



Excel Dynamic Solutions (Pty) Ltd

Environmental Management Plan (EMP):

Construction and Operation of a Crematorium Facility in Walvis Bay, Erongo Region

ECC Application Reference: APP-002089

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LIST OF ABBREVIATIONS

Eden Crematorium & Funeral Services (Pty) Ltd
EMP: Cremation Facility, Walvis Bay

Abbreviation	Meaning
DEAF	Department of Environmental Affairs and Forestry
EA	Environmental Assessment
ECC	Environmental Clearance Certificate
EDS	Excel Dynamic Solutions
EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
IAPs	Interested and Affected Parties
MEFT	Ministry of Environment, Forestry and Tourism
MHSS	Ministry of Health and Social Services
PPE	Personal Protective Equipment
Reg, S	Regulation, Section

1 INTRODUCTION

1.1 Project Background

Eden Crematorium and Funeral Services (Pty) Ltd (The Proponent) has identified the need for a crematorium facility in the Walvis Bay area, which is aimed at increasing local capacity of cremation services, as well as serve as an alternative to other existing crematorium facilities within the country. The operation of the facility would serve the public, particularly the Walvis Bay and Swakopmund communities with easily accessible continuous, high quality cremation services.

The Proponent proposes to operate on a 1,827 m² crematorium facility with the capacity to cremate ± five (5) bodies a day. Eden Crematorium and Funeral Services currently operate the facility at 2354 10th Street, Light Industrial Area in Walvis Bay (ECC-APP3573 issued for operations), and plans to relocate the operations to a new site. The proposed project site is located in Erf 3235 (Northern industrial area). The locality map of the site is shown in **Figure 1** below.. The facility comprises a mortuary with shelves, offices, store, ablution facilities, a reception area, kitchen, waiting area, and parking space. The location of the crematorium facility is shown in **Figure 1**.

As a waste producing facility, a crematorium and related infrastructure are among listed activities that may not be undertaken without an Environmental Clearance Certificate (ECC) under the Environmental Management Act (EMA) (2007) and its 2012 Environmental Impact Assessment (EIA) Regulations. The relevant listed activities as per EIA regulations are:

- *2.1 The construction of facilities for waste sites, treatment of waste and disposal of waste.*
- *2.2 Any activity entailing a scheduled process referred to in the Atmospheric Pollution Prevention Ordinance, 1976.*
- *2.3 The import, processing, use and recycling, temporary storage, transit or export of waste.*

Subsequently, the Proponent has appointed Excel Dynamic Solutions (Pty) Ltd (EDS Namibia), an independent team of Environmental Consultants to compile the Environmental Management Plan (EMP) for the operation of the crematorium facility, and apply for the project ECC (through the Competent Authority, Ministry of Environment, Forestry & Tourism (MEFT)). The EMP is submitted for evaluation and consideration of an ECC to the Environmental Commissioner at the MEFT Department of Environmental Affairs and Forestry (DEAF).

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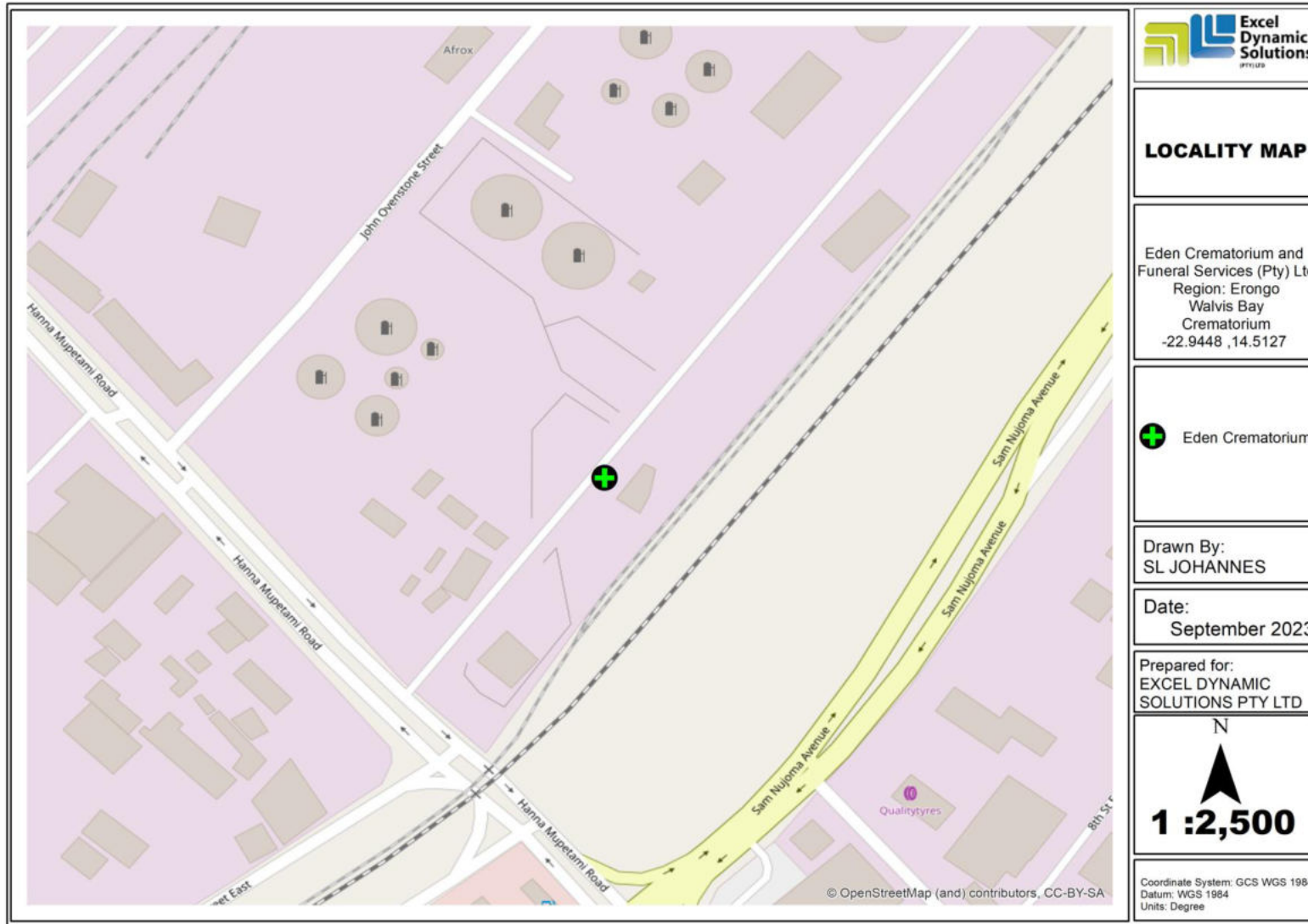


Figure 1: Locality map of Crematorium Facility in Walvis Bay

1.2 Ownership of the Facility

Eden Crematorium and Funeral Services (Pty) Ltd are currently operating at Erf 2354, 10th Street, Walvis Bay, and they are proposing to relocate to Erf 3235 situated in the Northern industrial area, under the jurisdiction of Walvis Bay Municipality. The locality details of the site in **Table 1** below.

Table 1: Details of the proposed Crematorium Facility locality

Location:	Erf 3235 Northern Industrial Area, Walvis Bay
GPS Coordinates	-22.9448, 14.5127
Local Authority:	Walvis Bay Municipality
Region Administration & Town / City:	Erongo Regional Council, Walvis Bay
Regional Constituency:	Walvis Bay Urban Constituency

1.3 Appointed Environmental Consultant and ECC Application

To ensure that the proposed operation is compliant with the national environmental legislation, the project Proponent appointed an independent environmental consultant, Excel Dynamic Solutions (Pty) Ltd to compile an EMP and apply for the ECC on their behalf.

The ECC application is compiled and submitted to the Competent Authority (Ministry of Environment, Forestry & Tourism) (MEFTT). Upon submission of an Environmental Management Plan (EMP), the proposed project will be evaluated for consideration for an ECC by the Environmental Commissioner at the MEFT's Department of Environmental Affairs and Forestry (DEAF).

1.4 The Aim of the Environmental Management Plan (EMP)

Regulation 8(j) of the EIA Regulations (2012) requires that a draft Environmental Management Plan (EMP) shall be included as part of the Environmental Assessment (EA) process. A 'Management Plan' is defined as:

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“...a plan that describes how activities that may have significant environments effects on the environment are to be mitigated, controlled and monitored.”

An EMP is one of the most important outputs of the EA process as it synthesizes all the proposed mitigation and monitoring actions, set to a timeline and with specific assigned responsibilities. It provides a link between any impacts identified in the EA process and the required mitigation measures to be implemented during operation. It is important to note that an EMP is a statutory document and a person who contravenes the provisions of this EMP may face imprisonment and/or a fine. This EMP is a living document and can be amended to adapt to address project changes and/or environmental conditions and feedback from compliance monitoring.

The purpose of the Draft EMP is to ensure that the proposed project activities are undertaken in an environmentally friendly and sustainably manner. This would be done through the effective implementation of recommended environmental management and mitigation measures contained in the EMP, for which the aim is to avoid and or minimize the adverse identified impacts while maximizing the positive impacts.

2 LEGAL OBLIGATIONS GOVERNING THE PROPOSED ACTIVITIES

Upon issuance of the ECC and obtaining any other necessary and required documentation, the Proponent prepares for the operation of the crematorium. The associated project activities will have some potential impacts, particularly the negative ones for which the Draft EMP has been developed

It is a requirement for the construction and operation as well as maintenance of the crematorium facility and associated activities to adhere to certain local, regional, national as well as international legal framework. The legal requirements provided in the Draft EMP are these in terms of permitting/licensing, i.e., permits or licensing that the Proponent will need to obtain prior to commencing with construction, operations and or renewal of permits throughout the operational phase of the facility. These legal requirements are provided under **Table 2**.

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Table 2: Applicable and required permits/authorizations/licenses for the Operation of a Crematorium and its associated activities

Legislation/Policy/Guideline	Relevant Provision	Implication for the Project
The Constitution of the Republic of Namibia, 1990 as amended	The Constitution of the Republic of Namibia (1990 as amended) addresses matters relating to environmental protection and sustainable development. Article 91(c) defines the functions of the Ombudsman to include: “...the duty to investigate complaints concerning the over-utilisation of living natural resources, the irrational exploitation of non-renewable resources, the degradation and destruction of ecosystems and failure to protect the beauty and character of Namibia...”	By implementing the environmental management plan, the establishment will be in conformant to the constitution in terms of environmental management and sustainability. Ecological sustainability will be main priority for the proposed development.
Environmental Management Act (EMA) No. 7 of 2007	The Act requires that projects with significant environmental impacts are subject to an environmental assessment process (Section 27). The Act details principles which are to guide all EAs.	The EMA and its regulations should inform and guide this EA process. Should the ECC be issued to the Proponent, it may be required by the MEFT to be renewed every 3 years, counting from the date of issue.
Environmental Impact Assessment (EIA) Regulations Government Notice 28-30 (Government Gazette 4878))	Details requirements for public consultation within a given environmental assessment process (Government Notice 30 Section 21). Details the requirements for what should be included in a Scoping Report (Government Notice 30 Section 8)	\

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Legislation/Policy/Guideline	Relevant Provision	Implication for the Project
	and an Assessment Report (Government Notice 30 Section 15).	
Public and Environmental Health Act (Act 1 of 2015)	Provide a framework for a structured uniform public and environmental health system in Namibia; and to provide for incidental matters.	Section 77 (cx) elaborates on the need for keeping of clean environment and free from health nuisance so as not to endanger the public health;
Public and Environmental Health Act (Act 1 of 2015) Regulations	These regulations originally replaced the Public Health Covid-19 General Regulations	Section 19 requires for cremation processes to be carried out in a manner that ensures the safety of the public, staff members and funeral attendees
Crematorium Ordinance 6 of 1971	Operations of Crematoria should adhere to the regulations as set out it in Section 10 of the Ordinance	Operations of Crematoria should adhere to the regulations as set out it in Section 10 of the Ordinance
Atmospheric Pollution Prevention Ordinance 11 of 1976	In terms of Section 5 any person carrying on a “scheduled process” within a “controlled area” has to obtain a registration certificate from the administering authority.	The Act lists 72 processes in Schedule 2 which must be registered and a registration certificate (air pollution permit) obtained.
Pollution Control and Waste Management Bill of 1999	Prevent and regulate discharge of pollutants in the air, water and land; regulate noise, dust and odour pollution; establish a system of waste planning and management	All construction, disturbance, effluent and pollution resulting from the crematorium activities will be required to be in strict accordance with the regulations outlined in the Pollution Control and Waste Management Bill.

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Legislation/Policy/Guideline	Relevant Provision	Implication for the Project
Hazardous Substances Ordinance 14 of 1974	To provide for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances; to provide for the division of such substances into groups in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances; and to provide for matters connected therewith.	All operation, waste and effluent disposal and pollution resulting from the crematorium activities that may be of hazardous nature to the environment, people and general public health will be required to be in strict accordance with the regulations outlined in the Hazardous Substances Ordinance.
Labour Act (No. 6 of 1992)	Ministry of Labour (MOL) is aimed at ensuring harmonious labour relations through promoting social justice, occupational health and safety and enhanced labour market services for the benefit of all Namibians. This ministry insures effective implementation of the Labour Act no. 6 of 1992.	The Proponent should ensure that the development do not compromise the safety and welfare of workers.
Labour Act 11 of 2007 Health and Safety Regulations (HSR) GN 156/1997 (GG 1617).	Adhere to all applicable provisions of the Labour Act and the Health and Safety regulations	Health and safety regulations must be adhered to throughout the operation.

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Legislation/Policy/Guideline	Relevant Provision	Implication for the Project
Local Authorities Act No. 23 of 1992	To provide for the determination, for purposes of local government, of local authority councils; the establishment of such local authority councils; and to define the powers, duties and functions of local authority councils; and to provide for incidental matters	The Walvis Bay Municipality is the responsible Local Authority of the area, and therefore, should be consulted in local public consultation matters regarding this project, and relevant municipal policies relevant to the operation must apply and be adhered to.
Water Resources Management Act 11 of 2013	<ul style="list-style-type: none"> • Prohibits the pollution of water and implements the principle that a person disposing of effluent or waste has a duty of care to prevent pollution (S3 (k)). • Provides for control and protection of groundwater (S66 (1), (d (ii))). • Liability of clean-up costs after closure/abandonment of an activity (S3 (l)). 	The protection (both quality and quantity) of water resources should be a priority.
Soil Conservation Act (Act 76 of 1969)	The Act makes provision for the prevention and control of soil erosion and the protection, improvement and conservation of soil, vegetation and water supply sources and resources, through directives declared by the Minister	Duty of care must be applied to soil conservation and management measures must be complied with.

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Legislation/Policy/Guideline	Relevant Provision	Implication for the Project
(a) The Road Traffic and Transport Act No. 52 of 1999 and its 2001 Regulations	Provides for the control of traffic on public road and the regulations pertaining to road transport, including the licensing of vehicles and drivers.	Traffic regulations must be adhered to
(b) United Nations Environment programme: Guidelines on Best Available Techniques and Provisional Guidance on Best Environmental Practices	These guidelines are relevant to Article 5 and Annex C of the Stockholm Convention on Persistent Organic Pollutants.	Annex 3 Part III Source Category (g) focuses on Crematoria as the source of organic pollutants

3 DRAFT EMP IMPLEMENTATION, ROLES & RESPONSIBILITIES

As the project Proponent, Eden Crematorium and Funeral Services is ultimately responsible for the implementation of the EMP. They may, however, delegate this responsibility at any time, as they deem necessary during the operation of the facility (usually an environmental control officer (ECO) or safety, health, and environmental (SHE) officer). The roles and responsibilities of all the parties involved in the effective implementation of this EMP are as follows:

3.1 Competent Environmental Monitoring Authority (DEAF of the MEFT)

The Department of Environmental Affairs and Forestry (DEAF) of the Ministry of Environment, Forestry and Tourism (MEFT) as the environmental custodian is responsible for enforcing compliance with the Environmental Management Act, its regulations and full implementation of this EMP. The authority is also responsible for the reviewing of bi-annual reports submitted by the Proponent and grant ECC renewal following environmental audits as required and/or conditioned in the ECC issued.

3.2 Project (Site) Manager

Project or Site Manager (as appropriate) will be responsible for ensuring that project activities are completed on time, efficiently and sustainably. The manager's duties and responsibilities will include:

- Ensure that relevant commitments contained in the EMP Action Plans are adhered to.
- Ensure the relevant staff is trained in procedures entailed in their duties.
- Maintain records of all relevant environmental documentation for the project.
- Through consultations and cooperation with the ECO/SHE officer, issuing fines to individuals who may be in breach of the EMP provision and if necessary, removing such individuals from the site.
- Cooperate with all relevant interested and affected parties/stakeholders.
- Development and management of schedules for daily activities in compliance with the EMP.
- Ensuring compliance with relevant environmental and related authorisations and license conditions.

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- Identifying and appointing of appropriately qualified specialists (were necessary) to undertake the operation and its programmes in a timeous manner and to acceptable standards.

3.3 Construction Contractor

In the case of any constructions on the site, the contractors' representative or site supervisors (as appropriate) will be required to:

- Ensure that the relevant commitments contained in the EMP Action Plans are adhered to.
- Compile relevant procedures and method statements for approval by the applicable phase site manager prior to initiation of project activities on the site.
- Ensure that all relevant staff are trained in procedures.
- Maintain records of all relevant environmental documentation applicable to their work.

3.4 Safety, Health and Environmental or Environmental Control Officer

The Proponent may assign the responsibility of ensuring EMP compliance throughout the project life cycle to a designated member of staff or external qualified and experienced person, referred to in this EMP as the Environmental Control Officer (ECO) or Safety, Health & Safety (SHE) Officer. The ECO/SHE Officer will have the following responsibilities:

- Ensure that relevant commitments contained in the EMP Action Plans are adhered to.
- Planning and carrying out site inductions to the workers on-site and visitors to the work area of the site.
- Maintain records of all relevant environmental documentation for the project.
- Reviewing the EMP annually and appropriately amending the document when necessary.
- Management and facilitation of communication between the Proponent, and Interested and Affected Parties (I&APs) regarding this EMP.
- Conducting site inspections of all areas with respect to the implementation of this EMP (monitor and audit the implementation of the EMP). The recommended frequency is monthly during a construction phase and bi-annually (for external auditing) for operation and maintenance.
- Advising the Proponent on the removal of person(s) and/or equipment not complying with the provisions of this EMP.

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- Making recommendations to the Proponent with respect to the issuing of fines for contraventions of the EMP.
- Undertaking an annual review of the EMP and recommending additions and/or changes to this document.

3.5 General Environmental Control Practices for Operation of Crematoria

The parties holding duties and responsibilities for environmental compliance during operation of the facility must ensure to maintain environmental control practices for the operation of the crematorium. The environmental control practices include:

- Proper operation and maintenance procedures of the relevant facilities that can affect the environmental performance of the Crematorium during operation, e.g., new cremators, air pollution control system, fuel storage tanks etc.
- Procedures for proper handling, storage, transportation and use of materials
- Procedures to avoid wastage of energy, water or materials
- Procedures for proper management of waste material
- Response procedures to deal with emergency incidents with environmental implications (e.g., fuel leakage/spillage, accidental breakdown or malfunction of the air pollution control system, fire outbreak etc.)
- Environmental complaint handling procedures

4 ENVIRONMENTAL MANAGEMENT & MITIGATION ACTION PLANS

The environmental management and mitigations measures (management action plan) provided to the potential adverse impacts associated with the proposed operation and its activities are presented under this section. The aim of this management action plan is to avoid these potential impacts where possible, and where impacts cannot be avoided, measures are provided to reduce the significance of the impacts.

4.1 Key potential Negative Impacts

The summary of key identified potential adverse impacts for which the measures have been developed are as follows:

- Air Quality Reduction
- Health and Safety issues (due to exposure)
- Potential occupational health and safety risks associated with handling of operational equipment.
- Environmental (water and land) pollution.
- Fire Risk

4.2 The Management and Mitigation of Potential Key Negative Impacts

The management and mitigation measures for the potential negative impacts for the operational and maintenance phase are presented in **Table 3**.

The required management and mitigation plan actions have been presented together with key performance indicators, responsible person(s), resources and the timeline of such actions. These aspects form the headings of **Table 3**, and they are as follows:

- Environmental aspect and issues for which management actions are required.
- Proposed impact mitigation measures.
- Key performance indicator (KPI) for monitoring success levels of management actions.
- Responsible person(s) for implementing the proposed management actions.
- Resources required for implementing management actions and monitoring.

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- Implementation timeframes for the proposed management actions.

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Table 3: Management and Mitigation Measures for the Operational & Maintenance Phase

Aspect	Impact	Management & Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Person	Resources	Timeline
SITE PREPARATION, OPERATION & MAINTENANCE PHASES						
EMP implementation and training	Lack of EMP awareness and implications thereof	<ul style="list-style-type: none"> -A Comprehensive Health and Safety Plan for the operation activities should be compiled. This will include all the necessary health, safety, and environmental considerations applicable to respective works on site. -An EMP non-compliance penalty system should be implemented on site. -The Proponent should appoint a SHE Officer to be responsible for managing the EMP implementation and monitoring. -EMP training should be provided to all new workers on site as part of introductory induction. -All site personnel should be aware of necessary health, safety, and environmental considerations applicable to their respective work -The implementation of this EMP should be monitored. 	<ul style="list-style-type: none"> -All required Plans and systems are compiled and in place Safety, Health and Environmental (SHE) Officer is appointed -Records of EMP implementation Plans and Systems -Safety, health and environmental inspections conducted daily -Bi-annual environmental compliance for operations (bi-annually) -Timely renewal of the Environmental Clearance Certificate (ECC) as required or conditioned by the MEFT 	<ul style="list-style-type: none"> -Proponent -SHE officer -External Environmental Consultant 	<ul style="list-style-type: none"> -Independent Environmental Consultant: EMP compliance and auditing -DEAF: site inspections for compliance -Identification of all persons involved in the implementation of the EMP -Compliance Monitoring reports -Timely renewal of ECC as required. -Records of EMP and SHE training conducted 	<ul style="list-style-type: none"> Before Operation commences Throughout the Operation phase

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Aspect	Impact	Management & Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Person	Resources	Timeline
		<p>-The site should be inspected regularly, and a compliance audit done throughout the life of the operational facility as recommended below:</p> <ul style="list-style-type: none"> ○ Daily – by in-house SHE officer ○ Bi-annually – by an external environmental compliance auditor 				
Authorizations	Lack of Permits/ Licenses	<p>-All the required agreements and licenses or permits required for operations to occur should be applied for and obtained</p> <p>The permits, agreements referred to herein include:</p> <ul style="list-style-type: none"> ○ Environmental Clearance Certificate (ECC) ○ Any necessary service delivery (water, power, waste disposal etc) agreements from Municipality of Walvis Bay ○ Any relevant leasehold agreements from 	<p>-Applicable permits and licenses to be obtained from relevant authorities and kept on site for records keeping and future inspections</p>	-Proponent	-Record of permits and authorizations obtained	Before Operation commences

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Aspect	Impact	Management & Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Person	Resources	Timeline
		the Municipality of Walvis Bay finalised.				
Facility design	Facility design failure during operations and public exposure	<p>-The design standards to be applied for the crematorium and its supporting functions and structures should comply with the nationally and internationally accepted public exposure guidelines.</p> <p>-The facility design must be able to adequately accommodate easy circulation of staff to any part of the facility</p>	-Facility design according to the internationally approved standards	Planning & Design Engineer	Not applicable	<p>Pre-construction</p> <p>Pre-operation</p>
Construction / Maintenance	Nuisance associated with poorly planned construction/maintenance times	-A convenient construction work / schedule should be prepared and be shared with the neighbouring property owners through the Municipality. This will ensure that the locals/neighbours are aware of when to expect the construction/maintenance team on site.	<p>-Any necessary maintenance notifications submitted to the Municipality on time</p> <p>-Clear posters erected on site</p>	<p>-Proponent</p> <p>-Construction contractor</p>	-Notices of work schedule	Pre-construction

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Aspect	Impact	Management & Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Person	Resources	Timeline
		<p>-Construction activities should be restricted to weekdays i.e., Mondays to Fridays and during working hours (08:00 - 17:00) only.</p> <p>- all related buildings and equipment shall be maintained in a clean and sanitary manner.</p>				
Communication between the Proponent and surrounding land users	Lack of communication (proper liaison) between surrounding land users (communities) and Proponent	<p>-The Proponent should appoint a Public Relation Officer (PRO) or act in their own capacity as such, to liaise with neighbouring land users (home and or property owners), when needed and required.</p> <p>-A clear communication procedure/plan which should include a grievance mechanism should be compiled.</p>	-A PRO is appointed	-Proponent -PRO	<p>-Grievance logbook</p> <p>-PRO appointment</p> <p>-PRO contact details to be provided to the affected residents</p> <p>-Local land users/ communities</p>	Pre-construction and throughout the operation phase
Employment	Creation of employment opportunities	-Priority for any non-skilled labour should be given to people from around the respective site, in accordance	-Number and residence of locals employed	-Crematorium staff -Manager	<p>-Record of employees</p> <p>-Constituency Council office may assist in</p>	Pre-operation activities

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Aspect	Impact	Management & Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Person	Resources	Timeline
		<p>with procedures approved by the relevant authorities.</p> <p>-Equal opportunity should be provided for both men and women.</p>			<p>identifying required unemployed workers for jobs requiring no skills.</p> <p>-Notification via the Constituency Office</p>	
Soils	Site soils (land) disturbance	<p>-All possible trenches excavated for construction/renovation on site should be backfilled.</p> <p>-Soils that are not within the intended footprints of the site areas should be left undisturbed.</p> <p>-Avoid disposal or spillage of any type of waste (hazardous, non-hazardous, fuels etc.) on the ground</p> <p>-In an event that any of the substances mentioned above, spill on the soil, the contaminated soil should be cleaned up immediately and dispose of in designated hazardous waste bins and</p>	<p>- No visible oil spills on the ground or contaminated/pollution spots owing to operational activities.</p>	<p>-SHE Officer</p> <p>-Proponent</p>	<p>-Backfilling equipment</p> <p>Adequate disposal site for contaminated soils</p>	Throughout the operation phase

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Aspect	Impact	Management & Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Person	Resources	Timeline
		then to an approved landfill site.				
Air Quality	Air quality (dust, flue gas emissions)	<p>-The Proponent should ensure that the construction work schedule is limited to the given number of days of the week to keep any vehicle-related dust levels minimal in the area.</p> <p>-Dust masks, eye protective glasses and other respiratory personal protective equipment (PPE) such as face masks should be provided to the workers carrying out potential dust/smoke generating activities, where they are exposed to smoke or dust.</p> <p>-The operations should keep below the standard flue gas emissions permitted and may not exceed the standard emissions as provided for by the equipment manufacturer.</p>	<p>-Dust suppression measures implemented</p> <p>-Visible efforts to curb dust</p>	<p>-Proponent</p> <p>-SHE Officer</p> <p>-Construction Contractor</p>	-Grievance logbook	Throughout the Operation phase

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Aspect	Impact	Management & Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Person	Resources	Timeline
		<p>-The facility must be fitted with air pollution control equipment to minimize emission of sulphur dioxide, hydrogen chloride, carbon-monoxide, volatile organic compounds, particulate matter and persistent organic pollutants with adsorbents such as lime and organic carbon, if required, and as per design standards.</p> <p>-The presence of PVC, metals and other contaminants (particularly chlorine compounds) in coffin material and furnishings should be avoided to reduce the generation of persistent organic pollutants during incomplete combustion or by de novo synthesis.</p> <p>-Ensure to maintain the temperature at the entry and the exit of the chamber at the required minimum temperature for combustion control (850°C, according to UNEP Guidelines on Best Available Techniques and Provisional Guidance on Best Environmental Practices).</p>				

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Aspect	Impact	Management & Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Person	Resources	Timeline
		-Ensure to maintain oxygen concentration (and therefore the excess air) within secondary chamber (6%, according to UNEP Guidelines on Best Available Techniques and Provisional Guidance on Best Environmental Practices)				
Waste management	Environmental pollution	<p>-Biodegradable and non-biodegradable wastes must be stored in separate containers and collected regularly for disposal at a recognized landfill/dump site (in Walvis Bay, upon reaching an agreement with the Municipality of Walvis Bay).</p> <p>-Any hazardous waste that may have an impact on the physical and social environment should be handled cautiously and disposed of carefully at the nearest approved waste management facilities of the Town.</p> <p>-Workers should be sensitized to dispose of waste in a responsible manner.</p>	<p>-A register of all waste and waste types generated on site is kept on site.</p> <p>-All waste disposal permits from relevant authorities are available on site.</p> <p>-No littering on and around the facility.</p>	<p>-Proponent</p> <p>-Site Manager</p> <p>-SHE Officer</p>	<p>-waste storage bins/ drums; and transport all waste from the site.</p> <p>-Waste storage containers</p>	Throughout the operation phase

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Aspect	Impact	Management & Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Person	Resources	Timeline
		-There should be separate waste bins for hazardous and general/domestic waste at the facility, until such that time it will be transported to designated waste sites.				
Health, Safety and Security	General health and safety associated with project activities	<p>-The Labour Act's Health and Safety Regulations should be complied with.</p> <p>-All items for treatment as specified in the material safety data sheets (MSDS) for hazardous materials shall be available in (a) first aid kit(s) on the premises.</p> <p>-Establish an emergency rescue system for the evacuation of staff in case of an emergency.</p> <p>-Emergency procedures for accidents/incidents shall be communicated to all workers.</p> <p>-Limit any noise-producing activities to acceptable noise levels, and provide workers with noise protecting ear-plugs when necessary.</p> <p>-Ensure that all workers know where the first aid kits are</p>	-Compilation of Comprehensive Health and Safety Plan.	<p>-Proponent</p> <p>-Site Manager</p> <p>-SHE Officer</p>	-Health and Safety Policies/plan	Prior to site setup activities and throughout the facility operation

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Aspect	Impact	Management & Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Person	Resources	Timeline
		<p>located and who is trained in administering in first aid.</p> <p>-As part of their induction, the project workers should be provided with an awareness training of the risks of mishandling equipment and material on site as well as health and safety risks associated with their respective jobs.</p> <p>-Equipment and fuel storage site should be properly secured, and appropriate warning signage placed where visible.</p> <p>-An emergency preparedness plan should be compiled, and all personnel appropriately trained.</p> <p>-Workers should not be allowed to consume alcohol or any other intoxicants prior to and during working hours as this may lead to mishandling of equipment which results in injuries and other health and safety risks.</p> <p>-The site to be equipped with cautionary signs for any</p>				

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Aspect	Impact	Management & Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Person	Resources	Timeline
		<p>potential danger or risk areas identified.</p> <p>-Security services should be provided to look after the premises and vehicles.</p>				
	Occupational Health and Safety	<p>- Employees and visitors should be properly equipped with adequate personal protective equipment (PPE) during operation.</p> <p>-The Proponent must avail adequate and appropriate PPE to all staff.</p> <ul style="list-style-type: none"> • Provide PPE that protect workers from burns and • provide respirators for overexposures to nuisance dust or silica due to the heat and soot produced by cremation chambers. <p>- Use wet work practices when cleaning up dust particulates.</p> <p>-Timeously recording and reporting of all health and safety incidences.</p>	<p>-Regular health screening of workers.</p> <p>-Bi-annual environment, health and safety audits done.</p> <p>-All onsite workers and visitors equipped with PPE.</p>	<p>-Manager (holds overall responsibility)</p> <p>-SHE Officer</p>	<p>-Health and safety-related equipment and necessary medical services for employees.</p> <p>-First Aid training for at least 1 personnel at each work site</p>	Throughout facility operation phase

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Aspect	Impact	Management & Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Person	Resources	Timeline
Health and safety	Accidental fire outbreak	<ul style="list-style-type: none"> -Portable fire extinguishers should be provided on site. -Potential flammable areas and structures should be marked as such with clearly visible signage. - The construction material of the crematory shall not be covered with a flammable material, and as much as possible, fireproof and/or fire retardant materials should be used. -The Crematorium shall have adequate ventilation and adequate entrances and exits for the protection of the public and Authority personnel. - No flammable material shall be stored within ± 1.5 m of the cremation chamber. 	-No Fires outbreaks recorded (due to presence of workers)	<ul style="list-style-type: none"> -Site Manager -SHE Officer 	<ul style="list-style-type: none"> -Fire extinguishers on the premises and project vehicles 	Throughout facility operation
Social conflicts	Job seeking, private property intrusion or damage	The Proponent should inform their workers about the importance of respecting the locals' and neighbouring private properties by not trespassing or damaging their property.	<ul style="list-style-type: none"> -No complaints of neighbouring property trespassing or damage related to project workers - 	<ul style="list-style-type: none"> -Site Manager -SHE Officer 	<ul style="list-style-type: none"> -Grievance logbook -Employment Code of Conduct 	Throughout the facility operation phase

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Aspect	Impact	Management & Mitigation Measure(s)	Key Performance Indicator (KPI)	Responsible Person	Resources	Timeline

CONCLUSION

5 CONCLUSION

Potential positive and negative impacts stemming from the proposed crematorium facility were identified and mitigation measures made thereof. The mitigation measures and recommendations provided in this draft Environmental Management Plan can be deemed sufficient to avoid and/or reduce (where impact avoidance is impossible) the risks identified to acceptable levels.

The Consultant is, therefore, confident that these measures are sufficient, and issuance of an Environmental Clearance Certificate (ECC) to the Proponent to enable operation of a crematorium at Erf 3235 at Northern Industrial Area, Walvis Bay would be appropriate under the suggested mitigation and monitoring measures. However, the ECC should be issued on condition that the provided management measures and action plans are effectively implemented and monitored on site. Monitoring of the environmental components described in the EMP is to be facilitated by the Proponent and/or applicable Competent Authority. This is to ensure that all potential impacts identified in this study and other impacts that might arise during the operations implementation are properly identified and addressed. Lastly, should the ECC be issued, the Proponent will be expected to be compliant with the ECC conditions as well as legal requirements governing crematorium facility operation and related activities.