

Environmental Management Plan (EMP)

The proposed Construction and Operation of a lodge on Portion A of Remainder of Ptn 2 (Sonnleiten) of Farm Ondekaremba No.78 located east of Windhoek, Khomas Region

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Author: **Mr. Silas David**

Company: **Excel Dynamic Solutions (Pty) Ltd**

Telephone: **+264 (0) 61 259 530**

Fax2email: **+264 (0) 886 560 836**

Email: public@edsnamibia.com

Prepared For: **Satinbird Trading Enterprises J.V. FQ Investments Number One CC**

Contact Person: **Bastian Lipp**

Cellphone: **+264813502862**

Postal Address: **P. O Box 30410, Windhoek, Namibia**

Email: lipp@gwk.de

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1 INTRODUCTION

Project Background

Satinbird Trading Enterprises J.V. FQ Investments Number One CC (The Proponent), plans to construct and operate a lodge on Portion A of Remainder of Ptn 2 (Sonnleiten) of Farm Ondekaremba No. 78 (Coordinates: -22.52879, 17.38298). The proposed facility is situated about 32 km from Windhoek, Khomas Region. The proposed project is planned to cover a total surface area of about 491.2502 hectares (ha), (**Figure 1**).

The Proponent plans to construct lodges which will become the premier supplier of sustainable hospitality and tourism services near Windhoek, by providing high-quality accommodation and catering for the needs of international visitors providing a sustainable eco-tourism, and eco-friendly activities (i.e. excursions, and camping).

Tourism and recreation facilities form part of the listed activities that may not be undertaken without an Environmental Clearance Certificate (ECC). Thus, the proposed development is subjected to an ECC, to be issued by the Ministry of Environment, Forestry and Tourism (MEFT).

Draft EMP

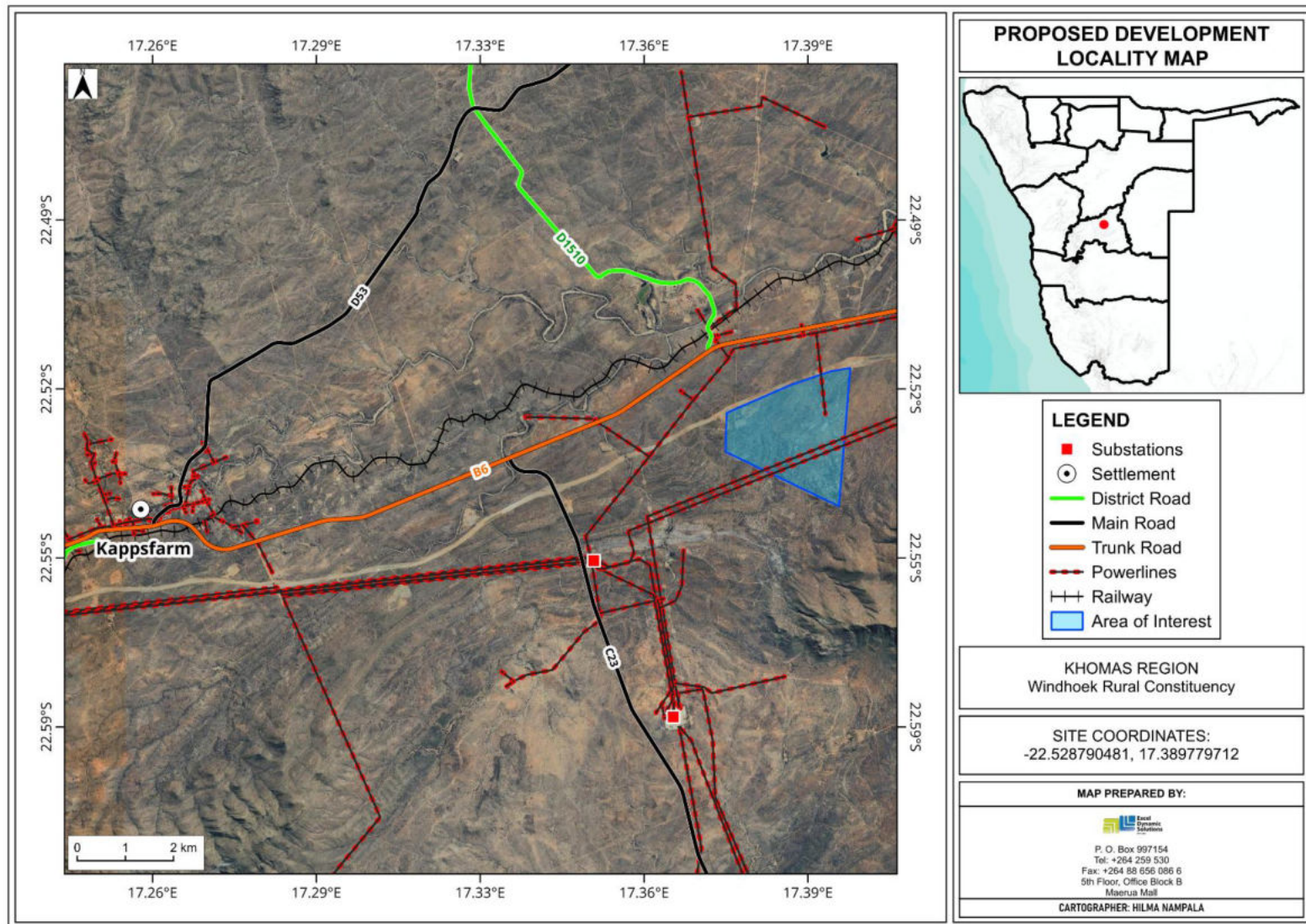


Figure 1: The locality map of the proposed project

In terms of the Namibian Environmental Management Act (EMA) No. 07 of 2007, Section 27 (2j), Government Notice No. 29, Section 6 and Government Notice No. 30, the proposed project constitutes a number of listed activities that require an ECC from the Department of Environmental Affairs (DEAF) of MEFT. The relevant listed activities as per EIA regulations are:

- Tourism Development Activities- The construction of resorts, lodges, hotels or other tourism and hospitality facilities.
- Other activities- Construction of cemeteries, camping, leisure and recreation sites.

This statutory document has been prepared as per requirement in accordance with Section 8 of the EMA (No. 7 of 2007). The compilation of this EMP is one of the requirements (scope of work) presented to Excel Dynamic Solutions (Pty) Ltd by The Proponent. It is required of the Environmental Consultant to comply with the EMA and provide for the following:

- Prepare an explicit Environmental Management Plan to be used as a guideline to monitor compliance to the recommendations stipulated in the ESIA and to assist in managing and monitoring activities throughout the construction of the proposed development.
- The Environmental Consultant must clearly elucidate in the EMP the roles and responsibilities of the Proponent, the contractors, and any other identified stakeholders.

Aim of the Draft Environmental Management (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). A '**Management Plan**' is defined as:

"...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 management & mitigation and monitoring actions, set to a timeline and with specific assigned responsibilities. It provides a link between the impacts identified in the EA process and the required mitigation measures to be implemented during the construction phase of the proposed development. 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 this document is, therefore, to guide environmental management throughout the different phases of the proposed development activities, namely: the pre-development (site acquisition and preparation) phase, construction phase and construction closure phase:

- **Pre-development (Site acquisition and Preparation) Phase:** This is the stage of the proposed development during which The Proponent prepares all the administrative and technical requirements needed for the actual works. This includes things like obtaining the necessary permitting and authorization from relevant authorities, facilitating the recruitment and procurement processes, etc., in preparation for the construction activities on site.

This is also the phase where the Proponent will ensure that utility services for the proposed development are available on site.

- **Construction and Operational Phase:** This is the phase where The Proponent will do construction activities for the proposed development on site. It is also the phase during which quality check of the buildings is done by the relevant authority.
- **Construction Closure phase** – This is the phase during which construction activities on the site are ceased. This is also the phase where the Proponent will be required to dismantle and remove the site offices and campsites that were erected during the construction phase of the proposed project. Furthermore, this phase also involves the dismantling of all the construction related equipment and the removal of building materials that were leftover during the construction phase of the proposed development.

Environmental Monitoring Requirements: To support and ensure that the proposed mitigation measures are achieving the desired results, a monitoring plan must be implemented alongside the mitigation plan.

This draft EMP will be used by The Proponent, employees and/or contractors to provide management measures to be undertaken during construction related activities, to address the environmental impacts identified in the scoping report and ensure that the impacts on the environment are avoided or limited if they cannot be avoided completely.

Appointed Environmental Assessment Practitioner

To fulfil the requirements of the EMA and its 2012 EIA Regulations, The Proponent appointed Excel Dynamic Solutions (Pty) Ltd (EDS), an independent consulting company to conduct the required EA process on their (Proponent's) behalf. This draft EMP will be submitted as part of an application for the proposed development to the Environmental Commissioner at the Department of Environmental Affairs and Forestry (DEAF), at the Ministry of Environment, Forestry and Tourism (MEFT).

Environmental Assessment Legal Requirements

The content of the EMP must meet the requirements of Section 8 (j) of the EIA Regulations. The EMP must address the potential environmental impacts of the construction activities on the environment throughout the proposed development life cycle. It must also include a system for assessment of the effectiveness of monitoring and management arrangements after project implementation.

The Proponent, therefore, has the responsibility to ensure that the proposed development activities as well as the EA process conform to the principles of the EMA and must ensure that employees act in accordance with such principles. **Table 1** below lists the requirements of an EMP as stipulated by Section 8(e) of the EIA Regulations, primarily on specific approvals and permits that may be required for the activities required of the proposed development.

Table 1: Applicable legal requirements and permits to the activities of the proposed development

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
Environmental Management Act EMA (No 7 of 2007)	Requires that projects with significant environmental impacts are subject to an environmental assessment process (Section 27). Details principles which are to guide all EIAs.	The EMA and its regulations should inform and guide this EA process. Should the ECC be issued to the Proponent, it should be renewed every 3 years, counting from the date of issue. Contact details at the Department of Environmental Affairs and Forestry (DEAF),
Environmental Impact Assessment (EIA) Regulations GN 28-30 (GG 4878)	Details requirements for public consultation within a given environmental assessment process (GN 30 S21).	Ministry of Environment, Forestry and Tourism (MEFT), Office of the Environmental Commissioner Tel: +264 61 284 2701

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
	Details the requirements for what should be included in a Scoping Report (GN 30 S8) and an Assessment Report (GN 30 S15).	
Petroleum Products and Energy Act (No. 13 of 1990) Regulations (2001)	Regulation 3(2)(b) states that “No person shall possess or store any fuel except under authority of a license or a certificate, excluding a person who possesses or stores such fuel in a quantity of 600 litres or less in any container kept at a place outside a local authority area”	The Proponent should obtain the necessary authorisation from the MIME for the storage of fuel on-site. (Ministry of Industries, Mines and Energy: Director – Petroleum Affairs) Tel: +264 61 284 8291
Forestry Act 12 of 2001, Amended Act 13 of 2005	Prohibits the removal of any vegetation within 100 m from a watercourse (Forestry Act S22 (1)). The Act prohibits the removal of and transport of various protected plant species.	Should there be protected plant species, which are known to occur within the project site, these are required to be removed and a permit should be obtained from the nearest Forestry office (Ministry of Environment, Forestry and Tourism (MEFT)) prior to removing them. Tel: +264 61 208 7320
National Heritage Act No. 76 of 1969	Call for the protection and conservation of heritage resources and artefacts.	Should any archaeological material, such as bones, old weapons/equipment etc be found on the site, work should stop immediately, and the National Heritage Council of Namibia must be informed as soon as possible. The Heritage Council will then decide to clear the area or decide to conserve the site or material. Contact Details at National Heritage Council of Namibia Tel:(061) 301 903

Legislation/Policy/ Guideline	Relevant Provisions	Implications for this project
		OR Tel: (06) 301 903

Draft EMP Limitations

This EMP has been drafted with the acknowledgment of the following limitations:

- This EMP has been drafted based on the Environmental Assessment (EA) conducted for proposed development.
- The mitigation measures recommended in this EMP document are based on the risks/impacts in the EA Report which were identified based on the project description as provided by the Proponent, site investigation and public input. Should the scope of the proposed project change, the risks/impacts will have to be reassessed and mitigation measures provided accordingly.

EMP ROLES AND RESPONSIBILITIES

The Proponent is ultimately responsible for the implementation of the EMP. However, the Proponent may delegate this responsibility at any time, as they deem necessary during the project phases. The roles and responsibilities of all delegates/parties involved in the effective implementation of this EMP are set out below:

Competent Monitoring Authority: Department of Environmental Affairs and Forestry (DEAF, MEFT))

The DEAF is responsible for enforcing compliance with the EMA, its regulations and full implementation of this EMP. The competent authority also reviews biannual reports and grant ECC renewal after 3 years.

The Proponent or Proponent's Representative (PR)

If the Proponent does not personally manage all aspects and phases' activities referred to in this EMP, they should assign this responsibility to a suitably qualified individual referred to in this plan as the Proponent's Representative (PR). The PR may be appointed to manage all phases of the project, or to manage only the EMP aspects for the project. The PR's responsibilities may include:

- Managing the implementation of this EMP and updating and maintaining it when necessary.
- Management and monitoring of individuals and/ or equipment on-site in terms of compliance with this EMP.
- Issuing fines for contravening EMP provisions.

Site Manager (as appropriate)

This individual will be responsible to ensure that the proposed development activities of the project are completed on time. The site Manager's duties and responsibilities will include:

- Ensure that relevant commitments contained in the EMP Action Plans are adhered to.
- Ensure relevant staff is trained in procedures entailed in their duties.
- Maintain records of all relevant environmental documentation for the project.
- Reviewing the EMP annually and amending the document when necessary.
- 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.

Environmental Control Officer (ECO)

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). The ECO will have the following responsibilities:

- Management and facilitation of communication between the Proponent, PR and Interested and Affected Parties (I&APs) regarding this EMP.
- Conducting site inspections (recommended frequency is monthly or weekly as recommended – please refer to Table 3) of all areas with respect to the implementation of this EMP (monitor and audit the implementation of the EMP).
- Advising the PR on the removal of person(s) and/or equipment not complying with the provisions of this EMP.
- Making recommendations to the PR 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.
- Ensuring that the development activities on site are conducted in accordance with the International System organization (ISO) standard 14001: 2015 (environmental management system).

Archaeology: Chance Finds Procedure (CFP) Implementation Roles

The following personnel have been assigned responsibilities as per the Chance Finds procedure (Appendix 1):

- **Operator:** To exercise due caution if archaeology remains are found.
- **Foreman:** To secure site and advise management timeously.
- **Superintendent:** To determine safe working boundary and request inspection.
- **Archaeologist:** To inspect, identify, advice management, and recover remains.

The Proponent should assess these commitments in detail and should acknowledge their obligation to the specific management actions detailed in the Tables under the following sections.

ENVIRONMENTAL MANAGEMENT & MITIGATION MEASURES

Management of Key Potential Adverse Environmental Impacts

From the assessment conducted, the following key potential negative impacts have been identified and are summarized below:

- Land degradation and Biodiversity Loss
- Generation of dust
- Water Resources Use
- Soil & Water Resources Pollution
- Waste Generation
- Occupational Health & Safety risks
- Vehicular Traffic Use & Safety
- Noise & Vibrations
- Impacts on local Roads

- Social Nuisance: local property intrusion & disturbance
- Social Nuisance: Job seeking & differing Norms, Culture & values

Aim of the Environmental Management Plan Actions

The aim of the management actions of the EMP is to avoid the above-listed potential negative impacts, where possible. Where impacts cannot be avoided, measures are provided to reduce the significance of these impacts.

Management actions recommended for the potential impacts rated in the EA carried out for the development activities were based on the following project stages (phases):

- Pre-development and construction phases (**Table 2**)
- Monitoring (**Table 3**)
- Construction closure phases

The responsible person(s) should assess these actions in detail and acknowledge their commitment to the specific management actions detailed in the phases given under the following subsections.

1.1 Pre-development and construction Phase Management Action Plans (Mitigation Plan)

The management action plans recommended for this phase are presented in **Table 2** below.

Table 2: Management and mitigation action plans for the pre-development and construction phases

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
PRE-DEVELOPMENT PHASE						
EMP implementation and training	Lack of EMP awareness and implications thereof	-A Comprehensive Health and Safety Plan for the project activities should be compiled. This will include all the necessary health, safety, and environmental considerations applicable to respective works on sites. An EMP non-compliance penalty system should be implemented on site. The Proponent should appoint an ECO to be responsible for managing the EMP implementation and monitoring.	-All required Plans and systems are compiled and in place and Environmental Control Officer (ECO) is appointed	Proponent	EMP implementation Plans and Systems	Pre-development works
Authorizations	Lack of Agreements, Permits/ Licenses	-All the required agreements and licenses or permits should be applied for and signed, respectively before commencement of work on the site, or as required. -The permits, agreements referred to herein include: Land acquisition.	-Applicable permits and licenses to be obtained from relevant authorities and kept on site for records keeping and future inspections. -Agreements/permits signed and obtained from on time, min. 2	Proponent	Proponent Respective authorities and services provider(s)	Prior to construction works

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Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		- o waste management disposal permits from the relevant facility operator/owner - o Water supply agreements. - o Onsite fuel storage permit from MIME for any petroleum stored onsite.	months prior to construction commencement date of works.			
Communication between the Proponent and other neighbouring land users and custodians	Lack of communication (proper liaison) between other land users and Proponent with regards to land use	-The Proponent should appoint a Public Relation Officer (PRO) to liaise with the land users. -A clear communication procedure/plan which should include a grievance mechanism.	A PRO is appointed -Ongoing Stakeholder's Consultation throughout the project cycles, when and as required. -PRO contact details to be provided to the affected landowners.	Proponent	PRO Complaint's logbook	PRO appointment (Prior to project activities) and their responsibilities throughout the project activities
Employment	Creation of employment opportunities	-Non-skilled labour should be sourced from the locally affected area (people from the local communities), in accordance with procedures approved by the relevant authorities.	-Number of locals employed for pre-development and construction activities	Proponent in collaboration with the Site Manager (if necessary)	Record of employees	Pre-project activities and when necessary, throughout

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Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-Preference of local people for employment for jobs should be implemented, i.e., permanent residents from the surrounding areas should be employed for the unskilled labour preferentially to out-of-area people (outsiders) where possible. Out-of-area employment should be justified, for example by the unavailability of local skills only. -Equal opportunity should be provided for both men and women, when and where possible.				
Specialised procurement of services	Contractors and services	-All services related to development activities such as construction the Proponent may need; preference should be given to local providers of such services. If not available locally, the services search should be extended to a regional level (Khomas Region), nationally and lastly, internationally.	Number of hired contractors.	Proponent Site Manager	Record of hired or contracted companies or services providers	Pre-project activities and when necessary, throughout
CONSTRUCTION PHASE						
EMP implementation and training	Lack of EMP awareness and implications thereof	-EMP trainings should be provided to all new workers on site. -All site personnel should be aware of necessary health, safety,	Compliance monitoring conducted bi-annually and should be recorded.	ECO	Bi-annual reports	Throughout the Development phase and as required

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Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		and environmental considerations applicable to their respective work. -The implementation of this EMP should be monitored. The site should be inspected, and a compliance audit done throughout <u>the project activities, monthly.</u> An EMP non-compliance penalty system should be implemented on site.			Records of EMP training conducted.	
Communication between the Proponent and other neighbouring land users and custodians	Lack of communication (proper liaison) between locals and Proponent with regards to land use	The Proponent should compile a clear communication procedure / plan which should include a grievance and response mechanism.	PRO is part of the project personnel. -Community grievances addressed to their satisfaction	PRO	Complaint's logbook PRO contact details to be provided to the affected locals. Records of stakeholder' consultation Land acquisition agreement conditions	Throughout the development activities
Grazing land	Loss of grazing areas	-Any unnecessary removal or destruction of grazing land, due to construction activities should be avoided.	-Limited cleared sites -Less access tracks	Proponent / Site Manager ECO	Grievance logbook	Throughout the phases

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Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-Vegetation found on the site, but not on site should not be removed but left to preserve biodiversity and grazing land. -Environmental awareness on the importance of the preservation of grazing land for local livestock should be provided to the workers.	-No complaints from stakeholders regarding significant land/vegetation clearing			
Water Resources Use	Over-abstraction (water demand and availability)	-Drinking water abstracted from boreholes or supplied by carting should be used efficiently, and recycling and re-using of water on certain site activities should be encouraged, where necessary and possible. -A Borehole Drilling and Groundwater Abstraction permits should be applied for the Department of Water Affairs at MAFWLR, should the Proponent consider drilling new water supply boreholes. -Agreements of water supply should be made between the willing water supplier and the Proponent.	Water supply agreements Proof/ recording/ quantification of water saving efforts. Water supplier -Water permits -inspection of water storage tanks on site	Proponent Site Manager	Water supplier Water supplying agreements Proponent	Once off supply agreement Throughout the project phase

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Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-Water reuse/recycling methods should be implemented as far as practicable such that the water used for the cleaning of project equipment, if possible. -Water storage tanks should be inspected daily to ensure that there is no leakage, resulting in wasted water on site. -Water conservation awareness and saving measures training should be provided to all the project workers in both phases so that they understand the importance of conserving water and become accountable.			Water storage tanks on site	
Soils	Physical soil/land disturbance and loss of topsoil	-Overburden soils and rocks should be handled more efficiently during operations to avoid erosion when subjected erosional processes. -Soils that are not within the intended and targeted footprints of the site should be left undisturbed and soil conservation implemented as far as possible. -Project vehicles and machinery should stick to access roads provide and or meant for the project operations but not to	No proliferation of informal vehicle tracks. No new erosion gullies.	ECO	Proponent All personnel Complaint's logbook	Throughout the project phase

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Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		unnecessarily create further tracks on site by driving everywhere resulting in soil compaction. -The project footprint area should not be cleared entirely, and the vehicles and equipment must be placed in such a way that soil disturbance is minimised, and the site should be rehabilitated after each onsite work.				
Soils and water resources	Soils and water resources pollution	-Oil and wastewater spill control preventive measures should be in place on site to management soil contamination, thus preventing and minimizing the contamination from reaching water resources bodies. Some of the soil control preventive measures that can be implemented include: -Spill control preventive measures should be in place on site to management soil contamination, thus preventing and or minimizing the contamination from reaching water resources bodies. -All project employees should be sensitized about the impacts of soil pollution and advised to follow appropriate fuel delivery and handling procedures.	No complaints of pollutants on the soils and eventually in the water due to development activities No visible oil spills on the ground or pollution spots. -Waste containers provided at work sites and campsites	ECO	Complaint's logbook Non-permeable material to cover the ground surface at areas where hydrocarbons and potential pollutants are utilized.	Throughout project phase

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Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-The Proponent should develop and prepare countermeasures to contain, clean up, and mitigate the effects of an oil spill. This includes keeping spill response procedures and a well-stocked cache of supplies easily accessible. -Ensure employees receive basic Spill Prevention, Control, and Countermeasure (SPCC) Plan training and mentor new workers as they get hired. -Project machines and equipment should be equipped with drip trays to contain possible oil spills when operated on site. -Polluted soil should be removed immediately and put in a designate waste type container for later disposal. -Drip trays must be readily available on this trailer and monitored to ensure that accidental fuel spills along the tank trailer path/route around the sites are cleaned on time (soon after the spill has happened). -Polluted soil must be collected and transported away from the site to an approved and appropriately				

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Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		classified hazardous waste treatment facility. -Washing of equipment contaminated hydrocarbons, as well as the washing and servicing of vehicles should take place at a dedicated area, where contaminants are prevented from contaminating soil or water resources. -Toilet water should be treated using the long drop toilet system and periodically emptied out before reaching capacity and transported to a wastewater treatment facility.				
Biodiversity	Loss of Fauna and Flora	<u>Fauna</u> -Access roads (even existing ones) should be utilized appropriately in a manner that disturbs minimal land areas as possible, thus minimizing faunal habitat destruction. -Breeding sites for faunal species that are found within the site and nearby should not be disturbed. -Environmental awareness on the importance of faunal preservation	No disturbance to unmarked areas. No complaints from locals regarding unauthorised vegetation removal or cutting down of trees. No intentional disturbance and destruction of site vegetation and faunal species	ECO	Barricading tape (to indicate working areas) Complaint logbook	Throughout the project phase

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Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		should be provided to the workers and contractors. <u>Flora:</u> -The Proponent should avoid unnecessary removal of vegetation, thus promoting a balance between biodiversity and their construction works. -Vegetation found on the site, but not on site should not be removed but left to preserve biodiversity on the site. -Movement of vehicle and machinery should be restricted to existing roads and tracks to prevent unnecessary damage to the vegetation. -Even if a certain vegetation is found along the sites, this does not mean that it should be removed. Therefore, care should be taken without destroying the site vegetation. -Design access roads appropriately in a manner that disturbs minimal land areas as possible. -Make use of the existing road network as much as possible and avoid off-road driving, thus	Visible preservation of onsite vegetation			

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Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		minimizing onsite floral destruction. -Vegetation clearing to be kept to a minimum. The vegetation of the site is largely low and open and therefore whole-sale vegetation clearing should only be applied where necessary and within the site footprint. -Environmental awareness on the importance of floral biodiversity preservation should be provided to the workers and contractors.				
Land Use	Conflict between land uses and construction activities	-Construction activities should not in any way hinder the existing land uses but rather promote co-existence throughout the project operations while respecting other land users. -The Proponent should ensure that their activities comply with the conditions set by the competent, regulatory, and affected authorities such that the proposed construction activities do not severely impact the different existing activities around the site.	Land access and use permits/authorizations. Compliance with conditions set within operational permits by relevant and affected authorities. Little to no complaints of significant interference from the neighbouring land users	PRO Proponent ECO	Proponent Relevant authorities (MEFT, MIME, etc.)	Throughout the project phase
Road use and safety	Increase in vehicular traffic flow	-Vehicles should be driven only on existing access roads and necessary temporary access	No complaints from members of the public regarding vehicular	Proponent	Number of project vehicles on site	Throughout project phase

Draft EMP

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		roads only leading to site; no new roads should be constructed where possible. -The transportation of project materials, equipment and machinery should be limited to once or twice a week only, but not every day. -The heavy truck loads should comply with the maximum allowed limit while transporting materials and equipment/machinery on the public and access roads. -The carted water into the area from outside the project area should be done once or twice a week in container that can supply and store water for most of the week, thus reducing the number of trucks on the road. -Drivers of all project phases' vehicles should be in possession of valid and appropriate driving licenses. Vehicle drivers should adhere to the road safety rules. -Drivers should drive slowly (40km/hour or less), and on the lookout for animals and people.	traffic issues related to the project activities. All personnel operating the project vehicles and machinery are appropriately licensed and possession of valid driving licenses. Demarcated areas for parking, offloading, and loading zones are on site. If required, site access road permits obtained, and requirements fulfilled. No creation of unnecessary tracks on site.	ECO	Names of drivers Frequency of water carting	Site access permit (s) to be applied for and obtained prior to commencement of project works

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Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-Project vehicles should be in a road worthy condition and serviced regularly to avoid accidents because of mechanical faults of vehicles.				
Local services and infrastructure	Overuse and maintenance	-The heavy trucks transporting materials and services to site should be scheduled to travel at least twice or thrice a week to avoid daily travelling to site, unless on cases of emergencies. The heavy trucks transporting materials and services to site should be scheduled to travel at least twice or thrice a week to avoid daily travelling to site, unless on cases of emergencies.	-Visible efforts of maintaining access and community roads by the Proponent	Proponent Site Manager	Road clearing machinery (bull dozers)	Throughout the project phase, when necessary
Occupational Health and safety	General health and safety associated with project activities in both phases	-The Proponent should commit to and make provision for bi-annual full medical check-up for all the workers at site to monitor the impact of project related activities on them (workers). -As part of their induction, the project workers should be provided with an awareness training of the risks of mishandling equipment and materials on site as well as health and safety risk	Comprehensive health and safety plan for all construction activities compiled.	Proponent Site Manager ECO	Occupational Health and Safety Personnel Health and Safety Trainings First aid kits Trained worker to administer first aid	Throughout the project phase and trainings offered as and when required

Draft EMP

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		associated with their respective jobs. -employees should be properly equipped with adequate personal protective equipment (PPE) such as coveralls, gloves, safety boots, earplugs, dust masks, safety glasses, etc. -Heavy vehicle, equipment and fuel storage site should be properly secured, and appropriate warning signage placed where visible. -Drilled boreholes that will no longer be in use or to be used later after being drilled should be properly marked for visibility and capped/closed off. -An emergency preparedness plan should be compiled, and all personnel appropriately trained. -Workers should not be allowed to drink alcohol prior to and during working hours nor allowed on site when under the influence of alcohol as this may lead to mishandling of equipment which results into injuries and other health and safety risks.				

Draft EMP

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-The site areas that are considered temporary risks should be equipped with "danger" or "cautionary" signs.				
	Accidental fire outbreak	-Portable fire extinguishers should be provided on site. -No open fires to be created by project personnel on farms. -Potential flammable areas and structures such as fuel storage tanks should be marked as such with clearly visible signage.	No wildfires recorded (due to presence of workers)	Proponent ECO	Fire extinguishers (1 per vehicle) and 1 per working site	Throughout project phase
Archaeology and heritage	Accidental disturbance and destruction of archaeological or heritage objects and sites	-On-site personnel (s) and contractor crews must be sensitized to exercise and recognize "chance finds heritage" in the course of their work. -During the construction works, it is important to take note and recognize any significant material being unearthed and making the correct judgment on which actions should be taken (refer to CFP Appendix attached to the EMP). -A landscape approach of the site management must consider culture and heritage features in the overall planning of construction	Preservation of all artefacts and objects that are discovered on and around project site No-Go Areas avoided	Proponent ECO Operator	Salvage equipment Archaeologist	As and when required, i.e., prior to site set up, and during construction.

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Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		infrastructures within and beyond the license boundaries. -The Proponent and Contractors should adhere to the provisions of Section 55 of the National Heritage Act in event significant heritage and culture features are discovered while conducting works. -Subject to the recommendations herein made and the implementation of the mitigation measures and adoption of the project Archaeological Management Plan (AMP)/EMP should be complied. -An archaeologist or Heritage specialist should be onsite to monitor all significant earth moving activities that may be implemented as part of the proposed project activities. -Show overall commitment and compliance by adapting "minimalistic or zero damage approach".		Foreman Superintended Archaeologist	Flag tapes GPS (site marking)	
Littering and waste management	Environmental Pollution	-Workers should be sensitized to dispose of waste in a responsible manner and not to litter.	No visible litter around the project area	ECO	Waste storage containers	Throughout project phase

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Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
(general waste and sanitation)		-After each daily works, the Proponent should ensure that there are no wastes left on the sites. -All domestic and general project waste produced daily should be contained until such that time it will be transported to designated waste sites in nearby town. -No waste may be buried or burned on site or anywhere else. -Sewage waste should be stored as per the available sewage system supplied on site and regularly disposed of at the nearest treatment facility. -Oil spills should be taken care of by removing and treating soils affected by the spill. -A penalty system for irresponsible disposal of waste on site and anywhere in the area should be implemented. -Careful storage and handling of hydrocarbons on site is essential, therefore should be enforced. -Potential contaminants such as hydrocarbons and wastewater should be contained on site and disposed of in accordance with	Provision of sufficient waste storage containers Waste management awareness		Waste disposal permits to municipalities Environmental, Health and Safety Statements and Policy	

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Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		municipal wastewater discharge standards so that they do not contaminate surrounding soils and eventually groundwater.				
	Wastewater generated by site workers living on-site.	-Provision of toilet facilities for workers (mobile/portable chemical toilet if possible). -Emptying of chemical toilets according to the manufacturer's specifications.	Adequate toilet and basic ablution facilities on site.	Proponent ECO	Chemical toilets Sewage removal operator waste treatment agents/chemicals	Throughout project phase
Air Quality	Dust generation	-Vehicles should not drive at a speed more than 40 km/h to avoid dust generation around the area. -Dust masks, eye protective glasses and other respiratory personal protective equipment (PPE) such as face masks should be provided to the workers on site, where they are exposed to dust. -Excavating equipment should be regularly maintained to ensure excavation efficiency and so to reduce dust generation and harmful gaseous emissions.	No complaints from the public about vehicle emissions and dust generation. Visible efforts to curb dust	ECO	Complaint's logbook Dust suppressant (Water)	Throughout project phase

Draft EMP

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
Noise	Nuisance	-Noise from project vehicles and equipment on the working sites should be at acceptable levels. -The construction times should be set such that, no such activities are carried out during the night or very early in the mornings (to be limited between 8am and 5pm on weekdays). -Construction hours should be restricted to between 08h00 and 17h00 to avoid noise and vibrations generated by equipment and the movement of vehicles before or after hours. -When operating machinery onsite, workers should be equipped with personal protective equipment (PPE) such as earplugs to reduce exposure to noise.	Complaints from neighbouring land users about excessive noise.	ECO	Complaint's logbook Noise protective equipment for workers	Throughout project phase
Social nuisance	Local properties disturbance and values	-Any workers or site employees that will be found guilty of intruding peoples 'privately owned properties should be called in for disciplinary hearing and/or dealt with as per their employer' (Proponent)'s code of employment conduct	No complaints from stakeholders about property theft, disturbance, or intrusion	ECO	Grievance logbook Land access agreement conditions	Throughout the project phase

Draft EMP

Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
		-The project workers should be advised to respect the community and local's private properties, values, and norms. -No worker should be allowed to wander in people's private yards or fences without permission. -Out-of-area workers that may be employed (due to their unique work skills) on site should be sensitized on the importance of respecting the local values and norms.				
CONSTRUCTION CLOSURE PHASE						
Construction closure phase	Disturbance and damaging of land	-All waste generated and stored on site during construction activities should be disposed of at the respective nearest solid waste management sites. -Any temporary setup on site should be dismantled as far as practicable. -Provision of both financial and technical resources for progressive construction closure.	No sign of waste or littering seen on site and around site areas. Carrying away of waste, and removal of vehicles and equipment from site Campsite dismantled and materials taken away from site.	Proponent	Excavators and other backfilling/demolishing machinery Record of boreholes drilled Waste containers on sites Records of finances set aside for project	Progressive construction done throughout the project phase.

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Aspect	Impact	Management and Mitigation Measure(s)	Key Performance Indicator (KPI)	Implementation Responsibility	Resources	Timeline
					construction closure activities	

1.2 Monitoring Action Plans (Monitoring Plan)

To support and ensure that the proposed mitigation measures are achieving the desired results, a monitoring plan must be implemented. The monitoring action plans recommended for planned construction works are presented in **Table 3** below.

Table 3: Management action plans for Monitoring

Environmental Feature	Impact	Monitoring Actions	Implementation responsibility	Frequent	Threshold	Action if threshold is exceeded
Archaeology and Heritage	Presence or unearthing of archaeological or cultural heritage resources	To prevent destruction of artefacts and sites. Preservation of all artefacts and sites that are discovered within the site boundary or around the project site area. Inspection of records of findings.	ECO Archaeologist	Daily	Unearthing of archaeological or cultural heritage resources	Cease all activities on site and wait for NHC to inspect site and give further instructions / actions
Soils	Loss of topsoil	All measures should be considered to present the loss of topsoil	ECO and site Manager	weekly	Proliferation of new vehicle tracks	Rehabilitation of affected areas

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Environmental Feature	Impact	Monitoring Actions	Implementation responsibility	Frequent	Threshold	Action if threshold is exceeded
Monitoring	EMP non-compliance	The ECO or the Proponent/Contractor should monitor the implementation of this EMP to ensure compliance. The ECO(s) should inspect the site throughout the construction period and after completion.	ECO	Daily	Increase in health, safety and environmental damage incidence	Daily safety talks, Remedy the consequences
Biodiversity	Loss of biodiversity	Comply with marked no-go areas and avoid areas sensitive to any type of disturbance. Clear only footprint areas to maintain as much of the remaining natural vegetation on site and to prevent loss of habitat (if so, advised by MEFT).	ECO Workers involved in this phase	Weekly	Vegetation clearance outside of marked areas.	Rehabilitation of affected areas to the satisfaction of the ECO
Health and Safety	Health and safety of the workers	-Workers should be trained on how to handle materials and equipment on site (if they do not already know how to) to avoid injuries. -Construction equipment and materials transported to site should be securely fastened to the vehicles (trucks and cars). This is to ensure that the materials and equipment do not fall off the vehicles and cause injuries to anyone while transporting them.	ECO Worker Involved in this phase	Daily/Weekly	Health and safety incident	Remedy the consequences

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Environmental Feature	Impact	Monitoring Actions	Implementation responsibility	Frequent	Threshold	Action if threshold is exceeded
		- All personnel should be provided with appropriate personal protective equipment (PPE), such as gloves, masks, safety boots, safety glasses and hard hats always during construction hours on site to prevent serious injuries or loss of life. -No employee should be allowed to drink alcohol prior to and during working hours as this may lead to mishandling of equipment which results into injuries and other health and safety risks.				
Neighbouring land users to the site	Disturbance	Construction works schedule should be limited to normal working hours, between 08h00 and 17h00. This is to ensure generated noise does not become nuisance to the neighbours.	ECO Site Manager	Weekly	A logged complaint about excessive noise	Revision of site activities
Waste	Environmental Pollution	-The site should be always kept tidy. All domestic and general construction waste produced daily should be cleaned and contained daily to prevent environmental pollution. -Separate waste containers (bins) for hazardous and domestic / general	ECO All workers involved in this phase.	Daily	Visible litter around project site A logged complaint	Clean-up of the affected areas and ensuring construction workers utilise waste containers provided.

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Environmental Feature	Impact	Monitoring Actions	Implementation responsibility	Frequent	Threshold	Action if threshold is exceeded
		waste must be provided on site to avoid mixing of waste.				
Transport	Transportation of workers to and from site	-Project workers will be transported, in an SUV, bus (or similar suitable passenger vehicle) to and from site to ensure workers safety. -No off-road driving	ECO	Daily	A logged complaint about bad form of transport affecting occupational safety and health of workers	
Vehicular traffic safety	Increase in local traffic flow.	-All drivers of the project vehicles should be in possession of valid and appropriate driving licenses to operate such vehicles. -Project vehicles should be in a road worthy condition and serviced regularly to avoid accidents because of mechanical faults of vehicles. -Vehicle drivers should not be allowed to operate vehicles while under the influence of alcohol. -No heavy trucks or project related vehicles should be parked on biologically sensitive areas.	ECO	Weekly	A logged complaint about traffic increase or damage to roads	Find alternative access roads for the team. Rehabilitation of affected roads

ENVIRONMENTAL MONITORING AND REPORTING

To minimize the "medium" and uphold "low" significance ratings of impacts identified and assessed in the EA report, monitoring reports are to be compiled and submitted to the DEAF for archiving on a bi-annual basis or as required by the Environmental Commissioner (as per the ECC conditions). This practice will make any considerations for ECC renewal easy as it nears expiration. Therefore, the Proponent should meritoriously monitor and submit the reports to the DEAF. The submission is not only done for record keeping purposes, but also in compliance with the environmental legislation.

CONCLUSIONS AND RECOMMENDATIONS

In the event that the Environmental Commissioner considers ECC issuance for the proposed development, it is recommended that an ECC for this project be granted, subject to the following recommendations:

- All mitigations provided in this Report and the management action plans in the EMP should be implemented and monitoring conducted as recommended.
- All the necessary environmental and social (occupational health and safety) precautions provided should be adhered to.
- The monitoring of the implementation of mitigation measures should be conducted, applicable impact's actions taken, reporting done and recorded as recommended in the Draft EMP.

The proposed construction and operational area for the proposed development has some sensitive environmental and social components that may be potentially affected, and therefore potential negative impacts stemming from these activities were acknowledged, assessed and mitigation measures made thereof. The mitigation measures indorsed in the EA report and management action plans provided in the draft Environmental Management Plan can be considered adequate to elude and/or reduce the risks to acceptable levels. Therefore, Excel Dynamic Solutions (Pty) Ltd assures that these measures are sufficient to enable environmentally sustainable and safe construction works on the site. Therefore, it is recommended that written approval for the ECC may be issued on the condition that the provided management measures and action plans are effectively implemented on site and monitored. Predominantly, monitoring of the environmental components described in the EA should be conducted by the Proponent and applicable Competent Authorities. This is to ensure that all potential impacts identified in this study and other impacts that might arise during proposed development are properly identified in time and addressed.

APPENDIX 1: CHANCE FINDS PROCEDURE (AFTER KINAHAN, 2020)

Areas of proposed development activity are subject to heritage survey and assessment at the planning stage. These surveys are based on surface indications alone, and it is therefore possible that sites or items of heritage significance will be found during development work. The procedure set out here covers the reporting and management of such finds.

Scope: The “*chance finds*” procedure covers the actions to be taken from the discovery of a heritage site or item to its investigation and assessment by a trained archaeologist or other appropriately qualified person.

Compliance: The “chance finds” procedure is intended to ensure compliance with relevant provisions of the National Heritage Act (27 of 2004), especially Section 55 (4): “*a person who discovers any archaeological objectmust as soon as practicable report the discovery to the Council*”. The procedure of reporting set out below must be observed so that heritage remains reported to the NHC are correctly identified in the field. The Manager/Supervisor must report the finding to the following competent authorities:

- National Heritage Council of Namibia (061 244 375)
- National Museum (061 276800),
- National Forensic Laboratory (061 240461).

Archaeological material must NOT be touched. Tempering with the materials is an offence under the heritage act and punishable upon conviction by the law.

Responsibility:

Operator:	To exercise due caution if archaeological remains are found
Foreman:	To secure site and advise management timeously
Superintendent:	To determine safe working boundary and request inspection
Archaeologist:	To inspect, identify, advice management, and recover remains

Procedure:

Action by person identifying archaeological or heritage material:

- a) If operating machinery or equipment stop work
- b) Identify the site with flag tape
- c) Determine GPS position if possible
- d) Report findings to foreman

Action by foreman

- a) Report findings, site location and actions taken to superintendent
- b) Cease any works in immediate vicinity

Action by superintendent

- a) Visit site and determine whether work can proceed without damage to findings
- b) Determine and mark exclusion boundary
- c) Site location and details to be added to project GIS for field confirmation by archaeologist

Action by Archaeologist

- a) Inspect site and confirm addition to project GIS
- b) Advise NHC and request written permission to remove findings from work area
- c) Recovery, packaging and labelling of findings for transfer to National Museum

In the event of discovering human remains

- a) Actions as above
- b) Field inspection by archaeologist to confirm that remains are human
- c) Advise and liaise with NHC and Police
- d) Recovery of remains and removal to National Museum or National Forensic Laboratory, as directed.