Gove Asbestos Monocell Construction

Environmental Management Plan

Prepared by
Liberty Industrial Pty Ltd
For

Gumatj Corporation Ltd

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1 INTRODUCTION

1.1 GENERAL

This Construction Environmental Management Plan (CEMP) has been prepared by Liberty Industrial for the Construction of the Gove Asbestos Monocell Project (the Project). It has been developed to demonstrate how Liberty Industrial will execute the works as per the requirements of future contractual agreements between Gumatj and Liberty Industrial (the Contract).

This CEMP has been prepared in accordance with the relevant project documentation, Liberty Industrial's Environmental Management Systems and the *Guideline for the Preparation of Environmental Management Plans (NTEPA, 2015)*. The CEMP will provide the necessary framework to enable the project to be completed with minimal environmental impact and in accordance with the environmental objectives for this project.

It is the policy of Liberty Industrial to ensure that the Project achieves a high standard of care to minimise the impact on the environment, immediate work sites and the local community.

To meet these objectives, a systematic and planned approach for the management of environmental issues will be implemented on this project.

1.2 PURPOSE

This CEMP is designed to provide the management framework with strategies to manage all environmental risks during the Gove Asbestos Monocell construction phase. Implementing this CEMP effectively will ensure that the Project Team meets the regulatory and policy requirements systematically and continually improves its performance.

In particular, this CEMP:

- Describes the Project in detail including activities to be undertaken and relative timing;
- Describes the environmental management roles and responsibilities of personnel;
- States objectives and targets for issues important to the environmental performance of the project;
- Identifies environmental aspects and impacts associated with each activity of the project;
- Provides specific mitigation measures and controls that can be applied onsite to avoid or minimise negative environmental impacts;
- Provides specific mechanisms for compliance with applicable policies, approvals, licences, permits, consultation agreements and legislation;
- Outlines a monitoring regime to check the adequacy of controls as they are implemented during the works.

The primary purpose of the system of documentation is to:

- Ensure compliance with all applicable environmental laws, specifications, obligations and approvals.
- To minimise environmental impacts.

1.3 ABBREVIATIONS AND DEFINITIONS

Table 1 defines the abbreviations and definitions used in this document.

Table 1. Abbreviations and Definitions

Abbreviation or Term	Meaning or Definition
AAPA	Aboriginal Areas Protection Authority
AHD	Australian Height Datum
BOM	Bureau of meteorology
Codes of Practice	A practical guide to achieve the standards of health and safety required under the model Work Health and Safety (WHS) Act and model WHS Regulations
the Contract	Contract between Gumatj and Liberty Industrial
the Project	Construction of the proposed Asbestos Monocell
CEMP	Construction Environmental Management Plan
DECCW	Department of Environment, Climate Change & Water (NSW)
DEPWS	Department of Environment, Parks and Water Security (NT)
DENR	Department of Environment and Natural Resources
HSE	Health, Safety and Environment
HSEQ	Health, Safety, Environment and Quality
IECA	International Erosion Control Association
JHA	Job Hazard Analysis
NATA	National Association of Testing Authorities
NCA	Noise Catchment Area
NT	Northern Territory
NEPC	National Environmental Protection Council
NTEPA	Northern Territory Environmental Protection Agency
PEP	Project Execution Plan
RBL	Rating Background Level
RDA	Residue Disposal Area
RL	Reduced Level (based on AHD)
Standards	Published documents setting out specifications and procedure
STP	Service, Technical and Projects
WMP	Waste Management Plan

2 GENERAL DESCRIPTION OF THE SITE

2.1 OVERVIEW OF THE PROJECT

The project involves the construction of an initial asbestos monocell, utilizing a modular cell design and construction process. This approach allows for campaign-based disposals as materials become available, minimizing the operational risks associated with leaving larger cells open for extended periods. The current plan focuses on addressing immediate asbestos disposal needs arising from the ongoing Gove Refinery Closure project, with future disposal campaigns to be considered thereafter.

The project site is located on Melville Bay Road, Nhulunbuy, NT, and has been proposed pending appropriate approval, for the disposal of asbestos waste. The site has remained vacant, with vegetation previously cleared. The initial monocell will be specifically designed to hold asbestos-containing materials (ACM) and steel structures, free of lead paint, generated from the demolition of the Gove Refinery. Any loose ACM will be double-bagged before being placed in the monocell and will be interlayered with the steel structures, with material being placed in-cell, as opposed to a standard tipping face approach.

2.2 SITE PLAN

The proposed Gove Asbestos Monocell will be located adjacent to the existing landfill site at NCL Ltd and is an independent operation specialising in safe and secure disposal of ACM. Access will be via Melville Bay Road and the existing power corridor and track, with a secure, gated access point to the proposed location of the Monocell. There is also an existing active conveyor and track running from northwest to southeast, adjacent to the project area. Finally, a 3-meter buffer between the initial Asbestos Monocell and any potential future cell, would be maintained between disposal phases.

The map outlines access routes, the Project, and nearby infrastructure to facilitate waste management operations, are illustrated in Figure 2. Proposed Gove Asbestos Monocell Location*Figure 2* below.

2.3 SCOPE OF CONSTRUCTION WORKS

The proposed construction of the Gove Asbestos Monocell includes excavating an area measuring approximately 63 meters long by 26 meters wide, to a depth of 3 meters, laying down heavy-duty geofabric along with a sand bedding layer, and establishing associated access tracks. Further details on the proposed Gove Asbestos Monocell design structure are provided in *3*. The project also involves setting up temporary facilities, including a site office, laydown areas, and portable toilets.

2.4 TIMING OF WORKS

The delivery of this package of works is anticipated to commence at the beginning of the next dry season. The project's construction phase is expected to take approximately five months to complete.

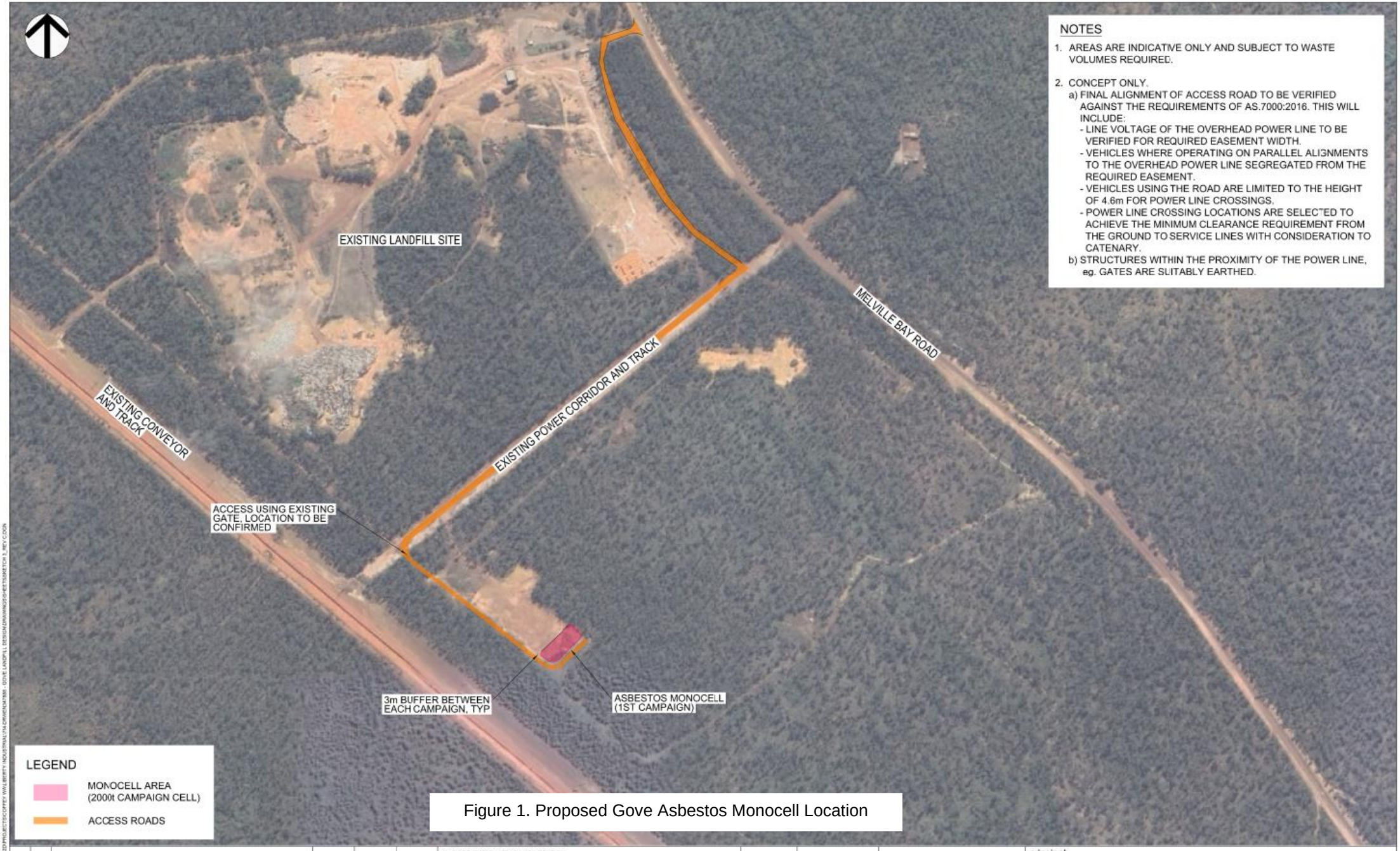


Figure 1. Proposed Gove Asbestos Monocell Location

revision	no.	description	drawn	approved	cate
	A	ISSUED FOR INFORMATION	-	-	-
	B	ISSUED FOR INFORMATION	CJB	SG	26.08.24
	C	ISSUED FOR INFORMATION	CH	JP	05.09.24

MAP PROJECTION: GDA94 MGA ZONE 53

50 0 50 150 250

Scale (metres) 1:5000

drawn	C. HEALY
approved	J. PALMER
date	05.09.24
scale	1:5000
original size	A3

TETRA TECH COFFEY

principal:	RIO TINTO
client:	LIBERTY INDUSTRIAL
project:	GOVE CONTAINMENT OF WASTE
title:	GOVE ASBESTOS CELL - FIRST CAMPAIGN
project no:	754-DRWEN347888
sketch no:	3
rev:	C

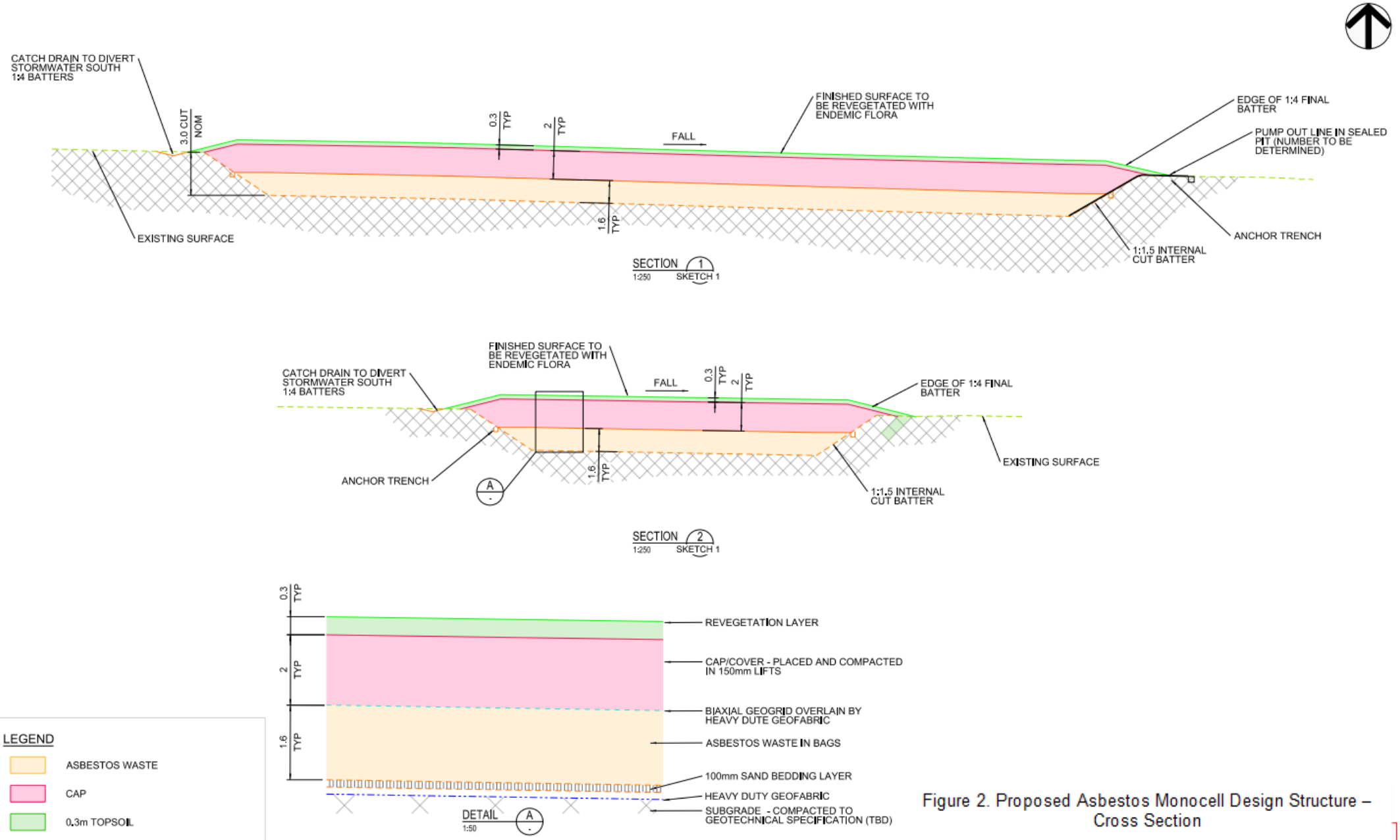


Figure 2. Proposed Asbestos Monocell Design Structure – Cross Section

revision	no.	description	drawn	approved	date
	A	ISSUED FOR INFORMATION	-	-	-
	B	ISSUED FOR INFORMATION	CJB	SG	22.08.24

MAP PROJECTION: GDA94 MGA ZONE 53

2.5 0 2.5 7.5 12.5

Scale (metres) 1:250

drawn	C.BARRATT
approved	S.GUNASEKERA
date	22-08-2024
scale	AS SHOWN
original size	A3

TETRA TECH COFFEY

principal:	RIO TINTO
client:	LIBERTY INDUSTRIAL
project:	GOVE ASBESTOS CONTAINMENT
title:	BAGGED ASBESTOS CONTAINMENT MONOCELL - SECTIONS
project no:	754-DRWEN347888
sketch no:	2
rev:	B

2.5 OVERVIEW OF THE EXISTING ENVIRONMENT

2.5.1 CLIMATE

Gove Peninsula has a monsoonal climate, influenced by coastal factors and is characterised by hot, wet, humid summers and mild, drier winters. The Gove region experiences most of the annual rainfall over a distinct wet season from December to April, characterised by an active northwest monsoon. Thunderstorms are common, and heavy rainfall events can occur, often associated with tropical cyclones. On average, every two years a tropical cyclone and gale force winds are expected to pass near Gove. As well as generating very high wind forces, cyclones can also cause storm surges in addition to considerable wave action.

Tropical cyclones in Australia's northern region form predominately during the wet season between November and April. There are on average 7.7 days per season when a cyclone exists. The north-western Gulf of Carpentaria near Gove has the highest concentration of cyclone days. The Gulf of Carpentaria averages two cyclones a year. The winter months from April to November are cooler and drier with south-easterly trade winds. The driest months are typically August to October, when evaporation usually exceeds the monthly rainfall. The mean annual evaporation exceeds the mean annual rainfall by 50%, however rainfall in this area is known to be highly variable and may exceed the evaporation rates in wetter years. Median monthly rainfall in the dry season is less than 60mm, and months with no rainfall are common. Sea breezes have a local influence on the strong trade winds during these months. Annual rainfall totals since 1971 have varied from 654mm to 2,572mm. The Gove climate statistics are broadly shown in Figure *4*.

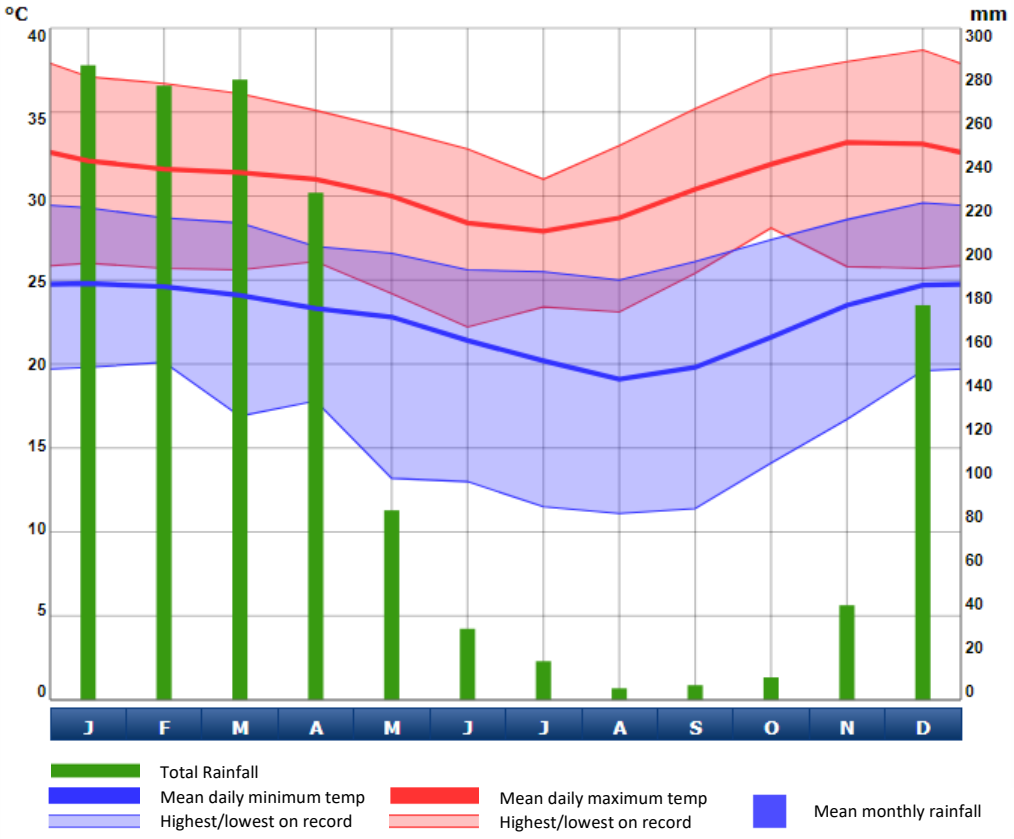


Figure 4. Gove Climate Statistics (BoM)

2.5.2 GEOLOGY AND SOILS

The peninsula on which the Gove Asbestos Monocell would be located comprises marine sediments, predominantly quartz and calcareous sands, deposited upon and between outcrops of granitic/gneissic bedrock. A varying thickness of weathered, oxidised clayey regolith (saprolite or laterite) and sandy marine sediments overlies the bedrock structure of the peninsula.

The proposed location of the Gove Asbestos Monocell is underlain by granite-gneiss from the Melville Bay Metamorphics, expressed as limited outcrops in the area to the north of the refinery. At depth the granite-gneiss is extensively weathered and overlain by a residual clayey (kaolinitic) saprolite horizon. This layer is gradational and varies in thickness, but can be up to 2 m in extent. The saprolite is overlain by unconsolidated marine sediments, predominantly consisting of clean, fine to coarse grained quartz and calcareous sand of variable thickness, reported to a maximum of around 18 m. The surficial 2 m of the profile is variable and is dependent on location, ranging from disturbed natural soils to compacted clayey gravelly sand (imported fill) underlying the refinery and its associated infrastructure. The sandy marine sediments form an unconfined surficial aquifer.

2.5.3 BIODIVERSITY

The Project is located within the north-east Arnhem Coast Bioregion and Groote Meso-Scale Bioregion, which is located on the western side of the Gulf of Carpentaria, in far northeast Arnhem Land. The bioregion is recognised as a site of high conservation significance in the NT and rated as internationally significant in relation to a number of threatened species, which may potentially occur within it. A number of plant and vertebrate species occurring in the bioregion are restricted within the NT to the broader north-east Arnhem region, which has interesting bio-geographic affinities with Cape York Peninsula. The Project is surrounded by the Dhimurru Indigenous Protection Area (IPA), which was declared in 2000 under the International Union for the Conservation of Nature (IUCN) Category V - Protected Landscape/Seascape: Protected Area. This area is managed mainly for landscape/seascape conservation and recreation. The terrestrial component of the Dhimurru IPA covers an area of approximately 101,000 ha surrounding Nhulunbuy including 9,000 ha of sea country.

2.5.4 FAUNA

The Project is located in a bioregion recognised as a Site of high conservation significance in the Northern Territory and rated as internationally significant in relation to a number of threatened species, which may occur within the region.

Fauna Management within the proposed monocell area will involve implementing measures to minimise negative impacts on native and exotic fauna, including (but not limited to) birds, bats, crocodiles, and snakes. Given that the site has been vacant for an extended period and lacks infrastructure that could support bird nesting or bat roosting, there is limited potential for current wildlife habitat use. However, any actions that may disturb or interfere with native fauna in the Northern Territory—such as disturbing nesting birds or roosting bats—will require Gumatj to obtain a Permit to Take or Interfere with Wildlife from the NT Government. Liberty Industrial will provide the necessary supporting documentation for the permit application.

Refer to *Appendix G* for Fauna Management.

2.6 CULTURAL HERITAGE AND AWARENESS

There are no culturally significant sites in close proximity for which Liberty Industrial is responsible. However, there would be regular interaction with the Gumatj Traditional Owners as part of this project and, if any such sites are discovered, Liberty Industrial will take appropriate measures to ensure all work in the area preserves and protects these culturally significant locations. Table *2* provides risk management and monitoring requirements.

Table 2. Cultural Heritage Mitigation Measures

Objective	No adverse impacts to Indigenous cultural heritage values. No disturbance of Indigenous heritage sites.
Performance Criteria	No disturbance of culturally significant items, artefacts or heritage sites
Policies, Standards and Guidelines	Aboriginal Cultural Heritage Act 2003 Duty of Care Guidelines (2004) The NT Sacred Sites Act 1989 The Aboriginal Areas Protection Authority (AAPA) The Heritage Act 2011 Native Title Act 1993
Mitigation Measures specific to construction activities	
Clear identification of locations and associated buffer zones for cultural heritage significance	
Identify buffer zones around the culturally significant items, artefacts or heritage sites-to ensure that no works occur within the vicinity of these items.	
Identify and clearly mark any additional areas of significance including hunting trails, WWII Sacred Sites, if any.	
Maintain Traditional Owners access to areas of cultural significance and stakeholder access to WWII areas of cultural significance, if any.	
Identify the Site boundaries and no-go zones. Install physical barriers where possible. Ensure all boundaries and restriction zones are appropriately communicated.	
On suspected discovery of cultural or historically significant artifacts – it must be reported and appropriate protocols put in place (barricading, signage and mentioned to works at toolbox talks/pre-start meetings) until confirmed.	
Gumatj People are to be contacted and advised of any excavation activities that may affect Indigenous cultural heritage values in the area.	

2.6.1 DISCOVERY OF POTENTIAL CULTURAL SIGNIFICANCE

In the event of a discovery of potential cultural significance, Traditional Owners are to be notified of the potential finding through the Leaders forum and their Aboriginal Corporation bodies.

If unable to be qualified as a cultural heritage site, the advice of the Leaders Forum and their Aboriginal Corporation bodies is to be sought. This may include a visit to the Site of the disturbance with the Traditional Owners.

2.7 CONCEPTUAL SITE MODEL

The Conceptual Site Model (CSM) is an essential component of the operational EMP (OEMP) that provides a comprehensive overview of potential environmental risks associated with the Project site. The Project CSM in *Appendix C* maps out contaminant sources, transport pathways, and receptors to assess exposure risks and guide mitigation strategies. It outlines the current understanding of site conditions, potential environmental hazards, and the interactions between contaminants and the surrounding environment.

The CSM concludes that once the monocell capping is in place, the risk of asbestos exposure, and therefore any potential adverse effects on human health and the environment, is considered negligible. The capping effectively contains asbestos fibres, protecting land users, workers, and local wildlife.

During the monocell construction phase, risk management will be guided by Asbestos Control Plans and may include dust suppression, regular air quality monitoring, soil erosion and sediment control, as well as completing the asbestos disposal program within a brief timeframe.

3 PLANNING AND LEGISLATIVE REQUIREMENTS

3.1 ENVIRONMENTAL OBLIGATIONS

All personnel working on the Project have the following general obligations:

- Comply with all Environmental Laws including authorisations, license and approvals required by any government agency for the lawful use of the Site to carry out contracted work;
- Not contaminate or cause any pollution on or from the Site due to the undertaking;
- To undertake all works in a manner that ensures the protection of the water quality objectives in accordance with the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000) for the environmental values under the ANZECC Guidelines;
- Not use, keep or handle on the Site any dangerous goods or hazardous material except as may be required to carry out contracted work in accordance to Liberty Industrial plans and procedures;
- Operate in a proper and efficient manner and maintain in good working order, all plant used in connection with the carrying out the contracted work;
- Install and maintain pollution control equipment required by an environmental law to be installed and operated in connection the Site undertaking;
- Any pollution incident that causes or threatens material harm to the environment is to be reported to the Gumatj who will coordinate with NT EPA. Gumatj will be responsible for reporting to the NT EPA and other relevant authorities;
- Clean up, manage or abate any pollution occurring on and/or from the site;
- Remedy any breach of an environmental law that occurs on or affects the Site as soon as it occurs (including by restoring the Site to a state as close as practicable to the state it was in prior to that alleged breach); and
- Comply with every environmental approval notice relating to the Site or issued in consequence of contracted work.

3.2 LEGISLATION, STANDARDS AND CODES OF PRACTICE

Liberty Industrial commits to comply with all relevant sections of legislation, policies, guidelines and standards that may be applicable to the project. These are listed below:

- AS/NZS IEC 61672.1:2019 Electroacoustics – Sound level Meters- Specifications;
- AS ISO 10002-2014 Customer satisfaction – Guidelines for complaints handling in organisations (ISO 10002:2004, MOD);
- AS/NZS ISO 19011:2019 – Guidelines for Auditing Management Systems;
- Environment Protection (National Pollutant Inventory) Objective 2004 (NT);
- Environment Protection and Biodiversity Conservation Act 1999 (Cth);
- Environment Protection Regulations 2020 (NT);
- Environmental Offences and Penalties Act 1996 (NT);
- Environmental Offences and Penalties Regulations 2011 (NT);
- Marine Pollution Act 1999 (NT);
- Marine Pollution Regulations 2003 (NT);
- National Environment Protection (Air Toxics) Measure 2004 (NEPC);
- National Environment Protection (Ambient Air Quality) Measure 1998 (NEPC);
- National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPC);
- National Environment Protection (Diesel Vehicle Emissions) Measure 2001 (NEPC);
- National Environment Protection (Movement of Controlled Waste between States and Territories) Measure 1998 (NEPC);
- National Environment Protection (National Pollutant Inventory) Measure 1998 (Cth);
- National Environment Protection (Used Packaging Materials) Measure 2011 (NEPC);
- National Environment Protection Council (Northern Territory) Act 1994 (NT);
- National Environment Protection Measures (Implementation) Act 1998 (Cth);

- National Environment Protection Measures (Implementation) Regulations 1999 (Cth);
- Northern Territory Environment Protection Authority Act 2012 (NT);
- Northern Territory Noise Management Framework Guideline 2018 (NTEPA);
- Waste Management and Pollution Control (Administration) Regulations 1998 (NT);
- Waste Management and Pollution Control Act 1998 (NT);
- Water Act 1992 (NT);
- Water Efficiency Labelling and Standards (National Uniform Legislation) Act 2014 (NT);
- Water Regulations 1992 (NT).

3.3 ENVIRONMENTAL POLICY

Liberty Industrial's Environmental Policy is provided in *Appendix A*.

3.4 STATEMENT OF COMMITMENT

Liberty Industrial's commitment to the environmental aspects of the project is:

- to conduct the works in accordance with the expectations of Gumatj Corporation, and in adherence to the NSW Acts, Regulations and agreed-upon work plans;
- to monitor potential environmental issues on a daily basis, as part of our hazard and risk management procedure;
- to ensure all worker(s) (including sub-contractors) are aware of regulated and company standards and adhere to all reasonable requirements; and
- to achieve a zero environmental incident target.

3.5 OBJECTIVES AND TARGETS

Environmental objectives and targets have been established as a means of assessing environmental performance during the Project execution. These objectives and targets have been developed with consideration of the key issues identified through the environmental assessment and risk assessment process.

Management review process will occur via weekly operations meetings which will include Senior Management Staff, Site Management Staff, Engineers and Health, Safety, Environment and Quality (HSEQ) Advisors with minutes provided to the General Manager (GM) and Directors for review.

Measurable targets shall be consistent with this plan as shown in Table *3*.

Specific Environmental KPIs are in Section 9.2 of this document.

Table 3. Environmental Performance Indicator

Objectives	Indicator	Measurement tools
Comply with all relevant environmental standards and approvals during the life of the Project	Full compliance with statutory approvals	Audits, compliance reporting, management review, inspection reports
Comply with statutory requirements, regulatory approvals and regulatory reporting (Commonwealth and NT).	No regulatory infringements No formal regulatory warning	Audits, compliance reporting, management review, inspection reports
Protect people, the environment and property	Comply with the EMP and all relevant legislation, standards and codes of practices	Compliance report, management review and audits, inspection reports

Objectives	Indicator	Measurement tools
Continuously improve environmental performance	Develop and maintain a program of ongoing environmental training. Capture lessons learnt from environmental incidents to minimise repeat issues. Encourage and reward innovation and effort throughout the workforce	Compliance report, management review and audits, inspection reports

4 ASPECTS AND IMPACTS

A risk management approach has been used to determine the severity and likelihood of an activity's impact on the environment and to prioritise its significance. This process considers potential regulatory and legal risks as well as taking into consideration the concerns of the community and other key stakeholders. The objectives of the risk assessment are to:

- Identify activities, events or outcomes that have the potential to adversely affect the local environment and/or human health/property;
- Qualitatively evaluate and categorise each risk item;
- Assess whether risk issues can be managed by environmental protection measures; and
- Qualitatively evaluate residual risk with implementation of measures.

Appendix B2 contains an Environmental Risk Assessment Aspects and Impacts associated with the Project. Measures to mitigate the identified environmental risks are also provided.

5 ENVIRONMENTAL MANAGEMENT

This section details the environmental mitigation and management controls for the Project's construction activities. These have been developed based on the impacts and management measures identified in the ERA. This EMP addresses management strategies for the following areas:

- Air quality
- Flora and fauna
- Noise
- Erosion and sediment control
- Surface water
- Waste

The significant environmental aspects and environmental mitigation and management controls of the Project are discussed in *Appendix C* to *Appendix I*.

6 IMPLEMENTATION AND OPERATION

6.1 ROLES AND RESPONSIBILITIES

Roles and responsibilities are summarised below in Table *4*.

6.1.1 ROLES AND RESPONSIBILITIES MATRIX

Table 4. Roles and Responsibility Matrix

Responsibility	Gumatj Project Head	Project Manager	HSEQ Manager	HSEQ Advisor	Environmental Consultant	Environmental Manager	Project Environmental Engineer	Site Supervisor	National HSEQ Manager
Develop environmental policy; objectives, targets and programs;	A	C	C	R		R			
Review and approve environmental documents		I	C	R	C	A	R		
Conduct environmental inspections		A		R		R	R		
Conduct internal environmental audits						A	R		
Review environmental reports and inspections and initiate actions to rectify.	I				C	R	R		
Reporting of environmental incidents	I	A	R	R			R	A	
Investigation of environmental incidents		A		R		R	R	R	
Implementation of mitigation measures in the CEMP						A	R		
Follow instructions as indicated in mitigation and management measures of CEMP sub plans	I	C	A	R	C	A	R	R	I
Ensure dust management is in accordance with Appendix E					C	A	R	R	
Ensure waste management is in accordance with the CEMP					C	A	R	R	
Implement and adhere to dust and noise mitigation measures				C		A	R	R	
Assure compliance with applicable legal requirements and other requirements to which the organization subscribes	I	A		R					I
Maintain and implement this CEMP	A	C	C	R	C	R	R	R	C I

Responsibility	Gumatj Project Head	Project Manager	HSEQ Manager	HSEQ Advisor	Environmental Consultant	Environmental Manager	Project Environmental Engineer	Site Supervisor	National HSEQ Manager
Undertake environmental monitoring						A	R	C	
Manage environmental audits			A	R		R	R		
Updating CEMP through review of the environmental impacts of construction activities						A	R		
Measure, monitor and manage dust emissions						A	R	R	
Measure, monitor and manage waste generated during Asbestos Monocell construction including: general procedures for waste classification, handling reuse, disposal; use of secondary waste material in Asbestos Monocell construction wherever feasible and reasonable; procedures or dealings with green waste including timber and mulch from clearing activities; and measures for reducing demand on water resources.			C	C		A	R	R	

Index:
R – Responsible
A - Accountable
C - Consulted
I – Informed

7 COMPETENCE TRAINING AND AWARENESS

7.1 SITE INDUCTIONS

All workers and visitors shall undergo the Liberty Industrial Project Specific Induction and/or applicable trainings before commencing work.
Some of the items relating to environmental management that will be discussed within the induction include the locations where dust/noise monitoring will be conducted onsite, the locations of hazardous substances present onsite (if any), and the management of fauna known to be present onsite.

7.2 TOOLBOX TALKS

Toolbox talks will be undertaken on a regular basis and will include, where applicable, information on environmental impacts of the Project's construction activities. Where required, specific training will be provided to the relevant personnel on hazards associated within specific activities and the controls to be implemented to minimise environmental harm. This will include measures identified in the CEMP.

Some of the toolbox talks will be tailored to specific environmental issues including but not limited to:

- Dust control;
- Erosion and sedimentation control;
- Fauna management;
- Emergency Response Plan;
- Safety Management Plan;
- Noise control;
- Housekeeping, waste generation;
- Surface water management;
- Unexpected finds.

Toolbox Talk attendance is mandatory and attendees of Toolbox Talks are required to sign an attendance form. Records of Toolbox Talk attendance will be maintained.

8 COMMUNICATION AND REPORTING

8.1 COMMUNICATION

Liberty Industrial commits to reporting through the Environmental Manager, communicating and reporting all environmental concerns categorized as high risk as per the risk assessment in this CEMP. Communication typically occurs during daily pre-start meetings, weekly site meetings and monthly project meetings.

8.2 COMMUNITY RELATIONS AND COMPLAINTS MANAGEMENT

Community relation and complaints are to be managed by Gumatj. Should complaints be received, they will be directed to the Gumatj applicable representative. Refer also to *Liberty Industrial Employee Relations Management Plan*.

9 INSPECTIONS, MONITORING AND AUDITING

9.1 METHODS OF EVALUATION

Progress and compliance against environmental requirements will be evaluated through:

- Audits, both internal and external;
- Review of documents and/or records;
- Employee and Gumatj feedback;
- Project or work reviews and reporting;
- Direct observation;
- Environmental inspections.

9.2 INSPECTIONS AND MONITORING

Liberty Industrial will undertake the following inspections and monitoring as outlined in Table 5.

Table 5. Environmental Monitoring and Inspection Table

Activity	Frequency	Location	Responsibility	KPI	Record	Monitoring Method
Dust	Daily, during works and weekly	All Workfront, closest to the Areas being worked in. At the approved fixed locations / site boundaries	Environmental Manager Environmental Engineer	No visible dust leaving the boundaries, PM_{10} <50 or <10 above background (µg/m³) (24Hrs)	Environmental Audit records Work permit Dust Monitoring Report	Portable dust monitor
Noise	Daily, during work and weekly	All Workfront, closest to the Areas being worked in. At the approved fixed locations / site boundaries	Environmental Manager / Environmental Engineer	As per Appendix C - below threshold criteria	Environmental Audit records Environmental Noise Monitoring Report	Potable sound level meter
Weather	Daily	Project site	HSEQ Advisor Environmental Manager	Review of work activities when adverse weather is forecast	Daily Prestart Meeting; BoM website	Meteorological data from Gove Airport / BoM Meteorological Data / Rio Tinto Gove Weather Stations Online daily review
Chemical / Oil Spillage	Daily / as required	Chemical Storage Area	Environmental Manager	No spills to ground. All chemicals correctly	Environmental Audit records Work Permit	Environmental Audit

Activity	Frequency	Location	Responsibility	KPI	Record	Monitoring Method
		Workfront locations	Site Supervisor (during works)	stored and bunded		Daily Prestart Meeting
Plant	Daily	On all plant and equipment	Site Supervisor Plant Operators	No excessive smoke No leaks on plant	Plant Pre-Start Checks	Plant Pre-Start Checks
	Maintenance Schedule	On all plant and equipment	Plant Operators Site Mechanics	No excessive smoke No leaks on plant	Maintenance Schedule	Plant Pre-Start Checks
Erosion and Sediment Control Devices	Weekly, Prior to and following rainfall	All current work areas	Environmental Manager Environmental Engineer Site Supervisor	All sediment control devices in good condition allowing adequate operation	Environmental Audit records Work Permit	Environmental Audit Daily Prestart Meeting
Waste	Daily, during works and weekly	Workfront locations	Site administrator	Landfill diversion rate; Waste sent to landfill	Waste Disposal Docket / Waste Register	Environmental Audit

9.3 RECORDS OF MONITORING

All monitoring records as detailed in *Table 5* will be retained in the Liberty Industrial SharePoint project folder. This information will be made available to Gumatj as required and summarised in weekly and monthly reporting.

Monitoring of the works, worksite and its associated environmental controls as outlined in Job Hazard Analysis (JHA FRM-058) is documented daily in the Work Permit (FRM-014). This is documented by the Site Supervisors signing off the works at least a daily interval to ensure they are compliant with the JHAs and the Environmental KPIs. Non-compliance will be noted in the Work Permit and works are ceased until environmental controls can be re-established. It is also noted that any time throughout the day, compliance or non-compliance can be recorded on the Work Permit.

Where specific monitoring occurs such as attended offsite monitoring for dust, noise and vibration this will be recorded via a suitable and specific form to be developed and approved.

Liberty Industrial will carry out a Weekly Environmental Audit throughout the project.

9.4 REPORTING

As a minimum on every project, the Liberty Industrial Environmental Manager shall:

- Establish and maintain necessary records for the recording and reporting of environmental incidents at the workplace;
- Encourage worker's participation in reporting environmental incidents;
- Ensure all environmental incidents are investigated and reported in accordance with Liberty Industrial and Gumatj procedures;
- Notify the relevant authority of non-compliances and environmental incidents, as required

Reporting type and content for the Project works is outline in *Table 6*.

Table 6. Reporting and Typical Content

Report	Typical Content
Environmental Incident Reports	Time; Date; Location; What happened; Influencing factors; Witness Names; Interim Actions and Comments; Photo Evidence
Weekly/Monthly HSEQ Report	Inspections and monitoring; Nonrelated waste (i.e. non-ACM) to landfill/recycling as appropriate; Water use and source (recycled); Fuel consumption Refer to *Liberty Industrial Monthly Progress Report* and *Liberty Industrial Weekly Progress Report*
Monthly Environmental Audit (Liberty Industrial)	Time Date; Work Location, Scope and KPIs, Comments, Photo Evidence, Compliance details, waste disposal summary.

Mechanisms for Feedback into Environment Management Documentation

Figure *5* below is a diagram of how auditing and the compliance tracking program feed back into Liberty Industrial's System of Work Method Statements (WMS) and Job Hazard Analysis (JHA) to improve these and ensure compliance with the project documentation and relevant legislation.

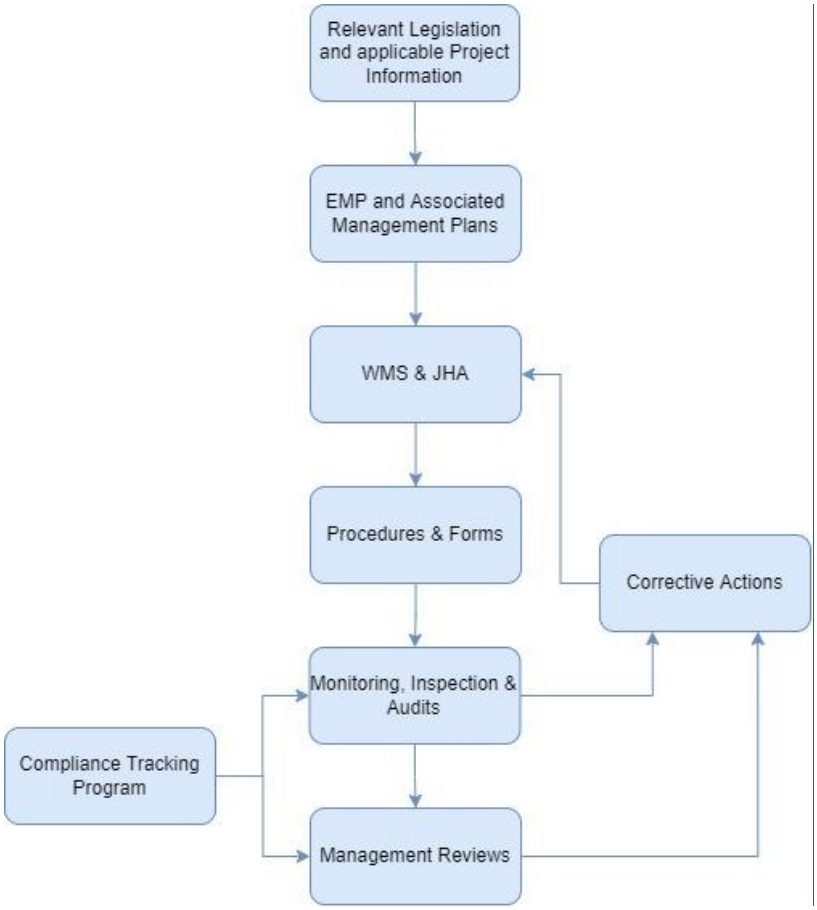


Figure 5. Environmental Document Management Structure and Feedback Flowchart

10 INCIDENTS AND EMERGENCIES

10.1 ENVIRONMENTAL INCIDENTS AND REPORTING

Information relating to emergency contacts, notification of incidents, incident & emergency response and incident reporting finds & corrective actions are found within the *Emergency Management Plan*.

11 RISK ASSESSMENT

Major Environmental Risks associated with the project are outlined in the environmental project risk analysis in *Appendix B2*.

Information relating to risk management and hazard identification (Take 5s & Hazard Card) are discussed in detail within Liberty Industrial Risk Management Plan.

APPENDIX A ENVIRONMENTAL POLICY

Management System
Policy – 007
Document – Environmental Policy

LIBERTY INDUSTRIAL
DECONSTRUCTION, REMEDIATION & CIVIL

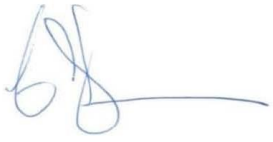
Environmental Policy

The Company's aim is to achieve a high standard of care and minimise our impact on the natural environment in all undertakings.

Liberty Industrial will:

- Conduct operations in compliance with all relevant environmental regulations, licences and legislation as a minimum condition;
- Identify, monitor and manage environmental aspects and impacts and prevent pollution arising from the undertakings;
- Seek continuous improvement of the Integrated Management System and in environmental performance, operational processes, waste management and use of resources by:
    - Monitoring and improving demolition, site remediation and civil construction methods to minimise environmental impact;
    - Analysing and continuously improving recycling rates;
- Provide training and awareness for all workers on environmental matters;
- Communicate and consult regularly with the workers about our policy and individual responsibilities;
- Communicate with customers, suppliers, contractors and sub-contractors, community and external agencies about our environmental performance;
- Establish and review environmental objectives and targets;
- Develop, implement and maintain a Management System based on the requirements of ISO 14001: Environmental Management System.

Regards



Clinton Dick
Director
15 January 2021

APPENDIX B CONCEPTUAL SITE MODEL (CSM) FOR ASBESTOS MONOCELL

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MEMORANDUM

Recipient name	Scott Carroll	**Recipient company**	Liberty Industrial
Date	9 September 2024		
Project reference	754-DRWEN347888_L01_DraftB.IFU		
Subject	Conceptual Site Model for Asbestos Monocell Gove		

1. INTRODUCTION

This memorandum presents the Conceptual Site Model (CSM) for the proposed asbestos monocell at Melville Bay Road, Nhulunbuy, Northern Territory (NT). This CSM was developed to assess the potential risks of exposure to contaminant, causing adverse impacts to human health and the environment. It outlines the likelihood of complete linkage between source of contamination, exposure pathway and receptors.

2. SITE IDENTIFICATION

Location: Melville Bay Road, Nhulunbuy, NT.

Site History: The site is designated for the disposal of asbestos waste. The site has been vacant and previous vegetation within the area has been cleared.

Monocell Design: The cell will be specifically designated for asbestos containing material (ACM) and steel structures (free of lead paint) generated from demolition of the Gove Refinery. The ACM is proposed to be double bagged prior placement at the landfill and intercalated with the steel.

3. CONCEPTUAL SITE MODEL

3.1 SOURCE OF CONTAMINATION

The primary contaminant source is asbestos waste from demolition of site structures, including bonded and friable asbestos.

3.2 MIGRATION PATHWAYS

Inhalation Pathway: Asbestos fibres can become airborne if disturbed.

Surface Water: Runoff could potentially carry asbestos debris (pieces) and fines to surrounding areas.

3.3 POTENTIAL RECEPTORS

Potential receptors include humans or ecological receptors that are, or may be, adversely affected on and off-site:

Onsite

- Waste placement workers
- Construction workers installing the cap and revegetation workers
- Maintenance workers and bushcare workers; and.
- Occasional users of the land (traditional owners)

Offsite

- Surrounding site users or workers (i.e. refinery workers).
- Ecological receptors (Fauna, flora and marine environment).

Taking into consideration the potential for source-pathway-receptor (SPR) linkages, a CSM was detailed in Table 1.

3.4 LIKELIHOOD OF EXPOSURE

Based on Table 1, there are no complete SPR linkages on the site upon completion of the asbestos cell program, the risk associated with the asbestos monocell is considered low, provided that construction and maintenance works follow the procedures documented under the Asbestos Control/Management Plan, Construction and Operation Manuals.

Table 1 - Conceptual Site Model

Source	Pathway	Receptor/s	SPR Linkage status	Comment on Risk
Asbestos contained in the Monocell	Inhalation	Occasional current and future land users. Construction / maintenance workers. Fauna and flora	Incomplete	A layer of compacted clay (approximately 1m) will cover the bagged asbestos waste. The disposal of asbestos into the cell will be a short-period exercise conducted by remediation contractor under Class A conditions. Once the monocell area is fully capped with the clay material, the likelihood of asbestos airborne is low and therefore SPR linkage is incomplete. It is expected that finished surface will be revegetated with endemic flora. It is noted that the risk of asbestos airborne during construction[1] and maintenance of the landfill must be managed via the Asbestos Control/Management Plans.
	Surface water runoff	Fauna and flora [2] Marine environment [2]	Incomplete	Once capped, asbestos waste within the monocell will not be exposed to surface water runoff and erosion. The design includes drainage systems, which will catch and divert stormwater to the south of the landfill (down-gradient) will minimise the risk of the erosion of the cap. Landfill batter designed by geotechnical engineer has typical inclination to avoid erosion. The likelihood of cap being eroded to an extent that bagged asbestos waste will be exposed to surface runoff is negligible. The likelihood of surface water runoff to carry asbestos contaminants that will impact ecological receptors is therefore considered negligible. As such, the SPR linkage is incomplete.

Note:

[1] The management of risks during construction phase may involve dust suppression, routine air quality monitoring, control of soil erosion and sediment and completing the asbestos disposal program in a short period of time.

[2] Marine environments and flora are not applicable in this case (asbestos contamination).

4. CONCLUSION

In conclusion, following the implementation of the monocell capping, the risk of exposure to asbestos contamination resulting in adverse human-health and ecological impacts is considered negligible. The capping effectively prevents the release of asbestos fibres into the environment, ensuring the safety of land users, workers and fauna.

The management of risks during the monocell construction phase will be guided by Asbestos Control Plans and may include the implementation of dust suppression measures, routine air quality monitoring, soil erosion and sediment control, as well as completing the asbestos disposal program within a short timeframe.

APPENDIX C ENVIRONMENTAL RISK ASSESSMENT, ASPECTS AND IMPACTS

APPENDIX C1 RISK ASSESSMENT MATRIX

Details associated with risk assessment matrix rubric are described within the *Liberty Industrial Risk Management Plan*.

APPENDIX C2 PROJECT RISK ANALYSIS

An environmental project risk analysis was conducted by the Project Team. This will be reviewed at regular intervals.

Table 7. Project Risk Analysis

#	Sequence of Work Activities How will the work be done?	Potential Hazards What harm can occur?	Initial Risk	Safeguards/Controls How can the risk be minimised?	Frequency	Timing	Residual Risk	Responsibility Who will ensure that controls are in place?
Prior to Works Commencing								
1	Provide training to all personnel and subcontractors	Non-compliance with agreed work methods and procedures	13	All personnel to be inducted on to site; induction to include site-specific environmental requirements. All personnel to be tool boxed on the requirements of this EMP including locations of heritage items and protection requirements, noise and dust mitigation measures.	As required	Prior to commencement (Induction)Throughout the Duration of Project (Toolboxes and Prestart)	5	HSEQ Advisors Site Supervisor
2	Works Footprint	Disturbance of land outside of Works Footprint.	17	No personnel permitted to access the areas outside of the Works Footprint including but not limited to pedestrian access, parking vehicles, stockpiling of materials. To be included in site specific induction.	Ongoing	Throughout the Duration of the Project	5	Site Supervisor

#	Sequence of Work Activities How will the work be done?	Potential Hazards What harm can occur?	Initial Risk	Safeguards/Controls How can the risk be minimised?	Frequency	Timing	Residual Risk	Responsibility Who will ensure that controls are in place?
				Personnel to be made familiar Works Footprint zone. To be included in site specific induction.				
Mobilisation to site								
3	Driving to site, around site and offsite	Generation of dust leading to complaint	12	Ensure site speed limits are maintained Use of water where necessary to suppress dust on exposed and trafficable areas. Truck loads to be covered.	Ongoing	Throughout the Duration of the Project	8	Site Supervisor Environmental Manager
4	Mobilise plant, equipment and labour to the site	Excessive noise and congestion leading to noise complaint	12	Mobilise plant only within normal working hours. Parking areas to be nominated for plant, equipment and vehicles. No parking, queuing or idling of engines on public roads. All site staff vehicles must enter the Project site and park within designated parking areas. Obtain Heavy vehicle licences as necessary.	Ongoing	Throughout the Duration of the Project	7	Site Supervisor Environmental Manager Project Engineer
Construction								
5	Involved in the construction of monocell and pavements and filling of voids	Noise	12	All machinery is to be appropriately silenced with mufflers. Ensure plant is regularly maintained. Conform to working hours	Ongoing, during plant prestart and during services	Throughout the Duration of the Project	7	Site Supervisor

#	Sequence of Work Activities How will the work be done?	Potential Hazards What harm can occur?	Initial Risk	Safeguards/Controls How can the risk be minimised?	Frequency	Timing	Residual Risk	Responsibility Who will ensure that controls are in place?
		Generation of dust leading to complaint	12	Ensure the excavator bucket operates at optimal height Prevent the bucket from being overloaded, as heavier loads can create more dust during movement. Ensure site speed limits are maintained Use of water where necessary to suppress dust on exposed and trafficable areas. Truck loads to be covered.	Ongoing	Throughout the Duration of the Project	8	Site Supervisor Environmental Manager
6		Transport of construction waste transferring waste Offsite	17	Ensure all vehicles use covers when transporting waste Ensure waste facility is a licenced transfer station or landfill	Ongoing	Throughout the Duration of Works	9	Site Supervisor Project Engineer
7		Waste Generation	12	No waste to be disposed of onsite, unless expressly identified in relevant approvals and licences Use waste management hierarchy principals and recycle and reuse whenever possible	Ongoing	Throughout the Duration of Works	8	Site Supervisor Environmental Manager
8		Breach of the Environmental Approval Notice due to water and contaminated water entering the WSWC	17	Ensure surface water and erosion controls are in place and maintained during the works	Ongoing	Throughout the Duration of Works	5	Environmental Manager
General								

#	Sequence of Work Activities How will the work be done?	Potential Hazards What harm can occur?	Initial Risk	Safeguards/Controls How can the risk be minimised?	Frequency	Timing	Residual Risk	Responsibility Who will ensure that controls are in place?
9	Waste management including litter, tracking of waste quantities and locations of disposal	Incorrect disposal leading to contaminated waste streams / illegal dumping.	13	No waste to be disposed of onsite. Sewage waste to be disposed of by a licensed waste contractor offsite. Waste arising from soft strip of buildings is to be segregated wherever possible, e.g., timber, metal, light tubes, cabling etc. and sent to a waste facility able to recycle the material and provide recycling reporting. Specific recycling areas have been nominated	Ongoing, Daily and during weekly environmental audit	Throughout the Duration of Works	8	Site Supervisor Environmental Manager
10	Excessive dust	Air pollution. Soil contamination.	12	Use of water where necessary to suppress dust in exposed and trafficable areas. Truck loads to be covered. Periodical dust monitoring at strategic monitoring locations during the course of the project.	Ongoing, Daily and during weekly environmental audit	Throughout the duration of Works	8	Site Supervisor Environmental Manager
11	General use of plant and equipment and storage of hazardous materials	Pollution of ground due to failed hydraulic and fuel hoses on machinery and during refuelling. Spillages of hazardous materials.	12	Any refuelling to be undertaken either offsite or in areas located at least 20 metres from drainage lines or waterways with spill kits readily available. Refuelling not to be left unattended at any time. Plant and equipment are to be well maintained and to be checked daily as part of morning pre-start,	Ongoing	Throughout the Duration of Works	5	Site Supervisor Environmental Manager

#	Sequence of Work Activities How will the work be done?	Potential Hazards What harm can occur?	Initial Risk	Safeguards/Controls How can the risk be minimised?	Frequency	Timing	Residual Risk	Responsibility Who will ensure that controls are in place?
				including hydraulic hoses and connections. Chemicals to be placed in a drip tray when being used on site and removed to a bunded chemical storage container at the end of each day. Spill kits to be readily available at each work zone.				
12		Noise causing annoyance to local residents.	16	Works are only within approved hours Equipment that is not in use to be switched off.	Ongoing	Throughout the Duration of Works	7	Site Supervisor Environmental Manager

APPENDIX D NOISE MANAGEMENT

The proposed Gove Asbestos Monocell site is located 10.5 km southeast of the refinery area, with the nearest residential area, Nhulunbuy, approximately 3 km away (see *Figure 6*). The project area is near coastline accessible to traditional owners, as well as existing infrastructure, including export conveyors and mining operations.

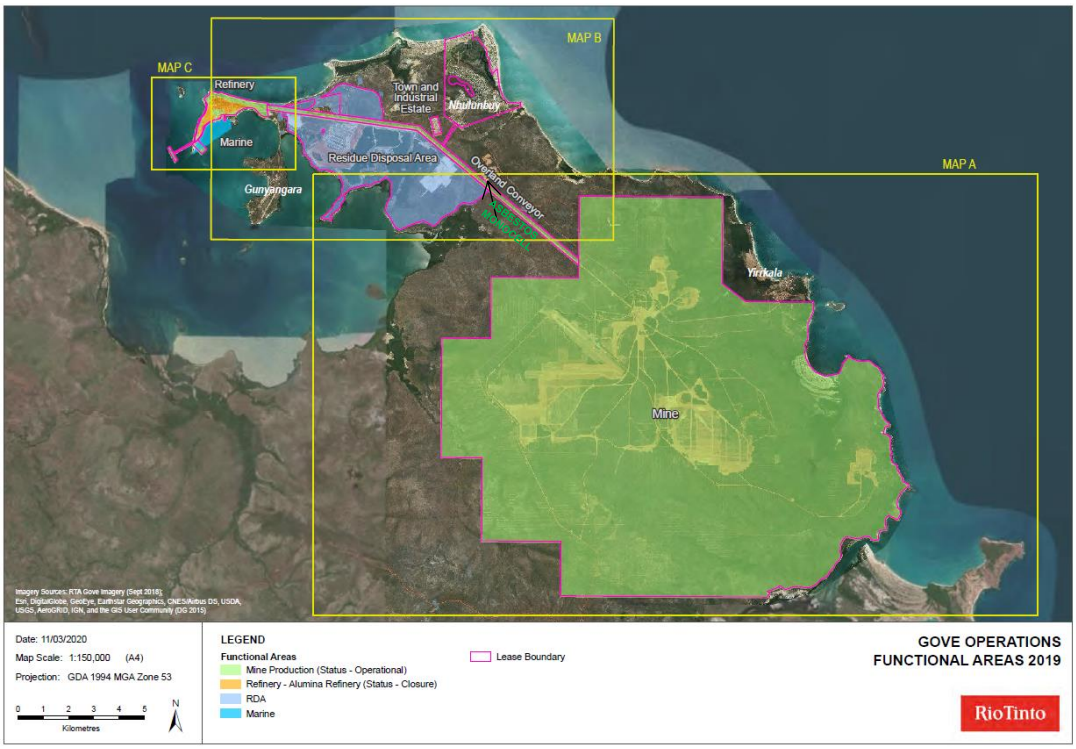

Figure 6. Asbestos Monocell Location and Gove Operations Functional Area

APPENDIX D1 NOISE CRITERIA

To adopt measured background noise levels for the Project, noise criteria for residential and noise sensitive receivers were established with consideration to the *Northern Territory Noise Management Framework Guideline 2018 (NTEPA).*

APPENDIX D1.1 AIRBORNE NOISE FOR RESIDENCES

Table *8* sets out management levels for noise at residences and how they are to be applied. Restrictions to the hours of the construction activities may apply to activities that generate noise at residences above the 'highly noise affected' noise management level.

The rating background level (RBL) is used when determining a noise management level. The RBL is the overall single-figure background noise level measured in each relevant assessment period (during or outside the recommended standard hours).

Table 8. Residential Noise Criteria

Time of Day	Management level LAeq (15 min) *	How to Apply
Recommended standard hours: Monday to Saturday 7am to 7pm Sundays and public holidays 9am to 6pm	Noise affected RBL + 10 dB	The noise affected level represents the point above which there may be some community reaction to noise. Where the predicted or measured LAeq (15 min) is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level. The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
	Highly noise affected 55 dB(A)	The highly noise affected level represents the point above which there may be strong community reaction to noise. Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account: 1. Times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences). 2. If the community is prepared to accept a longer period of demolition in exchange for restrictions on demolition works times.
Outside recommended standard hours	Noise affected RBL + 5 dB	A strong justification would typically be required for works outside the recommended standard hours. The proponent should apply all feasible and reasonable work practices to meet the noise affected level. Where all feasible and reasonable practices have been applied and noise is more than 5 dB (A) above the noise affected level, the proponent should negotiate with the community.

* Noise levels apply at the property boundary that is most exposed to the construction activity noise, and at a height of 1.5 metres above ground level. If the property boundary is more than 30 metres from the residence, the location for measuring or predicting noise levels is at the most noise-affected point within 30 metres of the residence. Noise levels may be higher at upper floors of the noise affected residence. The difference between internal noise levels and external noise levels is around 10dB with windows open for adequate ventilation.

Table 9. Other Sensitive Land Use Noise Criteria

Land Use	Management level, LAeq (15 min) applies when properties are being used
Active recreation areas (characterised by sporting activities and activities which generate their own noise or focus for participants, making them less sensitive to external noise intrusion)	External noise level 65 dB(A)
Passive recreation areas (characterised by contemplative activities that generate little noise and where benefits are compromised by external noise intrusion, for example; reading, meditation)	External noise level 60 dB(A)

APPENDIX D1.2 SLEEP DISTURBANCE AT RESIDENCES

Sleep disturbance criteria are generally considered in the assessment of any noise likely to occur during the night time. Below are the two most relevant criteria specific to sleep disturbance from the Noise Policy for Industry and World Health Organisation.

The NSW guidance relating to sleep disturbance are outlined in the Application notes – NSW Industrial noise policy. The following section summarises the sleep disturbance screening criterion: The then Department of Environment, Climate Change & Water (DECCW) (now the Office of Environment and Heritage) reviewed research on sleep disturbance in the NSW Road Noise Policy (RNP) (March 2011). This review concluded that the range of results is sufficiently diverse that it was not reasonable to issue new noise criteria for sleep disturbance. From the research, DECCW recognised that current sleep disturbance criterion of an LA1, (1 minute) not exceeding the LA90, (15 minute) by more than 15 dBA is not ideal. Nevertheless, as there is insufficient evidence to determine what should replace it, DECCW will continue to use it as a guide to identify the likelihood of sleep disturbance. This means that where the criterion is met, sleep disturbance is not likely, but where it is not met, a more detailed analysis is required.

The detailed analysis should cover the maximum noise level or LA1, (1 minute), that is, the extent to which the maximum noise level exceeds the background level and the number of times this happens during the night time period. Some guidance on possible impact is contained in the review of research results in the appendices to the RNP. Other factors that may be important in assessing the extent of impacts on sleep include:

- How often high noise events will occur?
- Time of day (normally between 10pm and 7am)
- Whether there are times of day when there is a clear change in the noise environment (such as
- during early morning shoulder periods).

The LA1, (1 minute) descriptor is meant to represent a maximum noise level measured under 'fast' time response. DECCW will accept analysis based on either LA1, (1 minute) or LA, (Max). If the above screening criterion of LA90, (15 minute) + 15 dBA is exceeded further review of the noise source is recommended. The World Health Organization has published guidelines which reference a number of studies on sleep disturbance. The general conclusions provided in the Guideline for Community Noise (World Health Organization, 1999) suggest that for continuous noise, the sound pressure level should not exceed 30 dBA indoors, and for intermittent noise sources

(short term or transient noise events), maximum levels (LAmax) should not exceed 45 dBA internally more than 10-15 times per night.

The conclusions made in the RNP *Appendix B*: Technical background to the road traffic noise criteria are as follows:

- Considering all of the foregoing information the following conclusions can be drawn:
- Maximum internal noise levels below 50-55 dBA are unlikely to cause awakening reactions
- One or two events per night with maximum internal noise levels of 65-70 dBA are not likely to affect health and wellbeing significantly.

APPENDIX D2 NOISE AND VIBRATION POTENTIAL IMPACTS

The Project has the potential to create noise and vibration impacts if activities are not managed properly.
Based on the distance to sensitive receivers and the logarithmic dissipation of sound and vibration and the likely noise generation from plant used for the project it is anticipated that vibration impacts during normal works will be minimal.

APPENDIX D3 NOISE MITIGATION

The potential for noise impacts is low for the Project, however, nonetheless these will be further reduced by implementing the safeguards and mitigation measures identified in Table *10*.

Table 10. Noise Mitigation Measures

ID	Environmental safeguards and mitigation measures	Responsibility
N-1	Where possible, less noisy plant would be selected for the construction of the Project.	Project Manager
N-2	Examine and implement, where feasible and reasonable, the option of reducing noise from metal chutes and bins by placing damping material in the chute or bin.	Site Supervisor
N-3	Avoid the use of reversing alarms by designing site layout to avoid reversing, such as by including drive through for parking and deliveries.	Site Supervisor
N-4	Provide to nearby residents, reasonably ahead of time, information such as the expected duration of construction works, what works are expected to be noisy, their duration, what is being done to minimise noise and when respite periods will occur. For works outside standard hours, inform affected residents and other sensitive land use occupants one week before commencement.	Environmental Manager Gumatj Project Team
N-5	Use a site information board at the front of the Site with the name of the organisation responsible for the Site and their contact details, hours of operation and regular information updates. This signage should be clearly visible from the outside and include after-hours emergency contact details.	Environmental Manager
N-6	Provide a readily accessible contact point, for example, through a 24-hour toll-free information and complaints line.	Gumatj
N-7	Noise generating activities shall be restricted to standard construction works hours unless otherwise agreed with Gumatj	Site Supervisor

APPENDIX D4 MONITORING

APPENDIX D4.1 Attended Noise Measurement Equipment

All acoustic instrumentation employed throughout the attended monitoring program will comply with the requirements of *AS IEC 61672.1-2019 Electroacoustics - Sound level Meters - Specifications*. All sound level meters must have a current calibration certificate from a NATA accredited laboratory in accordance with NATA guidelines. Instrument calibration shall be checked before and after each measurement survey, with the variation in calibrated levels not exceeding ±0.5 dB.
The measurements will be conducted in accordance with the procedures outlined in Australian Standard *AS1055 Acoustics – Description and measurement of environmental noise* and in accordance with methods outlined in the NSW Industrial Noise Policy (INP). The NSW INP has been adopted as there is no specific INP for NT. The following points should be followed when conducting noise monitoring:

- A field calibration should be conducted before and after measurements;
- The sound level meters must be set to A-weighting and Fast response;
- The sound level meters sample period should be set to 15 minutes;
- The following descriptors should be measured as a minimum: LA1, LAeq and LA90; and
- Measurements should be conducted a minimum of 3 metres from the nearest façade and/or solid fence/wall. If it is not possible to do this, corrections for façade reflection should be applied to the measurement results.

APPENDIX D4.2 Attended Monitoring Schedule

Table 11. Attended Noise Monitoring Schedule

Monitoring Schedule	Measurement Procedure	Reporting
Initially at project commencement	Complete one round of operator-attended 15-minute noise monitoring on separate days at each Noise Catchment Area (NCA) location	Reporting procedure as outlined in Section 9.3

APPENDIX D4.3 Reporting on Attended Noise Monitoring

The following information must be included in the weekly reports when applicable:

- Field calibration results (before and after measurements);
- Measurement times and dates;
- Qualitative description of the noise environment during measurement;
- LA1, LAeq, LA90 and LAmax levels;
- Meteorological conditions during the measurements;
- Estimation of recorded noise contribution from other major noise sources.

The Site Supervisor shall establish and maintain a system of records that provides full documentation of all noise monitoring results, complaint handling and responses to non-compliances and non-conformances.

APPENDIX E AIR QUALITY MANAGEMENT

APPENDIX E1 SEASONAL WIND CONDITIONS

Further to Section 2.5 which discusses environmental and climatic conditions, the seasonal wind roses are shown in Figure *7* and Figure *8*.

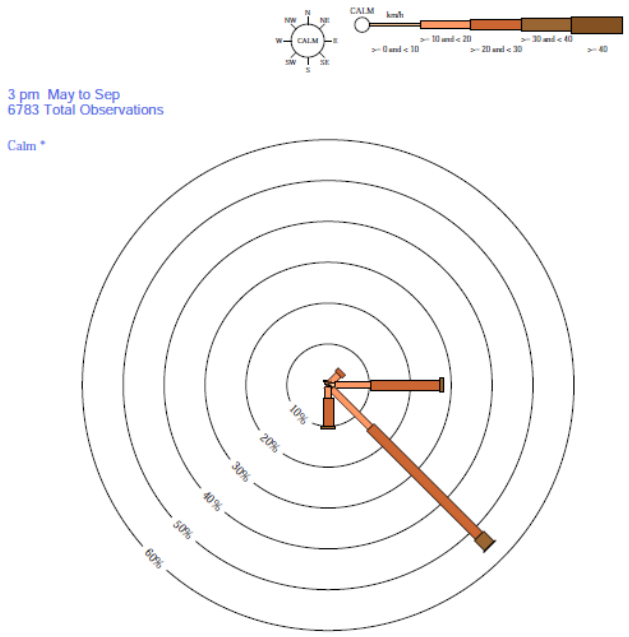

Figure 7. Wind Rose Gove Northern Dry Season (BoM)

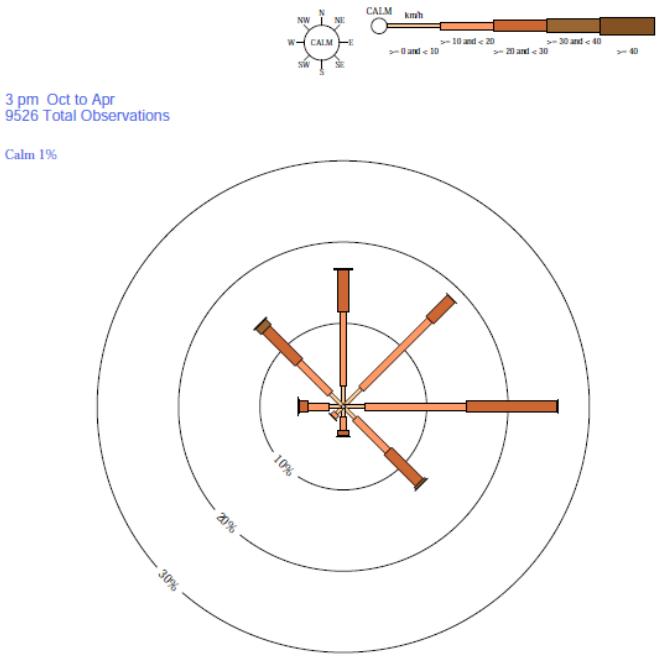

Figure 8. Wind Rose Gove Northern Wet Season (BoM)

APPENDIX E2 POTENTIAL IMPACTS

The Project is not expected to cause a noticeable increase to any of the regional air pollutants described in Table *12*. Despite this, the construction of the Project has the potential to cause airborne dust, depending on the methodologies utilised and the prevailing weather conditions at the time. Dust emissions have the potential to impact nearby sensitive receivers.

Table 12. Potential Air Impacts

Activity	Air Emission Cause	Potential Impact
Construction of Asbestos Monocell	Excavation for asbestos cell	Dust Generation
	Sorting of waste using excavators	
	Loading of waste for transport using excavators and loading equipment	
	Operation of plant, machinery, vehicles, and power generator	Generation of carbon monoxide (CO), sulfur dioxide (SO_2), nitric oxide (NO) and particulates
	Operation of power generator	

APPENDIX E3 AIR QUALITY MITIGATION MEASURES

Methods for management of emissions would be incorporated into Project inductions, training toolboxes and pre-start talks. Mitigation measures for the project are discussed in Table *13* below.

These mitigation measures are designed to be absolute measures, that is produce no dust or odours and therefore additional implementation measures will not be required for the project.

Table 13. Air Quality Mitigation Measures

Reference NO	Action Descriptions	Responsibility	Timing
General			
AQ-1	Pre-wetting and use of water sprays to control dust emissions where appropriate during construction activities.	Site Supervisor	Project Duration
AQ-2	Scheduling the excavation works to occur when weather conditions are favourable to avoid strong winds where possible	Site Supervisor	Project Duration
AQ-3	Carry out regular inspections to monitor compliance with the air quality management strategy.	Environmental Manager	Project Duration
AQ-4	Progressively stabilise completed areas using polymer or ground cover	Site Supervisor	Project Duration
AQ-5	Manage the design and implement area specific Erosion and Sediment Control Plans (ESCP) progressively as the works develop and measures will be implemented to minimise wind erosion and dust nuisance in accordance with International Erosion Control Association (IECA) best practice.	Environmental Manager	Project Duration
AQ-6	Display the name and contact details of person(s) accountable for air quality and dust issues on the Site boundary. This may be the Environmental Manager/Engineer or the Site Supervisor.	Site Supervisor	Project Duration
AQ-7	Display the head or regional office contact information.	Environmental Manager	Project Duration
AQ-8	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.	Environmental Manager	Project Duration
AQ-9	Make the complaints log available to the local authority when asked.	Site Supervisor	Project Duration
AQ-10	Record any incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation.	Environmental Manager	Project Duration
AQ-11	Perform daily on-site and off-site inspections where receptors (including roads) are nearby, to monitor dust, record inspection results	Environmental Manager	Project Duration
AQ-12	Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.	Environmental Manager	Project Duration
AQ-13	Cover, or stabilise stockpiles prevent wind erosion where they are inactive for periods greater than 2 weeks.	Site Supervisor	Project Duration
AQ-14	Ensure all vehicles switch off engines when stationary and safe to do so - no idling vehicles	Site Supervisor	Project Duration

Reference NO	Action Descriptions	Responsibility	Timing
AQ-15	Vehicles will only travel on designated roads onsite to the maximum extent possible. The speed will be limited onsite to the designated speed limits	Site Supervisor	Project Duration
AQ-16	Vehicle movements would be limited to designated entries and exits, haulage routes and parking areas. The location of these will be detailed in the Site Induction. Project site exits would be fitted with hardstand material, rumble grids or other appropriate measures to limit the amount of material transported offsite (where required);	Site Supervisor	Project Duration
AQ-17	Applying water (or alternative measures) to exposed surfaces that are causing dust generation. Apply an adequate amount of water to internal access roadways to mitigate wheel generated dust and to work areas so they do not generate dust.	Site Supervisor	Project Duration
AQ-18	Use water-assisted dust sweeper(s) on the access and local roads to remove, as necessary, any material tracked out of the Site	Site Supervisor	Project Duration
AQ-19	Application rates would also be related to atmospheric conditions (e.g., prolonged dry periods) and the intensity of construction activities.	Site Supervisor	Project Duration
AQ-20	Ensure effective water suppression is used during construction activities.	Site Supervisor	Project Duration
AQ-21	Loads will be appropriately covered on trucks transporting material to and from the Project site. Tailgates will be fixed on road transport trucks before loading and immediately after unloading;	Site Supervisor	Project Duration
AQ-22	Minimise drop heights from loading shovels and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate	Site Supervisor	Project Duration
AQ-23	Ensure equipment is readily available onsite to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.	Site Supervisor	When required
AQ-24	To control dust, all trucks are to be covered when leaving the property.	Site Supervisor	Project Duration

APPENDIX F EROSION AND SEDIMENT CONTROL MANAGEMENT

Effective erosion and sediment control (ESC) is essential for protecting water quality, preventing soil loss, and minimising environmental impact during construction. The following outlines the best management practices for controlling erosion and managing sediment on-site in compliance with regulatory standards.

APPENDIX F1 SITE PLANNING AND DESIGN

Site Assessment
Before construction begins, a thorough site assessment will be conducted to identify areas at high risk for erosion, such as slopes, areas with loose soils, and proximity to water bodies.
Phased Construction
Work will be planned in phases to limit the extent of exposed soil at any given time, reducing the potential for erosion.
Vegetation Retention
Wherever possible, existing vegetation will be preserved, as it acts as a natural erosion barrier and helps stabilise the soil.

APPENDIX F2 TEMPORARY EROSION CONTROL MEASURES

Silt Fences
Silt fences will be installed around the perimeter of disturbed areas to capture sediment and prevent it from entering waterways or adjacent properties.
Erosion Control Blankets and Mats
On steep slopes or areas prone to erosion, erosion control blankets or biodegradable mats will be used to stabilize soil and promote vegetation growth.
Mulching
Mulch will be applied to bare soil areas to reduce water runoff, protect soil from rain impact, and encourage seed germination.

APPENDIX F3 RUNOFF DIVERSION AND CONTROL

Diversion Ditches and Berms
Temporary diversion ditches or windrows will be installed to redirect surface water away from disturbed areas, preventing concentrated runoff from causing erosion.
Check Dams
Small, temporary check dams (e.g., rock or sandbag dams) may be placed in drainage channels to slow down water flow and reduce erosion.
Sediment Basins
Sediment basins or traps will be constructed in strategic locations if required, to capture sediment-laden runoff and allow it to settle before discharging cleaner water.

APPENDIX F4 SEDIMENT CONTROL MEASURES

Sediment Traps
Sediment traps will be installed near disturbed areas to capture sediment and allow clean water to flow out.
Stabilized Entry/Exit Points
Designated entry and exit points for vehicles will be stabilised with rock or gravel pads to minimise tracking of sediment off-site. These points will be inspected and maintained regularly.
Filter Socks and Straw Wattles
Filter socks or straw wattles will be placed along slopes and around inlets to capture sediment and slow water flow.

APPENDIX F5 PERMANENT EROSION CONTROL MEASURES

Vegetative Stabilization

Permanent vegetation (e.g., grass, shrubs) will be planted in disturbed areas as soon as possible to stabilise soil and provide long-term erosion control.

Riprap and Armouring

Areas with concentrated water flow, such as drainage channels, will be lined with riprap (rock) or other armouring materials to prevent erosion.

Slope Grading and Terracing

Slopes will be graded to minimise steepness, and terracing may be used on very steep areas to reduce runoff velocity and encourage water infiltration.

APPENDIX F6 INSPECTION AND MAINTENANCE

Regular Inspections

ESC measures will be inspected regularly, especially after significant rainfall events, to ensure they are functioning effectively and are not damaged.

Maintenance and Repair

Any damaged or ineffective ESC controls will be repaired or replaced promptly to maintain control over erosion and sediment.

Documentation

Inspection records will be kept, documenting the condition of control measures, any issues identified, and actions taken to address them.

APPENDIX G FAUNA MANAGEMENT

The Project is located in a bioregion recognised as a Site of high conservation significance in the Northern Territory and rated as internationally significant in relation to a number of threatened species, which may occur within the region. Wildlife in the Northern Territory is regulated under *Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act)* and *Territory and Parks Wildlife Conservation Act 1976 (NT) (TPWC Act).*

APPENDIX G1 FAUNA AND PEST MANAGEMENT

No fauna impact assessment has been undertaken for the Project. However, any action interfering with native fauna in the Northern Territory requires Gumatj to obtain a Permit to Take or Interfere with Wildlife from the NT Government.

Any interference or exclusions must be undertaken under a Permit to Take or Interfere with Wildlife. Gumatj will be responsible for obtaining such a permit, Liberty Industrial shall provide documentation as required to support Gumatj's application.

Liberty Industrial will implement measures to minimise negative impacts on each of these species during the Works including:

- Pre-construction Fauna surveys. Where Fauna is identified, Gumatj is to be notified so that detailed species investigations can be undertaken. If the Fauna is of significant interest Gumajt and Liberty Industrial will develop and implement a significant species management plan.
- Use wildlife handler where appropriate (e.g. when retrieving fauna from excavations)
- Implement protocols for managing waste during construction to avoid attracting feral pest animals.
- Regularly check any open excavations for trapped fauna or provide measures to allow their escape.
- Restrict unauthorised public access to Project work area access tracks

Appendix G1.1 Native and Exotic Fauna

Keeping and/or feeding native or exotic fauna (cats, dogs, birds etc.) is prohibited.

Appendix G1.2 Crocodiles

If crocodiles are encountered, back away from the animal(s) into a safe location (e.g., vehicle or building). Contact the area operator immediately to notify them of the hazard and ensure appropriate measures are taken to prevent human interaction with the crocodile. All crocodile sighting on operational areas must be reported to Gumatj.

Appendix G1.3 Snakes

Native snakes are protected in the NT and interference with them requires a permit. It is also illegal to kill a snake unless it is within 100m of an occupied building or it can be proven to be absolutely necessary to kill or injure the snake to avoid death or injury to a person or domestic animal.

If a snake is found, back away from the animal. Do not approach it or try to harm or catch it. It will become defensive and possibly strike. Snake sighting in work areas must be reported into Gumatj to raise site awareness.

If a snake has bitten you, assume it is venomous and seek urgent medical attention. Refer to Liberty Industrial Emergency Management Plan.

Appendix G1.4 Injured Fauna

If injured fauna is found, the animal is to be caught and placed the animal in a cardboard box (if possible, to do it safely and if the animal actually needs rescuing). When capturing and transporting injured fauna remember:

- Your safety always comes first;
- Minimise noise;
- Minimise handling and stress;
- Do not feed wildlife or feral cats/dogs; and
- Report the incident to Gumatj.

Injured fauna, when safe to do so, will be taken to the town Vet Services for treatment. Contact Gumatj's Project Team or Emergency Response Team to organise a transfer to the Vet via Arnhem Land Pest Control (ALPC).

If an injured bat is found, be extremely cautious when approaching, as some species can carry diseases (i.e., lyssavirus). Barricade the area and contact the Emergency Response. If you are bitten or scratched, seek urgent medical attention. Refer to Emergency Management Plan.

If safe to do so, the injured animal may be taken to Gove Vet Services via ALPC during opening hours if contained and the incident need to be reported to Gumatj.

Appendix G1.5 Deceased fauna

If deceased fauna is found on the Project site they must be reported to Gumatj. If a carcass is on a road or in an active work area, remove the hazard and prevent scavenging animals from becoming victims. Check dead kangaroo, echidna, and possum pouches for joeys. If the deceased fauna is identified as a camp/stray dog, contact the relevant Community member for further action.

Deceased animals should be disposed of in a suitable manner by the area involved. Appropriate methods for disposing of deceased wildlife include:

- Disposal in town Landfill: Small animals (birds, small mammals and reptiles) can be secured in several plastic bags and placed in the general waste bins for disposal in the town Landfill. It is advised to organise the transfer to the landfill the same day the deceased animal is found;
- Burying: Deceased animals can be buried onsite where this is possible. Animals should be buried to a depth of at least 45cm to ensure wild dogs or dingos do not dig up the carcass; and
- Leaving the body in the bush to decompose: If deceased animal is found in bushy areas away from active operations, it should be left to decompose. Disposition must be taken to ensure the body is away from traffic.

Appendix G1.6 FERAL AND PEST SPECIES

Buffalo

If buffaloes are encountered on the Site, back away from the animal(s) into a safe location (e.g., vehicle or building). Do not approach as this may prompt the animal to charge. Notify to Gumatj to ensure appropriate measures are taken to prevent the animal interaction with the workforce.

Cane Toads

Cane Toads are a major pest spreading through the Northern Territory and constitute a threat to native wildlife. They are detrimental to local biodiversity as they present toxic effects on other wildlife. Their toxin is on the skin and can be sprayed slightly if toads are handled roughly. When handling Cane toads, make sure you wear gloves and safety glasses.

APPENDIX H SURFACE WATER MANAGEMENT

Surface water management is essential to protect water quality, prevent soil erosion, and reduce the impact of construction activities on nearby water bodies. This plan outlines methods to manage surface water flow, minimise pollution, and control runoff during and after project activities.

APPENDIX H1 SITE ASSESSMENT AND PLANNING

Drainage Mapping
A detailed assessment will be conducted to map natural drainage patterns, nearby water bodies, and potential areas of water accumulation on the project site.
Risk Identification
Areas susceptible to flooding, erosion, and pollution will be identified to develop targeted management strategies.
Stormwater Management Design
A stormwater management system will be designed to direct runoff safely away from disturbed areas and control its release into natural drainage systems.

APPENDIX H2 EROSION AND SEDIMENT CONTROL

Silt fences, windrows, ripraps, etc., will be installed around disturbed areas to capture sediment and prevent it from entering water bodies. Further discussions on erosion and sediment controls are detailed in Appendix F.

APPENDIX H3 POLLUTION PREVENTION

Spill Prevention and Response
Spill kits will be available on-site, and personnel will be trained in spill response procedures to prevent contaminants from entering surface water.
Controlled Material Storage
Fuel, chemicals, and other materials will be stored in designated, contained areas away from drainage pathways to minimise the risk of spills. Anything not required onsite will not be stored onsite.
Vehicle and Equipment Washing
Vehicle wash areas will be designated away from drainage paths, with appropriate containment measures to capture any runoff and prevent contaminants from entering surface water.

APPENDIX H4 MONITORING AND MAINTENANCE

Routine Inspections
Regular inspections will be conducted to ensure that surface water management controls are in place and functioning effectively, especially following heavy rainfall.
Water Quality Monitoring
Water quality monitoring of nearby surface water bodies will be conducted periodically to detect any signs of pollution or sedimentation and assess compliance with regulatory standards.
Maintenance of Control Measures
Sediment basins, silt fences, and other control measures will be cleaned and maintained regularly to prevent overflow and ensure continued effectiveness.

APPENDIX I WASTE MANAGEMENT

During the course of the project domestic and industrial waste will be generated. These wastes may include but not limited to timber, oils, and solvents, sewage and general domestic refuse. All waste on-site will be managed in accordance with the Waste Management Plan (WMP) if generated / required.

In order to minimise any risk to the environment or the health of any personnel, the Project Manager will utilise approved procedures to manage the collection, storage and removal of waste from site. The Project Manager will ensure all waste removed from site is documented. Details include:

- Type of waste being removed;
- Quantity of waste being removed;
- Location of where waste is to be disposed of;
- Amount of waste recycled and destination;
- Waste tracking control measures;

Liberty Industrial places a high priority on recycling waste materials and will use facilities in close proximity of the project to maximise recycling. Empty oil and chemical containers such as metal or plastic drums will be returned to the supplier for reuse or recycled where possible.

APPENDIX I1 DISPOSAL PROCESS

To effectively manage waste on the project site, Liberty Industrial will:

- provide suitable containers for storage, collection and transport of waste;
- dispose of site-generated waste at an approved disposal facility;
- recycle all waste material where practicable i.e. ferrous and nonferrous materials; and
- provide documentation that details waste leaving the site along with waste tracking.

APPENDIX I2 WASTE AND HAZARDOUS MATERIALS

Liberty Industrial will be responsible for removing all waste material generated during the project, on behalf of Gumatj. All waste will be managed in accordance with the CEMP or WMP if generated / required.
Where practical waste material will be recycled, where this is not possible it will be disposed of in a lawful manner. Absorbent material used to mop up minor oil or chemical spills will be disposed of appropriately as contaminated material.

Solid waste

Solid waste generated during construction will be classified as recyclable and non-recyclable waste.

Recycle or reuse of waste consists of:

- Excavated earth and rock
- geofabric cut outs / scrap
- Concrete and brick
- Packaging waste such as plastic wrap, cardboard and pallets
- Waste oil.

Non-recyclable waste

- Mixed construction debris
- Packaging materials like styrofoam

Hazardous Waste

Hazardous waste may include paint and solvent containers, insulation materials, oils and cleaning chemicals. All Hazardous waste will be managed in accordance with the Hazardous Substance Management Plan.

- Hydrocarbon waste shall be collected, stored and transported offsite for recycling or disposal at an approved facility;
- Chemical waste shall be stored in accordance with the SDS for that substance and shall be disposed of in accordance with EPA and local requirements;
- Any contaminated soils shall be placed in leak-proof containers and removed from site to an authorized facility.

Domestic waste

Domestic waste generated on-site will primarily include food scraps, office and crib room rubbish, and sewage. Food scraps will be placed in designated rubbish bins or skips located in the crib room and will be either recycled or disposed of by a licensed contractor. Similarly, sewage from strategically placed portable toilets will be regularly maintained and collected by a licensed waste management contractor.