Frequency
Gas	Quarterly	Methane <5% Ammonia <50ppm And a stable or decreasing trend	Annual (five years) Cease after five years of complying with trigger levels
Leachate	Quarterly	Volume of leachate being generated is determined to be stable or decreasing with time	Annual Cease after five years of leachate generation at a volume less than 25,000 L per annum
Groundwater Sump	Quarterly	pH <8.0 F <15 mg/L	Annual

5.3 LTMP Review and Improvement

A review of the performance of the LTMP will be undertaken:

- Biennially for the first ten years following completion of the Containment Cell.
- Following a non-compliance with the LTMP.

Where a breach of or non-compliance with the LTMP has occurred, the review will be required to identify if a change to the relevant procedures (as described in **Table 4-1**) or management controls of the LTMP is required.

At these review periods, the LTMP will also be revised to incorporate any changes in regulation that apply to the management of the Containment Cell.

If the LTMP is amended, the Containment Cell Owner will be responsible for the Control Copy and will provide a copy of the revised LTMP to:

- Containment Cell Advisor
- Containment Cell Manager
- EPA
- DPHI.

6. References

GHD (2019) *Containment Cell Design Report*

NSW Government Department of Panning Industry and Environment (2020) *Development Consent SSD 6666*

New South Wales Environmental Protection Authority (NSW EPA 2022) *Preparing Environmental Management Plans for Contaminated Land*

Ramboll (September 2024) *Containment Cell Gas Management Plan*

Ramboll (September 2024) *Containment Cell Sump Monitoring Procedure*

Ramboll (September 2024) *Containment Cell Landscape Management Plan*

Appendix 1
Evidence of Agency Consultation

7 February 2024

Mr Shaun Taylor
Ramboll Australia Pty Ltd
45a Watt Street
NEWCASTLE NSW 2300

Contact: Mark Manning
Our Ref: DOC2024/011867

Dear Mr Taylor

HYDRO ALUMINIUM CONTAMINATION CONTAINMENT CELL - DRAFT LONG-TERM ENVIRONMENTAL MANAGEMENT PLAN

I refer to your email dated 23 January 2024 requesting Cessnock City Council comments regarding the Containment Cell Draft Long Term Management Plan (Draft Management Plan) prepared by Ramboll dated 28 November 2023.

Council has reviewed the provided Draft Management Plan and provided the following comments

- Condition B1 of Development Consent SSD 6666 requires the appointed Site Auditor to consider the suitability of the Long-Term Environmental Management Plan. While the Draft Management Plan is considered preliminary there is no documentation provided that the appointed Site Auditor has reviewed the suitability of the plan.
- The Draft Management Plan notes the existing Environmental Protection Licence (EPL) issued under the Protection of the Environment Operations Act 1997 is likely to be surrendered for the containment cell contamination works. Councils recommends that the EPL surrender be confirmed with the NSW EPA to ensure the on-going regulatory responsibilities for the containment cell are identified in the Management Plan.
- Table 4-1 of the Draft Management Plan identifies the containment cell capping should be inspected annually for the first five years. Council recommends this surveying be undertaken twice a year (6-monthly) to assist in ensuring the integrity of the capping works. This time period should also be undertaken for inspection of the fauna fencing around the containment cell.
- Table 4-2 identifies contingency process as a management control for a number of identified risks. While Section 4.3 provides some detail on what is considered contingency process further detail should be provided. Council suggests that detail regarding re-establishment of capping design or improved measures for capping in response to identified issues be included in the Management Plan to address Condition B7(c)(iv) of SSD 6666.
- Table 4-2 identifies leachate management as a potential management risk. However, no details on on-going leachate management or monitoring is provided outside of compliance with standards (section 4.2) and a sump monitoring procedure (Appendix 5 not included in documentation) Council recommends that further detail regarding long-term leachate monitoring, including monitoring sites, and management be provided in

the Management Plan to ensure adequate processes/monitoring is in place to address the potential water catchment risk.

Council notes that SSD 6666 requires contamination documentation to be submitted to the Planning Secretary. Council is currently undertaking a review of its contaminated site information and would appreciate if Council could be supplied a copy of the finalised documentation.

If you require any further information regarding the above comments, please do not hesitate to contact Council's Senior Environment Planner Mark Manning on (02) 4993 4188 or mark.manning@cessnock.nsw.gov.au

Yours sincerely

Mark Manning
Senior Environment Planner– Strategic Planning

From:	Shaun Taylor
To:	sheelagh.laguna@planning.nsw.gov.au
Cc:	Richard Brown
Subject:	SSD 6666: Hydro Remediation Project Draft Long Term Management Plan [Filed 23 Jan 2024 14:12]
Date:	Tuesday, 23 January 2024 2:11:42 PM
Attachments:	RE Hydro Aluminium Draft Long Term Containment Cell Management Plan Invitation for Comment.msg 318000980 Containment Cell LTMP V0.3 231128.docx

Hi Sheelagh,

Please find attached the draft of the main body of the Containment Cell Long Term Management Plan. We request that you review the plan and confirm it is satisfactory before we collate (with appendices), finalise and formally submit.

Please note that this is the version that was issued for comment on 28 November 2023 in accordance with Condition B7 of the development consent for SSD 6666. Peter Lowery of Property and Development NSW (Waste Assets Management Corporation) replied on 12 December 2023 noting no changes were required (see attached). We are still awaiting the remaining feedback.

Please feel free to reach out to discuss.

Kind regards

Shaun Taylor

Senior Managing Consultant

M +61 408 386 663

staylor@ramboll.com

Ramboll
The Arc, 45a Watt St
Newcastle, NSW 2300

https://www.ramboll.com/

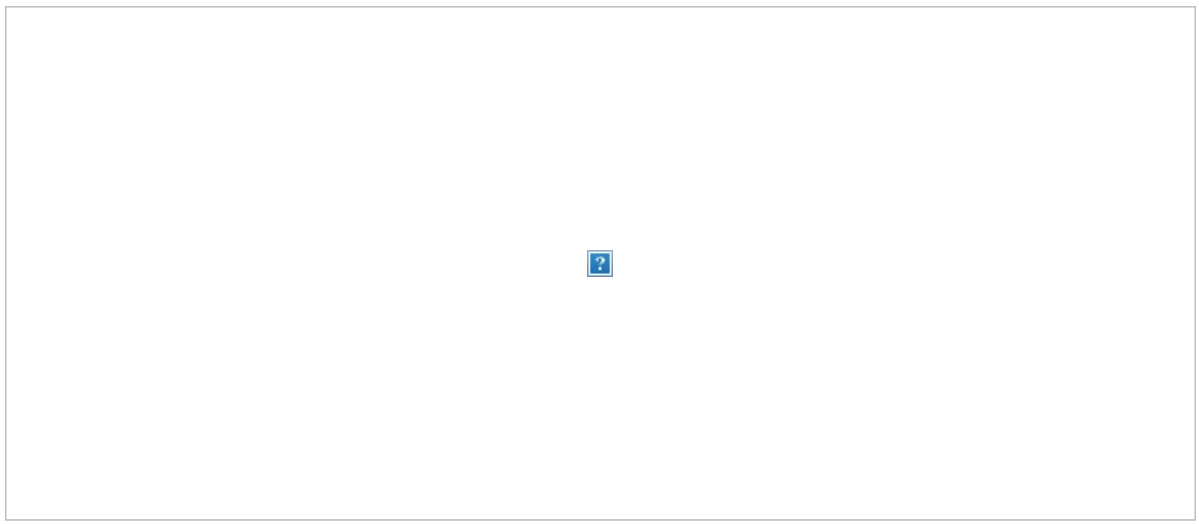
From: Shaun Taylor
To: "Rebecca Akhurst"
Cc: "Claire Miles"
Subject: RE: Hydro Aluminium: Draft Long Term Containment Cell Management Plan
Date: Tuesday, 23 January 2024 8:22:15 AM
Attachments: image001.jpg

Hi Rebecca and Claire,

I hope you are well, and that 2024 has got off to a good start.

I wanted to follow up on a couple of things:

- Does the EPA have any response to the Draft Long Term Management Plan that was issued 28 November 2023 for review and comment?
- Are you able to advise on the progress of Hydro's EPL Variation application, which was submitted 15 November 2023 (from the EPA EPL website it is still pending, see below).



Thanks in advance for your assistance.

Kind regards
Shaun Taylor

Senior Managing Consultant

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staylor@ramboll.com

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Ramboll Australia Pty Ltd.
ACN 095 437 442
ABN 49 095 437 442

From: Shaun Taylor
Sent: Tuesday, 28 November 2023 11:42 AM
To: Rebecca Akhurst <Rebecca.Akhurst@epa.nsw.gov.au>
Cc: Claire Miles <Claire.Miles@epa.nsw.gov.au>
Subject: Hydro Aluminium: Draft Long Term Containment Cell Management Plan [Filed 28 Nov 2023 11:42]

Hi Rebecca and Claire,

As discussed in our meeting on 16 November 2023, Hydro Aluminium Kurri Kurri Pty Ltd (Hydro) is required to prepare a Long Term Management Plan for its Containment Cell. The development consent for state significant development SSD 6666 includes the following conditions regarding the plan:

Long-Term Environmental Management Plan
B7. Two months prior to the completion of filling of the containment cell, the Applicant must prepare a LTEMP for the containment cell, to the satisfaction of the Site Auditor and the Planning Secretary. The LTEMP must:
(a) be prepared by a suitably qualified and experienced person(s) whose appointment has been agreed to by the Planning Secretary;
*(b) be prepared in consultation with Council, **the EPA** and Director, Environmental Services Group of H&P Group or its successors;*
(c) include, but not be limited to:
(i) identification of all relevant statutory and other obligations, including all approvals, licences, agreements and financial

arrangements;
(ii) details of ongoing management roles and responsibilities;
(iii) details of all monitoring, inspections, environmental controls, requirements and measures to manage the ongoing integrity and performance of the containment cell;
(iv) details of the contingency measures and responses to be implemented for any identified issues with the containment cell; and
(v) mechanisms for performance reporting and auditing in line with the relevant legislation and guidelines;
(d) incorporate a programme for ongoing review of the LTEMP to ensure it remains contemporary with relevant environmental standards.

B8. As part of the LTEMP required under Condition B7, the Applicant must include the following:
(a) Landscaping Management Plan (see Condition B45); and
(b) Gas Monitoring Plan (see Condition B33).

B9. Upon completion of the construction, filling and capping of the containment cell, the Applicant or any succeeding landowner(s) whose landholding includes the containment cell, must:
(a) implement the approved LTEMP; and
(b) manage the containment cell in perpetuity in accordance with the LTEMP as required by Condition

A original draft of the Long Term Management Plan was submitted as part of the Response to Submissions prepared to address submissions received during exhibition of the Environmental Impact Statement (EIS), and it was reviewed and accepted by the EPA and the EPA-accredited Site Auditor. The attached draft Long Term Management Plan is consistent with this previous version, but also considers the development consent and the Voluntary Planning Agreement entered into between Hydro and the Department of Planning and Public Spaces (reflecting that the NSW Government will take ownership of the Containment Cell). It also reflects the current status of the Containment Cell and how it has operated during filling.

In accordance with Condition B7 of the development consent for SSD 6666 we invite the EPA to review and comment on the draft plan. It is provided in MS Word version to allow for tracked changes and comments.

Please note that drafts of the sump monitoring protocol and gas monitoring protocol (referred to as appendices to the plan) are currently being finalised and will also be issued shortly. I also attach a copy of the Landscape Management Plan that has been accepted by the Department of Planning and Environment.

We request that you provide written feedback by 12 December 2023.

Please reach out if you wish to discuss. Thank you for your assistance.

Kind regards

Shaun Taylor

Senior Managing Consultant

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_____

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Ramboll Australia Pty Ltd.

ACN 095 437 442

ABN 49 095 437 442

From:	Shaun Taylor
To:	Rebecca Akhurst
Cc:	Claire Miles
Subject:	Hydro Aluminium: Draft Long Term Containment Cell Management Plan [Filed 28 Nov 2023 11:42]
Date:	Tuesday, 28 November 2023 11:41:55 AM
Attachments:	SSD6666 Hydro KK Landscape MP REV 1_20231031.pdf 318000980 Containment Cell LTMP V0.3 231128.docx

Hi Rebecca and Claire,

As discussed in our meeting on 16 November 2023, Hydro Aluminium Kurri Kurri Pty Ltd (Hydro) is required to prepare a Long Term Management Plan for its Containment Cell. The development consent for state significant development SSD 6666 includes the following conditions regarding the plan:

Long-Term Environmental Management Plan
B7. Two months prior to the completion of filling of the containment cell, the Applicant must prepare a LTEMP for the containment cell, to the satisfaction of the Site Auditor and the Planning Secretary. The LTEMP must:
(a) be prepared by a suitably qualified and experienced person(s) whose appointment has been agreed to by the Planning Secretary;
*(b) be prepared in consultation with Council, **the EPA** and Director, Environmental Services Group of H&P Group or its successors;*
(c) include, but not be limited to:
(i) identification of all relevant statutory and other obligations, including all approvals, licences, agreements and financial arrangements;
(ii) details of ongoing management roles and responsibilities;
(iii) details of all monitoring, inspections, environmental controls, requirements and measures to manage the ongoing integrity and performance of the containment cell;
(iv) details of the contingency measures and responses to be implemented for any identified issues with the containment cell; and
(v) mechanisms for performance reporting and auditing in line with the relevant legislation and guidelines;
(d) incorporate a programme for ongoing review of the LTEMP to ensure it remains contemporary with relevant environmental standards.

B8. As part of the LTEMP required under Condition B7, the Applicant must include the following:
(a) Landscaping Management Plan (see Condition B45); and
(b) Gas Monitoring Plan (see Condition B33).

B9. Upon completion of the construction, filling and capping of the containment cell, the Applicant or any succeeding landowner(s) whose landholding includes the containment cell, must:
(a) implement the approved LTEMP; and
(b) manage the containment cell in perpetuity in accordance with the LTEMP as required by Condition

A original draft of the Long Term Management Plan was submitted as part of the Response to Submissions prepared to address submissions received during exhibition of the Environmental Impact Statement (EIS), and it was reviewed and accepted by the EPA and the EPA-accredited Site Auditor. The attached draft Long Term Management Plan is consistent with this previous version, but also considers the development consent and the Voluntary Planning Agreement entered into between Hydro and the Department of Planning and Public Spaces (reflecting that the NSW Government will take ownership of the Containment Cell). It also reflects the current status of the Containment Cell and how it has operated during filling.

In accordance with Condition B7 of the development consent for SSD 6666 we invite the EPA to review and comment on the draft plan. It is provided in MS Word version to allow for tracked changes and comments.

Please note that drafts of the sump monitoring protocol and gas monitoring protocol (referred to as appendices to the plan) are currently being finalised and will also be issued shortly. I also attach a copy of the Landscape Management Plan that has been accepted by the Department of Planning and Environment.

We request that you provide written feedback by 12 December 2023.

Please reach out if you wish to discuss. Thank you for your assistance.

Kind regards

Shaun Taylor

Senior Managing Consultant

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Ramboll Australia Pty Ltd.

ACN 095 437 442

ABN 49 095 437 442

From:	Peter Lowery
To:	Shaun Taylor
Subject:	RE: Hydro Aluminium: Draft Long Term Containment Cell Management Plan: Invitation for Comment
Date:	Tuesday, 12 December 2023 9:51:43 AM
Attachments:	image001.png

Hi Shaun,
I have reviewed the draft long term management plan.

There are no changes that I want made to the report at this stage.
Regards

Peter Lowery
Technical Officer | Waste Assets Management Corporation
Property & Development NSW
Department of Planning and Environment
M 0419 753 970 | **E** peter.lowery@dpie.nsw.gov.au
Please note that my email address has changed to peter.lowery@dpie.nsw.gov.au

Eastern Creek Waste Management Centre, Wallgrove Road, Eastern Creek NSW 2766
PO Box 336, Horsley Park NSW 2175

NSW GOVERNMENT

The Department of Planning and Environment acknowledges that it stands on Aboriginal land. We acknowledge the traditional custodians of the land and we show our respect for elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

Classification: Confidential

From: Shaun Taylor <staylor@ramboll.com>
Sent: Tuesday, 28 November 2023 12:16 PM
To: Peter Lowery <PETER.LOWERY@dpie.NSW.GOV.AU>
Subject: Hydro Aluminium: Draft Long Term Containment Cell Management Plan: Invitation for Comment

Hello Peter,

Hydro Aluminium Kurri Kurri Pty Ltd (Hydro) is required to prepare a Long Term Management Plan for its Containment Cell. The development consent for state significant development SSD 6666 includes the following conditions regarding the plan:

Long-Term Environmental Management Plan
B7. Two months prior to the completion of filling of the containment cell, the Applicant must prepare a LTEMP for the containment cell, to the satisfaction of the Site Auditor and the Planning Secretary. The LTEMP must:
(a) be prepared by a suitably qualified and experienced person(s) whose appointment has been agreed to by the Planning Secretary;
(b) be prepared in consultation with Council, the EPA and ***Director, Environmental Services Group of H&P Group*** *or its successors;*
(c) include, but not be limited to:
(i) identification of all relevant statutory and other obligations, including all approvals, licences, agreements and financial arrangements;
(ii) details of ongoing management roles and responsibilities;

(iii) details of all monitoring, inspections, environmental controls, requirements and measures to manage the ongoing integrity and performance of the containment cell;
(iv) details of the contingency measures and responses to be implemented for any identified issues with the containment cell; and
(v) mechanisms for performance reporting and auditing in line with the relevant legislation and guidelines;
(d) incorporate a programme for ongoing review of the LTEMP to ensure it remains contemporary with relevant environmental standards.

B8. As part of the LTEMP required under Condition B7, the Applicant must include the following:
(a) Landscaping Management Plan (see Condition B45); and
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B9. Upon completion of the construction, filling and capping of the containment cell, the Applicant or any succeeding landowner(s) whose landholding includes the containment cell, must:
(a) implement the approved LTEMP; and
(b) manage the containment cell in perpetuity in accordance with the LTEMP as required by Condition

An original draft of the Long Term Management Plan was submitted as part of the Response to Submissions prepared to address submissions received during exhibition of the Environmental Impact Statement (EIS), and it was reviewed and accepted by DPE, the EPA and the EPA-accredited Site Auditor. The attached draft Long Term Management Plan is consistent with this previous version, but also considers the development consent and the Voluntary Planning Agreement (reflecting that the NSW Government will take ownership of the Containment Cell). It also reflects the current status of the Containment Cell and how it has operated during filling.

In accordance with Condition B7 of the development consent for SSD 6666 we invite Housing and Property Group to review and comment on the draft plan. It is provided in MS Word version to allow for tracked changes and comments.

Please note that drafts of the sump monitoring protocol and gas monitoring protocol (referred to as appendices to the plan) are currently being finalised and will also be issued shortly. I also attach a copy of the Landscape Management Plan that has been accepted by the Department of Planning and Environment (we appreciate the feedback you provided directly both to us, and to DPE).

We request that you provide written feedback by 12 December 2023.

Please reach out if you wish to discuss. Thank you for your assistance.

Kind regards

Shaun Taylor

Senior Managing Consultant

M +61 408 386 663

staylor@ramboll.com

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Newcastle, NSW 2300

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Appendix 2

Applicable Approvals and Licences

Consolidated Consent

The Department has prepared a consolidated version of the consent which is intended to include all modifications to the original determination instrument.

The consolidated version of the consent has been prepared by the Department with all due care. This consolidated version is intended to aid the consent holder by combining all consents relating to the original determination instrument but it does not relieve a consent holder of its obligation to be aware of and fully comply with all consent obligations as they are set out in the legal instruments, including the original determination instrument and all subsequent modification instruments.

SCHEDULE 1

Application Number:	SSD 6666
Applicant:	Hydro Aluminium Kurri Kurri Pty Ltd
Consent Authority:	Minister for Planning and Public Spaces
Site:	Land as defined in Appendix 2 of this development consent
Development:	Remediation of the former Hydro Kurri Kurri Aluminium Smelter site including: • excavation of onsite contaminated areas • excavation and treatment of Capped Waste Stockpile (CWS) material • construction of a purpose-built containment cell • placement of contaminated materials in the containment cell • treatment of contaminated groundwater plume originating from the CWS • ongoing management of the containment cell in perpetuity

SUMMARY OF MODIFICATIONS

Application Number	Determination Date	Decider	Modification Description
SSD-6666-Mod-1	13 September 2021	Department	Construction, operation and decommissioning of a temporary water treatment plant and associated infrastructure during remediation works.
SSD-6666-Mod-2	4 March 2022	Department	Reduction of vegetation clearance area and remediation of area previously designated as a potential archaeological deposit.

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DEFINITIONS

Area of Environmental Concern	Areas requiring surface soil and sediment remediation as identified by the reports titled *Phase 2 Environmental Site Assessment Kurri Kurri Aluminium Smelter* prepared by ENVIRON Australia Pty Ltd dated 1 November 2012 and *Phase 2 Environmental Site Assessments, Smelter Site, Additional Investigations* prepared by ENVIRON Australia Pty Ltd dated 16 January 2015
Applicant	Hydro Aluminium Kurri Kurri Pty Ltd, or any person carrying out any development to which this consent applies
BC Act	*Biodiversity Conservation Act 2016* (NSW)
CCDDR	Containment Cell Detailed Design Report prepared by GHD and dated August 2018
CLM Act	*Contaminated Land Management Act 1997* (NSW)
Conditions of this consent	Conditions contained in Schedule 2 of this consent
Containment Cell	A 'dry entombment', engineered waste cell for the long-term storage of varied contaminated wastes, located at the site of the former Clay Borrow Pit
Council	Cessnock City Council
CWS	Capped Waste Stockpile
Day	The period from 7 am to 6 pm on Monday to Saturday, and 8 am to 6 pm on Sundays and Public Holidays
Department	NSW Department of Planning, Industry and Environment
Development	The development described in the EIS and Response to Submissions, including the remediation works and the long-term management of the containment cell in perpetuity, as modified by the conditions of this consent
Development layout	The plans at **Appendix 1** of this development consent
EIS	The Environmental Impact Statement titled Former Hydro Kurri Kurri Aluminium Smelter Demolition and Remediation Environmental Impact Statement prepared by Ramboll Environ dated 14 July 2016, submitted with the application for consent for the development, including any additional information provided by the Applicant in support of the application
ENM	Excavated Natural Material
Environment	Includes all aspects of the surroundings of humans, whether affecting any human as an individual or in his or her social groupings
EPA	NSW Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPL	Environment Protection Licence under the POEO Act
Evening	The period from 6 pm to 10 pm
Heritage	Encompasses both Aboriginal and historic heritage including sites that predate European settlement, and a shared history since European settlement
Heritage item	An item as defined under the *Heritage Act 1977,* and assessed as being of local, State and/ or National heritage significance, and/or an Aboriginal Object or Aboriginal Place as defined under the *National Parks and Wildlife Act 1974'*, the World Heritage List, or the National Heritage List or Commonwealth Heritage List under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth), or anything identified as a heritage item under the conditions of this consent
H&P Group	Housing and Property Group of the Department
Incident	An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance ***Note:** "material harm" is defined in this consent*
Land	Has the same meaning as the definition of the term in section 1.4 of the EP&A Act
LTEMP	Long Term Environmental Management Plan
Material harm	Is harm that: (a) involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial, or

	(b) results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000 (such 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)
Minister	New South Wales Minister for Planning and Public Spaces (or delegate)
Mitigation	Activities associated with reducing the impacts of the development prior to or during those impacts occurring
Modification Applications	The document assessing the environmental impacts of a proposed modification of this consent and any other information submitted with the following modifications made under the EP&A Act: a) Modification Application SSD 6666 MOD 1 prepared by Ramboll and dated June 2021 b) Modification Application SSD 6666 MOD 2 prepared by Ramboll and dated September 2021.
Monitoring	Any monitoring required under this consent must be undertaken in accordance with section 9.40 of the EP&A Act
Night	The period from 10 pm to 7 am on Monday to Saturday, and 10 pm to 8 am on Sundays and Public Holidays
Non-compliance	An occurrence, set of circumstances or development that is a breach of this consent
OEH	(former) NSW Office of Environment and Heritage (now Biodiversity and Conservation Division of the Department)
Operation	The long-term maintenance and monitoring of the site upon completion of remediation works
Planning Secretary	Planning Secretary as defined in section 1.4 of the EP&A Act, or nominee
POEO Act	*Protection of the Environment Operations Act 1997* (NSW)
RAP	Remedial Action Plan prepared by Ramboll, dated 2 July 2018, Revision FINAL V4, included in the RtS
Reasonable	Means applying judgement in arriving at a decision, taking into account: mitigation benefits, costs of mitigation versus benefits provided, community views, and the nature and extent of potential improvements
Remediation Works	Includes the following activities, unless the context otherwise indicates: • site preparation • construction of the containment cell and associated infrastructure • remediation of soils within Areas of Environmental Concern and placement of contaminants in the Containment Cell • excavation and treatment of contaminants in the Capped Waste Stockpile (CWS) and placement in the Containment Cell • treatment of contaminated groundwater plume originating from the CWS • containment cell capping and completion • validation and audit of all aforementioned works as described in the RAP, EIS and RtS
Response to Submissions (RtS)	The Applicant's response to issues raised in submissions received in relation to the application for consent for the development under the EP&A Act and includes the document titled *Response to Submissions Report Former Hydro Aluminium Kurri Kurri Smelter Remediation*, prepared by Ramboll, dated August 2020
RVR	Remediation Validation Report, prepared in accordance with the NSW EPA *Contaminated Land Guidelines: Consultants reporting on contaminated land*
RWEMP	Remediation Works Environmental Management Plan
Sensitive receivers	A location where people are likely to work, occupy or reside, including a dwelling, school, hospital, office or public recreational area
Site	The land defined in **Appendix 2**
Site Auditor	As defined in section 4 of the *Contaminated Land Management Act 1997* (NSW)
Site Audit Report	As defined in section 4 of the *Contaminated Land Management Act 1997* (NSW)
Site Audit Statement	As defined in section 4 of the *Contaminated Land Management Act 1997* (NSW)
TWTP	Temporary Water Treatment Plant

Validation Consultant	Person certified under either the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme (CEnvP(SC)) or the Soil Science Australia Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS/CSAM) scheme appointed to document and verify the remediation works and prepare the Remediation Validation Report in accordance with Condition B4.
VENM	Virgin Excavated Natural Material
Waste	Has the same meaning as the definition of the term in the Dictionary to the POEO Act
WMP	Waste Management Plan
Year	A period of 12 consecutive months

SCHEDULE 2

PART A ADMINISTRATIVE CONDITIONS

OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

A1. In addition to meeting the specific performance measures and criteria in this consent, all reasonable and feasible measures must be implemented to prevent, and if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from the remediation works and operation of the development, and any rehabilitation required under this consent.

TERMS OF CONSENT

A2. The development may only be carried out:

(a) in compliance with the conditions of this consent;

(b) in accordance with all written directions of the Planning Secretary;

(c) in accordance with the EIS and Response to Submissions;

(d) in accordance with the RAP and CCDDR;

(e) in accordance with the Development Layout in **Appendix 1**;

(f) in accordance with the Modification Applications; and

(g) in accordance with the management and mitigation measures in **Appendix 3**.

A3. Consistent with the requirements in this consent, the Planning Secretary may make written directions to the Applicant in relation to:

a) the content of any strategy, study, system, plan, program, review, audit, notification, report or correspondence submitted under or otherwise made in relation to this consent, including those that are required to be, and have been, approved by the Planning Secretary; and

b) the implementation of any actions or measures contained in any such document referred to in Condition A3a).

A4. The conditions of this consent and directions of the Planning Secretary prevail to the extent of any inconsistency, ambiguity or conflict between them and a document listed in Condition A2(c) or A2(d). In the event of an inconsistency, ambiguity or conflict between any of the documents listed in Condition A2(c) and A2(d), the most recent document prevails to the extent of the inconsistency, ambiguity or conflict.

VOLUNTARY PLANNING AGREEMENT

A5. The Applicant must enter into a planning agreement with the Minister in the terms of the offer made to the Minister by the Applicant in connection with SSD 6666 by letter dated 11 December 2020 and no later than before the commencement of the Stage 1A Works within the meaning of the planning agreement attached to the letter

LIMITS OF CONSENT

Lapsing

A6. This consent lapses five (5) years after the date from which it operates, unless the development has physically commenced on the land to which the consent applies before that date.

A7. The remediation works must be undertaken over a maximum period of four years from the date of commencement of the remediation works, unless otherwise agreed with the Planning Secretary.

Independent Engineer's Deed

A8. Without limiting condition A5, the Applicant must procure the entry into a deed with an independent engineer in accordance with the offer made to the Minister as referred to in condition A5, before the commencement of the Stage 1B Works within the meaning of the planning agreement attached to the letter dated 11 December 2020 (referred to in condition A5) and in any case no later than 2 months from the commencement of the remediation works. Remediation works are to be suspended until such time as a deed is entered into if entry into the deed is not procured within the required timeframe.

NOTIFICATION OF COMMENCEMENT

A9. The date of each of the following phases of the development must be notified to the Department in writing, at least one month before that date, or within another timeframe agreed by the Planning Secretary:

(a) commencement of remediation works; and

(b) completion of the remediation works.

A10. If the remediation works are to be staged, the Department must be notified in writing at least one month before the commencement of each stage, of the date of commencement and the development to be carried out in that stage.

SURRENDER OF EXISTING CONSENTS

A11. Within 12 months of the date of commencement of development to which this consent applies, or within another timeframe agreed by the Planning Secretary, the Applicant must surrender any existing development consents in relation to the site in accordance with the EP&A Regulation, except:

(a) DA 118/692/102;

(b) DA 8/2015/399/1; and

(c) DA 8/2018/46/1.

A12. Upon the commencement of development to which this consent applies, and before the surrender of existing development consents required under condition A11, the conditions of this consent prevail to the extent of any inconsistency with the conditions of those consents or approvals.

Note: *This requirement does not extend to the surrender of construction and occupation certificates for existing and proposed building works under the former Part 4A of the EP&A Act or Part 6 of the EP&A Act as applies from 1 December 2019. The surrender should not be understood as implying that works legally constructed under a valid consent or approval can no longer be legally maintained or used.*

EVIDENCE OF CONSULTATION

A13. Where conditions of this consent require consultation with an identified party, the Applicant must:

(a) consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval; and

(b) provide details of the consultation undertaken including:

(i) the outcome of that consultation, matters resolved and unresolved; and

(ii) details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.

STAGING, COMBINING AND UPDATING STRATEGIES, PLANS OR PROGRAMS

A14. With the approval of the Planning Secretary, the Applicant may:

(a) prepare and submit any strategy, plan or program required by this consent on a staged basis (if a clear description is provided as to the specific stage and scope of the development to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program);

(b) combine any strategy, plan or program required by this consent (if a clear relationship is demonstrated between the strategies, plans or programs that are proposed to be combined); and

(c) update any strategy, plan or program required by this consent (to ensure the strategies, plans and programs required under this consent are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the development).

A15. If the Planning Secretary agrees, a strategy, plan or program may be staged or updated without consultation being undertaken with all parties required to be consulted in the relevant condition in this consent.

A16. If approved by the Planning Secretary, updated strategies, plans or programs supersede the previous versions of them and must be implemented in accordance with the condition that requires the strategy, plan or program.

PROTECTION OF PUBLIC INFRASTRUCTURE

A17. Before the commencement of the remediation works, the Applicant must:

(a) consult with the relevant owner and provider of services that are likely to be affected by the development to make suitable arrangements for access to, diversion, protection and support of the affected infrastructure;

(b) prepare a dilapidation report identifying the condition of all public infrastructure in the vicinity of the site (including roads, gutters and footpaths); and

(c) submit a copy of the dilapidation report to the Planning Secretary and the relevant council.

A18. Unless the Applicant and the applicable authority agree otherwise, the Applicant must:

(a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by carrying out the development; and

(b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development.

COMPLIANCE

A19. The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of the development.

OPERATION OF PLANT AND EQUIPMENT

A20. All plant and equipment used on site, or to monitor the performance of the development, must be:

(a) maintained in a proper and efficient condition; and

(b) operated in a proper and efficient manner.

UTILITIES AND SERVICES

A21. Before the construction of any utility works associated with the development, the Applicant must obtain relevant approvals from service providers.

APPLICABILITY OF GUIDELINES

A22. References in the conditions of this consent to any guideline, protocol, Australian Standard or policy are to such guidelines, protocols, Standards or policies in the form they are in as at the date of this consent.

A23. However, consistent with the conditions of this consent and without altering any limits or criteria in this consent, the Planning Secretary may, when issuing directions under this consent in respect of ongoing monitoring and management obligations, require compliance with an updated or revised version of such a guideline, protocol, Standard or policy, or a replacement of them.

ADVISORY NOTES

A24. All licences, permits, approvals and consents as required by law must be obtained and maintained as required for the development. No condition of this consent removes any obligation to obtain, renew or comply with such licences, permits, approvals and consents.

PART B SPECIFIC ENVIRONMENTAL CONDITIONS

REMEDIATION

Site Auditor

B1. Prior to the commencement of remediation works, the Applicant must provide evidence to the Planning Secretary that a Site Auditor has been appointed to independently review and endorse the implementation and validation of the remediation works. The scope of the Site Auditor's role is to include consideration of the suitability of the Long-Term Environmental Management Plan (LTEMP) to manage the containment cell in perpetuity (see Conditions B7 and B11).

Remediation Works

B2. The Applicant must remediate the site, including construction of a containment cell, in accordance with the design specifications, criteria and requirements detailed in the Remedial Action Plan (RAP), the Containment Cell Detailed Design Report (CCDDR) and relevant guidelines produced or approved under the CLM Act to the satisfaction of the Site Auditor.

B3. Remediation works must be undertaken by a suitably qualified and experienced contractor(s).

Validation Consultant(s)

B4. Prior to the commencement of remediation works, the Applicant must provide evidence to the Planning Secretary, that a suitably qualified and experienced Validation Consultant(s) has been appointed to document and validate the remediation works to demonstrate compliance with the RAP.

Containment Cell Management Plan

B5. Prior to the commencement of remediation works, the Applicant must prepare a Containment Cell Management Plan (CCMP) detailing the containment cell construction, filling and capping activities to the satisfaction of the Planning Secretary. The CCMP must form part of the RWEMP required by Condition C2 and be prepared in accordance with Condition C1. The CCMP must:

(a) be prepared by a suitably qualified and experienced person(s);

(b) be prepared in consultation with the EPA and Environmental Services Group of Housing and Property Group of the Department (H&P Group);

(c) describe the design of the containment cell and its construction methodology, including evidence that engineering drawings have been prepared by appropriately qualified structural or civil engineers;

(d) include details of the quality control and quality assurance procedures, program and performance specifications for the construction of the containment cell;

(e) describe the measures to be implemented to ensure adequate control of environmental impacts associated with the containment cell construction activities;

(f) include details of a proposed construction program, including a mechanism for informing relevant agencies of the progress of construction of the containment cell; and

(g) be prepared in accordance with the RAP and the CCDDR.

B6. The Applicant must:

(a) not commence remediation works until the CCMP required by condition B5 is approved by the Planning Secretary; and

(b) implement the most recent version of the CCMP approved by the Planning Secretary.

Long-Term Environmental Management Plan

B7. Two months prior to the completion of filling of the containment cell, the Applicant must prepare a LTEMP for the containment cell, to the satisfaction of the Site Auditor and the Planning Secretary. The LTEMP must:

(a) be prepared by a suitably qualified and experienced person(s) whose appointment has been agreed to by the Planning Secretary;

(b) be prepared in consultation with Council, the EPA and Director, Environmental Services Group of H&P Group or its successors;

(c) include, but not be limited to:

(i) identification of all relevant statutory and other obligations, including all approvals, licences, agreements and financial arrangements;

(ii) details of ongoing management roles and responsibilities;

(iii) details of all monitoring, inspections, environmental controls, requirements and measures to manage the ongoing integrity and performance of the containment cell;

(iv) details of the contingency measures and responses to be implemented for any identified issues with the containment cell; and

(v) mechanisms for performance reporting and auditing in line with the relevant legislation and guidelines;

(d) incorporate a programme for ongoing review of the LTEMP to ensure it remains contemporary with relevant environmental standards.

B8. As part of the LTEMP required under Condition B7, the Applicant must include the following:

(a) Landscaping Management Plan (see Condition B45); and

(b) Gas Monitoring Plan (see Condition B33).

B9. Upon completion of the construction, filling and capping of the containment cell, the Applicant or any succeeding landowner(s) whose landholding includes the containment cell, must:

(a) implement the approved LTEMP; and

(b) manage the containment cell in perpetuity in accordance with the LTEMP as required by Condition B7.

Remediation Validation Report

B10. Within six months of completion and capping of the containment cell, or as otherwise agreed by the Planning Secretary, the Applicant must submit a Remediation Validation Report (RVR) to the Planning Secretary. The RVR must:

(a) be prepared by the appointed Validation Consultant(s) (see Condition B4) to the satisfaction of the Site Auditor;

(b) be prepared in accordance with the relevant guidelines produced or approved under the CLM Act;

(c) describe the remediation works, the validation carried out and the final condition of the site;

(d) validate the remediation works against the remediation criteria set out in the RAP. Where the RVR states the remediation criteria have not been achieved and additional remediation work is required, the Applicant must promptly undertake the additional work and provide the Planning Secretary with evidence it has been completed and the remediation criteria have been achieved to the Validation Consultant's satisfaction;

(e) assess the results of any post-remediation testing against the remediation criteria set out in the RAP; and

(f) include, but not be limited to, a:

(i) Construction Quality Assurance report or equivalent;

(i) design report; and

(ii) waste classification report in accordance with EPA Waste Classification Guidelines.

Site Audit Report and Site Audit Statement

B11. Within six months of submission of the RVR required by Condition B10 or as otherwise agreed by the Planning Secretary, the Site Auditor must submit a Site Audit Report (SAR) and Site Audit Statement (SAS) to the Planning Secretary. The SAS and SAR must be prepared in accordance with the relevant guidelines produced or approved under the CLM Act and must confirm:

(a) the remediation works have been completed in accordance with the RAP;

(b) the risks to human health and the environment have been addressed in accordance with the objectives in the RAP;

(c) the suitability of the site for the intended future uses; and

(d) the suitability of the LTEMP required by condition B7 to manage the Containment Cell in perpetuity.

B12. Despite condition B11 above, with the agreement of the Planning Secretary, the Site Auditor may, before the completion of the whole of the remediation works, submit a SAS and SAR for a part of the Site (other than that part on which the Containment Cell is located) if the remediation works have been completed in accordance with the RAP for that part of the Site. The SAS and SAR must be prepared in accordance with the relevant guidelines produced or approved under the CLM Act and must confirm:

(a) the remediation works for the relevant part of the Site have been completed in accordance with the RAP;

(b) the risks to human health and the environment relating to the relevant part of the Site have been addressed in accordance with the objectives in the RAP; and

(c) the suitability of the relevant part of the land for the intended future uses.

If Site Audit Reports and Site Audit Statements are submitted progressively as the remediation works on parts of the Site are completed, the final SAS and SAR are not required to cover those parts of the Site for which Site Audit Statements and Site Audit Reports have already been submitted. However, the final SAS and SAR must otherwise comply with condition B11.

WORK HEALTH AND SAFETY

B13. The Applicant must ensure that all remediation works are carried out in accordance with NSW *Work Health and Safety Regulation 2017* (WHS Regulation) and relevant guidelines.

B14. Prior to the commencement of remediation works, the Applicant must prepare a Health and Safety Plan (HSP) for the remediation works to the satisfaction of the Planning Secretary. The HSP must form part of the RWEMP required by Condition C2 and be prepared in accordance with Condition C1. The HSP must:

(a) describe the controls to ensure compliance with the WHS Regulation including controls to be implemented to manage the risks associated with workers coming into contact with asbestos, contaminated groundwater and/or leachate;

(b) identify personal protective equipment (PPE) required for use onsite;

(c) describe the procedures for training, education and awareness programs and inductions for site personnel to ensure adequate protection from human health risks, including asbestos;

(d) describe the location of the real time ambient air monitors for ammonia and hydrogen cyanide gases including the trigger for the implementation of additional controls;

(e) identify requirements for health monitoring for site personnel and documentation procedures; and

(f) details of exclusion zones and decontamination procedures.

B15. The Applicant must:

(a) not commence remediation works until the HSP required by Condition B14 is approved by the Planning Secretary; and

(b) implement the most recent version of the HSP approved by the Planning Secretary.

SOILS, WATER QUALITY AND HYDROLOGY

Imported Material for Containment Cell Construction

B16. The Applicant must:

(a) ensure that only VENM, ENM, or other material approved in writing by EPA or site auditor is brought onto the site;

(b) keep accurate records of the volume and type of fill to be used; and

(c) make these records available to the Planning Secretary upon request.

Erosion and Sediment Control

B17. Prior to the commencement of any remediation works or surface disturbance the Applicant must install and maintain suitable erosion and sediment control measures on-site, in accordance with the relevant requirements of the *Managing Urban Stormwater: Soils and Construction - Volume 1: Blue Book* (Landcom, 2004) guideline and the Erosion and Sediment Control Plan included in the RWEMP required by condition C2.

Stormwater Management System

B18. Prior to the placement of contaminated waste materials in the containment cell, the Applicant must install and operate a stormwater management system for the development. The system must:

(a) be generally in accordance with the design in the CCDDR;

(b) be in accordance with applicable Australian Standards;

(c) ensure that the system capacity has been designed in accordance with *Australian Rainfall and Runoff* (Engineers Australia, 2016) and *Managing Urban Stormwater: Council Handbook* (EPA, 1997) guidelines;

(d) divert existing clean surface water around operational areas of the site;

(e) direct all sediment laden water in overland flow away from the leachate management system; and

(f) prevent cross-contamination of clean and sediment or leachate laden water.

B19. Within two months of completion of installation of the stormwater management system or within another timeframe agreed by the Planning Secretary, works-as-executed drawings signed by a registered surveyor must be submitted to the Site Auditor demonstrating that the stormwater drainage and finished ground levels have been constructed as detailed in the CCDDR.

Water Treatment Plant Management Plan

B19A. Prior to operation of the Temporary Water Treatment Plant (TWTP), the Applicant must prepare, to the satisfaction of the Planning Secretary, a TWTP Management Plan that includes, but is not limited to, details regarding treatment processes and commissioning and operation stage management protocols. The TWTP Management Plan must be prepared in consultation with the EPA and include, at a minimum:

(a) specifications and final design details of the TWTP, including expected treatment performance for all pollutants of concern;

(b) a TWTP commissioning stage monitoring program that includes:

(i) the collection and collation of data on both the influent and treated effluent quality for all pollutants of concern; and

(ii) a verification process to ensure that the treated water quality is consistent with the 'Treated Leachate Target Values' (Document: Hydro Kurri Kurri Aluminium Smelter Remediation-Mod-1 (SSD-6666-Mod-1): Additional Information, dated 31 July 2021) before discharge to the North Dam

(c) a TWTP operational stage monitoring program that ensures each treated effluent batch meets all the 'Treated Leachate Target Values' prior to discharge to the North Dam;

(d) protocols and operational rules in the event the treated effluent does not meet all the 'Treated Leachate Target Values' including but not limited to:

(i) recirculation through the TWTP

(ii) offsite removal by tanker for disposal at a licensed facility

(e) details of the timing and implementation of decommissioning of the TWTP.

Fluoride Treatment

B19B. Prior to operation of the TWTP, the applicant must explore all practical and reasonable treatment measures to reduce specifically the fluoride concentration in the treated effluent from the TWTP to levels consistent with the ANZECC (2000) long term trigger values for irrigation. The fluoride target value in 'Treated Leachate Target Values' (Document: Hydro Kurri Kurri Aluminium Smelter Remediation-Mod-1 (SSD-6666-Mod-1): Additional Information, dated 31 July 2021) must be adjusted to reflect the final target fluoride level following investigation and implementation of further treatment measures.

Irrigation Management Plan

B19C. Prior to operation of the TWTP, the Applicant must prepare, to the satisfaction of the Planning Secretary, an Irrigation Management Plan in consultation with the EPA. The Irrigation Management Plan must include, but is not limited to:

(a) A plan showing the area to be irrigated by treated effluent from the TWTP;

(b) Irrigation rules to ensure that irrigation water quality meets the North East Dam Target Values prior to irrigation (Document: Hydro Kurri Kurri Aluminium Smelter Remediation-Mod-1 (SSD-6666-Mod-1);

(c) Details of ongoing treated effluent quality monitoring, including sample take location and frequency;

(d) Identification of operational triggers (such as 'trigger action response plans') to ensure that the treatment process is functioning correctly and to prevent unacceptable impacts to the irrigated area. Triggers and associated responses must be provided for, but not limited to, the following:

(iii) excessive saturation of the soil profile (waterlogging);

(iv) any surface water runoff of treated effluent from the North Dam; and

(v) any water quality impacts to the downstream receiving environment.

(e) Operating rules to ensure the North Dam maintains a 1 in 5-year rainfall event or 20% AEP design storm capacity;

(f) Develops a Trigger Action Response Plan (TARP) which includes contingencies to identify and manage any unpredicted impacts (such as poor water quality within the North Dam) and ensure corrective actions are implemented. Contingency measures could include, but are not limited to:

(i) additional treatment of leachate through the TWTP;

(ii) treatment of the North Dam water quality through the TWTP; and

(iii) offsite removal by tanker for disposal at a licensed facility.

Water Quality Monitoring Program

B19D. Prior to operation of the TWTP, the applicant must prepare a Water Quality Monitoring Program in consultation with the EPA that informs the Irrigation Management Plan and Trigger Action Response Plans. The monitoring program should include, at a minimum:

(a) water quality monitoring locations (including but not limited to the North Dam and downstream receiving environment)

(b) analyte list for all pollutants with the potential to cause non-trivial harm (including all the 'Treated Leachate Target Values' (Document: Hydro Kurri Kurri Aluminium Smelter Remediation-Mod-1 (SSD-6666-Mod-1).

(c) sampling method for each location

TRAFFIC AND ACCESS

Remediation Works Conditions

B20. The Applicant must ensure that:

(a) the development does not result in any queuing on the public road network unless otherwise approved by the relevant council;

(b) all vehicular movement to and from the site must be in a forward direction;

(c) the swept path of the longest vehicle entering and exiting the site, as well as manoeuvrability through the site, is in accordance with the relevant AUSTROADS guideline;

(d) all loading and unloading of materials are carried out on-site in designated areas; and

(e) vehicle manoeuvring areas must always be kept clear of any obstacles, including parked cars.

Parking

B21. The Applicant must provide sufficient parking facilities on-site, including for heavy vehicles and for site personnel, to ensure that traffic associated with the development does not utilise public streets or public parking facilities.

Long-term Access

B22. The Applicant must ensure ongoing access to the containment cell for maintenance works is provided in perpetuity in accordance with the VPA in Condition A5.

WASTE MANAGEMENT

Statutory Requirements

B23. All waste materials removed from the site must only be directed to a waste management facility or premises lawfully permitted to accept the materials.

B24. Waste generated outside the site must not be received at the site for storage, treatment, processing, reprocessing, or disposal, except as expressly permitted by an EPL.

B25. The Applicant must assess and classify all liquid and non-liquid wastes to be taken off site in accordance with the *Waste Classification Guidelines Part 1: Classifying Waste* (NSW EPA, November 2014), or its latest version and dispose of all wastes to a facility that may lawfully accept the waste.

B26. The Applicant must retain all sampling and waste classification data in accordance with the requirements of the EPA.

Pests, Vermin and Priority Weed Management

B27. The Applicant must:

(a) implement suitable measures to manage pests, vermin and declared priority weeds on the site; and

(b) inspect the site on a regular basis to ensure that these measures are working effectively, and that pests, vermin or priority weeds are not present on site in sufficient numbers to pose an environmental hazard or cause the loss of amenity in the surrounding area.

Note: *For the purposes of this condition, 'priority weed' has the same definition as the term in the Biosecurity Act 2015.*

AIR QUALITY

Dust Minimisation

B28. The Applicant must take all reasonable steps to minimise dust generated during all works authorised by this consent.

B29. The Applicant must ensure that:

(a) trucks and vehicles entering and leaving the site that are carrying loads of dust generating materials must have their loads covered at all times, except during loading and unloading;

(b) remediation works are not carried out during adverse meteorological conditions;

(c) any works are carried out progressively on site to minimise exposed surfaces;

(d) all operations and activities occurring during the remediation works must be carried out in a manner that minimises the emissions of air pollutants from the Development; and

(e) trucks associated with the development do not track dirt onto the public road network.

Air Quality Management Plan

B30. Prior to the commencement of remediation works, the Applicant must prepare an Air Quality Management Plan (AQMP) to the satisfaction of the Planning Secretary. The AQMP must form part of the RWEMP required by Condition C2 and be prepared in accordance with Condition C1. The AQMP must:

(a) be prepared by a suitably qualified and experienced person(s);

(b) detail all emission sources including odour and particulates from all remediation works;

(c) describe the control measures that will be implemented for each emission source to minimise the potential risks to adverse air quality in the area, including the nominated measures described in the RAP;

(d) detail the contingency measures to be implemented to respond to complaints or if dust impacts are identified;

(e) include record keeping, a complaints register and compliance report to identify the control measures that will be implemented for each emission source; and

(f) show the locations of five dust monitors with appropriate trigger values and report on the performance of the remediation works in relation to the results from the five dust monitoring stations when compared to the applicable NSW EPA Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (NSW EPA 2017) and National Environment Protection (Ambient Air Quality) Measure (NEPC 2016).

B31. The Applicant must:

(a) not commence remediation works until the AQMP required by Condition B30 is approved by the Planning Secretary; and

(b) implement the most recent version of the AQMP approved by the Planning Secretary for the duration of the remediation works.

Odour Management

B32. The Applicant must ensure the development does not cause or permit the emission of any offensive odour (as defined in the POEO Act).

Gas Monitoring

B33. Two months prior to the completion of filling of the containment cell, the Applicant must prepare a Gas Monitoring Plan (GMP) to the satisfaction of the Secretary. The GMP must form part of the LTEMP required by Condition B7. The GMP must:

(a) describe the location, frequency and duration of gas monitoring;

(b) outline trigger levels for the implementation of contingency measures; and

(c) contain a range of contingency measures to respond to exceedances of the trigger levels.

NOISE

Hours of Work

B34. The Applicant must comply with the hours detailed in **Table 1**, unless otherwise agreed in writing by the Planning Secretary.

Table 1 *Hours of Work*

Activity	Day	Time
Remediation works	Mondays – Fridays	7 am to 6 pm
	Saturdays	7 am to 1 pm

B35. Works outside of the hours identified in Condition B34 may be undertaken in the following circumstances:

(a) works that are inaudible at the nearest sensitive receivers;

(b) works agreed to in writing by the Planning Secretary; and

(c) where it is required in an emergency to avoid the loss of lives, property or to prevent environmental harm.

Remediation Works Noise Limits

B36. Remediation works must be undertaken to achieve the construction noise management levels detailed in *the Interim Construction Noise Guideline* (DECC, 2009) (as may be updated or replaced from time to time). All feasible and reasonable noise mitigation measures must be implemented and any activities that could exceed the construction noise management levels must be identified and managed in accordance with the management and mitigation measures in the **Appendix 2** of this development consent and outlined in *the Interim Construction Noise Guideline* (DECC, 2009).

Vibration Criteria

B37. Vibration caused by the remediation works at any residence or structure outside the site must be limited to:

(a) for structural damage: *German Standard DIN 4150 Part 3 Structural Vibration in Buildings*; and

(b) for human exposure: the acceptable vibration values set out in *Environmental Noise Management Assessing Vibration: A Technical Guideline (DECC, 2006).*

~~**ABORIGINAL HERITAGE**~~

~~B38. To prevent impacts to subsurface archaeological deposits, stockpiles in the area of high archaeological sensitivity, as shown in ***Figure 23*** of the Aboriginal Cultural Heritage Assessment and titled *Archaeological Sensitivity Figure*, must be placed on geo-matting.~~

Unexpected Finds Protocol

B39. If any previously unidentified item or object of Aboriginal heritage significance is identified on site:

(a) all work in the immediate vicinity of the suspected Aboriginal item or object must cease immediately;

(b) a 10 m wide buffer area around the suspected item or object must be cordoned off; and

(c) Biodiversity and Conservation Division, Environment, Energy and Science Group of the Department must be contacted immediately.

B40. Work in the immediate vicinity of the Aboriginal item or object may only recommence in accordance with the provisions of Part 6 of the *National Parks and Wildlife Act 1974* (NSW).

BIODIVERSITY

~~B41. Prior to vegetation clearing for remediation works, or within another timeframe agreed with the Planning Secretary, the Applicant must retire:~~

~~(a) 155 ecosystem credits, including:~~

~~i. 94 ecosystem credits for removal of 1.35 ha of Parramatta Red Gum – Narrow-leaved Apple – Prickly-leaved Paperbark shrubby woodland in the Cessnock-Kurri Kurri area; and~~

~~ii. 61 ecosystem credits for removal of 1.15 ha of Spotted Gum – Red Ironbark – Narrow-leaved Ironbark – Grey Box shrub-gross open forest of the lower Hunter; and~~

~~(b) 582 species credits, including:~~

~~i. 19 species credits for Green-thighed frog (Litoria brevipalmata);~~

~~ii. 35 species credits for Koala (Phascolarctos cinereus);~~

~~iii. 313 species credits for Southern Myotis (Myotis macropus);~~

~~iv. 89 species credits for Regent Honeyeater (Anthochaera phrygia);~~

~~v. 56 species credits for Eucalyptus parramattensis subsp. decadens (Eucalyptus parramattensis subsp. decadens); and~~

~~vi. 70 species credits for Small flower Grevillea (Grevillea parviflora subsp. parviflora).~~

~~to offset the removal of 2.5 hectares of vegetation on site.~~

B41. Prior to vegetation clearing for remediation works, or within another timeframe agreed with the Planning Secretary, the Applicant must retire:

(c) 98 ecosystem credits, including:

i. 68 ecosystem credits for removal of 0.97 ha of Parramatta Red Gum – Narrow-leaved Apple – Prickly-leaved Paperbark shrubby woodland in the Cessnock-Kurri Kurri area; and

ii. 30 ecosystem credits for removal of 0.56 ha of Spotted Gum – Red Ironbark – Narrow-leaved Ironbark – Grey Box shrub-gross open forest of the lower Hunter; and

(d) 96 species credits, including:

i. 5 species credits for Green-thighed frog (Litoria brevipalmata);

ii. 25 species credits for Koala (Phascolarctos cinereus);

iii. 9 species credits for Southern Myotis (Myotis macropus);

iv. 43 species credits for Regent Honeyeater (Anthochaera phrygia);

v. 14 species credits for Eucalyptus parramattensis subsp. decadens (Eucalyptus parramattensis subsp. decadens); and

to offset the removal of 1.53 hectares of vegetation on site.

Note: *If the Applicant seeks a variation to the offset rules, the Applicant must demonstrate that reasonable steps have been taken to find like-for-like offsets in accordance with Section 10.5.4.2 of the FBA and Appendix A of the OEH's NSW Biodiversity Offsets Policy for Major Projects 2014.*

Biodiversity Management Plan

B42. Prior to vegetation clearing for remediation works, the Applicant must prepare a Biodiversity Management Plan (BMP) for the development in consultation with the Biodiversity and Conservation Division of the Department to the satisfaction of the Planning Secretary. The BMP must be approved by the Planning Secretary prior to the commencement of clearing for remediation works and must form part of the RWEMP in accordance with Condition C2. The BMP must include the following:

(a) pre-clearing surveys;

(b) supervision during vegetation clearing;

(c) hygiene protocols, including vehicle wash-down, for all plant machinery; and

(d) nest box installation and a monitoring strategy to compensate for hollow bearing tree loss.

B43. The Applicant must:

(a) not commence vegetation clearing for remediation works until the BMP required by Condition B30 is approved by the Planning Secretary; and

(b) implement the most recent version of the BMP approved by the Planning Secretary for the duration of the remediation works.

VISUAL AMENITY

Lighting

B44. The Applicant must ensure the lighting associated with the development:

(a) complies with the latest version of AS 4282-1997 - *Control of the obtrusive effects of outdoor lighting* (Standards Australia, 1997); and

(b) is mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties or the public road network.

Landscaping Management Plan

B45. Two months prior to the completion of filling of the containment cell, the Applicant must prepare, to the satisfaction of the Planning Secretary, a containment cell Landscaping Management Plan (LMP). The LMP must form part of LTEMP required by Condition B7 and must:

(a) be prepared in consultation with Environmental Services Group of H&P Group or its successors;

(b) include provision for the planting of shallow rooted locally endemic grass species and non-invasive hybrid grass species where appropriate; and

(c) include details of the management of landscaping post remediation.

B46. The Applicant must implement the most recent version of the LMP approved by the Planning Secretary.

HAZARDS AND RISK

Pre-construction Studies

B47. One month prior to the commencement of remediation works (except for preliminary works that are outside the scope of the hazard studies), or within another timeframe agreed to by the Planning Secretary, the Applicant must prepare the studies set out under subsections (a) and (b) below. Remediation works, other than preliminary works, must not commence until study recommendations have been considered and, where appropriate, acted upon.

(a) A **Fire Safety Study** for the development which covers the relevant aspects of the Department's Hazardous Industry Planning Advisory Paper No. 2, '*Fire Safety Study Guidelines'* and the New South Wales Government's '*Best Practice Guidelines for Contaminated Water Retention and Treatment Systems'*. The study must meet the requirements of Fire and Rescue NSW.

(b) A **Construction Safety Study**, prepared in accordance with the Department's *Hazardous Industry Planning Advisory Paper No. 7, 'Construction Safety'*. The Construction Safety Study shall also review Appendix 03 of the CCDDR and address all relevant requirements.

Pre-commissioning

B48. Prior to commencement of filling of the containment cell, the Applicant must develop and implement the plans and systems set out under subsections (a) and (b) below.

(a) **Emergency Plan**: the plan must include detailed emergency procedures and be consistent with the Department's Hazardous Industry Planning Advisory Paper No. 1, 'Emergency Planning'.

(b) **Safety Management System**: the system must cover all on-site operations and associated transport activities involving hazardous materials and be consistent with the Department's Hazardous Industry Planning Advisory Paper No. 9, 'Safety Management'.

Pre-start-up Compliance

B49. One month prior to the commencement of filling of the containment cell, or within another timeframe agreed to by the Planning Secretary, the Applicant must submit to the Planning Secretary a Pre-start-up Compliance Report detailing compliance with Condition B47 and Condition B48.

Dangerous Goods

B49A. The quantities of dangerous goods stored and handled for MOD 1 must be below the threshold quantities listed in the Department of Planning's Hazardous and Offensive Development Application Guidelines – Applying SEPP 33 at all times;

B49B. Dangerous goods, as defined by the Australian Dangerous Goods Code, must be stored and handled strictly in accordance with:

(a) all relevant Australian Standards;

(b) for liquids, a minimum bund volume requirement of 110% of the volume of the largest single stored volume within the bund; and

(c) the Environment Protection Manual for Authorised Officers: Bunding and Spill Management – technical bulletin (EPA, 1997).

B49C. In the event of an inconsistency between the requirements of conditions B49B(a) to B49B(c), the most stringent requirement must prevail to the extent of the inconsistency.

Bunding

B50. The Applicant must store all chemicals, fuels and oils used on-site in appropriately bunded areas in accordance with the requirements of all relevant Australian Standards, and/or EPA's *Storing and Handling of Liquids: Environmental Protection – Participants Manual* (Department of Environment and Climate Change, 2007).

B51. Any servicing or repair work of motor vehicles or mobile plant must be carried out within a sealed area that has environmental controls appropriate for servicing or repair work. This must include bunding where this work could result in liquids being spilled.

Fire management

B52. The Applicant must:

(a) maintain the existing fire breaks and a service road around the containment cell for the duration of the remediation works; and

(b) construct a perimeter road at least 4.6 m wide, around the containment cell on the completion of construction of the containment cell.

COMMUNITY ENGAGEMENT

B53. The Applicant must prepare a Community Engagement Plan for the development, to the satisfaction of the Planning Secretary. The Plan must:

(a) be approved by the Planning Secretary within two months of the date of this consent;

(b) identify the relevant community including nearby and adjacent landowners, sensitive receivers, relevant regulatory authorities and other interested stakeholders;

(c) detail the mechanisms for consulting with the local community throughout the development;

(d) identify a community notification area for residents to refrain from using rainwater as a potable water supply during the remediation works;

(e) include a complaints handling procedure for recording, responding to and managing complaints.

B54. The Applicant must implement the approved Community Engagement Plan for the duration of the development.

PART C ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

ENVIRONMENTAL MANAGEMENT

Management Plan Requirements

C1. Management plans required under this consent must be prepared in accordance with relevant guidelines, and include:

(a) detailed baseline data;

(b) details of:

(i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);

(ii) any relevant limits or performance measures and criteria; and

(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;

(c) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;

(d) a program to monitor and report on the:

(i) impacts and environmental performance of the development; and

(ii) effectiveness of the management measures set out pursuant to paragraph (c) above;

(e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;

(f) a program to investigate and implement ways to improve the environmental performance of the development over time;

(g) a protocol for managing and reporting any:

(i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);

(ii) complaint;

(iii) failure to comply with statutory requirements; and

(h) a protocol for periodic review of the plan.

Note: *the Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.*

REMEDIATION WORKS ENVIRONMENTAL MANAGEMENT PLAN

C2. The Applicant must prepare a Remediation Works Environmental Management Plan (RWEMP) to the satisfaction of the Planning Secretary in accordance with the requirements of Condition C1. The RWEMP must:

(a) be approved by the Planning Secretary prior to the commencement of remediation works;

(b) identify the statutory approvals that apply to the development;

(c) outline all environmental management practices and procedures to be followed during remediation works associated with the development;

(d) describe all activities to be undertaken on the site during remediation works, including a clear indication of construction stages;

(e) detail how the environmental performance of the remediation works will be monitored, and what actions will be taken to address identified adverse environmental impacts;

(f) describe the roles and responsibilities for all relevant employees involved in remediation works associated with the development; and

(g) include the management plans required under Condition C3 of this consent.

C3. As part of the RWEMP required under Condition C2 of this consent, the Applicant must include the following:

(a) Containment Cell Management Plan (see Condition B5);

(b) Erosion and Sediment Control Plan (see Condition B17);

(c) Air Quality Management Plan (see Condition B30);

(d) Biodiversity Management Plan (see Condition B42);

(e) Health and Safety Plan (see Condition B14); and

(f) Community Consultation and Complaints Handling.

C4. The Applicant must:

(a) not commence remediation works until the RWEMP is approved by the Planning Secretary; and

(b) carry out the construction of the development in accordance with the RWEMP approved by the Planning Secretary and as revised and approved by the Planning Secretary from time to time.

REVISION OF STRATEGIES, PLANS AND PROGRAMS

C5. Within three months of:

(a) the submission of a Compliance Report under Condition C12;

(b) the submission of an incident report under Condition C7;

(c) the submission of an Independent Audit under Condition C14;

(d) the approval of any modification of the conditions of this consent; or

(e) the issue of a direction of the Planning Secretary under Condition A2(b) which requires a review,

the strategies, plans and programs required under this consent must be reviewed, and the Department must be notified in writing that a review is being carried out.

C6. If necessary to either improve the environmental performance of the development, cater for a modification or comply with a direction, the strategies, plans and programs required under this consent must be revised, to the satisfaction of the Planning Secretary. Where revisions are required, the revised document must be submitted to the Planning Secretary for approval within six weeks of the review.

Note: *This is to ensure strategies, plans and programs are updated on a regular basis and to incorporate any recommended measures to improve the environmental performance of the development.:*

REPORTING AND AUDITING

Incident Notification, Reporting and Response

C7. The Planning Secretary must be notified in writing via the Major Projects website immediately after the Applicant becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development if it has one) and set out the location and nature of the incident. Subsequent notification requirements must be given, and reports submitted in accordance with the requirements set out in **Appendix 4**.

Non-Compliance Notification

C8. The Planning Secretary must be notified in writing via the Major Projects website within seven days after the Applicant becomes aware of any non-compliance.

C9. A non-compliance notification must identify the development and the application number for it, set out the condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

C10. A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

Compliance Reporting

C11. Within three months after the commencement of remediation works, and in the same month each subsequent year (or such other timing as agreed by the Planning Secretary), the Applicant must submit a Compliance Report to the Planning Secretary reviewing the environmental performance of the development to the satisfaction of the Planning Secretary. Compliance Reports must be prepared in accordance with the Compliance Reporting Post Approval Requirements (Department, 2020) and must also:

(a) identify any trends in the monitoring data over the life of the development;

(b) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and

(c) describe what measures will be implemented over the next year to improve the environmental performance of the development.

C12. The Applicant must make each Compliance Report publicly available no later than 60 days after submitting it to the Planning Secretary and notify the Planning Secretary in writing at least 7 days before this is done.

Independent Audit

C13. Within one year of the commencement of remediation works, and every three years thereafter, unless the Planning Secretary directs otherwise, the Applicant must commission and pay the full cost of an Independent Environmental Audit (Audit) of the development. Audits must:

(a) be prepared in accordance with the Independent Audit Post Approval Requirements (Department 2020);

(b) be led and conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Planning Secretary; and

(c) be submitted to the satisfaction of the Planning Secretary within three months of commissioning the Audit (or within another timeframe agreed by the Planning Secretary).

C14. In accordance with the specific requirements in the Independent Audit Post Approval Requirements (Department, 2020), the Applicant must:

(a) review and respond to each Independent Audit Report prepared under Condition C13 of this consent;

(b) submit the response to the Planning Secretary and any other NSW agency that requests it, together with a timetable for the implementation of the recommendations;

(c) implement the recommendations to the satisfaction of the Planning Secretary; and

(d) make each Independent Audit Report and response to it publicly available no later than 60 days after submission to the Planning Secretary and notify the Planning Secretary in writing at least 7 days before this is done.

Monitoring and Environmental Audits

C15. Any condition of this consent that requires the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the EP&A Act. This includes conditions in respect of incident notification, reporting and response, non-compliance notification, compliance reporting and independent auditing.

Note: *For the purposes of this condition, as set out in the EP&A Act, "monitoring" is monitoring of the development to provide data on compliance with the consent or on the environmental impact of the development, and an "environmental audit" is a periodic or particular documented evaluation of the development to provide information on compliance with the consent or the environmental management or impact of the development.*

ACCESS TO INFORMATION

C16. At least 48 hours before the commencement of remediation works until the completion of all works under this consent, the Applicant must:

(a) make the following information and documents (as they are obtained or approved) publicly available on its website:

(i) the documents referred to in Condition A2 of this consent;

(ii) all current statutory approvals for the development;

(iii) all approved strategies, plans and programs required under the conditions of this consent;

(iv) regular reporting on the environmental performance of the development in accordance with the reporting requirements in any plans or programs approved under the conditions of this consent;

(v) a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs;

(vi) a summary of the current stage and progress of the development;

(vii) contact details to enquire about the development or to make a complaint;

(viii) a complaints register, updated monthly;

(ix) the Compliance Report of the development;

(x) audit reports prepared as part of any Independent Audit of the development and the Applicant's response to the recommendations in any audit report;

(xi) any other matter required by the Planning Secretary; and

(b) keep such information up to date, to the satisfaction of the Planning Secretary.

CONSOLIDATED CONSENT

APPENDIX 1 DEVELOPMENT LAYOUT PLANS

Drawing No.	Revision	Date	Title
Detailed Design Drawings Prepared by GHD (SR 2015-001)			
22-18015-C011	D	04.05.18	Existing Site Plan Sheet 1 of 2
22-18015-C012	F	04.05.18	Existing Site Plan Sheet 2 of 2
22-18015-C013	E	04.05.18	Site Clearance Plan
22-18015-C021	D	04.05.18	General Arrangement Containment Cell
22-18015-C022	F	04.05.17	General Arrangement Access Roads
22-18015-C023	F	04.05.18	General Arrangement Stormwater
22-18015-C024	F	04.05.18	Detail Plan Sediment Basins & Storage Dam
22-18015-C025	D	04.05.18	General Arrangement Final Cap
22-18015-C031	C	04.05.18	Setout Plan Containment Cell and Ponds – Sheet 1 of 2
22-18015-C032	C	04.05.18	Setout Plan Containment Cell and Ponds
22-18015-C041	B	04.05.18	Section A Longitudinal Section
22-18015-C042	D	04.05.18	Section B Longitudinal Section
22-18015-C071	C	04.05.18	Liner Details – Sheet 1 of 3
22-18015-C072	B	04.05.18	Liner Details – Sheet 2 of 3
22-18015-C073	C	04.05.18	Liner Details – Sheet 3 of 3
22-18015-C081	B	04.05.18	Sump Details – Sheet 1 of 4
22-18015-C082	B	04.05.18	Sump Details – Sheet 2 of 4
22-18015-C083	B	04.05.18	Sump Details – Sheet 3 of 4
22-18015-C084	B	04.05.18	Sump Details – Sheet 4 of 4
22-18015-C091	C	04.05.18	Capping Details – Sheet 1 of 2
22-18015-C092	C	04.05.18	Capping Details – Sheet 2 of 2
22-18015-C101	C	04.05.18	Leachate Buffer Storage Dam Details
22-18015-C102	C	04.05.18	Leachate Transfer System Plan and Details
22-18015-C161	B	04.05.18	Vehicle Tracking Plan
22-18015-C163	B	04.05.18	Swale Longitudinal Section – Sheet 2 of 8
Detailed Design Drawings Prepared by Daracon			
1640-009	01	20.04.21	Leachate Pond and Treatment Plant


N
0
100
200m
Legend
Project site
Leachate management infrastructure
Leachate storage dam
Leachate treatment plant
Leachate transfer pipeline
Clean water discharge
A4
1:8,000
OXFORD

APPENDIX 2 SCHEDULE OF LAND

Lot Number	Deposited Plan (DP)
318	755231
319	755321
411	755231
412	755231
413	755231
414	755231
420	755231
769	755231
Part 16	1082775
1	456769
2	456769
Part 3	456769

APPENDIX 3 APPLICANT'S MANAGEMENT AND MITIGATION MEASURES

Environmental Aspect	Management Measure
Site Establishment	
General	All Works personnel would be informed during the site induction of their obligations to minimise environmental impacts and the need to take reasonable and practical measures to minimise impacts. The Stakeholder Engagement Plan (as discussed in **Section 8.1.4** of the EIS) would continue to be implemented to engage with government agencies, Cessnock and Maitland City Councils, landowners, community members and other stakeholders to provide a single consultation framework. The Stakeholder Engagement Plan would define the method and persons responsible for the dissemination of information regarding the Project. This would include the procedure for receiving and responding to comment or complaints from the community. Local residents would be notified in advance of the Project of the nature and estimated timescales for completion of the Project. Thereafter ongoing notifications and updates on new or changes to Works activities would be provided in accordance with the Stakeholder Engagement Plan. A 24-hour telephone number would be provided as a contact point for any complaints, issues or general enquiries regarding the Project.
Air Quality	Establish four dust deposition monitoring locations around the Project Site. Where practicable the monitoring locations would be established a minimum of three months prior to the Project to establish baseline conditions.
Soil and Water	Erosion and sediment controls would be installed prior to the commencement of the Works. This would include installation of geotextile fabric downstream of Works areas. These controls would continue to be managed and maintained throughout the Works. Undertake any required additional maintenance of the existing surface water drainage and dams prior to commencing the Works.
Traffic and Access	In consultation with Cessnock City Council and Roads and Maritime, general signposting of the demolition vehicle routes with appropriate heavy vehicle and construction warning signs. Review of speed restrictions along Hart Road and additional signposting of speed limitations. Installation of specific warning signs at Dickson Road to warn existing road users of entering and exiting demolition traffic.
Traffic and Access (continued)	The initial internal access restrictions and alternative access routes would be established for the initial Works phase.
Aboriginal Heritage	Precautionary fencing of Hydro-IA35-15 prior to surface collection. Surface collection and relocation of newly identified isolated artefact Hydro-IA35-15.
Biodiversity	The Project Site boundary would be clearly delineated to limit the extent of vegetation clearance to that described in this EIS, and to restrict access during the Works.

Environmental Aspect	Management Measure
	This would include erection of security fencing around the Containment Cell and maintaining the security fencing around the Smelter Site. Pre-clearing surveys would be undertaken by an appropriately qualified ecologist prior to vegetation clearance. Where required (such as the felling of hollow bearing trees) vegetation clearance would be supervised by an appropriately qualified ecologist or animal handler.
Waste	The designated storage and stockpile areas would be established, including the installation of the environmental controls described in **Section 8.2.1** of the EIS.
The Works	
General	The TWTP would be serviced as recommended by the manufacturer. In the event that the inspection identified potential operational issues, TWTP operation would be immediately suspended and serviced as soon as practicable. The TWTP would be inspected generally on a weekly basis whenever the TWTP is required to be operated, except during dry periods where there is no water to treat.
Air Quality	Accumulated fines from within the buildings would be removed where safe, reasonable and feasible to do so prior to building demolition. Dust suppression to be applied during induced collapse of buildings or structures. Watering of the demolition areas and unsealed access roads. Vehicles would use wherever practicable existing sealed roads. A speed limit of 20km/hr would be imposed on internal roads. Where possible construction vehicles and machinery would be turned off or throttled down when not in use. Construction vehicles and machinery would be maintained in accordance with manufacturer's requirements. The erosion and sediment control measures described in **Section 13.4** of the EIS would assist in controlling dust generation. Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. Record any exceptional incidents that cause dust and/or air emissions, either on or off-site, and the action taken to resolve the situation in the log book. Carry out regular site inspections to monitor compliance with the AQMP, record inspection results, and make an inspection log available to the EPA and/or Cessnock City Council when asked.
Air Quality (continued)	Keep site fencing, barriers and scaffolding clean using wet methods. Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction. Provide and maintain an adequate water supply on the Project Site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate. Use enclosed chutes and conveyors and covered skips where possible and appropriate.

Environmental Aspect	Management Measure
	Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate. Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate. Vehicles entering and leaving the Project Site would be covered to prevent escape of materials during transport. Haul routes would be inspected for integrity and, where required, instigate necessary repairs to the surface as soon as reasonably practicable. All vehicles transporting gypsum on public roads would have covered loads. The gypsum would be unloaded and stored within an enclosed shed. The shed was originally constructed for the storage of spent pot lining and therefore designed to minimise dust leaving the shed. A small daily quantity would be stockpiled at the gypsum application station. Where required due to weather conditions (such as wind) the amount would be reduced and more regularly transported from the stockpile within the shed. The Capped Waste Stockpile material is expected to have some inherent moisture. If required due to climatic conditions the material (including the placed gypsum) would be subjected to mist spraying to suppress dust generation. Load levels would not exceed the height of the truck, reducing the material's potential wind and draft exposure. Mist spraying facilities would be available at the Containment Cell if required due to climatic conditions to suppress dust generation.
Noise and Vibration	Truck drivers are to be informed of site access routes, acceptable delivery hours and must minimise extended periods of engine idling. Demolition vehicles and machinery would be selected with consideration of noise emissions. Where possible the sound power level of equipment and plant would comply with the sound power levels listed in the Noise and Vibration Impact Assessment in **Appendix 7** or it should be replaced with less noise intensive equipment. Activities that would generate an audible noise at sensitive receivers would be limited to occur between 7:00 am to 6:00 pm Mondays to Fridays and 7:00 am to 1:00 pm on Saturdays. Activities outside these standard hours would be undertaken with the equipment restrictions described in the Noise and Vibration Impact Assessment in **Appendix 7**. Machines found to produce excessive noise compared to typical noise levels should be removed and replaced, or repaired or modified prior to recommencing works. Where possible construction vehicles and machinery would be turned off or throttled down when not in use. Equipment would be inspected and maintained in accordance with manufacturer's requirements. Use less noise-intensive equipment where reasonable and feasible. Construction equipment with the most effective mufflers, enclosures and low-noise tool bits and blades must be procured and utilised where practicable for the Project.

Environmental Aspect	Management Measure
	Where possible mains power should be utilised for temporary traffic signals / work area lighting. Where this is not feasible silenced generator sets are to be used instead. Avoid unnecessary revving of engines and turn off plant that is not being used / required where practicable. Use only non-tonal reverse alarms (broadband alternatives are needed). Where possible organise the site so that delivery trucks and haulage trucks only drive forward to avoid the use of reversing alarms. Where practical fixed plant should be positioned as far away as possible from sensitive receivers. Upon receiving a noise complaint regarding demolition activities, the following steps would be undertaken: The person nominated in the Stakeholder Engagement Plan would investigate the source of the complaint. The aim would be to initiate an investigation no later than two hours after the complaint has been made (dependent on the nature of the complaint). Where practicable a visit would be made to the complainant to verify the nature of the complaint. Where justified, appropriate action would be taken to amend the activity causing the complaint. Where three or more substantiated complaints of a similar nature are received (from at least two complainants), the work element must be reviewed in order to consider whether the work methods can be changed or if additional mitigation methods can be employed in order to prevent or reduce the likelihood of further complaints being made. Attended monitoring should also be undertaken in response to substantiated complaints in order to validate and assess the source(s) giving rise to complaint(s). Attended monitoring would be undertaken every three months to assess compliance with the relevant noise limits.
Soil and Water	Erosion and sediment controls would be inspected and maintained as required on a weekly basis and after a rain event. The surface water drainage system would be inspected and maintained as required on a monthly basis. Vehicles exiting the Project Site onto public roads would be inspected for mud and dirt. If required vehicles would be manually cleaned prior to exiting the Smelter. Vehicle refuelling would be undertaken using mobile refuelling vehicles equipped with spill containment equipment and a spill kit. All chemicals on-site would be stored in accordance with the applicable Safety Data Sheet. An appropriate spill kit is to be on-site at all times and any spillage is to be immediately cleaned up. In the event of a large or hazardous spill, the fire brigade, police, ambulance and OEH would be contacted as required. The bulk gypsum would be unloaded and stored within an enclosed shed and protected from rainfall, and therefore avoiding the potential for erosion. The shed was originally constructed for the storage of spent pot lining and therefore designed to protect the stored material from water.

Environmental Aspect	Management Measure
	A small daily quantity would be stockpiled at the gypsum application station within a bunded area. The material would be returned to the storage shed in the event of rain. The gypsum application station would be cleaned on a weekly basis. Cleaned material would be placed within a loaded truck for disposal within the Containment Cell. In the event that gypsum does get washed away by stormwater, the water would be collected within the Smelter water management system prior to reuse for dust control or discharged in accordance with the EPL. The TWTP will be constructed inside a bund designed to contain any spillage/leaks if they are to occur. The Containment Cell Leachate Pond transfer pipe would be inspected on a weekly basis. And damage observed during the inspection would be immediately repaired. Treated leachate will be tested against the target values in Table 2 3 prior to discharge. Treated leachate will not be discharged if an exceedance of any of the criteria occurred. In the event that the two storage dams are at capacity and the four tanks in the TWTP are also full, leachate water will be pumped back into the Containment Cell.
Traffic and Access	The promotion of carpooling for construction demolition staff and other shared transport initiatives. Management of the transportation of demolition materials/waste to maximise vehicle loads to therefore minimise vehicle movements. Regular consultation with the Kurri Kurri Speedway and the Kurri Kurri Junior Motorcycle Club would be undertaken to understand their planned activities and to advise of the proposed Project program. The initial internal access restrictions and alternative access routes would be altered as required to reflect the progression of the Works. A speed limit of 20km/hr would be imposed on internal roads.
Aboriginal Heritage	Where possible, avoid the need to stockpile material in the area of high archaeological sensitivity. In the event that stockpiling in this area is required, geo-matting would be placed on the surface of the area prior to stockpiling. An unexpected finds procedure would be implemented in the event that a potential Aboriginal site was identified during the Works. This procedure would include: 1) All works would cease immediately in the area to prevent any further impacts to the site. 2) Notify the Works' Environment Officer. 3) Engage a suitably qualified archaeologist and RAP representative to determine the nature, extent and significance of the Aboriginal site and provide appropriate management advice. Management action(s) would vary according to the type of evidence identified, its significance (both scientific and cultural) and the nature of potential impacts. Prepare and submit an AHIMS site card for the Aboriginal site. A standard procedure would be implemented for the management of any potential human skeletal remains identified throughout the Works. This procedure would include: 1) All work in the vicinity of the remains should cease immediately. 2) The location should be cordoned off and the appropriate authorities notified.

Environmental Aspect	Management Measure
	3) A physical or forensic anthropologist should be commissioned to inspect the remains *in situ* and make a determination of ancestry (Aboriginal or non-Aboriginal) and antiquity (pre-contact, historic or modern). Following completion of task three, the applicable action/s listed below would be implemented: - If the remains are identified as non-human, work can recommence immediately. - If the remains are identified as modern and human, the area would become a crime scene under the jurisdiction of the NSW Police. - If the remains are identified as pre-contact or historic Aboriginal, the site would be secured and OEH and all RAPs notified in writing. Where impacts to exposed Aboriginal skeletal remains cannot be avoided, remains would be retrieved via controlled archaeological excavation and reburied outside of the Disturbance Boundary in a manner and location determined by RAPs. If the remains are identified as historic non-Aboriginal, the site would be secured and the NSW Heritage Branch contacted.
Non-Indigenous Heritage	In the event that a potential heritage item is unearthed during construction works would cease and the Office of Environment and Heritage would be notified. Photographs and drawings (from construction, operation and demolition) of the Smelter would be made available to interested historical societies or community groups. Hydro would work with the community on how to recognise the history of the Smelter.
Biodiversity	To minimise the potential for the spreading of weeds hygiene protocols, including vehicle wash-downs, would be implemented for machinery used in vegetation clearance. Appropriate shallow rooted native grass species would be used in the vegetation cover for the Containment Cell. Appropriate hybrid grass species (that cannot become weed issues in adjoining native vegetation) would be used in stabilising surfaces following completion of the Works.
Visual	In recognition of the likely community interest in the demolition of the stacks, Hydro would consider establishing viewing areas, including suitable parking and traffic control. Mobile lighting installed on the TWTP would be consistent with AS 4282(INT) - Control of Obtrusive Effects of Outdoor Lighting and would be mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties or the public road network.
Energy Efficiency/ Greenhouse Gas	Implementation of the measures described in **Section 8.5.4** and **Section 8.8.1** of the EIS to minimise the exposure of the waste material to moisture during the stockpiling, transport and placement activities (to reduce the potential for generation of methane emissions). Use light emitting dioxide (LED) lighting in offices, contractor compounds and temporary site lighting. Energy efficient inverter split system units would be installed in contractor compounds where practical and timers set so that air conditioning systems are switched off after hours. Personnel would be instructed to turn off lights and office equipment when these are not in use such as before and after the working day.

Environmental Aspect	Management Measure
	Modern and fuel efficient vehicles and machinery would be used during the Works wherever possible. All vehicles would be maintained in accordance with manufacturer's requirements to maintain efficiency. The potential for use of biodiesel blend fuels in its vehicles and machinery would be investigated. Personnel would be encouraged during the site induction to travel to and from the Smelter by carpooling.
Waste	Promotion of efficient resource use, waste avoidance and waste minimisation. Compounds and the stockpile area would be maintained in an organised condition, with waste materials to be transported to and stockpiled in the designated storage area. Wastes would be managed to minimise the potential for windblown wastes spreading within or beyond the Project Site, including into watercourses. Implementation of the materials tracking system described in **Section 8.5.5, Section 8.6** and **Section 8.7.6** of the EIS. Where possible recyclable wastes generated at the contractor's compound (paper, cans and bottles) would be collected by a recycling contractor. Remaining wastes would be collected for disposal at a licensed waste management facility. Trucks transporting recyclable demolition materials from the Project site on public roads would be covered. Waste removal contractors transporting material from the Project Site would be required to provide dockets to confirm that waste was transported to a licensed waste management facility.
Waste (continued)	The environmental controls and containment measures placed on waste stockpiles would be inspected and maintained as required on a weekly basis and after rain and strong wind events. Spent media (GAC, IX resin, zeolite, sand) wastes would be disposed of within the Containment Cell once used/saturated. If they cannot be disposed of within the Containment Cell (such as being generated following the capping pf the Containment Cell) they would be sampled and analysed as per the Environmental Protection Authority Waste Classification Guidelines, then disposed of at a facility licenced to accept them. Sludge would be pumped to a geotube for de watering then disposed of within the Containment Cell. If it cannot be disposed of within the Containment Cell, sludge would be sampled and analysed as per the Environmental Protection Authority Waste Classification Guidelines and disposed of at a facility licenced to accept it. Consumables (IBC, Carboys, containers) would generally be returned to the supplier for reuse. Where this is not possible, they will be recycled.
Human Health	Appropriate personal protective equipment would be provided to workers who are undertaking activities in or near the Capped Waste Stockpile. The equipment would remove exposure pathways relating to dermal exposure, incidental ingestion and inhalation. This would include: • Waterproof boots, pants and long sleeved shirt as a minimum. Face shields would be required for personnel working in close proximity to exposed groundwater (when in locations and situations where splashing could result in incidental ingestion of groundwater and/or eye and skin contact). • Appropriate masks would be required to prevent dust (including asbestos) inhalation.

Environmental Aspect	Management Measure
	• A respirator appropriate for ammonia, methane, hydrogen, hydrogen cyanide and hydrogen sulfide (available and ready to be used for all workers at the Capped Waste Stockpile). Real-time ambient air monitoring would be undertaken at several locations around the Capped Waste Stockpile when waste from the Capped Waste Stockpile is exposed. At a minimum, the ambient air would be monitored for concentrations of ammonia and hydrogen cyanide gases, and airborne asbestos fibres. Real-time ambient air monitoring would be undertaken inside machinery housings, and workers within these housings would also have appropriate respirators available. Personnel involved in the handling of the gypsum would be required to wear the applicable personal protective equipment.
Containment Cell Management	
Visual	The Containment Cell vegetation cover would be maintained (as described in **Section 9.1.2** of the EIS).
Air Quality	As discussed in **Section 9.1.1.3** of the EIS, gas monitoring would be completed from the gas monitoring vents on a quarterly basis, until results indicate that gas generation is not an issue. Gas monitoring would be completed for ammonia and methane. In the event that gas concentration trigger levels outlined in the OEMP are exceeded, appropriate contingency responses would be implemented.

APPENDIX 4 INCIDENT NOTIFICATION AND REPORTING REQUIREMENTS

WRITTEN INCIDENT NOTIFICATION REQUIREMENTS

1. A written incident notification addressing the requirements set out below must be emailed to the Department at the following address: compliance@planning.nsw.gov.au within seven days after the Applicant becomes aware of an incident. Notification is required to be given under this condition even if the Applicant fails to give the notification required under Condition C7 or, having given such notification, subsequently forms the view that an incident has not occurred.
2. Written notification of an incident must:
   a. identify the development and application number;
   b. provide details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident);
   c. identify how the incident was detected;
   d. identify when the applicant became aware of the incident;
   e. identify any actual or potential non-compliance with conditions of consent;
   f. describe what immediate steps were taken in relation to the incident;
   g. identify further action(s) that will be taken in relation to the incident; and
   h. identify a project contact for further communication regarding the incident.

INCIDENT REPORT REQUIREMENTS

3. Within 30 days of the date on which the incident occurred or as otherwise agreed to by the Planning Secretary, the Applicant must provide the Planning Secretary and any relevant public authorities (as determined by the Planning Secretary) with a detailed report on the incident addressing all requirements below, and such further reports as may be requested.
4. The Incident Report must include:
   a. a summary of the incident;
   b. outcomes of an incident investigation, including identification of the cause of the incident;
   c. details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence; and
   d. details of any communication with other stakeholders regarding the incident.

Environment Protection Licence

Licence - 1548

Licence Details	
Number:	1548
Anniversary Date:	31-December

Licensee

HYDRO ALUMINIUM KURRI KURRI PTY LTD

PO BOX 1

KURRI KURRI NSW 2327

Premises

HYDRO ALUMINIUM REMEDIATION PROJECT

HART ROAD

LOXFORD NSW 2327

Scheduled Activity

Chemical storage

Contaminated soil treatment

Fee Based Activity	Scale
Chemical storage waste generation	> 100 T amount of waste on site at any time
Contaminated soil treatment	Any annual handling capacity

Contact Us

NSW EPA

6 Parramatta Square

10 Darcy Street

PARRAMATTA NSW 2150

Phone: 131 555

Email: info@epa.nsw.gov.au

Locked Bag 5022

PARRAMATTA NSW 2124

Environment Protection Licence

Licence - 1548

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Environment Protection Licence

Licence - 1548

Information about this licence

Dictionary

A definition of terms used in the licence can be found in the dictionary at the end of this licence.

Responsibilities of licensee

Separate to the requirements of this licence, general obligations of licensees are set out in the Protection of the Environment Operations Act 1997 ("the Act") and the Regulations made under the Act. These include obligations to:

- ensure persons associated with you comply with this licence, as set out in section 64 of the Act;
- control the pollution of waters and the pollution of air (see for example sections 120 - 132 of the Act);
- report incidents causing or threatening material environmental harm to the environment, as set out in Part 5.7 of the Act.

Variation of licence conditions

The licence holder can apply to vary the conditions of this licence. An application form for this purpose is available from the EPA.

The EPA may also vary the conditions of the licence at any time by written notice without an application being made.

Where a licence has been granted in relation to development which was assessed under the Environmental Planning and Assessment Act 1979 in accordance with the procedures applying to integrated development, the EPA may not impose conditions which are inconsistent with the development consent conditions until the licence is first reviewed under Part 3.6 of the Act.

Duration of licence

This licence will remain in force until the licence is surrendered by the licence holder or until it is suspended or revoked by the EPA or the Minister. A licence may only be surrendered with the written approval of the EPA.

Licence review

The Act requires that the EPA review your licence at least every 5 years after the issue of the licence, as set out in Part 3.6 and Schedule 5 of the Act. You will receive advance notice of the licence review.

Fees and annual return to be sent to the EPA

For each licence fee period you must pay:

- an administrative fee; and
- a load-based fee (if applicable).

Environment Protection Licence

The EPA publication “A Guide to Licensing” contains information about how to calculate your licence fees. The licence requires that an Annual Return, comprising a Statement of Compliance and a summary of any monitoring required by the licence (including the recording of complaints), be submitted to the EPA. The Annual Return must be submitted within 60 days after the end of each reporting period. See condition R1 regarding the Annual Return reporting requirements.

Usually the licence fee period is the same as the reporting period.

Transfer of licence

The licence holder can apply to transfer the licence to another person. An application form for this purpose is available from the EPA.

Public register and access to monitoring data

Part 9.5 of the Act requires the EPA to keep a public register of details and decisions of the EPA in relation to, for example:

- licence applications;
- licence conditions and variations;
- statements of compliance;
- load based licensing information; and
- load reduction agreements.

Under s320 of the Act application can be made to the EPA for access to monitoring data which has been submitted to the EPA by licensees.

This licence is issued to:

HYDRO ALUMINIUM KURRI KURRI PTY LTD
PO BOX 1
KURRI KURRI NSW 2327

subject to the conditions which follow.

Environment Protection Licence

Licence - 1548

1 Administrative Conditions

A1 What the licence authorises and regulates

A1.1 This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.

Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.

Scheduled Activity	Fee Based Activity	Scale
Chemical storage	Chemical storage waste generation	> 100 T amount of waste on site at any time
Contaminated soil treatment	Contaminated soil treatment	Any annual handling capacity

A2 Premises or plant to which this licence applies

A2.1 The licence applies to the following premises:

Premises Details
HYDRO ALUMINIUM REMEDIATION PROJECT
HART ROAD
LOXFORD
NSW 2327
PREMISES MARKED AND SHOWN AS "SCHEDULED PREMISE AREA" ON THE PLAN TITLED "318000240_GIS_P004_EPL" (REF F002_EPLVARIATION_V07 AND REFF003_EPLVARIATIONZOON_V07) DATED 31/01/2023, AND THE SPATIAL FILES TITLED "RAMBOLL_TO_HYDRO_EPL_SCHEDULEDPREMISEAREAS_202302220", SUBMITTED TO THE EPA ON 21/02/2023 (EPA REF. DOC23/77022, DOC23/77022-1 AND DOC23/77022-2).

A3 Information supplied to the EPA

A3.1 Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.

In this condition the reference to "the licence application" includes a reference to:
a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.

A3.2 Any other document and/or management plan is not to be taken as part of the documentation in condition A3.1, other than those documents and/or management plans specifically referenced in this licence.

2 Discharges to Air and Water and Applications to Land

P1 Location of monitoring/discharge points and areas

P1.1 The following utilisation areas referred to in the table below are identified in this licence for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.

P1.2 The following points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.

Water and land

EPA Identification no.	Type of Monitoring Point	Type of Discharge Point	Location Description
11		Discharge to utilisation area	Irrigation area
12	Discharge quality monitoring		Discharge from sediment basin marked and shown as 'Sediment basin 1' on the plan titled "General arrangement of Containment Cell area", dated 23/04/2021, prepared by Ramboll Australia Pty Ltd (filed as EPA Document DOC21/321251)
13	Discharge quality monitoring		Discharge from sediment basin marked and shown as 'Sediment basin 2' on the plan titled "General arrangement of Containment Cell area", dated 23/04/2021, prepared by Ramboll Australia Pty Ltd (filed as EPA document DOC21/321251)
14	Discharge quality monitoring		Discharge from sediment basin marked and shown as 'Sediment basin 3' on the plan titled "General arrangement of Containment Cell area", dated 23/04/2021, prepared by Ramboll Australia Pty Ltd (filed as EPA document DOC21/321251)

3 Limit Conditions

L1 Pollution of waters

Environment Protection Licence

L1.1 Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.

L2 Waste

L2.1 The licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing, except as expressly permitted by the licence.

4 Operating Conditions

O1 Activities must be carried out in a competent manner

O1.1 Licensed activities must be carried out in a competent manner.
This includes:
a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and
b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.

O2 Maintenance of plant and equipment

O2.1 All plant and equipment installed at the premises or used in connection with the licensed activity:
a) must be maintained in a proper and efficient condition; and
b) must be operated in a proper and efficient manner.

O3 Dust

O3.1 The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.

O3.2 All operations and activities occurring at the premises must be carried out in a manner that will minimise the emission of dust from the premises.

O3.3 Trucks entering and leaving the premises that are carrying loads must be covered at all times, except during loading and unloading.

Note: Condition O3.3 does not apply solely to transportation of waste tyres or scrap metal in accordance with Clause 70(2) of the Protection of the Environment Operations (Waste) Regulation 2014.

O4 Effluent application to land

O4.1 Effluent application must not occur in a manner that causes surface runoff.

O4.2 Spray from effluent application must not drift beyond the boundary of the premises.

O4.3 Livestock access to any effluent application area must be denied during effluent application and until the applied effluent area has dried.

O4.4 The quantity of effluent/solids applied to the utilisation area must not exceed the capacity of the area to effectively utilise the effluent/solids.

For the purpose of this condition, 'effectively utilise' include the use of the effluent/solids for pasture or crop production, as well as the ability of the soil to absorb the nutrient, salt, hydraulic load and organic material.

O5 Processes and management

O5.1 The licensee must ensure that any liquid and/or non-liquid waste generated and/or stored and/or processed at the premises is assessed and classified in accordance with the EPA's Waste Classification Guidelines as in force from time to time.

O6 Waste management

O6.1 The area(s) used for the storage of hazardous or restricted solid waste at the premises must be provided with physical security to prevent unauthorised access to those wastes.

O6.2 The licensee must ensure that hazardous or restricted solid waste is stored or contained in a secure manner so as to prevent any hazard and the escape of waste and/or leachate.

O6.3 The licensee must ensure incompatible wastes are not mixed and transported together on any vehicle used by any person to transport the waste.

O6.4 The licensee must ensure that a suitable enclosed area is provided at the loading point of any hazardous or restricted solid waste which will effectively contain any spillage of such waste. Notwithstanding this precautionary measure, the licensee must co-operate with any waste transporter to ensure that loading operations are carried out in such a way as to prevent the spillage of the waste.

O6.5 The licensee must ensure that arrangements are made with any waste transporter to ensure that the recyclable materials are collected and removed to a lawful facility where the waste will be recycled or re-used.

O6.6 Before disposing of any used anode butt wastes, the licensee must prepare, to the satisfaction of the EPA, a written protocol describing the procedures that will be followed for the treatment, storing, transporting, assessing, record keeping and reporting on the management of used anode butt wastes.

5 Monitoring and Recording Conditions

M1 Monitoring records

M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be

recorded and retained as set out in this condition.

M1.2 All records required to be kept by this licence must be:
a) in a legible form, or in a form that can readily be reduced to a legible form;
b) kept for at least 4 years after the monitoring or event to which they relate took place; and
c) produced in a legible form to any authorised officer of the EPA who asks to see them.

M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:
a) the date(s) on which the sample was taken;
b) the time(s) at which the sample was collected;
c) the point at which the sample was taken; and
d) the name of the person who collected the sample.

M2 Requirement to monitor concentration of pollutants discharged

M2.1 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

M2.2 Water and/ or Land Monitoring Requirements

POINT 12,13,14

Pollutant	Units of measure	Frequency	Sampling Method
Aluminium	milligrams per litre	Special Frequency 1	Grab sample
Cadmium	milligrams per litre	Special Frequency 1	Grab sample
Cyanide	milligrams per litre	Special Frequency 1	Grab sample
Fluoride	milligrams per litre	Special Frequency 1	Grab sample
pH	milligrams per litre	Special Frequency 1	Grab sample

M2.3 For the purposes of the Licence, Special Frequency 1 means the collection of samples within the first 24 hours of any discharge event after the transfer of aluminium smelter waste into the Engineered Containment Cell has commenced.

M3 Testing methods - concentration limits

M3.1 Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA in writing before any tests are conducted.

M4 Recording of pollution complaints

M4.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.

M4.2 The record must include details of the following:
a) the date and time of the complaint;
b) the method by which the complaint was made;
c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
d) the nature of the complaint;
e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
f) if no action was taken by the licensee, the reasons why no action was taken.

M4.3 The record of a complaint must be kept for at least 4 years after the complaint was made.

M4.4 The record must be produced to any authorised officer of the EPA who asks to see them.

M5 Telephone complaints line

M5.1 The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.

M5.2 The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.

M5.3 The preceding two conditions do not apply until 3 months after: the date of the issue of this licence.

6 Reporting Conditions

R1 Annual return documents

R1.1 The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:

1. a Statement of Compliance,
2. a Monitoring and Complaints Summary,
3. a Statement of Compliance - Licence Conditions,
4. a Statement of Compliance - Load based Fee,
5. a Statement of Compliance - Requirement to Prepare Pollution Incident Response Management Plan,
6. a Statement of Compliance - Requirement to Publish Pollution Monitoring Data; and
7. a Statement of Compliance - Environmental Management Systems and Practices.

At the end of each reporting period, the EPA will provide to the licensee notification that the Annual Return is due.

Environment Protection Licence

R1.2 An Annual Return must be prepared in respect of each reporting period, except as provided below.

Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.

R1.3 Where this licence is transferred from the licensee to a new licensee:
a) the transferring licensee must prepare an Annual Return for the period commencing on the first day of the reporting period and ending on the date the application for the transfer of the licence to the new licensee is granted; and
b) the new licensee must prepare an Annual Return for the period commencing on the date the application for the transfer of the licence is granted and ending on the last day of the reporting period.

Note: An application to transfer a licence must be made in the approved form for this purpose.

R1.4 Where this licence is surrendered by the licensee or revoked by the EPA or Minister, the licensee must prepare an Annual Return in respect of the period commencing on the first day of the reporting period and ending on:
a) in relation to the surrender of a licence - the date when notice in writing of approval of the surrender is given; or
b) in relation to the revocation of the licence - the date from which notice revoking the licence operates.

R1.5 The Annual Return for the reporting period must be supplied to the EPA via eConnect *EPA* or by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').

R1.6 The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA.

R1.7 Within the Annual Return, the Statements of Compliance must be certified and the Monitoring and Complaints Summary must be signed by:
a) the licence holder; or
b) by a person approved in writing by the EPA to sign on behalf of the licence holder.

R1.8 A Waste Management Report is to be provided with the Annual Return. The Waste Management Report must contain the following information:

a) the quantity and the production and process sources of hazardous and/or restricted solid wastes kept on the premises during the licence year;
b) the quantity and the production and process sources of hazardous and/or restricted solid wastes generated at the premises during the licence year;
c) details of investigations into methods of recycling and treatment of hazardous and restricted solid wastes carried out by the Licensee or reported by others on behalf of the Licensee during the licence year;
d) the amount of hazardous and/or restricted solid waste disposed of during the licence year;
e) details of the disposal method and location of disposal for hazardous and/or restricted solid wastes;
f) the results of any monitoring carried out to detect the occurrence of environmental contamination potentially resulting from the disposal of any hazardous or restricted solid waste; and
g) any other details required by this licence

Environment Protection Licence

R2 Notification of environmental harm

Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.

R2.1 Notifications must be made by telephoning the Environment Line service on 131 555.

R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which they became aware of the incident.

R3 Written report

R3.1 Where an authorised officer of the EPA suspects on reasonable grounds that:
a) where this licence applies to premises, an event has occurred at the premises; or
b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence,
and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.

R3.2 The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.

R3.3 The request may require a report which includes any or all of the following information:
a) the cause, time and duration of the event;
b) the type, volume and concentration of every pollutant discharged as a result of the event;
c) the name, address and business hours telephone number of employees or agents of the licensee, or a specified class of them, who witnessed the event;
d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort;
e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants;
f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
g) any other relevant matters.

R3.4 The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.

7 General Conditions

G1 Copy of licence kept at the premises or plant

G1.1 A copy of this licence must be kept at the premises to which the licence applies.

G1.2 The licence must be produced to any authorised officer of the EPA who asks to see it.

G1.3 The licence must be available for inspection by any employee or agent of the licensee working at the premises.

G2 Contact number for incidents and responsible employees

G2.1 The licensee must operate 24-hour telephone contact lines for the purpose of enabling the EPA to directly contact one or more representatives of the licensee who can:
a) respond at all times to incidents relating to the premises; and
b) contact the licensee's senior employees or agents authorised at all times to:
i) speak on behalf of the licensee; and
ii) provide any information or document required under this licence.

8 Special Conditions

E1 Groundwater interception and monitoring - Capped Waste Stockpile

E1.1 The licensee is to continue operating the groundwater interception trench and leachate management system for the Capped Waste Stockpile.

E1.2 The licensee is to continue the groundwater monitoring program in accordance with the "Groundwater Water Monitoring Program, Capped Waste Stockpile" plan as provided to the EPA on 15 April 2014.

E1.3 The licensee must submit a groundwater monitoring report to the EPA with each Annual Return. This report must included, but need not be limited to:
a) aquifer characterisation, including aquifer behaviour;
b) a trend analysis of monitored parameters in key wells; and
c) any recommendations arising from a review of the groundwater data.

E2 Sediment Dam Monitoring

E2.1 Once the transfer of aluminium smelter waste into the Engineered Containment Cell has commenced and after three subsequent discharge events at sediment basins 1, 2 and 3 (corresponding to EPA ID 12, 13 and 14), the Licensee must submit a report to the EPA that provides the monitoring results required under Condition M2.2 along with any recommended actions. The report must be submitted via email to info@epa.nsw.gov.au .

Note: Following the review of this report, it is the EPA's intention to review the frequency and analytes required for the monitoring at EPA ID 12, 13 and 14.

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Dictionary

General Dictionary

3DGM [in relation to a concentration limit]	Means the three day geometric mean, which is calculated by multiplying the results of the analysis of three samples collected on consecutive days and then taking the cubed root of that amount. Where one or more of the samples is zero or below the detection limit for the analysis, then 1 or the detection limit respectively should be used in place of those samples
Act	Means the Protection of the Environment Operations Act 1997
activity	Means a scheduled or non-scheduled activity within the meaning of the Protection of the Environment Operations Act 1997
actual load	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
AM	Together with a number, means an ambient air monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
AMG	Australian Map Grid
anniversary date	The anniversary date is the anniversary each year of the date of issue of the licence. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
annual return	Is defined in R1.1
Approved Methods Publication	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
assessable pollutants	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
BOD	Means biochemical oxygen demand
CEM	Together with a number, means a continuous emission monitoring method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.
COD	Means chemical oxygen demand
composite sample	Unless otherwise specifically approved in writing by the EPA, a sample consisting of 24 individual samples collected at hourly intervals and each having an equivalent volume.
cond.	Means conductivity
environment	Has the same meaning as in the Protection of the Environment Operations Act 1997
environment protection legislation	Has the same meaning as in the Protection of the Environment Administration Act 1991
EPA	Means Environment Protection Authority of New South Wales.
fee-based activity classification	Means the numbered short descriptions in Schedule 1 of the Protection of the Environment Operations (General) Regulation 2009.
general solid waste (non-putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997

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flow weighted composite sample	Means a sample whose composites are sized in proportion to the flow at each composites time of collection.
general solid waste (putrescible)	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environmen t Operations Act 1997
grab sample	Means a single sample taken at a point at a single time
hazardous waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
licensee	Means the licence holder describe d at the front of this licence
load calculation protocol	Has the same meaning as in the Protection of the Environment Operations (General) Regulation 2009
local authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
material harm	Has the same meaning as in section 147 Protection of the Environment Operations Act 1997
MBAS	Means methylene blue active substances
Minister	Means the Minister administering the Protection of the Environment Operations Act 1997
mobile plant	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
motor vehicle	Has the same meaning as in the Protection of the Environment Operations Act 1997
O&G	Means oil and grease
percentile [in relation to a concentration limit of a sample]	Means that percentage [eg.50%] of the number of samples taken that must meet the concentration limit specified in the licence for that pollutant over a specified period of time. In this licence, the specified period of time is the Reporting Period unless otherwise stated in this licence.
plant	Includes all plant within the meaning of the Protection of the Environment Operations Act 1997 as well as motor vehicles.
pollution of waters [or water pollution]	Has the same meaning as in the Protection of the Environment Operations Act 1997
premises	Means the premises described in condition A2.1
public authority	Has the same meaning as in the Protection of the Environment Operations Act 1997
regional office	Means the relevant EPA office referred to in the Contacting the EPA document accompanying this licence
reporting period	For the purposes of this licence, the reporting period means the period of 12 months after the issue of the licence, and each subsequent period of 12 mo nths. In the case of a licence continued in force by the Protection of the Environment Operations Act 1997, the date of issue of the licence is the first anniversary of the date of issue or last renewal of the licence following the commencement of the Act.
restricted solid waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
scheduled activity	Means an activity listed in Schedule 1 of the Protection of the Environment Operations Act 1997
special waste	Has the same meaning as in Part 3 of Schedule 1 of the Protection of the Environment Operations Act 1997
TM	Together with a number, means a test method of that number prescribed by the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.

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TSP	Means total suspended particles
TSS	Means total suspended solids
Type 1 substance	Means the elements antimony, arsenic, cadmium, lead or mercury or any compound containing one or more of those elements
Type 2 substance	Means the elements beryllium, chromium, cobalt, manganese, nickel, selenium, tin or vanadium or any compound containing one or more of those elements
utilisation area	Means any area shown as a utilisation area on a map submitted with the application for this licence
waste	Has the same meaning as in the Protection of the Environment Operations Act 1997
waste type	Means liquid, restricted solid waste, general solid waste (putrescible), general solid waste (non-putrescible), special waste or hazardous waste
Wellhead	Has the same meaning as in Schedule 1 to the Protection of the Environment Operations (General) Regulation 2021.

Mr Bernie Weir

Environment Protection Authority

(By Delegation)

Date of this edition: 31-January-2000

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End Notes

1	Licence varied by notice V/M upgrade, issued on 08-Jul-2000, which came into effect on 08-Jul-2000.
2	Licence transferred through application 140008, approved on 18-Sep-2000, which came into effect on 16-Oct-2000.
3	Licence varied by notice Prem.Change, issued on 01-Dec-2000, which came into effect on 16-Oct-2000.
4	Licence varied by notice Prem.change, issued on 01-Dec-2000, which came into effect on 16-Oct-2000.
5	Licence varied by notice 1004851, issued on 07-Mar-2001, which came into effect on 01-Apr-2001.
6	Licence varied by notice 1015709, issued on 27-Mar-2002, which came into effect on 21-Apr-2002.
7	Licence varied by notice 1017479, issued on 26-Feb-2003, which came into effect on 23-Mar-2003.
8	Licence varied by notice 1036145, issued on 14-Apr-2004, which came into effect on 09-May-2004.
9	Licence varied by notice 1042130, issued on 09-Nov-2004, which came into effect on 12-Nov-2004.
10	Licence varied by notice 1061583, issued on 09-Aug-2006, which came into effect on 09-Aug-2006.
11	Licence varied by notice 1084666, issued on 28-Apr-2008, which came into effect on 28-Apr-2008.
12	Condition A1.3 Not applicable varied by notice issued on <issue date> which came into effect on <effective date>
13	Licence varied by notice 1097917, issued on 31-Mar-2009, which came into effect on 31-Mar-2009.
14	Licence varied by admin. corrections to archived record, issued on 01-Apr-2009, which came into effect on 01-Apr-2009.
15	Licence varied by notice 1102749, issued on 28-Jul-2009, which came into effect on 28-Jul-2009.
16	Licence varied by notice 1105168, issued on 21-Aug-2009, which came into effect on 21-Aug-2009.
17	Licence varied by notice 1118364, issued on 24-Sep-2010, which came into effect on 24-Sep-2010.
18	Licence varied by notice 1501281 issued on 17-Nov-2011
19	Licence varied by notice 1505741 issued on 11-Oct-2012

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20	Licence varied by notice	1524069 issued on 18-Aug-2014
21	Licence varied by notice	1543354 issued on 30-Jul-2018
22	Licence varied by notice	1598512 issued on 13-Oct-2020
23	Licence varied by notice	1605651 issued on 19-May-2021
24	Licence varied by notice	1615539 issued on 31-Jan-2022
25	Licence varied by notice	1616780 issued on 22-Feb-2022
26	Licence varied by notice	1619444 issued on 23-Jun-2022
27	Licence varied by notice	1622550 issued on 23-Sep-2022
28	Licence varied by notice	1624829 issued on 24-Feb-2023
29	Licence format updated on 03-Aug-2023	

Appendix 3

Containment Cell Risk Register

Hydro Containment Cell Risk Register 16 November 2017

High Risk	Medium Risk	Low Risk
RR ≥ 10	5 ≤ RR < 10	RR < 5

"L = Likelihood" "S = Severity" "RR = Risk Rating"

#	Potential Risk	Potential Causes or Key Contributing Factors	Initial Risk L	S	RR	Mitigation Measures / Responsibility (i.e. how to mitigate the "Initial Risk")	Residual Risk L	S	RR	Management Measures / Responsibility (i.e. how to manage the "Residual Risk")
1.1	Increased leachate (following steady state hand-over to O&M provider)	Rainfall event	4	2	8	• Constructed as designed • Effective mitigation of other key risks (e.g. vandalism, fauna, flora)	4	2	8	Ensure weather event forecatsing is part of management process and awareness.
1.2		Cap integrity	2	5	10		1	5	5	Visual monitoring of cap for damage is part of management process
1.3		Liner integrity	2	2	4		1	2	2	Monitoring of Leachate in 4 x primary collection sumps, leak detection sumps, groundwater sumps. This as prrt of the management process will demonstrate trends and trigger the appropriate management actions.
2.1	Failure of leachate piping/pumping systems	Blockage/Calcification	3	3	9	• Constructed as designed • Sufficient frequency of monitoring / inspections • Repair damage from construction activities before completing cap • Careful execution of maintenance works	2	2	4	Regular monitoring and pumping as part of the management process would identify blockages. Camera inspection if blockages found and or starting to form could be identified and managed through mechanical clearing and or back flushing.
2.2		Displacement	3	3	9		2	2	4	Visual monitoring of cap for surface displacement is part of management process. Repairs would be part of capital works.
2.3		Breakage (over time)	4	3	12		3	2	6	Regular monitoring and pumping as part of the management process would identify failues of the piping/pumping access to sumps. Camera inspection if blockages found and or starting to form could be identified and managed through mechanical clearing and or back flushing.
2.4		Installation damage	3	3	9		1	3	3	Quality assurance by Hydro, Hydro Contractor and GHD design.
2.5		Reverse flow	3	3	9		2	2	4	Monitoring of Leachate in 4 x primary collection sumps, leak detection sumps, groundwater sumps. This as part of the management process will demonstrate trends and trigger the appropriate management actions.
2.6		Bush fire	3	3	9		2	3	6	Ensure that bush fire awareness is part of the management process. Management of vegetation on containment cell and surrounding area as part of management process. Develop a bush fire management plan in conjuction with local authorities. Maintain Cap vegetation regularly that so it would not promote propagation of grass fires from embers.
3.1	Increased gas production (requiring capture rather than natural venting	Rainfall event	4	1	4	• Constructed as designed • Effective mitigation of other key risks (e.g. vandalism, fauna, flora)	4	1	4	Quality assurance by Hydro, Hydro Contractor and GHD design and construction. Note that leachate generation performance will drive handover conditions
3.2		Cap integrity	2	5	10		1	5	5	Quality assurance by Hydro, Hydro Contractor and GHD design
3.3		Liner integrity	2	2	4		1	2	2	Quality assurance by Hydro, Hydro Contractor and GHD design
4.1	Gas not venting	Blockage in vent system	2	2	4	• Constructed as designed • Sufficient frequency of monitoring / inspections	2	2	4	Regular monitoring of gas collection system for consistancy in gas levels recorded.
4.2		Displacement/Subsidence	3	2	6		3	2	6	Quality assurance by Hydro, Hydro Contractor and GHD design
4.3		Fundamental blockage (i.e. explosive)	1	5	5		1	5	5	Regular monitoring of gas collection system for consistancy in gas levels recorded.
5.1	Change in Regulation	Revocation of permission to retain waste in an onsite cell	1	5	5	• Robust record keeping so as to evidence compliance in a risk-based approach • Pro-active stakeholder engagement and community management	1	5	5	
5.2		Restriction on off-site disposal of leachate	1	5	5		1	5	5	
5.3		Increase in monitoring / reporting obligations	4	3	12		3	2	6	Management process has reporting levels at least at the level EPA + stakeholders require which is timely and informative.
5.4		Change in licensing costs	3	2	6		2	2	4	Management process has reporting levels at least at the level EPA + stakeholders require which is timely and informative.
6.1	Failure of (all) Liners (and recording of leachate in GW	Earthquake	1	5	5	• Selection of a Geologically stable site • Selection of a naturally contained site (i.e. 1000 year migration timeline of leachate to nearest water tributary)	1	5	5	Monitoring of Leachate in 4 x primary collection sumps, leak detection sumps, groundwater sumps. This as part of the management process will demonstrate trends and trigger the appropriate management actions.

Hydro Containment Cell Risk Register 16 November 2017

High Risk	Medium Risk	Low Risk
RR ≥ 10	5 ≤ RR < 10	RR < 5

"L = Likelihood" "S = Severity" "RR = Risk Rating"

	recording of leachate in GW outside of cell)					water tributary)					
6.2		Compounding failure of individual elements (NB: refer to risk assessments for cap and liner integrity)	2	5	10	• Constructed as designed • Maintained and regularly monitored as specified	1	5	5	Monitoring of Leachate in 4 x primary collection sumps, leak detection sumps, groundwater sumps. This as prrt of the management process will demonstrate trends and trigger the appropriate management actions.
7.1	Failure of vegetation over cap	Drought	3	2	6	• Planting drought tolerant species • Ongoing vegetation maintenance • Maintaining bushfire buffer zones	2	2	4	Regular visual monitoring of the cap vegetation. Ensure weather fortcasting and rainfall levels is part of management process and awareness. Develeop drought plan with triggers for short term irrigation of the cap vegetation.
7.2		Bush fire	3	3	9		2	3	6	Ensure that bush fire awareness is part of the management process. Management of vegetation on containment cell and surrounding area as part of management process. Develop a bush fire management plan in conjuction with local authorities. Maintain Cap vegetation regularly that so it would not promote propagation of grass fires from embers.
7.3		Natural term of life	4	1	4		4	1	4	Regular visual monitoring of the cap vegetation. Replace areas of dead or failing cap vegetation as part of management process.
8.1	Subsidence (of the Cap)	Settlement of contents	2	4	8	• Constructed as designed	2	4	8	Quality assurance by Hydro, Hydro Contractor and GHD design and construction. Regular visual inspection of the cap for surface displacement.
9.1	Vandalism	Trail Bike Riders	3	2	6	• Maintained and regularly monitored as specified	2	2	4	Regular visual monitoring of cap integrity, security of containmenmt cell area to be to be part of management plan.
10.1	Fauna Damage	Grass eating animals (removing vegetation)	4	1	4	• Maintained as specified, including pest control measures	3	1	3	Regular visual monitoring of cap integrity to be to be part of management plan.
10.2		Burrowing animals (compromising the Cap)	3	2	6		2	2	4	Regular visual monitoring of cap integrity to be to be part of management plan.
11.1	Water Ingress	(Major) rainfall event	2	3	6	• Constructed as designed	2	3	6	Quality assurance by Hydro, Hydro Contractor and GHD design and construction. Note that leachate generation performance will drive handover conditions
11.2		Flooding	1	3	3		1	3	3	Ensure weather event fortcatsing is part of management process and awareness. Monitoring of Leachate in 4 x primary collection sumps, leak detection sumps, groundwater sumps. This as part of the management process will demonstrate trends and trigger the appropriate management actions.
12.1	Destablising of cap	Deep rooted trees	3	3	9	• Planting shallow rooting species • Removing inappropriate species as saplings	1	3	3	Regular visual monitoring of the cap vegetation.

Appendix 4
Landscaping Plan

Intended for
Hydro Aluminium Kurri Kurri Pty Ltd

Document type
Report

Date
April, 2024

Landscape Management Plan

Kurri Kurri Aluminium Smelter Decommissioning, Demolition and Remediation

Landscape Management Plan

Kurri Kurri Aluminium Smelter Decommissioning, Demolition and Remediation

Project name	**Landscape Management Plan**
Project no.	**31800980**
Recipient	**Hydro Aluminium Kurri Kurri Pty Ltd**
Document type	**Report**
Version	**Rev 2**
Date	**22/04/2024**
Prepared by	**C Lawrence**
Checked by	**S Taylor**
Approved by	**S Taylor**
Description	**Ramboll was engaged by Hydro Aluminium Kurri Kurri Pty Ltd to prepare a Long Term Environmental Management Plan (LTEMP) to describe how environmental management will be undertaken at the former Hydro Aluminium Kurri Kurri aluminium smelter at Hart Road Loxford, NSW and the surrounding land owned by Hydro.** **This Landscape Management Plan (LMP) forms a component of the LTEMP and has been prepared with significant inputs from Rob Francis and Darren Golby of Daracon, and Andrew Walker of Hydro.**

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Acronyms and Abbreviations

BC Act	*Biodiversity Conservation Act 2016*
BCD	Biodiversity Conservation Division
DA	Development Application
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPBC Act	Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*
Hydro	Hydro Aluminium Kurri Kurri Pty Ltd
LGA	Local Government Area
LMP	Landscape Management Plan
LTEMP	Long Term Environmental Management Plan
RWEMP	Remediation Works Environmental Management Plan
SSD	State Significant Development

Glossary

Council	Cessnock City Council
Department	Department of Planning, Industry and Environment
Hydro	Hydro Aluminium Kurri Kurri Pty Ltd
Hydro Land	The land owned by Hydro Aluminium Kurri Kurri Pty Ltd which includes the Smelter and surrounding land.
Remediation	Remediation of contaminated land and soils at the Smelter and on Hydro Land, including the construction of a Containment Cell as addressed in the State Significant Development application to the Department of Planning and Environment SSD 6666.
The Smelter	The former Hydro Aluminium Kurri Kurri Pty Ltd aluminium smelter at Hart Road, Loxford
Ramboll	Ramboll Australia Pty Ltd
Stage 1 Demolition	Demolition of Smelter buildings addressed in the development application to Cessnock City Council 8/2015/399/1
Stage 2 Demolition	Demolition of Smelter buildings, three concrete stacks, a water tower, subsurface structures to 1.5 m below ground surface and operation of a concrete crushing plant addressed in the development application to Cessnock City Council 8/2018/46/1
The Smelter	The former Hydro Aluminium Kurri Kurri Pty Ltd aluminium smelter at Hart Road, Loxford.

1. Introduction

1.1 Background

This Landscape Management Plan (LMP) has been prepared by Ramboll Australia Pty Ltd (Ramboll) on behalf of Hydro Aluminium Kurri Kurri Pty Ltd (Hydro) to support the Long Term Environmental Management Plan (LTEMP) for the decommissioning, demolition and remediation activities (the Project) at the former Hydro Aluminium Kurri Kurri Smelter (the Smelter) at Hart Road Loxford and the management of the surrounding land owned by Hydro (the Hydro Land).

1.2 Objective

The objectives of this LMP are to:

- Outline relevant legalisation and guidelines
- Detail the controls and procedures to be implemented during the preparation and completion of landscaped areas following the completion of the Containment Cell
- Identify measures and strategies for weed control once plantings are established
- Establish the roles and responsibilities of all parties involved in landscaping management

1.3 Purpose and Scope

The scope of the LMP applies to the proposed landscaped areas within the Containment Cell requiring revegetation following completion of the Containment Cell as part of remediation activities.

The purpose of the LMP is to:

- Specify the procedures and controls for landscaping related management and impacts during activities at the Smelter and on Hydro Land
- Satisfy the relevant conditions of the development consent for remediation activities (SSD 6666).

1.4 Regulatory Requirements

A list of the development consent conditions related to landscape management and where they are addressed in this document are outlined in **Table 1-1.**

Table 1-1: Project Approval Conditions and Where Addressed in LMP

No.	Condition	Where in LMP
B45	Two months prior to the completion of filling of the containment cell, the Applicant must prepare, to the satisfaction of the Planning Secretary, a containment cell Landscaping Management Plan (LMP). The LMP must form part of the LTEMP required by Condition B7 and must:	
B45(a)	be prepared in consultation with Environmental Services Group of H&P Group or its successors;	Section 2.3.1
B45(b)	include provision of the planting of shallow rooted locally endemic grass species and non-invasive hybrid grass species where appropriate; and	Section 3.2
B45(c)	include details of the management of landscaping post remediation.	Section 3.3
B46	The Applicant must implement the most recent version of the LMP approved by the Planning Secretary.	Noted

2. Existing Environment

2.1 Site Features

2.1.1.1 Landform, Soil and Geology

The Smelter site and Hydro Land are underlain by siltstone, marl and minor sandstone from the Permian aged Rutherford Formation (Dalwood Group) in the Sydney Basin.

The Sydney Basin is a sedimentary basin consisting of Permian and Triassic sedimentary rocks, which extends from Newcastle in the north to Batemans Bay in the south and to Lithgow, just west of the Blue Mountains. The basin overlies older basement rocks of the Lachlan Fold Belt. The sedimentary rocks of the basin generally consist of near horizontal sandstones and shales, with some recent igneous dykes. Only minor folding and faulting has occurred since these sedimentary rock sequences first formed. The Dalwood Group is stratigraphically located near the base of the Sydney Basin below both the Greta Coal Measures and Newcastle Coal Measures and was deposited in a marine environment.

Quaternary sediments which are associated with Swamp Creek (located to the east of the Smelter), Wentworth Swamps and the Hunter River consist of complex interbedded fluvial and marine sands and estuarine muds deposited within an estuarine environment during periods of sea level rise and fall.

2.1.1.2 Surrounding vegetation

Native Flora

The remnant vegetation on the Hydro Land comprises:

- Kurri Sand Swamp Woodland in the Sydney Basin Bioregion
- Lower Hunter Spotted Gum – Ironbark Forest in the Sydney Basin Bioregion
- Parramatta Red Gum - Narrow-leaved Apple - Prickly-leaved Paperbark shrubby woodland in the Cessnock-Kurri Kurri area
- Cabbage Gum-Rough-barked Apple grassy woodland on alluvial floodplains of the lower Hunter
- Forest Red Gum - Grey Gum dry open forest on hills of the lower Hunter Valley, Sydney Basin Bioregion
- Spotted Gum - Red Ironbark - Narrow-leaved Ironbark - Grey Box shrub-grass open forest of the lower Hunter

The Containment Cell area has no existing vegetation due to its disturbed nature. Detailed analysis of existing native flora and management controls within the Smelter site and Hydro land is provided in the *Biodiversity Management Plan* (Ramboll, 2020).

Weed species

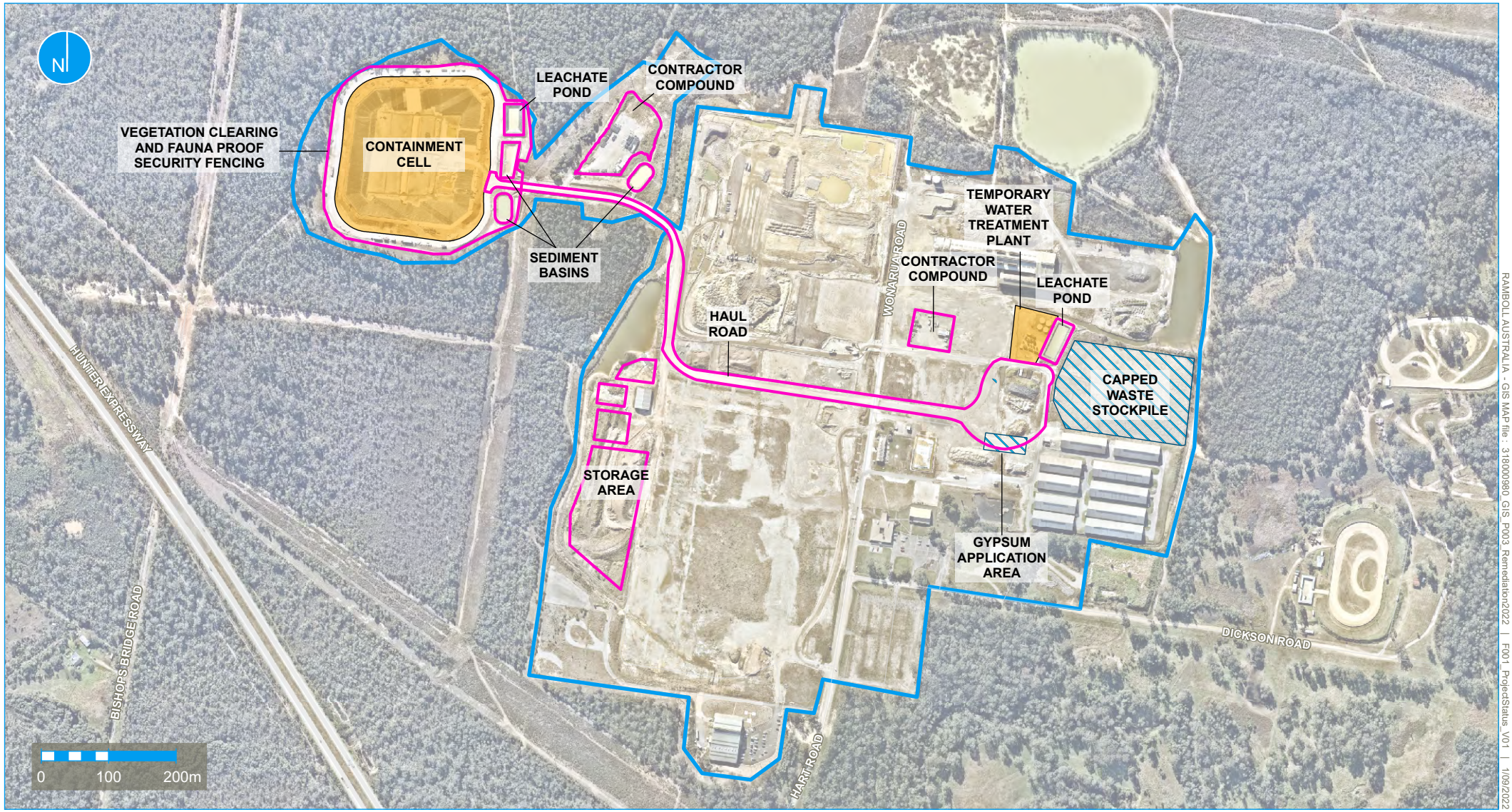
Hydro implements a weed management program to limit the spread and colonisation of terrestrial and aquatic weeds. The weed control class is determined in accordance with the *Biosecurity Act 2015*, which describes the legal control requirements for any weed. Findings from the most recent Property Management Report (Hydro, 2014) have been summarised and updated as of 17 July 2023 in **Table 2-1** to include only those species listed as priority weeds within the *Hunter Regional Strategic Weed Management Plan 2023-2027* (Local Land Services, 2022) which encompasses the Cessnock Local Government Area (LGA). Table 2-1The current list of priority weeds for the Hunter region can be found at http://weeds.dpi.nsw.gov.au/WeedBiosecurities?AreaId=4

Table 2-1: Priority Weeds within the Cessnock and Maitland LGAs

Species	Location	Duty
Green Cestrum	Waterways, banks	Land managers should mitigate the risk of new weeds being introduced to their land. Land managers should mitigate spread from their land. The plant should not be bought, sold, grown, carried or released into the environment. Land managers reduce impacts from the plant on priority assets.
Paterson's Curse	Throughout cleared former grazing paddocks	Land managers should mitigate the risk of new weeds being introduced to their land. Land managers should mitigate spread from their land. The plant should not be bought, sold, grown, carried or released into the environment. Land managers reduce impacts from the plant on priority assets.
Salvinia	Swamp Creek and Wentworth Swamp	Land managers should mitigate the risk of new weeds being introduced to their land. Land managers should mitigate spread from their land. The plant should not be bought, sold, grown, carried or released into the environment. Land managers reduce impacts from the plant on priority assets.
Water Hyacinth	Swamp Creek and Wentworth Swamp	Land managers should mitigate the risk of new weeds being introduced to their land. The plant should be eradicated from the land and the land kept free of the plant. Notify local control authority if found.
Lantana	Waterways, banks	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.
Blackberry	Throughout cleared former grazing paddocks	The plant should not be bought, sold, grown, carried or released into the environment. Land managers should mitigate the risk of the plant being introduced to their land. Land managers should mitigate spread from their land. Land managers to reduce impacts from the plant on priority assets.
Pampas Grass	Occasional specimen throughout Hydro Land	The plant should not be bought, sold, grown, carried or released into the environment. Exclusion zone: The plant should be eradicated from the land and the land kept free of the plant. Land managers should mitigate the risk of the plant being introduced to their land. Core infestation area: Land managers should mitigate spread from their land. Land managers to reduce impacts from the plant on priority assets.

2.2 Containment Cell

Remediation of the Smelter site involves material emplacement within the Containment Cell, constructed in the northwest area of the Smelter site as shown in **Figure 2-1**. The design of the containment cell is described in the following sections and in accordance with the *Hydro Aluminium Kurri Kurri Pty Ltd Containment Cell Design Report* (GHD, 2018).



Aerial photography by Nearmap, flown 14.06.2022

RAMBOLL AUSTRALIA - GIS MAP file : 318000980_GIS_P003_Remediation2022 | F001_ProjectStatus_V01 | 1/09/2022

Legend

- Project site
- Status of project activities
  - Completed
  - In progress
  - In progress

A4
1:8,000

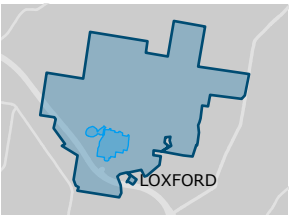


Figure 2-1 | Smelter Site Layout

2.2.1.1 Cap Design

The capping layer is shown in **Figure 2-2** and is comprised of the following (top to bottom):

- 100 mm soil topsoil layer to be revegetated
- 1300 mm soil subsoil layer
- Separation geotextile
- 300 mm drainage aggregate
- Protection geotextile
- Linear Low Density Polyethylene (LLDPE) geomembrane (2mm double sided textured)
- Geosynthetic clay liner (GCL)
- Geocomposite drainage (GCD)
- 300 mm seal bearing layer
- Separation geotextile (GHD, 2018)

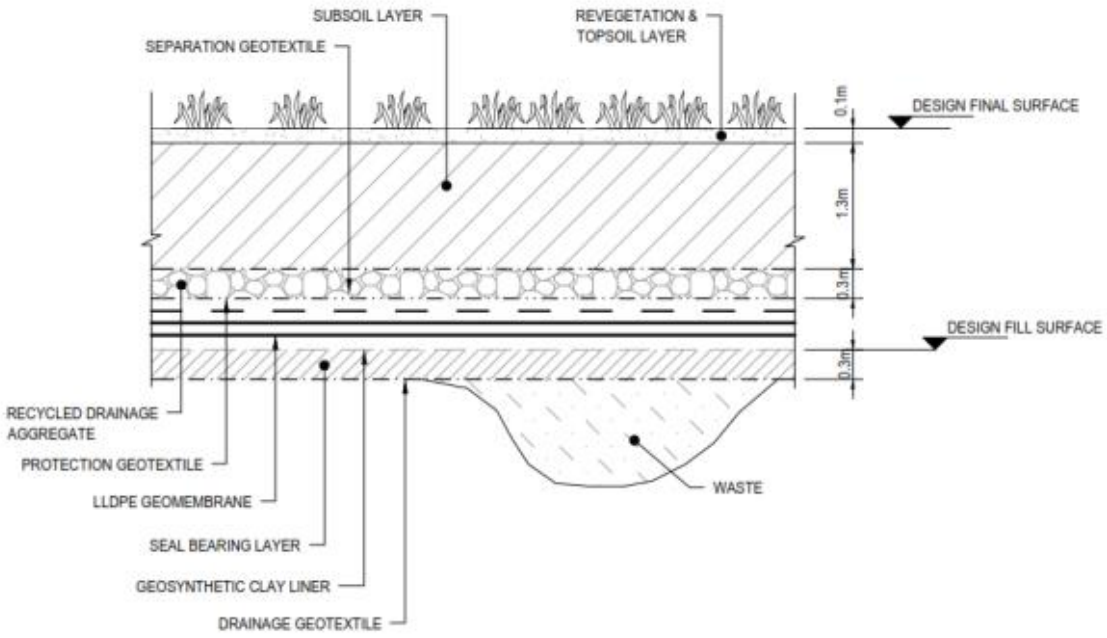


Figure 2-2: Containment Cell Capping Layer (GHD, 2018)

The provision for a soil based revegetation cover system of approximately 1.4 metres depth below the final landform surface has been included in the design of the Containment Cell capping layer. The revegetated cover is to be populated with native flora species and hybrid grasses with species selection primarily focused on native flora that will not comprise the integrity of the final cover system, will minimise the post closure maintenance requirements and will not negatively impact on the neighbouring flora and fauna. Hybrid grasses will be used in areas where access is required for monitoring and maintenance of the cell.

Subsoil Drains - there is provision for a subsoil drainage system at the perimeter of the cell to remove any accumulated water that is not removed by the evapotranspiration process. Refer to **Figure 2-3**.

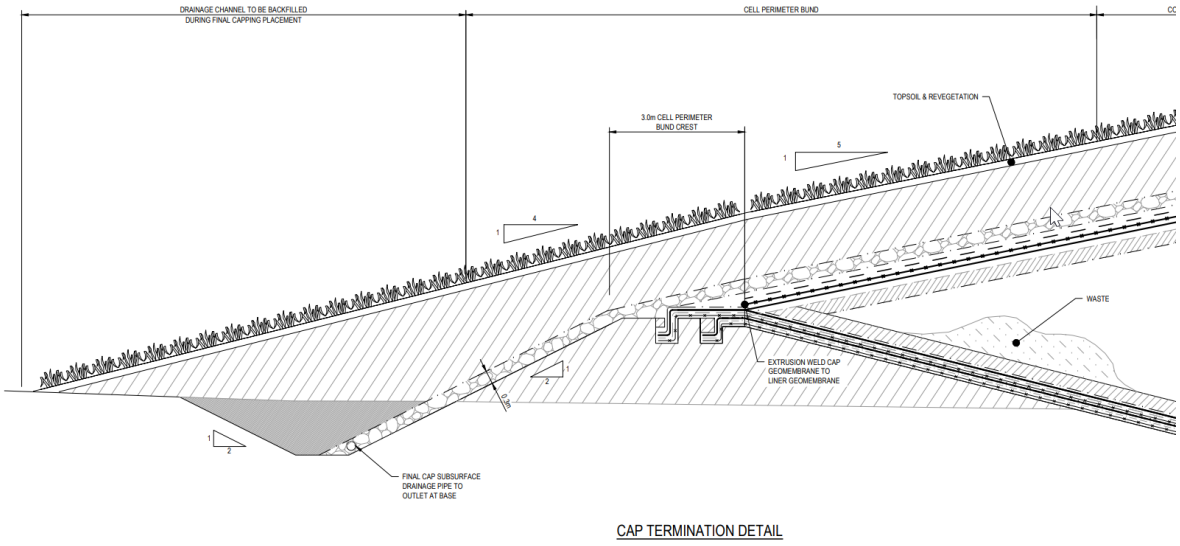


Figure 2-3: Profile of cap showing subsoil drainage (GHD, 2018)

The outlet of the subsoil drains will connect to the two existing swale drains on either side of the cell access road via the existing culverts under the cell perimeter road. A subsoil drain will also be installed between the two culverts on the eastern edge of the cell. Sediment detention basins 1, 2 and 3 will be decommissioned as part of the final landscaping process and new swale drains will be installed where sediment basins 1 and 2 are currently located to connect from the existing culverts 02 and 03 to swale drains 02 and 01 either side of the cell access road respectively. At this stage it is planned to leave the leachate buffer storage dam for as long as it is needed so that it is available for leachate storage. It will most likely be decommissioned several months after capping and landscaping of the cell is completed. Refer to **Figure 2-4**.

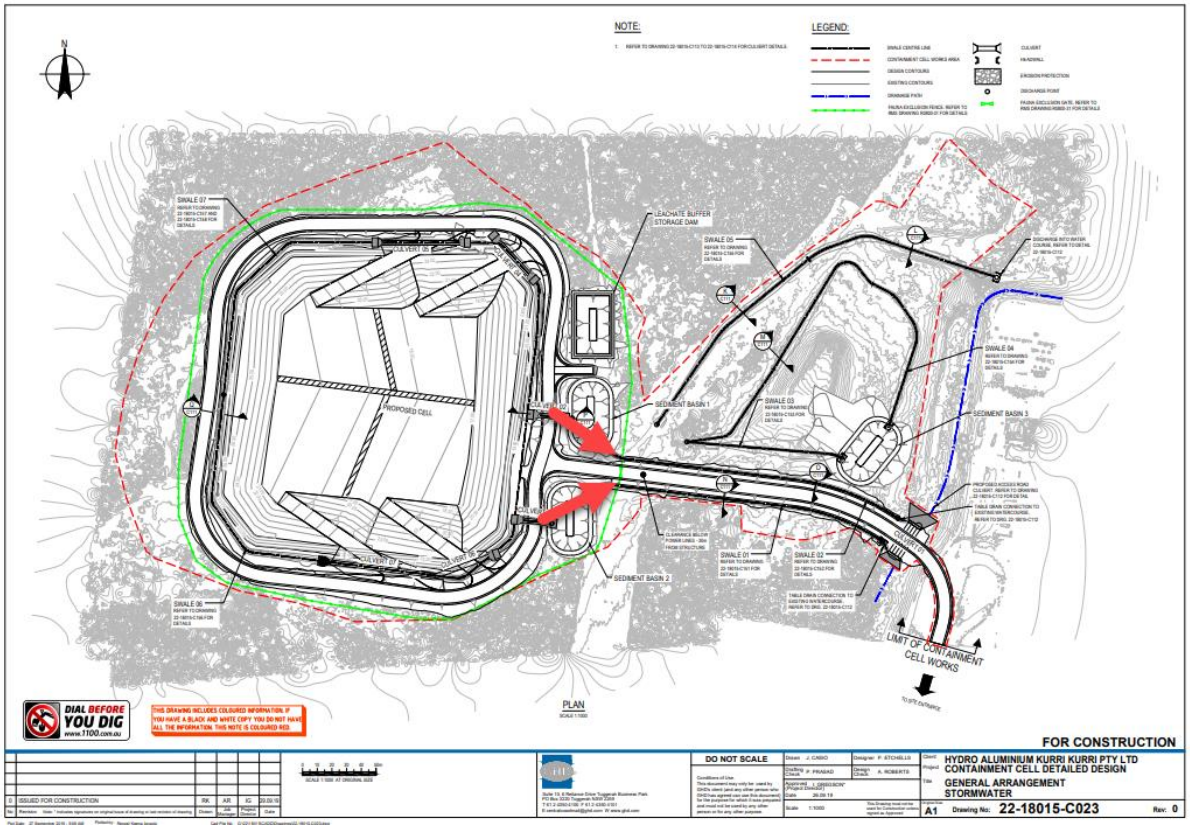


Figure 2-4: Plan showing changes to the stormwater management system (GHD, 2018)

Gas Collection - a gas collection system is incorporated into the design of the cell. This includes eight vertical gas bores comprised of 300mm diameter slotted PVC pipe filled with drainage aggregate that penetrate the waste to within 2m of the base. The vertical gas bores then connect into eight horizontal gas trenches comprised of DN160 slotted HDPE pipe within a 600mm x 600mm trench in the surface of the waste filled with drainage aggregate. Refer to **Figure 2-5**.

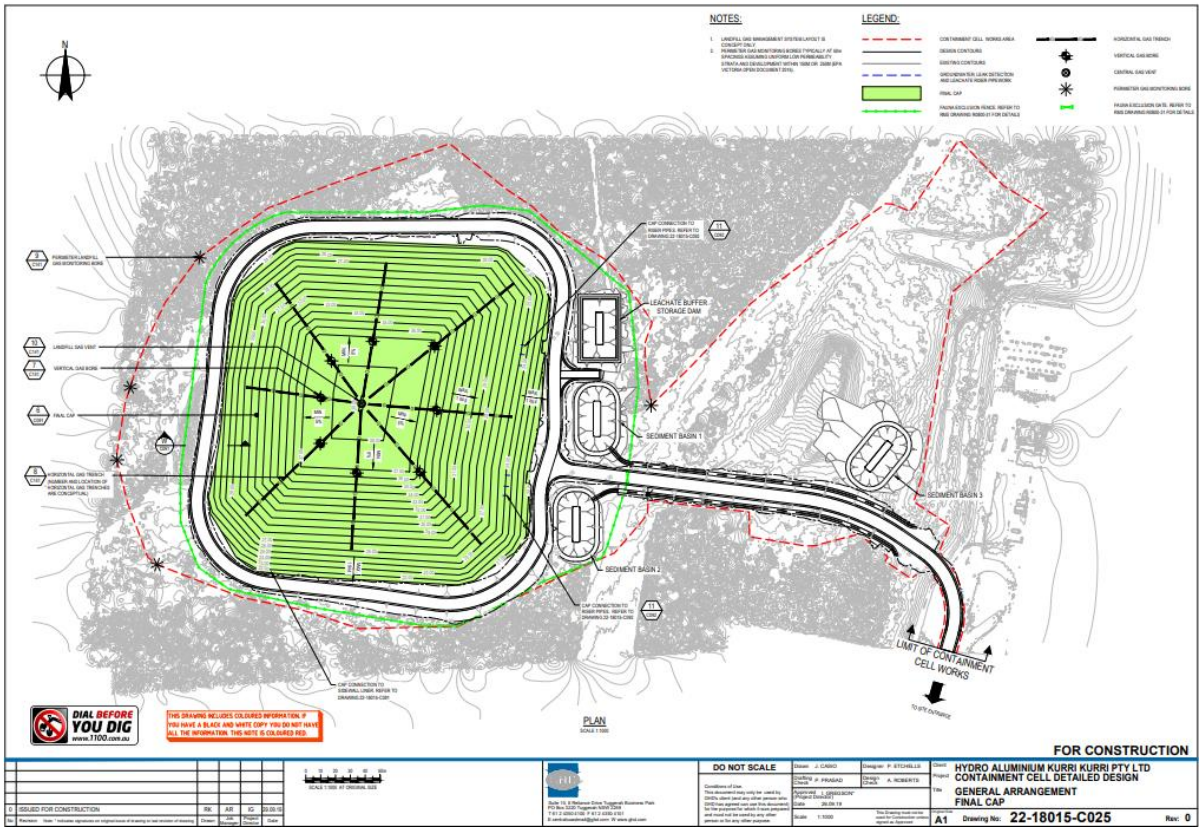


Figure 2-5: Plan showing the gas collection infrastructure in the cap (GHD, 2018)

The eight horizontal gas trenches then feed into a solid (no slots) DN150 HDPE pipe central gas vent that is located within a 1.5m L x 1.5m W x 1.05m H mass poured concrete footing. Beneath the subsoil layer, a pipe boot is used to seal around the DN150 HDPE pipe where it penetrates the LLDPE liner. Above the subsoil layer, the DN150 HDPE pipe sits within a 230mm diameter galvanised steel educt ventilation shaft that is anchored to the concrete block footing. A wind-operated rotating educt cowl sits at the top of the 6m high central gas vent. This is the only gas collection infrastructure that protrudes through the cap. Refer to **Figure 2-6**.

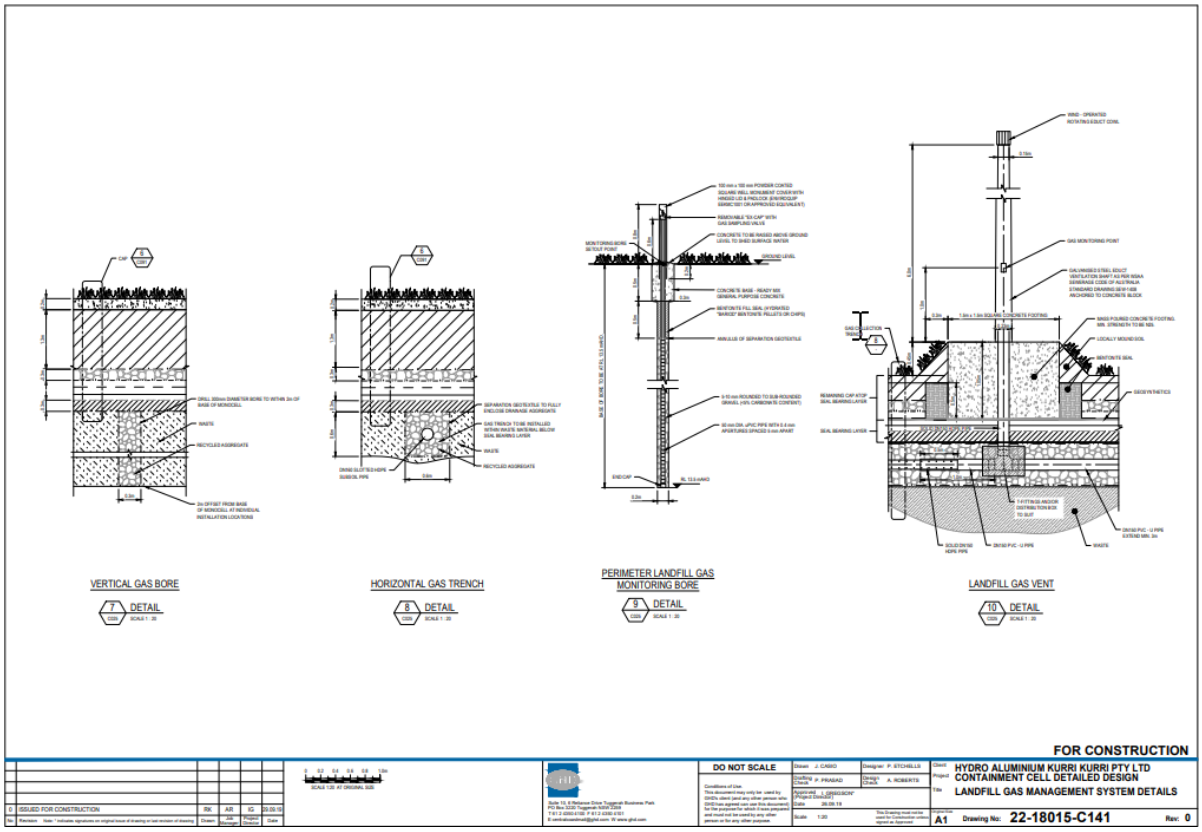


Figure 2-6: Gas collection system details in elevation views (GHD, 2018)

Leachate Extraction - twelve DN450 HDPE riser pipes for leachate extraction (six for each sump including two for each of the sub-compartments - groundwater, leak detection and leachate) protrude through the cap. A pipe boot is used to seal between the HDPE pipe and the LLDPE liner. Access to each of these pipes will be required by maintenance personnel so that groundwater from beneath the secondary liner and leachate from above the primary liner in the base of the cell can be removed as the waste dries out. A leak detection sump is included in the event of leachate leaking downwards through the primary liner into the sand drainage layer or groundwater leaking upwards through the secondary liner also into the sand drainage layer. A submersible pump will be either lowered into each of the riser pipes or will be left in the sumps to extract these liquids. Groundwater if uncontaminated will be pumped into the stormwater system and leachate will be periodically transferred either to a holding tank. A concrete headwall, base slab and wing walls will be installed at both sumps to provide a working platform for maintenance personnel. Concrete steps or a footpath will be required to gain access from the perimeter road to the access platforms. Refer to **Figure 2-7**.

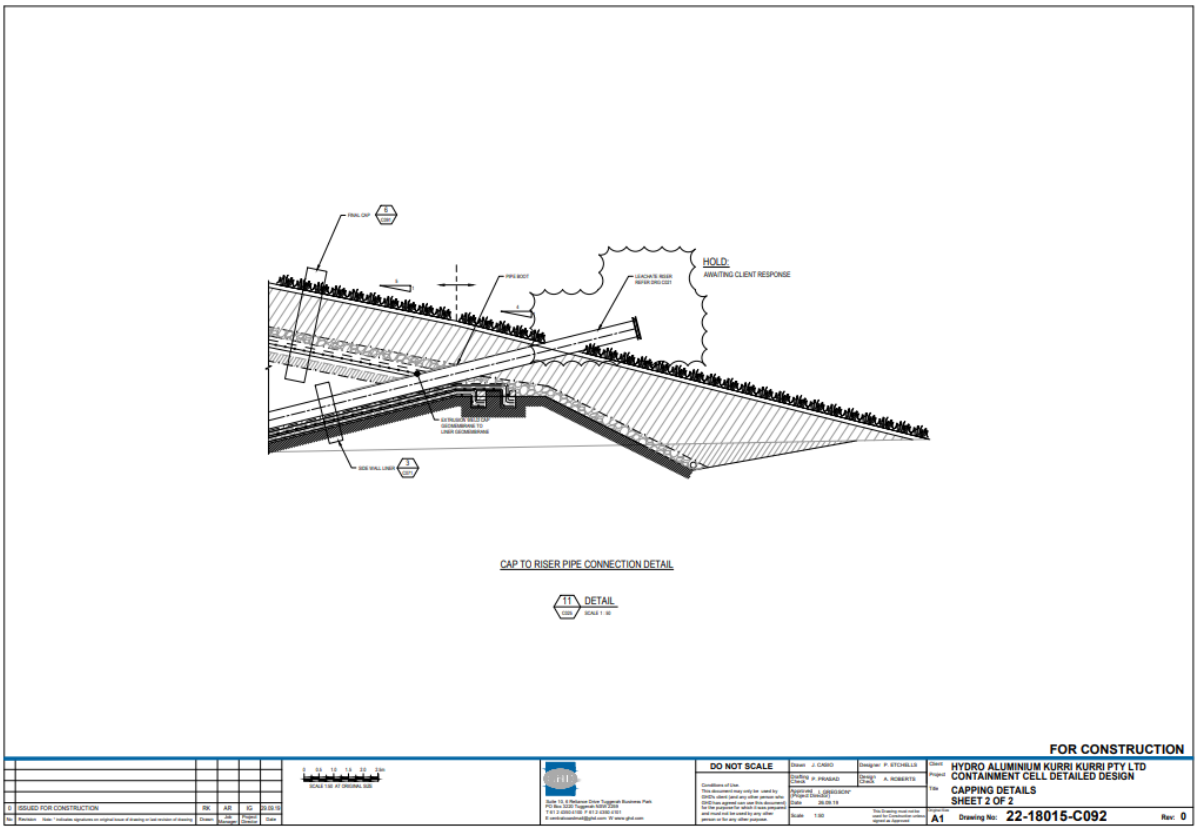


Figure 2-7: Elevation View of Riser Pipes Protruding Through the Cap (GHD, 2018).

2.3 Development of landscaping strategy

2.3.1 Authority consultation

Hydro and Ramboll held a meeting on 8 May 2023 with Peter Lowery of the Housing and Property Group (the group) of the Department of Planning and Environment. The purpose of the meeting was to discuss the objectives of the Landscape Management Plan, the group's experience in the management of other landscaped containment cell capping, and issues to be addressed in this plan.

The following are the key issues that were raised by the group:

- establishment of vegetation is to consider the fertility of soil and nutrient availability
- flora species selection to be local, native vegetation suitable for the local climate
- species selection is to consider appropriate root depth
- species selection should also consider quick growing vegetation in terms of erosion prevention
- maintenance: lawns require more mowing compared to grasslands
- plants that have died or failed should be replaced with the same species and variety as the closest commercially available size to ensure density mass maintained
- three options were discussed for planting: -
  - individual plants (tube stock) at the rate of five plants per square metre (250,000 plants for five hectares). This would be expensive and slow to be established but will provide the best results long term (could take three years to fully establish)
  - direct seeding of native grasses. This would be cheaper but might not be successful
  - Hydromulching. This method is very similar to Option 2 but with the addition of wood fibre mulch.

A draft copy of this plan was issued to the group on 01 August 2023 with an invitation to review and comment. The group provided a response on 15 August 2023. The issues raised by the group and Hydro's response is presented in **Table 2-2**.

Table 2-2: Housing and Property Group Comments and Hydro Response

Housing and Property Group Comment	Hydro Response
Reference to "noxious" weeds in Table 2-1 should be changed to "priority" to reflect the repeal of the *Noxious Weeds Act* (and the enactment of the *Biosecurity Act*)	Table 2-1 amended as appropriate
The individual planting methodology (described in Section 2.3.2.2) will require a ground cover layer on top of the topsoil (e.g. weed mat or a suitable alternative) to inhibit the germination of weeds and non-native grasses.	Daracon proposes to use a 75 mm thick mulch layer on top of the topsoil to inhibit weed germination, as well as to promote retention of moisture in soils. Further detail is presented in **Section 3.1.4**
The soil placement methodology (as described in Section 3.1.3) will need a strategy to avoid excessive compaction of the topsoil and the subsoil. Allowing 40t trucks to compact the subsoil and covering it with 100mm of topsoil is no good.	Due to the significant quantity of soil that is required, it is time and cost effective to use 40 tonne trucks. However to minimise potential compaction issues Daracon proposes to scarify the topsoil. Further detail is presented in Section **3.1.3**.
Section 3.2.2 (seed application methods) repeats Section 2.3.2.2	This is acknowledged but retained.

2.3.2 Evaluation of landscaping options

2.3.2.1 Vegetation species selection

It is proposed to use, where available, a selection of the following native grasses that are hardy and native to the lower Hunter Region and do not contain any invasive root systems:

- *Lomandra longifolia,* Spiny Headed Mat Rush
- *Themed australis,* Kangaroo grass
- *Dianella caerula ,* Blue Fax Lily
- *Austrodanthonia fulva,* Wallaby grass
- *Cymbogan refractus,* Barbed Wire grass
- *Echinopogon caepitosus,* Hedge Hog grass
- *Erogrostis brownie,* Love grass
- *Chrysocepholum apiculatum,* Yellow Buttons

A sterile cover crop such as Japanese millet or rye will be included in the seed mix for initial protection to minimise erosion.

Common couch along with a cover crop will be used for areas that need to be slashed for access by maintenance personnel to conduct monitoring and maintenance.

2.3.2.2 Planting methodology

Appendix 1 contains the proposed layout of the planting arrangement. The areas are split into three distinct planting methods selected dependent upon the topography and aesthetic features of the cell cap. The three selected planting process as shown on the plan in **Appendix 1** are:

- hydro-mulching – selected for most of the cell area due to the slope of the cell and minimal after-planting irrigation required. Generally the batters will be hydro-mulched with pocket plantings of tubestock as detailed below. Follow up watering of hydro-mulched areas will be via natural rainfall to start the germination process. A cover crop such as Japanese Millet in Summer, or Rye Grass in winter will be used for initial protection and generally appear within two to three weeks. The native grasses will take approximately one to two years to germinate
- direct drill seeding – as shown in **Appendix 1** this will be used for the flatter area at the top of the cell, where a tractor can be safely used to drill the seed. The same cover crop as the hydro-mulching methodology will be employed for this process, and watering will also be dependent on rainfall
- individual planting – selected for the steeper and more visual areas that have been identified as a high erosive risk initially. This will be employed as blocks as shown in **Appendix 1** and a process that takes the most time to implement. A temporary irrigation system, or similar such as watercart attendance, will be required initially until established.

A trial is planned to be conducted in an area adjacent to the cell known as AEC30. It is 300-400m away from the cell. The same 100mm layer of topsoil that is proposed for the cell will be used to evaluate the success of the above three planting methods. The trial will also be used to evaluate the species proposed in **Section 2.3.2.1**. An area with both flat and sloping landforms will be included. The sloping landforms will be both east and west facing. The trial will take place over the next six months to help inform what methods of planting and what species will be suitable for the containment cell cap. Refer to **Appendix 2**.

2.3.2.3 Soil sourcing and treatment

Site sourced topsoil is proposed to be utilised with some minor treatment required, refer to **Section 3.1.1**.

3. Landscaping methodology

3.1 Preparatory works

3.1.1 Environmental controls

The key environmental controls to be implemented during the landscaping activities (particularly soil placement and seeding and planting) are the following:

- a watercart will be on site during the works to mitigate dust generation
- areas will be re-vegetated as soon as possible after topsoiling is completed to minimise the duration of fully exposed areas
- erosion and sediment controls will be installed to minimise the potential for erosion, and to capture any sediments in run off. This will include:
  - coir logs placed in specific locations where high velocity is expected to slow surface water runoff and minimise the potential for erosion prior to the sterile cover crop germinating and stabilising soils
  - sediment fencing installed downslope of the placed topsoil. In the event that sediment is eroded the topsoil captured in the sediment fencing will be replaced on the capping.

3.1.2 Topsoil characteristics and treatment

Appendix 2 contains the test results for the proposed site-sourced topsoil to be used at the cell cap. The topsoil will be placed at a nominal 100mm thickness.

The topsoil would be improved with the addition of the following:

- application of composted green waste material (compliant to AS4454 or equivalent) at 10% v/v to increase organic matter
- application of gypsum at 1.2 kg/m^3 (approximately 6 tonnes) to improve cation balance
- for native plantings apply Neutrogs Bush Tucker (or equivalent nitrogen phosphorus potassium (NPK) post spread at 100 g/m^2 (approximately 5 tonnes) to increase all nutrients for native species

3.1.3 Soil placement

The topsoil will be transported to the cell from the stockpile on site using 40T dump trucks and placed over the installed capping layer at a nominal 100mm thickness by positrak or small dozer.

Following placement of the topsoil a dozer or equivalent will be used to scarify the soil and top 200mm of subsoil horizontally to loosen any topsoil or subsoil that may have been compacted during its placement, and to aid water retention during rainfall that will maximise propagation. If required lime will be added to the soil to raise the pH. The lime would be tined in with a lightweight dozer.

The final profile of the topsoil will be left rough to promote growth such that the topsoil is not compacted.

3.1.4 Mulch placement

Following the placement and scarification of the topsoil, a 75 mm thick layer of commercial grade forest mulch will be placed over the topsoil. The mulch layer will assist in weed suppression, as well as moisture retention in the topsoil. The mulch will be transported to the cell using dump trucks. Mulch will only be used where direct planting is specified and will be at the location of each tubestock.

3.2 Seeding and planting

3.2.1 Seed mix

The proposed seed mix is as follows:

- *Lomandra longifolia*, Spiny Headed Mat Rush
- *Themeda australis*, Kangaroo grass
- *Dianella caerula*, Blue Fax Lily
- *Austrodanthonia fulva*, Wallaby grass
- *Cymbogan refractus*, Barbed Wire grass
- *Echinopogon caepitosus*, Hedge Hog grass
- *Erogrostis brownie*, Love grass
- *Chrysocepholum apiculatum*, Yellow Buttons

3.2.2 Seed application methods

Three types of seed application are proposed as follows:

- hydro-mulching – selected for the majority of the cell area due to the slope of the cell and minimal after planting irrigation required. Generally the batters will be hydro-mulched with pocket plantings of tubestock as detailed below. Follow up watering of hydro-mulched areas is best left to natural rainfall to start the germination process. A cover crop such as Japanese Millet in Summer, or Rye Grass in winter are used for initial protection and generally appear within two to three weeks. The native grasses will take approximately one to two years to germinate
- direct drill seeding – as shown in **Appendix 1** this is selected for the flatter area, being the top of the cell, where a tractor can be safely used to drill the seed. The same cover crop as the hydro-mulching methodology will be employed for this process, and watering will also be dependent on rainfall
- individual planting – selected for the steeper and more visual areas that have been identified as a high erosive risk initially. This is employed as blocks as shown in **Appendix 1** and is a process that takes the most time to implement. Temporary irrigation or watercart attendance is required to water the plantings until they are established.

3.3 Post-planting management

3.3.1 Inspections

In accordance with the LTMP the installed vegetation will be inspected with the following frequency:

- monthly for the first 12 months
- quarterly for two years following the 52 weeks maintenance period
- annually thereafter

Inspections will also be undertaken in response to the following events:

- immediately (within 24 hours) following a 5% Annual Exceedance Probability or greater storm event as determined by BOM 061260, Cessnock Airport
- immediately following an earthquake event of a magnitude of ≥ 5 recorded within a 20km radius
- in response to a report of potential damage
- in response to a bushfire reported within 500 metres of the Containment Cell

3.3.2 Maintenance

The following maintenance is required for each type of planting:

1. hydro-mulching – follow up watering is not included as it is best to allow germination of the seed by natural rainfall
   The native grasses may take several months to between one and two years to germinate, which is dependent upon the climatic conditions, soil moisture, temperature conditions, light availability, and time of year.
   A period of more than three years maintenance will be beneficial to confirm that the native grasses have germinated, and weeds are kept to a manageable level (using, as required, the methods described in **Section 3.3.3**). Grasses will be mowed periodically to minimise the potential fire risk.
2. direct drill seeding – As for hydro-mulching a period of more than three years maintenance will be beneficial to confirm that native grasses have germinated, and weeds are kept to a manageable level. Grasses will be mowed periodically to minimise the potential fire risk.
3. individual planting – follow up watering is required for this planting with accessible water from site for approximately one to two growing seasons until the plants are established.

3.3.3 Weed and Inappropriate Species Management

If the inspections identify weeds or other in appropriate species (trees and/ or species with deep roots) the following will be undertaken in accordance with the LTMP:

- physically remove inappropriate vegetation species, ensuring that roots have been removed
- minimise damage to vegetation to be retained
- compact soils if they have been loosened/ disturbed through plant removal
- cover disturbed weed removal area with mulch.

3.3.4 Plant Replacement (where required)

In accordance with the LTMP, if the vegetation cover has not established within the expected timeframe, or areas of vegetation have been damaged or subject to dieback, the Containment Cell Manager is to commission an appropriately qualified specialist to investigate the cause of the issue and develop a Contingency Strategy. This strategy would then be implemented.

4. Implementation

4.1 Roles and Responsibilities

4.1.1 Landscaping and Initial Management

Table 4-1 identifies the personnel with key roles and responsibilities in implementing the landscaping installation and initial management (for the period prior to the NSW Government accepting ownership of the Containment Cell) methodology and environmental management measures described in **Section 3**.

Table 4-1: Project Personnel and Environmental Management Responsibilities

Position	Responsibilities
OVERALL SITE MANAGEMENT	
Managing Director	Make certain that the Hydro Team and contractors are implementing this LMP. Provide adequate resources and funding for the implementation of this LMP. Review and approve LTEMP and sub-plans (including this LMP). Liaise with government and community stakeholders regarding the activities at the Smelter, including the landscaping activities. Provide adequate resources and funding for the monitoring and auditing of: the implementation of this plan and overall environmental performance.
Principal Environmental Consultant	Provide advice in relation to environmental management and performance. Review and modify the LTEMP and sub-plans (including this LMP) as directed by the Managing Director/Project Manager. Review and approve the contractors' environmental management documentation prior to commencement of activities and inform contractors of changes to the LTEMP and sub-plans (including this LMP). Assist in the response and investigation of environmental incidents and implement corrective actions arising from environmental incidents and audits.
Principal Communications Consultant	Manage the mechanisms available for the community to receive information and to make enquiries or complaints about activities.
REMEDIATION (INCLUDING CELL CAPPING AND LANDSCAPING) ACTIVITIES	
Hydro Project Manager	Provide relevant environmental legislative, regulatory and management requirements in tender documentation. Verify that the work of contractors is undertaken in accordance with this LMP. Undertake a weekly inspection of the Project activities (including landscaping activities), for the duration of the Project.
Commercial Manager	Coordinate environmental background checks to determine whether potential contractors have been involved in court proceedings or have been issued with environmental penalty notices from Government Departments. Coordinate the inclusion of relevant environmental legislative, regulatory and management requirements in tender and procurement documentation.

Position	Responsibilities
Workplace Health and Safety (WHS) Manager	Provide Hydro personnel with the necessary tools and training to enable effective implementation of the LMP. Implement and maintain an induction package to be provided to all personnel working at the Smelter, including landscaping installation and short term management activities. Coordinate the response and investigation of environmental incidents and implement corrective actions arising from environmental incidents. Maintain a record of personnel induction and training records.
Remediation Contractor	Implement the environmental measures and actions as described in the LTEMP and supporting sub-plans and specific procedures that comply with this LMP. Develop and implement procedures for self-checking management compliance with the Remediation Contractor's procedures and this LMP. Report potential or actual environmental incidents associated with remediation activities at the Smelter and assist as required in the investigation, implementation of corrective actions and recording of the incident.
Site Manager	Coordinate and implement the management requirements of this LMP. Verify that the landscaping work of contractors and Hydro personnel are undertaken in accordance with this LMP. Undertake a weekly inspection of activities on the Hydro Land that will occur for two weeks or more.
LANDSCAPING INSTALLATION AND MANAGEMENT ACTIVITIES	
Landscaping Contractor	Implement the environmental measures and actions as described in this LMP. Coordinate and develop a maintenance program to assist with vegetation establishment. Maintain the revegetation for the duration of the maintenance period.
ALL AREAS AND ACTIVITIES	
Contractors	Comply with the requirements of this LMP as applicable. Implement the measures and actions as described in the LMP (as applicable) through procedures and management plans that comply with this LMP. Develop and implement procedures for self-checking environmental management compliance with Contractor's procedures and this LMP.
Personnel	Implementation of the relevant environmental measures described in this LMP applicable to their activities.

4.1.2 Long Term Management

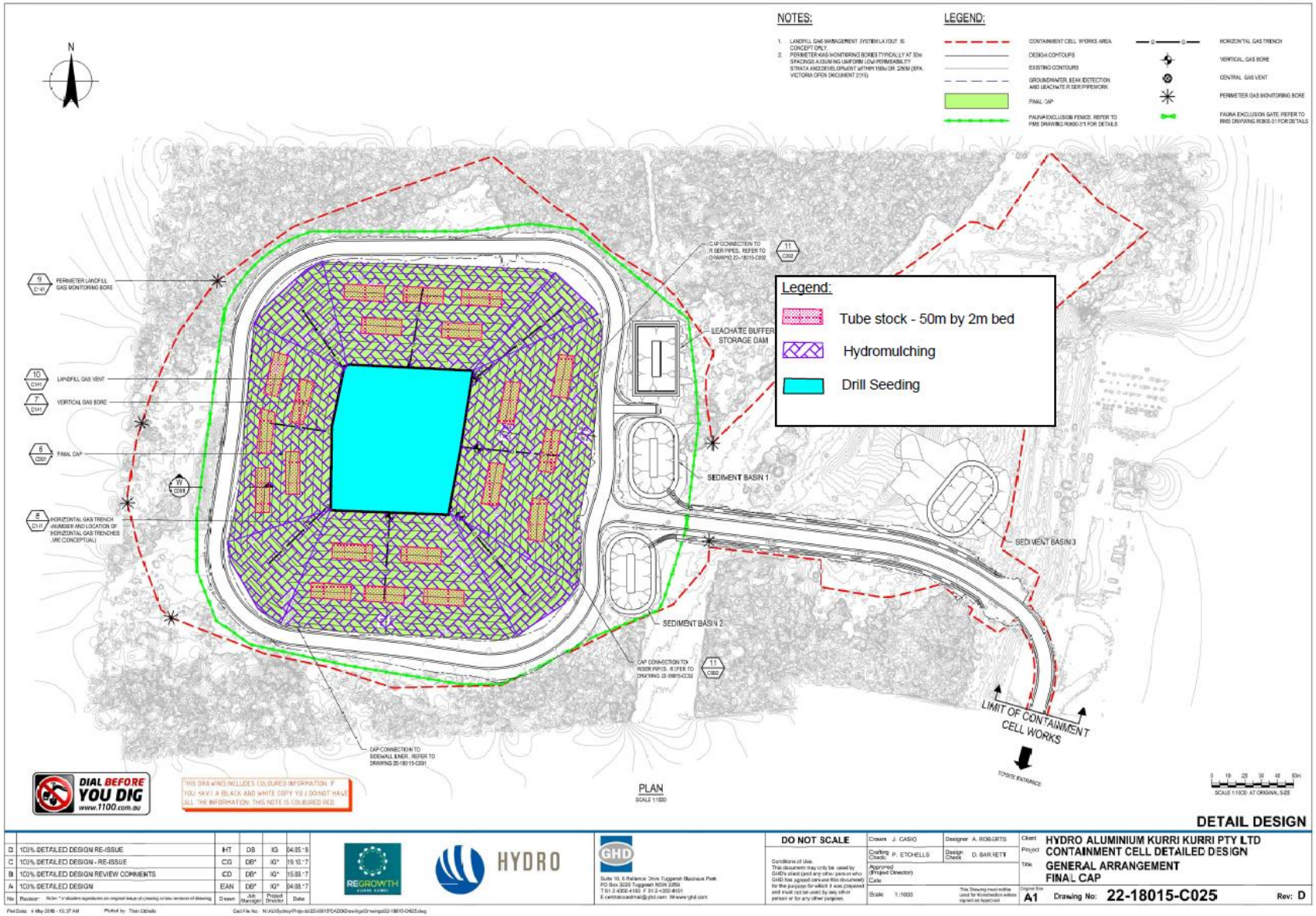
Table 4-2 identifies the personnel with key roles and responsibilities in implementing the ongoing management (following the NSW Government accepting ownership of the Containment Cell) methodology and environmental management measures described in **Section 3.3**.

Table 4-2: Ongoing Management Roles and Environmental Management Responsibilities

Position	Responsibilities
OVERALL SITE MANAGEMENT	
Containment Cell Owner	Make certain that the Landscaping Maintenance Contractor is implementing this LMP. Review and approve any amendments to the LMP, and submit to DPE in accordance with SSD 6666. Provide adequate resources and funding for the monitoring and auditing of: the implementation of this plan. Implement the ongoing management measures and actions as described in this LMP.
Containment Cell Manager	Coordinate and develop an inspection and maintenance program consistent with this LMP. Coordinate the development and implementation of the Contingency Strategy in the event of damage to or death of vegetation.

Appendix 1

Landscaping Design Concept Plan (planting method and species to be confirmed as part of the trial at AEC30)


NOTES:
LEGEND:
Legend:
Tube stock - 50m by 2m bed
Hydromulching
Drill Seeding
PERIMETER LANDFILL GAS MONITORING BORE
LANDFILL GAS VENT
VERTICAL GAS BORE
FINAL CAP
HORIZONTAL GAS TRENCH
LEACHATE BUFFER STORAGE DAM
SEDIMENT BASIN 1
SEDIMENT BASIN 2
SEDIMENT BASIN 3
LIMIT OF CONTAINMENT CELL WORKS
TO SITE ENTRANCE
PLAN
DIAL BEFORE YOU DIG www.1100.com.au
DETAIL DESIGN
HYDRO ALUMINIUM KURRI KURRI PTY LTD
CONTAINMENT CELL DETAILED DESIGN
GENERAL ARRANGEMENT
FINAL CAP
Drawing No: 22-18015-C025
Rev: D

Appendix 2

Landscaping Trial at AEC30

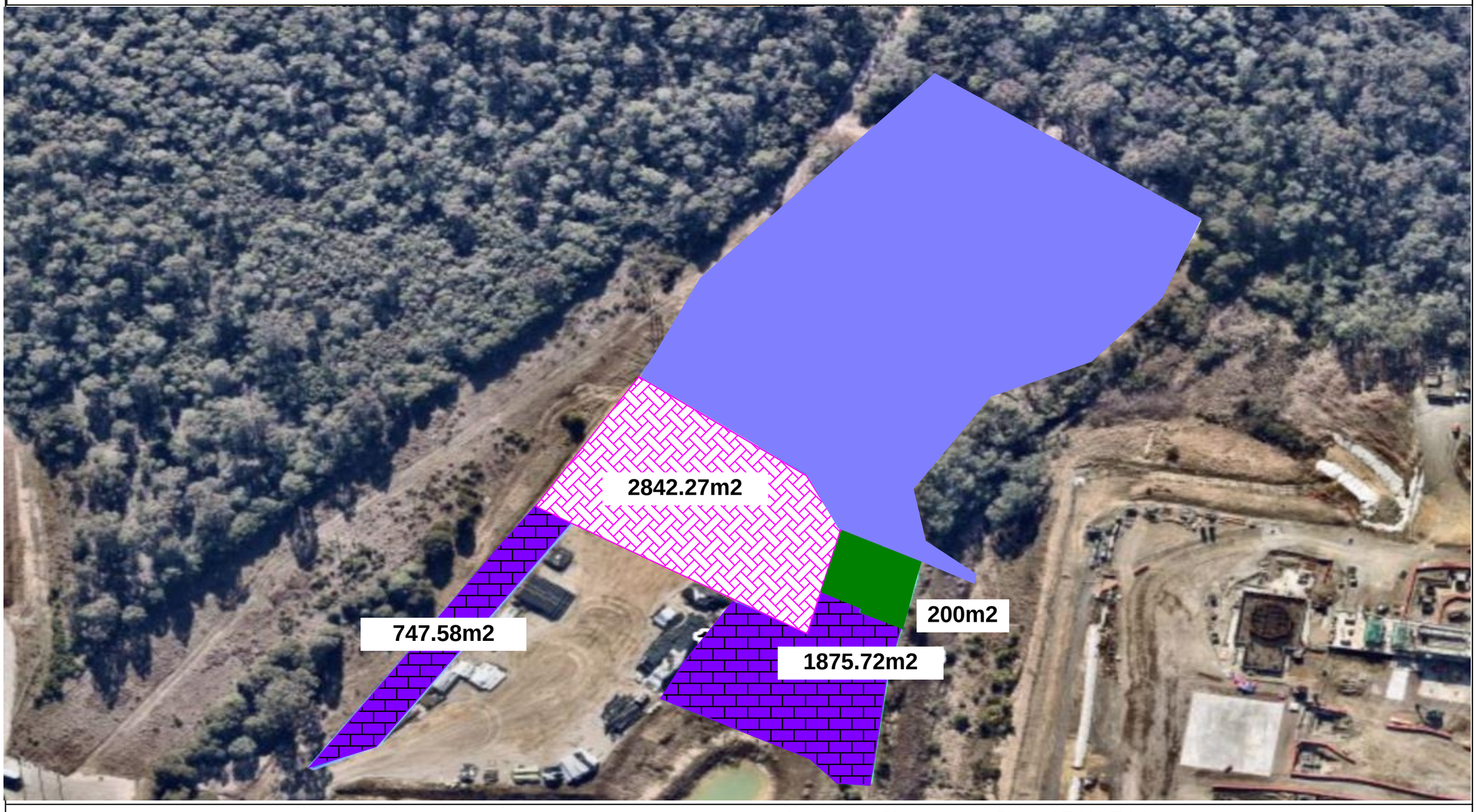
LEGEND:

Hydromulched Area

Drill Seeded Area

Tube stock Area

APA Laydown & Access Areas
- not revegtated



Project: Hydro Aluminium Kurri Kurri remediation Works

Landscape Management Plan - AEC30 Trial

Date: 5.9.2023 Rev 1

Appendix 5
Sump Monitoring Proocedure

Intended for
Hydro Aluminium Kurri Kurri Pty Ltd

Document type
Report

Date
September 2024

Containment Cell

Sump Monitoring Procedure

Containment Cell
Sump Monitoring Procedure

Revision	**1.1**
Date	**3/09/2024**
Made by	**S Buckley**
Checked by	**K Greenfield (CEnvP Site Contamination Specialist SC40104)**
Approved by	**F Robinson (CEnvP Site Contamination Specialist SC40100)**
Description	**The purpose of this document is to describe procedures for monitoring of the various sumps within the Engineered Containment Cell located off Hart Road, Loxford.**

Revision	Date	Made by	Checked by	Approved by	Description
D1	13/10/2023	S Buckley	K Greenfield	F Robinson	Draft for client review
1.0	22/04/2024	S Buckley	K Greenfield	F Robinson	Final
1.1	31/07/2024	S Buckley	K Greenfield	F Robinson	Minor Revisions

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Appendices

Appendix 1
Figures

GLOSSARY

SMP	Sump Monitoring Procedure
Ramboll	Ramboll Australia Pty Ltd
Hydro	Hydro Aluminium Kurri Kurri Pty Ltd
LTMP	Long Term Management Plan
Engineered Containment Cell	The constructed Engineered Containment Cell at the former Hydro Aluminium Kurri Kurri Pty Ltd aluminium smelter at Hart Road, Loxford.

1. Introduction

1.1 Background

This Sump Monitoring Procedure (SMP) has been prepared by Ramboll Australia Pty Ltd on behalf of Hydro Aluminium Kurri Kurri Pty Ltd (Hydro) to support the Long Term Management Plan (LTMP) and to provide a procedure for monitoring of the various sumps within the Containment Cell at the former Hydro Aluminium Kurri Kurri Smelter located off Hart Road, Loxford New South Wales (NSW).

The ECC comprises a fully lined cell used for the emplacement of operational wastes generated during the operation of the former Aluminium Smelter. Following completion of the cell, monitoring of water levels within groundwater and leak detection sumps in the base of the cell is required. Monitoring of leachate, which requires pumping for disposal, is also required. Wastes within the ECC are not putrescible and will only generate leachate when in contact with water. Leachate generation should fall over time.

1.2 Purpose and Scope

This SMP addresses sump monitoring related items in Condition B7 under 'Part B Specific Environmental Conditions' in the State Significant Development (SSD) 6666 Conditions of Consent, which states the following:

Condition B7

Two months prior to the completion of filling of the containment cell, the Applicant must prepare a LTEMP for the containment cell, to the satisfaction of the Site Auditor and the Planning Secretary. The LTEMP must provide:

> *…(iii) details of all monitoring, inspections, environmental controls, requirements and measures to manage the ongoing integrity and performance of the containment cell*
> *(iv) details of the contingency measures and responses to be implemented for any identified issues with the containment cell…*

2. Monitoring and Review

2.1 Location of the Engineered Containment Cell

The Containment Cell has been constructed in the north-western portion of the Hydro Aluminium Kurri Kurri Smelter off Hart Road Loxford NSW. The Containment Cell was constructed in four quadrants. The north-east and south-east quadrants contain a set of the following three monitoring sumps:

- Groundwater Sump
- Leak Detection Sump
- Leachate Sump

Each Sump is fitted with two 450 mm diameter high density polyethylene (HDPE) tubes that extend from the base of the sump to above the cell batter with one of the tubes for both the groundwater and leak detection sump used as a monitoring and extraction point. The Leachate Sump is piped directly into an aboveground storage tank located immediately north-east of the Containment Cell.

Detailed design drawings and the construction design details for the sumps have been prepared by the cell designer, GHD Pty Ltd (GHD, 2019).

2.2 Sump Monitoring Program

The sump monitoring program at the Containment Cell addresses the requirements of Table 4.1 of the Long Term Management Plan in relation to Leachate Monitoring and Groundwater and Leak Detection Sumps Monitoring. The schedule of monitoring required for both components is outlined in the Long Term Management Plan.

Samples are to be collected from the following locations:

- North Groundwater Sump – labelled GW01
- North Leak Detection Sump – labelled LK01
- South Groundwater Sump – labelled GW02
- South Leak Detection Sump – labelled LK02
- Leachate Tank – labelled LT

Each round of sump monitoring will be completed as follows in accordance with a Safe Work Method Statement prepared by the Containment Cell Advisor, and reviewed and endorsed by the Containment Cell Owner:

- Utilise a water quality meter from a rental supplier of environmental monitoring instrumentation
- Retain and file the calibration certificate provided at the time of hire
- Arrange collection of required water sampling bottles from a laboratory that is National Associated of Testing Authorities (NATA) accredited for the analysis to be undertaken
- Access each Groundwater Sump and Leak Detection Sump in turn
- Measure and record the water level in each sump
- Turn on the pump to collect samples from each Groundwater Sump and Leak Detection Sump
- Use the tap at the outlet pipe to the Leachate Tank to collect a leachate sample
- Collect a water sample from each Groundwater Sump and each Lake Detection Sump and a sample from the Leachate Tank in a bucket and use the water quality meter to record the following field parameters:
  - Dissolved Oxygen (mg/L)
  - Electrical Conductivity (µS/cm)
  - pH (pH units)
  - Oxidation Reduction Potential (mV)
- Label sample bottles using the following nomenclature:
  - North Groundwater Sump: yyyy_mm_dd_GW01

    - North Leak Detection Sump: yyyy_mm_dd_LK01
    - South Groundwater Sump: yyyy_mm_dd_GW02
    - South Leak Detection Sump: yyyy_mm_dd_LK02
    - Leachate Tank: yyyy_mm_dd_LT
- Collect a water sample into each of the required water sampling bottles and place the bottles on ice for transportation to the laboratory
- Complete the Chain of Custody request for the analysis required
- Transport samples to the laboratory under Chain of Custody conditions for analysis
- Analytical results will be supplied by the laboratory within seven days

The analytical suite for the Groundwater Sumps and Leak Detection Sumps and for the Leachate Tank is outlined in **Table 2-1**.

At the completion of 12 months of monitoring, a report is prepared for the SMP that includes:

- Tabulated results for analytical data.
- Trend analysis of monitored analytes.
- Assessment of the measured analytes compared against trigger levels discussed in **Table 2-1**
- Conclusion and recommendations from the assessment and monitoring of the sumps.

Throughout the deposition and installation of the Containment Cell capping layer, monitoring will be conducted on a monthly basis, transitioning to a quarterly frequency. After five years of quarterly monitoring and compliance with sump trigger values, the monitoring frequency will be further reduced to an annual schedule. After an additional five years of sustained compliance with sump trigger values, the monitoring will undergo a thorough review. If found to be compliant, monitoring activities will cease. The sump monitoring program is outlined in **Table 2-1**.

Table 2-1 Sump Monitoring Commitments

Monitoring Details	Frequency	Locations	Parameters	Person/s Responsible
Visual inspection of the condition and functionality of the Containment Cell Riser Pipes and pumps	Monthly (during sump monitoring) OR in response to a report of potential damage.	Where extraction pipe is installed	Determine if riser pipes and pumps working and in good condition or if it requires maintenance, repair or replacement	Containment Cell Advisor
Monitoring of the liquids generated into the Groundwater and Leak Detection Sumps	Monthly for the first 12 months following completion of deposition and install of cap, followed by quarterly for 5 years, then annually for 5 years. Cease after five years of complying with trigger levels.	Where extraction pipe is installed	Major Cations and Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity + Ionic Balance) Total Dissolved Solids (mg/L) Fluoride (mg/L) Dissolved Oxygen (mg/L) Electrical Conductivity (µS/cm) pH (pH units) Oxidation Reduction Potential (mV)	Containment Cell Advisor
Monitoring of the leachate generated by the Containment Cell	Monthly for the first 12 months following completion of deposition and install of cap, followed by quarterly for 5 years, then annually for 5 years. Cease after five years of no leachate generation.	Collection tank	Major Cations and Anions (Ca, Mg, Na, K, Cl, SO4, Alkalinity + Ionic Balance) Total Dissolved Solids (mg/L) Fluoride (mg/L) Total and Free Cyanide (mg/L) Total and Dissolved Metals (Al, As, B, Be, Cd, Cr, Co, Cu, Fe, Hg, Li, Pb, Mn, Mo, Ni, Se, Zn, U, V) TRH/BTEXN (µg/L) PAHs (µg/L) PFAS – 28 Compound Suite (µg/L) Dissolved Oxygen (mg/L) Electrical Conductivity (µS/cm) pH (pH units) Oxidation Reduction Potential (mV)	Containment Cell Advisor

2.3 Various Sump Trigger Levels

Sump monitoring trigger levels have been developed to identify conditions that should be met to support a reduced monitoring frequency. **Table 2-2** describes these trigger levels.

Table 2-2: Trigger Levels

Sump	Monitored analytes	Trigger Level
Leachate	Volume Extracted	Volume of leachate being generated is determined to be stable or decreasing with time
Groundwater	pH Fluoride	< 8 < 15 mg/L

2.4 Reporting

All internal and external environmental reporting requirements will be undertaken in accordance with the LTMP. Reporting will also be undertaken in accordance with relevant legislation, guideline and notification requirements, as outlined in the LTMP.

2.5 Non-conformances

The need for preventative or corrective action arises from the identification of non-conformance with environmental legal requirements, Hydro environmental requirements or the potential for non-conformances to occur.

Non-conformances will be resolved and recorded in accordance with the LTMP.

2.6 Complaints

Community complaints are considered environmental incidents and are investigated and documented accordingly. This will include any complaints relating to the discharge of liquid from any of the various sumps located at the Containment Cell.

Investigations will be conducted by the Containment Cell Manager, including provision of feedback to the complainant. Corrective actions will be documented and regularly reviewed until completion and signed off.

Handling of complaints will be undertaken in accordance with the LTMP.

2.7 Review and Improvement

Continual improvement of the SMP will be achieved by the continual evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The Containment Cell Owner is responsible for ensuring that a regular review of the LTMP and specialist management plans is undertaken by the Containment Cell Advisor.

The LTMP and specialist management plans including this SMP will be reviewed in accordance with the review schedule outlined in the LTMP.

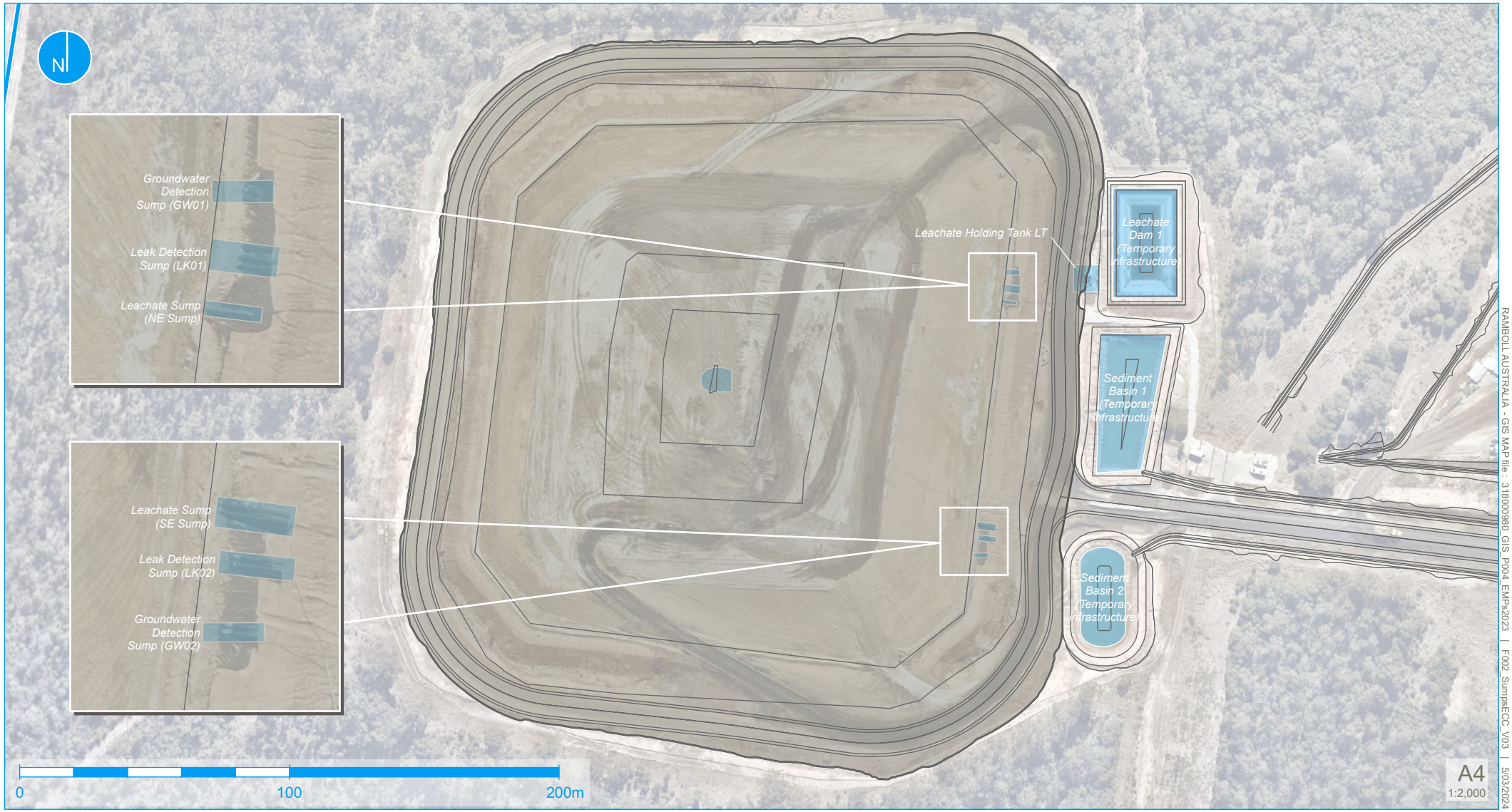
Reviews will be recorded in the document control section of this plan.

3. References

GHD (2019) *Containment Cell Design Report*

Ramboll (September 2024) *Containment Cell Long Term Management Plan*

APPENDIX 1
FIGURES



RAMBOLL AUSTRALIA - GIS MAP file: 318000980_GIS_P004_EMPs2023 | F002_SumpsECC_V03 | 5/03/2024

Legend

- Design contours (GHD/Daracon)
- Engineered Containment Cell (ECC)
- Hydro sumps, dams and basins
- Historic smelter site

Aerial photography by Nearmap, flown 20.08.2023

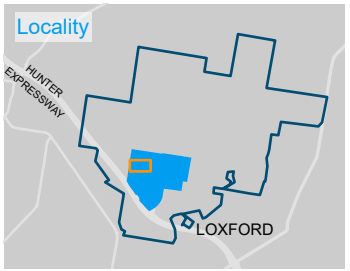


Figure 1 | Location of the ECC and Sumps

Appendix 6
Gas Monitoring Plan

Intended for
Hydro Aluminium Kurri Kurri Pty Ltd

Document type
Report

Date
September 2024

Containment Cell

Gas Monitoring Plan

Containment Cell
GAS MONITORING PLAN

Revision	**1.1**
Date	**3/09/2024**
Made by	**J Auld**
Checked by	**K Greenfield (CEnvP Site Contamination Specialist SC40104)**
Approved by	**F Robinson (CEnvP Site Contamination Specialist SC40100)**
Description	**The purpose of this document is to describe the ongoing management and monitoring plan of landfill gas to occur at the Containment Cell located off Hart Road, Loxford.**

Revision	Date	Made by	Checked by	Approved by	Description
D1	01/02/2024	J Auld	K Greenfield	F Robinson	Draft for client review
1.0	22/04/2024	J Auld	K Greenfield	F Robinson	Final
1.1	03/09/2024	J Auld	K Greenfield	F Robinson	Updated to address DPHI review comment

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Appendices

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GLOSSARY

GMP	Gas Monitoring Plan
Ramboll	Ramboll Australia Pty Ltd
Hydro	Hydro Aluminium Kurri Kurri Pty Ltd
LTMP	Long Term Management Plan
Engineered Containment Cell	The constructed Engineered Containment Cell at the former Hydro Aluminium Kurri Kurri Pty Ltd aluminium smelter at Hart Road, Loxford.

1. INTRODUCTION

1.1 Background

This Gas Monitoring Plan (GMP) has been prepared by Ramboll Australia Pty Ltd on behalf of Hydro Aluminium Kurri Kurri Pty Ltd (Hydro) to support the Long-Term Management Plan (LTMP) and to provide a basis for management and monitoring of landfill gas from the Engineered Containment Cell (ECC) at the former Hydro Aluminium Kurri Kurri Smelter located off Hart Road, Loxford New South Wales (NSW).

The ECC comprises a fully lined cell used for the emplacement of operational wastes generated during the operation of the former Aluminium Smelter. Following closure of the cell, monitoring of gas generated from the wastes is required. Gas is referred to as 'landfill gas' though it is recognised that the gas source relates to industrial wastes generated from the aluminium smelting process, as differentiated from municipal landfill waste. Wastes within the ECC are not putrescible and only gas generating when in contact with moisture.

1.2 Purpose and Scope

This GMP addresses items relating to gas monitoring in Condition B33 under 'Part B Specific Environmental Conditions' in the State Significant Development (SSD) 6666 Conditions of Consent, which states the following:

Condition B33

Two months prior to the completion of filling of the containment cell, the Applicant must prepare a Gas Monitoring Plan (GMP) to the satisfaction of the Secretary. The GMP must form part of the LTMP required by Condition B7. The GMP must:

(a) describe the location, frequency and duration of gas monitoring;

(b) outline trigger levels for the implementation of contingency measures; and

(c) contain a range of contingency measures to respond to exceedances of the trigger levels.

2. Monitoring and Review

2.1 Location of the Engineered Containment Cell

The ECC has been constructed in the north-western portion of the former Hydro Aluminium Kurri Kurri Smelter off Hart Road Loxford NSW. The ECC contains one gas vent for monitoring located in the centre of the final capping. Detailed design drawings and the construction design details for this vent were prepared by the cell designer, GHD Pty Ltd (GHD, 2019).

The location of the ECC and the gas vent in the centre of the ECC are shown in **Figure 1, Appendix 1**.

2.2 Landfill Gas Monitoring Program

The gas monitoring program of the landfill gas vent at the ECC is to be completed as follows in accordance with a Safe Work Method Statement prepared by the Containment Cell Advisor, and reviewed and endorsed by the Containment Cell Owner:

- On a quarterly basis
- For methane (% v/v) and ammonia (ppm)
- For a period of five years

Quarterly gas monitoring will be completed as follows:

- Utilise a multi-gas analyser or equivalent instrument that detects methane (% v/v) and ammonia (ppm) from a rental supplier of environmental monitoring instrumentation
- Retain and file the calibration certificate provided at the time of use
- Access the hatch in the central gas vent
- Turn the multi-gas analyser on and complete the fresh air calibration as indicated by the instrument
- Attach the multi-gas analyser to the gas sampling port using flexible tubing
- Record the initial, maximum and steady concentrations of methane and ammonia
- Record pressure and flow rate.

The gas monitoring program is outlined in **Table 2-1**.

Table 2-1: Landfill Gas Monitoring Commitments

Monitoring Details	Frequency	Locations	Parameters	Person/s Responsible
Visual inspection of the condition of the ECC gas vent	Quarterly (during gas monitoring) OR in response to a report of potential damage.	Where gas vent is installed	Determine if the gas vent is working or if it requires maintenance, repair or replacement	ECC Advisor
Monitoring of the gases generated from the ECC	Quarterly for 5 years, then annually for 5 years and cease after five years of complying with trigger levels	Where gas vent is installed	Methane (% v/v) Ammonia (ppm)	ECC Advisor

2.3 Landfill Gas Trigger Levels

Landfill gas trigger levels have been developed to identify conditions that should be met to support a reduced monitoring frequency. **Table 2-2** describes these trigger levels.

Table 2-2 Trigger Levels

Monitored analytes	Trigger Level
Methane	< 100% LEL or 5 % v/v (5000ppm) as per LTMP
Ammonia	< 50 ppm as per LTMP

2.4 Reporting

All internal and external environmental reporting requirements will be undertaken in accordance with the LTMP. Reporting will also be undertaken in accordance with relevant legislation, guideline and notification requirements, as outlined in the LTMP.

At the completion of four monitoring events over a 12 month period, a report is to be prepared for the landfill gas vent monitoring that includes:

- Tabulated results for analytical data
- Trend analysis of monitored analytes
- Assessment of the measured analytes compared against trigger levels discussed in **Section 2.3**
- Conclusion and recommendations from the assessment and continual monitoring of the landfill gas

2.5 Review of Gas Monitoring

After the period of five years of quarterly landfill gas monitoring, if landfill gas levels remain below trigger levels, monitoring frequency will be revised to occur annually.

After an additional five years, a review of frequency and continuance of monitoring depending on results will be undertaken and monitoring will cease if compliance with trigger levels is determined.

2.6 Non-conformances and potential responses

The need for preventative or corrective action arises from the identification of non-conformance with environmental legal requirements, Hydro environmental requirements or the potential for non-conformances to occur.

Table 4-2 of the LTMP identifies the potential non-conformances that could occur in relation to gas generation:

- Monitoring identifies:
  - LELs for any gases are reached or exceeded OR
  - Ammonia concentrations are ≥15% overall gas discharges AND
  - Concentrations have increased over four monitoring rounds as determined by a statistical test
- Monitoring identifies that gas concentrations and/or volume is increasing outside of naturally expected variations as determined by a statistical test.

Table 4-2 of the LTMP also identifies the potential sources for such non-conformances:

- Moisture remains within the Containment Cell
- Gas capture and ventilation system damaged

Table 4-2 of the LTMP notes that the Contingency Process described in Section 4.3 of the LTMP would be implemented, with the following identified as potential contingency responses:

- assess risk to human health and the environment as well as containment cell performance. This would include:
  - inspection of the containment cell cap and surrounds to assess if there is damage that could result in water leaking to the contained material
  - monitoring of the leachate, groundwater, and leak detection sumps to check if leachate and/ or groundwater levels could be sufficient to be in contact with contained material
  - consideration as to whether the concentrations at the surface of the containment cell represent a risk to containment cell maintenance and monitoring personnel, and if measures (such as suitable personal protective equipment) need to be used by these personnel
- maintain prohibition of public access to the top of the Containment Cell
- installation of new (taller) gas ventilation stack

The final response/s to be implemented would be confirmed on completion of the Contingency Process described in Section 4.3 of the LTMP.

2.7 Review and Improvement

Continual improvement of the GMP will be achieved by the continual evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The LTMP and specialist management plans including the GMP will be reviewed in accordance with the review schedule outlined in the LTMP.

Reviews will be recorded in the document control section of this plan.

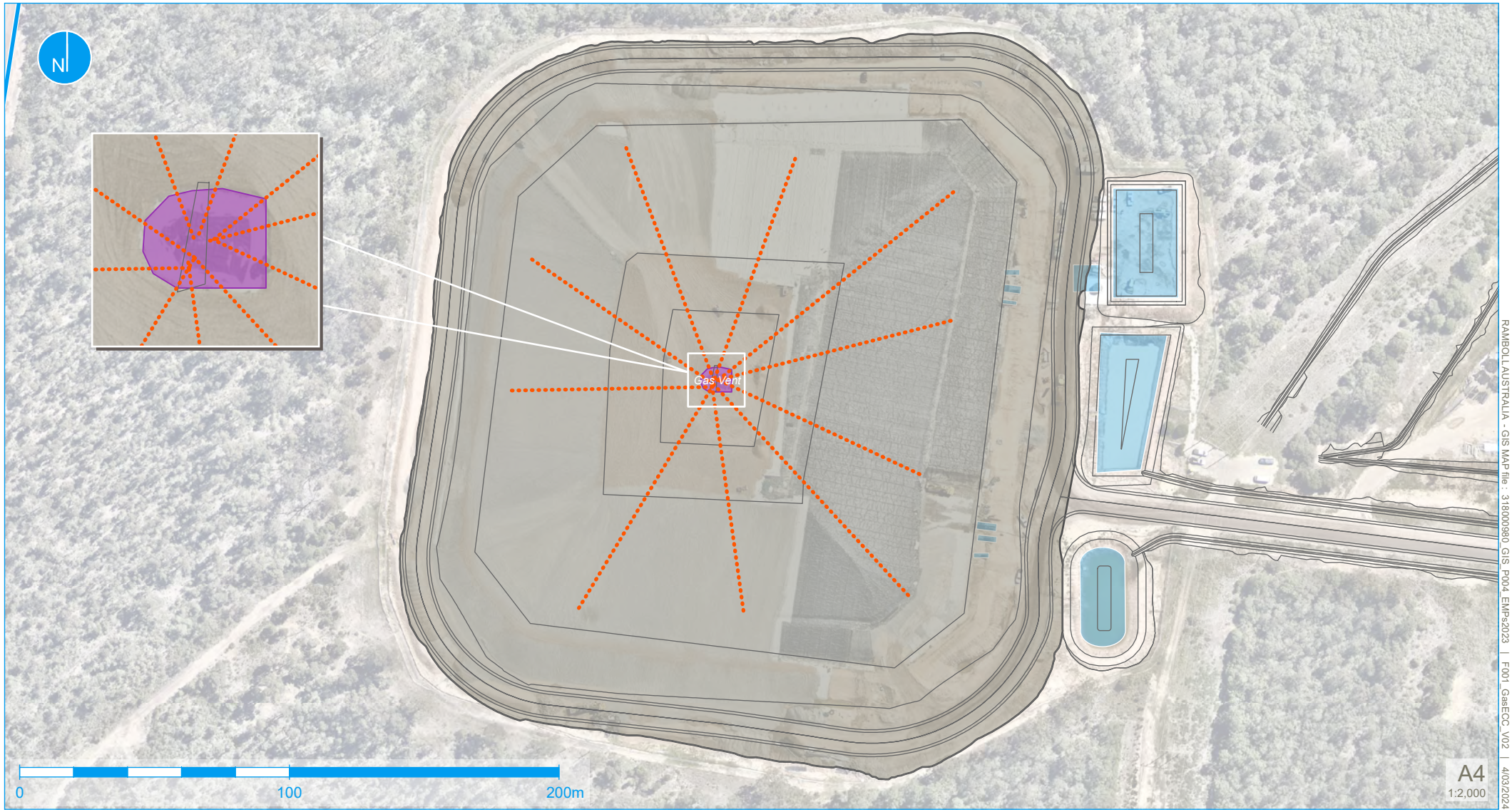
3. References

GHD (2019) *Containment Cell Design Report*

NSW EPA (2012) *Guidelines for the Assessment and Management of Sites Impacted by Hazardous Ground Gases*

Ramboll (September 2024) *Containment Cell Long Term Management Plan*

APPENDIX 1
FIGURES



RAMBOLLAUSTRALIA - GIS MAP file - 318000980_GIS_P004_EMPs2023 | F001_GasECC_V02 | 4/03/2024

Aerial photography by Nearmap, flown 26.02.2024

Legend

- Engineered Containment Cell (ECC)
- Design contours (GHD/Daracon)
- Horizonal gas trench (adapted from Daracon survey)

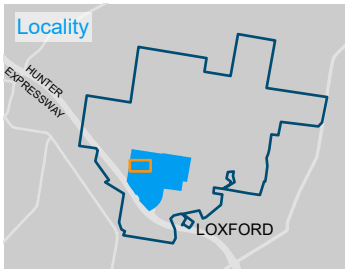


Figure 1 | Location of the ECC and Centre Gas Vent