

Environmental and Social Management Plan (ESMP) for the Proposed Infrastructure Development for the Wildlife Protection Services, Ministry of Environment Forestry and Tourism

Project: The Integrated Wildlife Protection Management I&II
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Bwabwata National Park (Buffalo and Susuwe West)

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PROPONENT

**The Integrated Wildlife Protection Management I&II
Ministry of Environment Forestry and Tourism**

PROJECT

**Environmental and
Social Management Plan (ESMP) for the Proposed Infrastructure
Development for the Wildlife Protection Services, Ministry of
Environment, Forestry and Tourism (MEFT)**

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**Bwabwata National Park
Kavango East and Zambezi Region**

**PROJECT COMPETENT AUTHORITY: MINISTRY OF ENVIRONMENT
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EXECUTIVE SUMMARY

The Integrated Wildlife Protection Project (IWPP) is a Government of the Republic of Namibia development project executed by its Ministry of Environment, Forestry, and Tourism (MEFT). The Federal Republic of Germany co-finances the project through the German Ministry for Economic Cooperation and Development (BMZ) via the KfW Development Bank. The project supports the MEFT in developing and establishing Namibia's integrated Wildlife Protection Services (WPS). Furthermore, the Project supports the MEFT for infrastructure investments, in particular base camps, for procuring equipment for patrol staff, operation rooms, and general wildlife protection activities of the WPS. The project contributes to ecosystem conservation, restoration, sustainable use, and preserving biodiversity in the focal areas. The Project's expected Result 1 includes that "*Key infrastructure for the MEFT Wildlife Protection Service (base camps, fly camps, and control rooms) is operational in the project's priority intervention areas (Sesfontein settlement, North West; Etosha National Park and Bwabwata National Park)*" is the primary basis for this consultancy. The strategic approach calls for establishing the necessary infrastructure to ensure that sites have the organizational capacity to provide enabling conditions to plan, execute, and supervise the effective deployments of field operations for wildlife protection.

The Ministry of Environment, Forestry, and Tourism (MEFT) field staff (wardens, rangers, etc.) play a crucial role in monitoring wildlife and curbing poaching. Still, they endure extreme conditions whilst fulfilling their roles. Their accommodation could be more extensive mainly, with very few comforts. Therefore, one of the objectives of the IWPP is to provide affordable yet comfortable accommodation for these field staff. The provisions to be developed in Bwabwata National Park include houses for wardens/rangers (ranger duets), administration buildings, common buildings, service blocks, and storage and kennel facilities for the MEFT Canine Reaction Unit to be housed at Bwabwata West. This infrastructure development aims to develop safe and comfortable accommodation and necessary office space for MEFT WPS field staff working on anti-poaching and wildlife protection.

The proposed infrastructure development activities in Bwabwata National Park are listed in the Environmental Management Act, 2007 (Act No. 7 of 2007). In fulfilment of the environmental requirements, the Proponent (IWPP-MEFT) has appointed CNM Investments as the Environmental Consultant and led Samson Mulonga as the Environmental Assessment Practitioner (EAP) to prepare this Environmental and Social Impact Assessment (ESIA) and Environmental and Social Management Plan (ESMP) Report to support the application for the Environmental Clearance Certificate. The scope of work also includes the development of the Grievance Redress Mechanism.

Ministry of Environment Forestry and Tourism (MEFT) field staff (wardens, rangers, etc.) play a crucial role in monitoring wildlife and curbing poaching. Still, they endure extreme conditions whilst fulfilling their roles. Their accommodation could be more extensive, with very few comforts, and therefore, one of the objectives of the IWPP is to provide affordable yet comfortable accommodation for these field staff. The provisions to be developed in Bwabwata National Park include houses for wardens/rangers (ranger duets), administration buildings, common buildings, service blocks, and storage and kennel facilities for the MEFT Canine Reaction Unit to be housed at Bwabwata West. This infrastructure development aims to develop safe and comfortable accommodation and necessary office space for MEFT WPS field staff working on anti-poaching and wildlife protection. Overall, the infrastructure development will significantly support the much-needed infrastructural needs of WPS. The following is the summary of the implementation stages for each phase:

- ❖ Preconstruction,
- ❖ Construction, and;
- ❖ Operational.

The following is the summary of the critical components of the receiving environment that have been considered in this report concerning the preconstruction, construction and operational stages of each of the proposed developmental phases for the upgrading of the construction of infrastructure:

- ❖ **Physical environment** (Water quality, physical infrastructure and resources, air quality, noise and dust, landscape and topography, soil quality, and Climate change influences);
- ❖ **Biological environment** (Habitat, protected areas and resources, flora, fauna and ecosystem functions, services, use values and non-use or passive use), and;
- ❖ **Socioeconomic, cultural and archaeological environment** (Local, regional and national socioeconomic settings, subsistence agriculture, community forestry, tourism and recreation and cultural, biological and archaeological resources).

The impact assessment has been standardized to include set definitions with the allocation of the evaluation ranking categories based on quantifiable criteria which can be measured. The allocated ranks refer to the resultant impact (e.g. habitat area affected or time that the result of the effects will last) and not to the cause thereof (e.g. Sites where construction will take place or time of active implications). Detailed assessment tables with management intervention measures are provided in this report. Each activity has been assessed concerning the effect that the aspect will have on the relevant component of the environment and includes “what will be affected and how?” The faunal and flora loss / disturbances are closely linked to habitat loss and are directly related to the proposed project activities. They are the key negative impacts assessed to have high to medium localized impacts without mitigation and medium to low negative impacts with mitigations. On the results of the impact and risk assessment for the proposed infrastructure development for WPS in Bwabwata National Park, a detailed Environmental Social Management Plan (ESMP) has been prepared covering the following components:

- ❖ Environmental and safety management systems;
- ❖ Protection of the biological diversity covering flora, fauna, habitat and rehabilitation of all disturbed areas within the Oranjemund Logistic Aviation Base (Oranjemund Airport Area) developmental and surrounding areas;
- ❖ Disturbance of fauna, including estuarine birds in the Kwando and Okavango Rivers, by noise caused by the increased use of vehicles and boats by WPS;
- ❖ Socioeconomic issues

Environmental performance monitoring activities shall be undertaken during the proposed infrastructure development's preconstruction, construction, and operational stages. The monitoring activities shall be conducted by the provisions of the Environmental Clearance Certificate (ECC) to be issued by the Environmental Commissioner in the MEFT, the Environmental and Social Management Plan (ESMP) and the International Organization for Standardization (ISO) 14001 Environmental Management System (EMS) standard. The following is a summary of the environmental performance monitoring to be implemented for the infrastructure development at Buffalo and Susuwe West in the Bwabwata National Park during the preconstruction, construction and operational stages:

- ❖ **Implementation of the ESMP:** The implementation of the ESMP monitoring plan by MEFT focuses on collecting and analyzing the required datasets and proposing recommendations on what needs to be done for both the long-term and short (day-to-day) monitoring operations. The ESMP implementation will be undertaken as an in-house activity;
- ❖ **Monitoring Plan:** Environmental monitoring is partly in-house and outsourced (employ a consultant) to undertake the assessment and recommend measures to be implemented. Key aspects that shall be monitored are centered on health, Safety and Environment (HSE);
- ❖ **ESMP Auditing:** Compliance auditing of the ESMP implementation and monitoring thereof is a critical component of environmental performance monitoring. The ESMP auditing is an internal activity that is often supported by external consultants and linked to the EMS monitoring and auditing requirements, and;

- ❖ **EMS Auditing:** Personnel within WPS are responsible for managing these impacts through regular environmental audits to evaluate the compliance and effectiveness of the company's EMS with the ISO 14001 standard and statutory requirements. This includes both internal audits and external surveillance audits.

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ACRONYMS AND ABBREVIATIONS

| | |
|-----------|--|
| BNP | Bwabwata National Park |
| CBNRM | Community Based Natural Resource Management |
| CBO | Community-Based Organization |
| DWNP | Directorate of Wildlife and National Parks |
| ESIA | Environmental and Social Impact Assessment |
| ESMP | Environmental and Social Management Plan |
| GRM | Grievance Redress Mechanism |
| IWPP | Integrated Wildlife Protection Project |
| KAZA TFCA | Kavango-Zambezi Trans-frontier Conservation Area |
| KfW | KfW Entwicklungsbank (KfW Development Bank) |
| MEFT | Ministry of Environment, Forestry and Tourism |
| NGO | Non-Government Organization |
| PSC | Project Steering Committee |
| PIR | Project Implementation Review |
| PM | Project Manager |
| PMU | Project Management Unit |
| TA | Traditional Authority |
| TE | (Project) Terminal Evaluation |
| USAID | United States Agency for International Development |
| WC | Wildlife Crime |

DEFINITIONS

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| Alternatives: | A possible course of action in place of another that would meet the same purpose and need. An alternative can include other locations/sites, routes, layouts, processes, designs, schedules and/or inputs. The 'without project' (or no-go) alternative provides a benchmark against which to evaluate changes; development should result in net benefit to society and should avoid negative impacts. |
| Baseline data: | Data that describes issues and conditions at the inception of the SEA. Serves as the starting point for measuring impacts, performance, etc., and is an important reference for evaluation. |
| Cumulative effects/impacts: | Are combined or additive effects on the environment over time or space when added to other past, present or reasonably foreseeable actions. They may seem to be insignificant when seen in isolation, but collectively they have a significant effect. |
| Ecosystem approach: | As advocated by the Convention on Biological Diversity (CBD), the ecosystem approach recognises that people and their environment are part of the broader ecosystems on which they depend. Environmental management should therefore be implemented in an integrated way. |
| Environment: | The physical factors of the surroundings of the human being including land, water, atmosphere, climate, and the biological factors of fauna and flora as well as the cultural, social, and economic aspects of human activity. |
| Environmental Assessment: | Generically, a method or procedure for predicting the effects on the environment of a proposal, either for an individual project or a higher-level "strategy" (a policy, plan or programme), with the aim of taking account of these effects in decision making. |
| Environmental impact: | <ul style="list-style-type: none">❖ Effects on the environment and natural resources that may be positive and/or negative and produce benefits and/or costs.❖ <i>Direct impacts</i> are those that take place at the same time and in the same space as the activity.❖ <i>Indirect impacts</i> occur later in time or at a different place from the activity.❖ <i>Cumulative impacts</i> are the combined or additive effects on the environment of individual projects over time or of several projects in one geographical area. They may seem to be insignificant when seen in isolation, but collectively they may have a significant effect.❖ <i>Irreversible impact</i> are impacts that cannot be reversed in time, it results in the irreplaceable loss of a resource. |
| Environmental Impact Assessment (EIA): | The application of impact assessment to a specific project. Typically, an EIA is carried out on a project that is already defined (i.e. in feasibility stage) and seldom considers landscape scale or cumulative impacts. An EIA may consider cumulative impacts, e.g. in respect of similar existing or planned projects, especially in the absence of a strategic framework for development (or a SEA). An EIA is the systematic evaluation of a project to determine its impact on the environment and natural resources. |
| Environmental Quality Objective: | An EQO specifies a target for environmental quality. If EQOs are set by enforceable regulations, they are usually referred to as Environmental Quality Standards. |
| Environmental Report: | The report required as part of an environmental assessment, which identifies, describes and evaluates the likely significant effects on the environment of implementing a PPP. |
| Environmental sustainability: | Management of natural resources and the environment that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. |

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| Indicator: | A measure of variables over time, that reveals progress (or lack thereof) towards objectives, and provides a means of measuring what actually happens against what has been planned in terms of quantity, quality and timeliness. |
| Inter-generational equity: | Inter-generational equity implies that the current generation chooses a development path that does not jeopardize the ability of future generations to achieve similar or better development options. |
| Issue: | A context-specific question that asks 'what, or how severe, will the impact of some activity/ aspect of the development be on some element of the environment?' |
| Limits of Acceptable Change: | Extremes of environmental quality beyond which society would find further change unacceptable. The LAC thus relate to levels of environmental quality (biophysical) that are either desired by or would be tolerable to society (largely qualitative values). |
| Mitigation: | Means actions to avoid, reduce, control or offset the potential adverse environmental and socio-economic consequences of a PPP, and include engineering works, technological improvements, management measures and restitution through replacement, restoration, compensation or any other means, to minimise harm to human health or the environment. |
| Monitoring: | Actions taken to observe, take samples or measure specific variables in order to track changes, measure performance of compliance, and/or detect problems. The objective of monitoring should always be to improve management. |
| Objective: | A statement of what is intended, specifying the desired direction of change in trends. |
| Offset: | An offset replaces or provides 'like for like or better' substitutes for residual negative impacts on the environment. Such offsets could include formal commitment to managing substitute areas of comparable or greater value for conservation, entering into a secure and permanent conservation agreement with the conservation authority, setting aside protected natural areas, establishing a trust fund for conservation, thereby enabling land acquisition and/or management, etc. Offsets focus on areas of recognised value to conservation and on ensuring the persistence of landscape-scale processes. |
| Opportunity cost: | The lost opportunities that might result from the implementation of a certain alternative. For example, a mine in a national park will likely reduce the tourism potential of the area. Therefore, there are opportunity costs to the building of the mine, namely the reduction of actual and potential touristic activity. |
| Policy: | A broad statement of intent that reflects and focus the political agenda of government and initiate a decision cycle; a general course of action or proposed overall direction that a government is or will be pursuing that guides ongoing decision making. |
| Plan: | A purposeful forward-looking strategy or design, often with co-ordinated priorities, options and measures that elaborate and implement policy. |
| Precautionary principle: | Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation. |
| Project: | Means the execution of construction or renovation work or other developments, installations, schemes, activities or other interventions linked to a specific development that can be "ring-fenced". |
| Programme: | A coherent, organized agenda or schedule of commitments, proposals, instruments and/or activities that elaborate and implement policy. A programme usually has a number of projects that cascade below it. |
| Responsible Authority: | The organisation which prepares and/or adopts a plan or programme subject to SEA. |
| Risk: | Likelihood of occurrence of an event and estimated magnitude/severity of its impact on the environment. |

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| Scoping: | The process of deciding the scope and level of detail of an SEA, including the environmental effects and alternatives which need to be considered, the assessment methods to be used, and the structure and contents of the Environmental Report. |
| Screening: | The process of deciding whether a plan or programme requires SEA |
| Significance: | Determination of severity of an impact taking into account objective or scientific data as well as societal values. Any exercise in judging the significance of an impact should thoroughly consider (a) the importance of the environmental or social attribute in question to project decision makers, (2) the distribution of change in time and space, (c) the magnitude of change, and (d) the reliability with which change has been predicted or measured. |
| Stakeholder: | Individuals or organisations who may be interested in, potentially affected by, or influence the implementation of a PPP. In the context of an SEA applied to development co-operation, stakeholders may include the government, donor agencies, local community, NGOs and civil society |
| Strategic Environmental Assessment (SEA): | Generic term used to describe environmental assessment as applied to policies, plans and programmes (PPPs). Refers to a range of analytical and participatory approaches that aims to integrate environmental consideration into PPPs and evaluate the interlinkages with economic and social considerations. Impact assessments at strategic level encourage an 'opportunities and constraints' type approach to development, where such things as natural resources and ecosystem services at landscape scale define the 'framework' within which development can take place and the types of development that could be sustained. |
| Significant environmental effects: | Effects on the environment which are sufficiently great or important to be worthy of attention. |
| Transboundary impacts: | Means an environment, health or social impact on another state. |
| Trigger: | A particular characteristic of either the receiving environment or the proposed project which indicates that there is likely to be an issue and/or potentially significant impact associated with that proposed development that may require specialist input. |
| Threshold: | Levels that should not be exceeded; points at which irreversible or serious damage could occur, either to ecosystems and/or to social systems (health, safety or wellbeing). Could also be described as a tipping point. |
| Trade-offs: | Refers to losing one quality or aspect of something in return for getting another quality or aspect. It implies a decision made with the full comprehension of both the upside and down side of a particular choice. |
| Uncertainty: | The inherent unpredictability of response of the environment to an impact, the lack of knowledge and/or understanding of cause-effect-impact relationships between the development activity and the environment, and/or gaps in information that do not allow confidence in predictions of impacts. |
| Vulnerable communities: | Those communities who rely heavily on those ecosystem goods and/or services likely to be affected or who live in dynamic, sensitive or harsh ecosystems, where extreme conditions make them particularly vulnerable to additional negative impacts. |

1. INTRODUCTION

This ESMP Report provides a detailed plan of action required in the implementation of the mitigation measures for minimizing and maximizing the identified negative and positive impacts respectively. The ESMP gives commitments including financial and human resources provisions for effective management of the likely environmental liabilities during and after the construction of the infrastructure. Regular assessments and evaluation of the environmental liabilities during the construction will need to be undertaken and will ensure adequate provision of the necessary resources towards good environmental management at various stages of the infrastructure development at Buffalo and Susuwe West in the Bwabwata National Park (BNP). The interventions are required to minimize or avoid negative impacts associated with the proposed infrastructure development activities.

This ESMP should be read in conjunction with park management measures including the Park Management Plan which are already established for the BNP. This ESMP does not supersede any park rules or approved and implemented environmental management plans but provides additional management and mitigation measures specific to the proposed infrastructure development at Buffalo and Susuwe West in the BNP. The ESMP is not applicable to activities falling outside of the scope of the ESIA-Scoping Report for the infrastructure development at Buffalo and Susuwe West in the BNP.

2. SOCIAL AND ENVIRONMENTAL OBJECTIVES

2.1 Overview

The following overall environmental and social objectives have been set for the activities associated with the infrastructure development at Buffalo and Susuwe in the BNP:

- ❖ Comply with national legislation and standards for the protection of the environment;
- ❖ Comply with National Park rules;
- ❖ Limit potential impacts on biodiversity;
- ❖ To protect soils and water resources;
- ❖ Prevent soil erosion;
- ❖ Protect cultural heritage;
- ❖ Prevent pollution and clean up if incidents occur;
- ❖ Ensure the legal and appropriate management and disposal of general and hazardous wastes;
- ❖ Minimize the potential for dust emissions;
- ❖ Minimize the potential for noise and light disturbance;
- ❖ Avoid potential impacts on the safety of third parties;
- ❖ Support and encourage environmental awareness and responsibility amongst all employees and service providers;
- ❖ Promote and provide appropriate environmental training for all employees and service providers;
- ❖ Keep relevant stakeholders informed of activities through appropriate, constructive communication;
- ❖ Promote efficient use of MEFT: Directorate of Wildlife and National Parks' resources;
- ❖ Support the localization of economic benefits, where practical; and
- ❖ Consider and protect Human Rights of relevant local communities and other stakeholders.

2.2 Scope

The ESMP has been developed for the infrastructure development at Buffalo and Susuwe West in the BNP scope of work as described in the ESIA Scoping Report. The management measures are relevant to all park related infrastructure development undertaken by KfW in Namibia.

3. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

The main aim of this Environmental and Social Management Plan (ESMP) is to ensure that the project complies with the goals of the Namibian Environmental Management Act (No. 7 of 2007); and, KfW

Social and Environmental Guidelines more specifically, to provide a framework for implementing management actions. There are some environmental impacts that cannot be avoided. These environmental impacts require mitigation, and in order to mitigate against these impacts an ESMP is required. The ESMP aims to ensure environmental protection, meet legal requirements, and maintain good community relations.

For each of the potential impacts identified, a management plan to avoid, mitigate or manage the impact has been made. The project activities are grouped according to the different processes and stages. Essentially, many of the potential impacts can be avoided through good housekeeping. This ESMP provides a number of objectives and targets, which the contractors need to take into account when they tender to construct the infrastructure. It is expected that the main contractor will convey the applicable contents of this ESMP to its employees and potential sub-contractors. In some cases, the ESMP is very specific about what is expected, but in other cases the contractor is expected to develop strategies to ensure that targets are met. Bottom line is that the main contractor will be held responsible for the ESMP being implemented.

3.1 Employment

The construction of the development will take place over 15 months and will employ about up to a hundred (100) workers. At this stage, it is unclear which skill sets would be required or how much employment opportunities could be created in the project area. The benefits to the local community from jobs could be dependent on the extent of local recruitment and the measures put in place to ensure preferential local gender-based recruitment where possible. The formal recruitment process should be compiled and shall include the following minimum provisions:

- ❖ The ER and the contractor shall design a recruitment process whereby local residents shall be given preference,
- ❖ Ensure that all sub-contractors are aware of recommended recruitment procedures and discourage any recruitment of labour outside the agreed-upon process,
- ❖ Contractors should give preference in terms of recruitment of sub-contractors and individual labourers to those from the project area and only then look to surrounding towns, and
- ❖ Clearly explain to all job-seekers the terms and conditions of their respective employment contract (e.g. period of employment, etc.) – make use of interpreters when required.
- ❖ The contractor needs to adhere to the legal provisions in the Labour Act (Labour Act. 11 of 2007) for the recruitment of labour (target percentages for gender balance, optimal use of local labour and SME's, etc.) in the contract.

Potential Environmental and Social Impacts and Environmental and Social Management Plan

Project Initiation and Recruitment of Labour

| Objectives | Risk Sources | Management action | Implementation | Monitoring |
|---|--|--|--|---|
| 1. Ensure that employees adhere to the specifications of the ESMP. | Employers and contractors do not adhere to the specifications of the ESMP. | <ul style="list-style-type: none"> ❖ The ESMP should be made available to all staff involved with the project, as well as to all interested parties. Ensure that it is explained in the local language and understood by all. ❖ The ESMP should be included in the contract so that tenderers can make provision for implementation of the ESMP. ❖ Tender documents should reflect an awareness and willingness to meet the environmental standards set out in the ESMP. ❖ The ESMP must be available at all site offices. | Contractor must inform all employees and contractors from outset (verbally and in writing). Contractor to display ESMP in offices Contractor must reinforce compliance message monthly | Field visits to undertake compliance monitoring will be done <u>Frequency:</u> At least on a monthly basis and more often if there is evidence of poor compliance |
| 2. Ensure that contractors make provision for the implementation of the ESMP. | Contractors do not make provision for the implementation of the ESMP. | <ul style="list-style-type: none"> ❖ A meeting with MEFT will be scheduled to discuss issues of concern. MEFT officials will also be invited to attend site meetings. ❖ Management and supervisors must lead by example. ❖ Make sure that all sub-contractors receive a copy of the ESMP. | Contractor | Report produced on ESMP implementation <u>Frequency:</u> Weekly |
| 3. Prevent unorganised recruitment of labour. | Unorganised recruitment of labour. | <p>The Contractor shall make use of labour-based construction methods involving the locally available workforce wherever possible. In particular, labour intensive methods should be used to carry out the following:</p> <ol style="list-style-type: none"> 1) Bush clearing; 2) Clearing of access roads; 3) creating new road for machinery mobilization 4) Excavations (trench for laying water & sewer lines) 5) Backfilling; 6) Cleaning and finishing of site. <p>The use of mechanical plant shall be minimised except where it is necessary to achieve the required quality. Additionally:</p> <ul style="list-style-type: none"> ❖ Keep to provisions in the Labour Act. ❖ Repatriate employees to the town from where they were hired after completion of the contract. ❖ Inform job seekers that they are hired for a contract period only. | Contractor | Checks to ensure that recruitment of labour are formal and organised and that there is no recruitment at construction sites. MEFT Chief Warden to ensure that management action are adhered to. <u>Frequency:</u> Monthly |

Construction, Accommodation and Waste Management

| Objectives | Risk Sources | Management Action | Implementation | Monitoring |
|---|---|--|----------------|---|
| 1. Minimize the disturbance of vegetation and faunal communities and their habitats during construction | Disturbance of vegetation and faunal communities and their habitats. | <ul style="list-style-type: none"> ❖ Keep disturbance of vegetation to within 15 metres either side of the construction site. | Contractor | Visual inspection to ensure that construction activities are done within the specified area. <u>Frequency:</u> Daily, especially during the first phase of construction, as this is the time when most disturbances to the vegetation and fauna and their habitats is most likely occur. |
| 2. Prevent introduction and/or spread of alien invasive species | Alien species introduced – most commonly as seeds or as plant parts, on machinery | <ul style="list-style-type: none"> ❖ All equipment or vehicles must be thoroughly cleaned before it leaves <u>that area</u>. ❖ No plants or animals such feral cats and dogs should be brought in the park | Contractor | Visual inspection <u>Frequency:</u> Start-up |
| 3. Prevent removal of trees. | Unnecessary removal of trees. | <ul style="list-style-type: none"> ❖ Do not remove any trees. Make sure that equipment/plant operators are informed. If necessary to remove a tree, this must be done only after consultation with MEFT officials (Warden / Chief Warden) ❖ Penalty of N\$5,000 to be imposed per small tree removed (1.5-2 meters tall), N\$ 10,000 for a tree between 2-3 meters tall and N\$ 50,000 for a tree taller than 3 meters. ❖ If the tree that was removed is a protected species, the person who removed it shall be handed over to the authorities for prosecution. | Contractor | Visual inspection/checks to prevent, as well as to ensure no removal of trees. <u>Frequency:</u> Daily |
| 4. Minimize the loss of rare/endangered fauna and flora species. | Loss of rare / endangered fauna or flora species. | <ul style="list-style-type: none"> ❖ Avoid small mammal / reptile and bird nesting where possible. Do not hurt, kill or unnecessarily disturb birds or animals. ❖ See section on driving for further advice, since road kills would be a source of impacts on fauna ❖ Maintain 40km/hour speed limit and no night driving. | Contractor | Checks to ensure that construction is limited to demarcated area Visual checks to ensure that no unnecessary movement occur in breeding and habitats of these species. <u>Frequency:</u> Daily |
| 5. Prevent the poaching of flora and fauna. | Poaching of fauna and flora. | <ul style="list-style-type: none"> ❖ Employees are to remain within camp after working hours ❖ Employees who poached fauna and/or flora will be handed to the authorities for prosecution. ❖ Employees who set traps will be handed to the authorities for prosecution. ❖ Employees found guilty or even suspected to be guilty of poaching or setting traps should not be allowed to | Contractor | Visual inspection. MEFT: induct contractor and employees on poaching prevention <u>Frequency:</u> visual checks. |

| Objectives | Risk Sources | Management Action | Implementation | Monitoring |
|--|---|--|----------------|--|
| | | continue with work on this project. They should immediately be removed from the park. | | |
| 6. Limit the amount of litter produced during construction | Littering (Litter such as paper, plastic etc can be blown into the environment) | <ul style="list-style-type: none"> ❖ No littering on site is allowed. All construction sites will be cleaned on a daily basis before leaving the construction site. ❖ Make anti-littering a component of the employment contract for all employees and sub-contractors ❖ Provide sufficient waste bins at work and campsites. ❖ Refuse bins must be stable, i.e. cannot be tipped by animals, and have scavenger and baboon and honey-badger proof lids. ❖ Make sure that the bins are covered so that plastic bags, paper etc are not blown away. ❖ Make sure that the bins are emptied at least twice a week and the waste taken to an appropriate waste dumpsite. | Contractor | Checks to ensure that litter is disposed of correctly in bins provided. <u>Frequency:</u> Daily, at the end of the work day. |
| 7. Minimise the creation and use of tracks outside existing roads. | Creation of tracks outside existing roads. | <ul style="list-style-type: none"> ❖ Use existing roads or tracks. Do not drive outside existing roads or tracks. ❖ Do not construct new roads when the quality of existing roads deteriorates. Where possible, repair or upgrade existing roads. | Contractor | Visual checks to ensure that no off-road driving exists. <u>Frequency:</u> daily |
| 8. Prevent concrete, diesel and oil spills during construction / construction and ensure clean up. | Concrete, diesel and oil spills and inadequate clean up. | <ul style="list-style-type: none"> ❖ Clean up concrete, fuel and oil spills immediately. ❖ Do not bury it. ❖ It should be removed to an appropriate dump site. ❖ Provide bunding at fuel storage and transfer sites. The bunding should be big enough to contain 110% of the volume of the tank. Where a bund wall encloses a group of tanks, the bund wall must be able to contain 110% of the volume of the largest tank in the group. Tanks must stand on a concrete slab, or otherwise have a sealed, base in order to prevent the leakage of contaminants into the soil. | Contractor | Checks to prevent and minimise oil and diesel spills and to ensure adequate clean up should spills occur. <u>Frequency:</u> Daily throughout the construction period. |
| 9. Minimize the leakage of fuels and lubricants from vehicles and equipment | The use of vehicles and equipment that may leak fuel and lubricants | <ul style="list-style-type: none"> ❖ Maintain vehicles and equipment in good condition through regular and thorough servicing | Contractor | Visual inspection to ensure that vehicles and equipment are in good condition and also to ensure that there is no leakage of fuels and lubricants. <u>Frequency:</u> Daily, at the beginning as well as at the end of the work day for the duration of the construction period. |

| Objectives | Risk Sources | Management Action | Implementation | Monitoring |
|--|--|--|----------------|--|
| 10. Minimise the damage and destruction of important paleontological and archaeological sites during construction. | Disturbance to sites of paleontological and archaeological importance. | ❖ Remain within the footprint of the demarcated site. | | Visual inspection to ensure that construction activities are done within the specified area <u>Frequency:</u> Monthly |
| 11. Limit the establishment of borrow pits. | Unnecessary borrow pits. | ❖ Wherever possible, existing borrow pits must be used. New borrow pits may only be established after approval by the Engineer. | Contractor | Check to ensure that no unnecessary borrow pits are established. <u>Frequency:</u> Monthly |
| 12. Minimise the number of heavy vehicles on the road. | Increased number of heavy vehicles on the road. | ❖ The number of heavy vehicles on the road should be limited – only use those really necessary. ❖ Plan transport system carefully to maximize efficiency. | Contractor | Check to ensure that there is maximum transport efficiency <u>Frequency:</u> Monthly |
| 13. Minimise and if possible prevent the activities that accelerate erosion during construction. | Erosion | ❖ Runoff on steep inclines should be diverted to prevent the formation of erosion gullies. ❖ Vegetative cover is the most efficient and economical means of controlling soil erosion. ❖ Berms should be constructed at selected intervals on long sloping areas to prevent erosion. Diversion berms should be reshaped as necessary to divert runoff. ❖ When equipment crossings are necessary, diversions may be wider with flatter side slopes to minimise erosion. ❖ Runoff should be guided to a point where it will not cause damage. Scour by the discharge of runoff should be prevented. | Contractor | Visual inspection to ensure that activities that accelerate soil erosion are minimised and if possible prevented. <u>Frequency:</u> Daily |
| 14. Ensure proper planning and layout of campsites. | Improper planning and layout of campsites. | ❖ Do not operate noisy equipment outside normal working hours where noise could be a nuisance to the people and game. . ❖ Water must be used sparingly and no wastage should be allowed. ❖ Structures, like pump houses, should blend with the surrounding landscape. ❖ All construction rubble should be removed (see 1.2 q). | Contractor | Check to ensure that campsites are properly planned and laid out. <u>Frequency:</u> Daily at the beginning of construction. |

| Objectives | Risk Sources | Management Action | Implementation | Monitoring |
|--|---|---|----------------|---|
| 15. Prevent the collection and removal of firewood. | Collection of firewood. | <ul style="list-style-type: none"> ❖ The collection and removal of firewood is not allowed. Firewood will be supplied to employees. ❖ MEFT will guide the location to collect firewood ❖ Provide gas or fuel efficient stoves to limit the use of firewood. ❖ Fires should not be left unattended. Make sure that all grass and bushes are removed around fireplaces. ❖ Fire extinguishers should be readily available in the camp. ❖ No fires will be allowed along the pipeline route. | Contractor | Check to ensure that there's no removal and collection of firewood by the employees. <u>Frequency:</u> Daily |
| 16. Prevent theft of stock and equipment and other MEFT properties | Incidences of stock and equipment theft. | <ul style="list-style-type: none"> ❖ Security should be arranged to guard the accommodation and the construction camp. ❖ It is important that the necessary precautions be taken to protect property against theft. ❖ It is preferable to establish the construction site camp next to the accommodation camp. ❖ The accommodation and construction campsite should be fenced. ❖ Equipment should remain at the construction site during night time to minimise the number of trips required. | Contractor | Visual checks and inspection to ensure that no stock and equipment are stolen. <u>Frequency:</u> Daily |
| 17. To prevent the disposal of waste in areas not designated for disposal. | No nearby official waste disposal sites exists. | <ul style="list-style-type: none"> ❖ Provide adequate temporary ablution facilities at campsites. ❖ Construct a septic tank and fresh drain, which should be big enough to contain all sewerage. Position these away from any river or stream, dam or borehole. ❖ Hazardous Substances: Sewerage, fuels, lubrication oils, hydraulic and brake fluid, solvents, paints, anti-corrosives, insecticides and pesticides, chemicals, acids etc. ❖ Chemical toilets should be available at the construction site. The effluent should be removed to an appropriate dumpsite and not be dumped in any other place. Make sure that the toilets are in a good working order and a hygienic condition. ❖ Contaminated soil should be stored in drums and taken to the nearest appropriate waste dumpsite. ❖ Do not change oil on uncovered ground. Drip trays will be used to catch oil when vehicles are repaired in the field. | Contractor | Visual check to ensure wastes are managed according to the waste management plan <u>Frequency:</u> Daily |

| Objectives | Risk Sources | Management Action | Implementation | Monitoring |
|------------|--------------|--|----------------|------------|
| | | <ul style="list-style-type: none"> ❖ Used oil and hydraulic fluids will not be discarded on the soil or buried. It will be removed from site and taken back to an appropriate dump. ❖ In the event of a hazardous spill: ❖ Immediately implement actions to stop or reduce the spill. ❖ Contain the spill. ❖ Arrange implementation of the necessary clean-up procedures. ❖ Collect contaminated soil, water and other materials and dispose it at an appropriate waste dumpsite. ❖ Hazardous substances should be stored in a well ventilated area and behind lock and key. ❖ Used solvents and grease should be stored in drums or other suitable containers. It should be sealed and recycled or disposed at an appropriate disposal site. ❖ Hazardous waste should not be burnt. ❖ Bunding, concrete slabs and/or other protective measures should be installed where hazardous materials are handled. ❖ Ensure that the staff is informed and have information pertaining to the management of spills or ingestion. ❖ General Waste: General Waste includes waste paper, plastic, cardboard, harmless organic (e.g. vegetables) and domestic waste. ❖ Enforce a waste management plan. ❖ All waste will be removed to an appropriate waste dump. ❖ No waste should be buried. ❖ Remove all temporary buildings, concrete slabs, pipes etc. when construction is completed. ❖ Construction camps must be kept neat and tidy. No littering in the park must be allowed. Make sure that refuse bins are used. | | |

Access Roads and Driving

| Objectives | Risk sources | Management Action | Implementation | Monitoring |
|----------------------------|---------------------------------------|---|----------------|--|
| 1. No new roads or tracks. | Increased number of roads and tracks. | <ul style="list-style-type: none"> ❖ No new roads should be established. Vehicles should stay on existing roads. (new road may required), leading to the construction site) ❖ Do not construct new roads when the quality of existing roads deteriorates. Where possible, repair or upgrade existing roads. ❖ Prevent the cutting of corners. ❖ Enter and exit roadways and construction areas at demarcated entrances. ❖ Use 3-point turns and not U-turns. Confine turning to the road. ❖ Prevent shortcuts between roads. ❖ No off-road driving is allowed. ❖ No operator will operate any equipment when he is under the influence of alcohol. ❖ Drivers must keep their headlights on when driving on gravel roads. ❖ Keep to the speed limits. ❖ Make sure all drivers have licences for the vehicles they are driving. ❖ Maintain speed limit in the park- 40km/h ❖ No overtaking | Contractor | Visual inspection to ensure that traffic remains in designated areas. <u>Frequency:</u> Daily |

| Objectives | Risk sources | Management Action | Implementation | Monitoring |
|---|---|--|----------------|---|
| 2. Prevent and minimise the damage to natural habitats. | Damage to habitats. | <ul style="list-style-type: none"> ❖ Only use existing roads. Do not drive outside existing roads. ❖ Construction footprint must be within 15 metres either side of the construction site. | Contractor | Visual inspection to ensure that the damage of habitats is minimised. <u>Frequency:</u> Daily |
| 3. Prevent the loss of protected and endangered species | Loss of protected / endangered species. | <ul style="list-style-type: none"> ❖ Only use existing roads. Do not drive outside existing roads. ❖ Construction footprint must be within 15 metres either side of the construction site. ❖ Avoid small mammal / reptile and bird nesting where possible. Do not hurt, kill or unnecessarily disturb birds or animals. ❖ See sections regarding pollution, tree felling and driving, as these aspects also relate to biodiversity loss. | Contractor | Checks to ensure that construction is limited to demarcated area. Visual checks to ensure that no unnecessary movement occur in breeding and habitats of these species. <u>Frequency:</u> Daily |
| 4. Adhere to the approved pit | Establishment of new borrow pits. | <ul style="list-style-type: none"> ❖ No borrow pits will be established. (Construction specifications: diameter- 165mm and depth- 300m deep ❖ The existing borrow pits at Kongola and Bagani will be used exclusively hence no borrow pits to be drilled in the park. | Contractor | Check to ensure that no borrow pits are established. <u>Frequency:</u> Daily |

Health and Safety

| Objectives | Potential Impact | Management Action | Implementation | Monitoring |
|--|--------------------------------|---|----------------|---|
| 1. Minimise the risk of HIV infection and the increase of STD's. | Risk of HIV infection. | <ul style="list-style-type: none"> ❖ Provide an AIDS awareness programme to permanent as well as temporary staff. ❖ Distribute free condoms ❖ Schedule long haul transport trips to reduce layovers in places frequented by sex workers ❖ Provide entertainment in the workers camp – e.g., TV, table tennis, darts, and football. | Contractor | Verify that an awareness and education programme on the risks of HIV/AIDS and recommended preventative measures has been conducted, and that recreation facilities are in place. <u>Frequency:</u> Once-off, at inception |
| 2. Minimise the occurrence of construction related injuries. | Construction related injuries. | <ul style="list-style-type: none"> ❖ Make sure that all staff are equipped and know how to use safety and protective gear. This includes hard hats, goggles, hearing protectors, dusk masks, steel-toed shoes etc. ❖ Keep a comprehensive first aid kit at construction points. ❖ Establish an emergency rescue system for evacuation of serious injured people. | Contractor | Checks to ensure that correct procedures are followed and that protective clothing are worn at all times during construction. Visual checks to ensure that machinery and equipment used during construction are in good working condition. |

| Objectives | Potential Impact | Management Action | Implementation | Monitoring |
|--|---------------------------------------|---|-------------------|---|
| | | <ul style="list-style-type: none"> ❖ Emergency procedures for accidents should be communicated to all employees. ❖ Dangerous areas must be clearly marked and access to these areas controlled or restricted. ❖ Train people who handle fuels in the correct procedure / technique to transfer fuels. ❖ Make sure all vehicles are roadworthy. Repair faulty brakes, exhausts etc. immediately. ❖ Good driving and adherence to safety rules and park regulations will result in a minimum number of road and workplace accidents. ❖ Fire extinguishers must be available at all refuelling sites. Staff should be trained to handle such equipment. ❖ Cooking places should be located at a safe distance from fuel / explosives storage areas and vehicle parking sites. ❖ Make sure that all grass and bushes are removed around fireplaces. ❖ Nobody is allowed to dispose a burning or smouldering object in an area where it may cause the ignition of a fire. ❖ Use the existing fire places. ❖ The contractor must ensure that no veld fires will be caused as a result of his activities. ❖ Hazardous substances must be kept in adequately protected areas to avoid soil, air or water pollution. ❖ Work areas, such as these for the maintenance of equipment, must be on concrete slabs. | | <p><u>Frequency:</u> Do this at the start of construction and then check daily.</p> |
| <p>3. Reduce the occurrence of injuries related to construction.</p> | <p>Construction related injuries.</p> | <ul style="list-style-type: none"> ❖ All staff should be equipped and know how to use safety and protective gear. This includes hard hats, goggles, hearing protectors, dusk masks, steel-toed shoes etc. | <p>Contractor</p> | <p>Checks to ensure that correct procedures are followed and that protective clothing are worn at all times during construction. Visual checks to ensure that machinery and equipment used during construction are in good working condition.</p> <p><u>Frequency:</u> Do this at the start of construction and then check daily.</p> |

3.2 Parties Responsible for the Implementation of the ESMP

This section describes the roles and responsibilities for implementing the different parts of the EMP.

MEFT (Park Management Staff, Directorate of Planning and Technical Services)

MEFT has overall responsibility for environmental management during both the construction and operations phases of the proposed development. MEFT Management is to ensure that all tender documentation for the infrastructure development at Buffalo and Susuwe West in the BNP includes details of the ESMP requirements and that the provision of budget and resources to implement the ESMP is assessed during tender adjudication. MEFT Management must ensure that compliance with the ESMP is included as a contractual commitment of an appointment to the contractor.

MEFT Park Chief Warden/Rangers

The relevant MEFT Park Chief Warden/Rangers will be responsible for assisting MEFT Management to ensure that the commitments as set out in this ESMP (as well as other approved ESMPs for each Park and Parks Rules) are implemented during the construction and operations phases. In addition to the above, they are responsible for ensuring that the contractors involved with the proposed project comply with this ESMP and will conduct regular inspections and attend contractors' meetings to ensure all relevant issues are discussed and addressed.

Integrated Wildlife Protection Project (IWPP)

The relevant MEFT – IWPP Management Unit (Project Managers and Deputy Project Managers) will be responsible for assisting MEFT Management to ensure that the commitments as set out in this ESMP are implemented during the construction and operations phases. In addition to the above, they are responsible for ensuring that the contractors involved with the proposed project comply with this ESMP and will conduct regular inspections and attend contractors meetings to ensure all relevant issues are discussed and addressed.

Contractors

All contractors who will work on the infrastructure development at Buffalo and Susuwe West in the BNP must include budget and resources to implement the ESMP and the environmental components the KfW Guidelines for Procurement (January 2019, or its successor). The Contractor will be responsible for implementation of the ESMP with respect to their scope. Contractor teams must include an Environmental Officer in their staff complement. Such personnel must have appropriate knowledge and experience with regards to the environmental risks and constraints of construction activities in a National Park. The Environmental Officer must be based on the site for the duration of the construction activities.

Environmental Officer

The Contractor's Environmental Officer will be contractually required to comply with the various commitments in this ESMP. The Environmental Officer's responsibilities relating to compliance with this ESMP include the following:

- ❖ Be familiar with the ESMP;
- ❖ ESMP to be shared and discussed with personnel prior to the project being initiated/personnel commencing work;
- ❖ Copy of ESMP included as part of contractor's instructions and available to all staff and sub-contractors;
- ❖ Conduct environmental awareness training during induction training and on an ad-hoc basis thereafter;
- ❖ All contracts with subcontractors should include all recommendations raised in this ESMP;

- ❖ Contractor to report at every site inspection meeting with MEFT official (or representative) on implementation of ESMP and any incidents;
- ❖ Regular inspections and auditing of compliance to this ESMP and any other relevant legal requirements;
- ❖ Regular correspondence with relevant MEFT officials at each park on environmental issues and incidents;
- ❖ Ensure compliance to this ESMP and to all Park rules
- ❖ Obtain all relevant permits if required (i.e. tree removal permit, park entry permit);
- ❖ Complete sign-off procedure if any change is required to the ESMP or should there be any deviation from the clauses or intention of the ESMP;
- ❖ Ensure the implementation of the general and site-specific Action Plans.

Infrastructure Consultant

The Infrastructure Consultant will be responsible for monitoring, reporting and enforcing compliance with the ESMP by appointed Contractors. This forms part of the contract administration and construction supervision activities. The Infrastructure Consultant may implement penalties on the Contractor, per the provisions of the contract, where non-compliance with the ESMP is recorded.

3.3 Environmental Training and Awareness

The purpose of the environmental training and awareness is to ensure that employees / contractors are equipped to implement the actions committed to in the ESMP. All MEFT staff, the Infrastructure Consultant and Contractors/sub-contractors involved in any onsite activities associated with the infrastructure development project will receive relevant training regarding the requirements of this ESMP. Various forms of training will be provided on site:

- ❖ Site induction;
- ❖ General Environmental awareness training to all staff and contractors to ensure continuous awareness and the need for compliance with ESMP, etc.; and
- ❖ Targeted / task specific training.

Environmental Site Induction

The purpose of environmental induction is to encourage new staff to be environmentally aware from the beginning of their employment, to ensure that environmental initiatives are successful by eliminating bad habits from the start. All members of staff shall receive Environmental Induction along with the obligatory Health & Safety induction. The induction will provide a general overview of the environmental challenges faced by the project, how these problems are managed and general tips for reducing potential impacts in the workplace and biophysical environment, taking cognizance of the working environment within a Park.

Mandatory sites inductions will be undertaken by all Contractors and sub-contractors prior to work. The induction will address a range of environmental awareness issues specific to the construction processes. The training will be prepared by the Environmental Officer and signed reviewed by the relevant MEFT Park Warden or Ranger. As a minimum, induction material shall include:

- ❖ The importance of Biodiversity conservation;
- ❖ Explanation on the importance of complying with the ESMP and parks Rules and environmental implications should the ESMP not be effectively implemented;
- ❖ Discussion of the potential environmental impacts of operational activities, recognition of environmental risks e.g. oils spill, paint etc. and how to control these risks;
- ❖ The benefits of improved personal performance, understanding of what to do in case of an environmental event or exposure;
- ❖ Employees' roles and responsibilities, including emergency preparedness;
- ❖ Explanation of the mitigation measures that must be implemented when carrying out activities;

- ❖ Explanation of the key requirements of the ESMP and relevant specification (no-go areas, etc.); and
- ❖ Explanation of the management structure of individuals responsible for matters pertaining to the ESMP.

General Environmental Awareness Training

General (formal) Environmental Awareness training will take place on a monthly basis i.e. all staff will undergo awareness training at least once a month by means of a formal presentation / poster display. This training will include similar information to the induction training. Additional information will, however, be shared relating to lessons learned, incidences, non-conformances and corrective actions.

Furthermore, regular “toolbox talks” will be conducted where specific Environmental Topics relating to the ESMP will be discussed, to ensure all staff are continuously reminded of the ESMP requirements, Park Rules, etc.

Job Specific Environmental Training

Targeted environmental management training will be provided to individuals or groups of workers with a specific authority or responsibility for environmental management or those undertaking an activity with a high risk of environmental impact. This environmental training will aim to achieve a level of awareness and competence appropriate to their assigned activities. The Environmental Officer will identify these job specific training needs in liaison with the Park Warden / relevant Park Ranger.

4. HEALTH, SAFETY, ENVIRONMENT, TRAINING AND AWARENESS

4.1 Understanding the Importance of Health, Safety and Environment and in Construction

Health, Safety and Environmental in construction is not just a moral obligation, but it also contributes towards sustainable and resilient development. Sustainable construction aims to meet the needs of the present without compromising the ability of future generations to meet their own needs. By integrating environmental safety measures, construction projects can reduce pollution, conserve resources, and minimize the ecological footprint. In addition to promoting sustainable development, environmental safety in construction also safeguards the health and well-being of construction workers, nearby communities, and the natural ecosystems. Construction sites can release various pollutants such as dust, noise, hazardous chemicals, and waste, which can pose serious health risks and degrade the quality of air, water, and soil.

4.2 Health and safety laws

In Namibia, the Labour Act, 2007 (Act No. 11 of 2007) serves as the primary legal framework for health and safety. Chapter 4 of this Act outlines the main principles and regulations. The Regulations Relating to the Health and Safety of Employees at Work, which were initially issued under the Labour Act of 1992 (Act No. 6 of 1992), provide additional guidelines.

4.3 Key Principles of Namibian Health and Safety Laws

Employers are primarily responsible for ensuring a safe and healthy workplace as far as reasonably possible, as per the Labour Act 2007, Chapter 4. This responsibility includes identifying and mitigating workplace hazards, providing appropriate safety equipment and training, establishing health and safety policies, appointing qualified safety personnel, and reporting accidents, incidents, and occupational diseases. Employees, on the other hand, are required to cooperate with employers in adhering to health and safety regulations and to take reasonable care of their own safety and that of others. The law also mandates the election of health and safety representatives and the establishment of joint health and safety committees in workplaces with a certain number of employees.

4.4 Specific Health and Safety Regulations

The Regulations Relating to the Health and Safety of Employees at Work provide detailed guidelines for specific elements of health and safety. These regulations cover workplace conditions such as ventilation, lighting, sanitation, noise control, temperature control, and the provision of personal protective equipment (PPE).

They also include specific provisions for the safe use and maintenance of machinery, requirements for handling, storage, labelling, and disposal of hazardous substances, and the need for Material Safety Data Sheets (MSDS). Specific regulations address industry-specific hazards in the construction and mining industries. Employers must also report serious accidents, near-miss incidents, and occupational diseases to relevant authorities.

4.5 Enforcement

The Namibian Ministry of Labour, Industrial Relations, and Employment Creation is responsible for enforcing health and safety laws. This involves workplace inspections, investigations, and the potential for issuing citations and penalties for non-compliance.

4.6 Occupational health and safety

Occupational health and safety (OSH) is a fundamental right enshrined in the Namibian Constitution and is governed by the Labour Act 11 of 2007 (Chapter 4). This legislation outlines employer and employee responsibilities and workplace safety regulations. Additionally, the Regulations Relating to the Health and Safety of Employees at Work (1997) provide specific rules for various hazards, inspections, and reporting requirements.

Employers have a duty of care to ensure a safe and healthy work environment for all employees and others affected by workplace activities. This includes identifying and assessing workplace hazards and implementing control measures following the hierarchy of controls (elimination, substitution, engineering, administrative, PPE). Employees must receive adequate training on workplace hazards, safe work practices, and emergency procedures.

4.7 Chemical Safety

Employers must identify, label, and manage hazardous substances, including providing safety data sheets (SDSs) and appropriate PPE. Measures must be implemented to minimize worker exposure to hazardous chemicals through ventilation, substitution, and other engineering controls.

4.8 Physical Hazards

Physical hazards such as excessive noise, poor ergonomics, and moving parts on machinery pose risks. Employers must assess exposure, implement controls, and provide hearing protection where needed. Workstations and processes should be designed to minimize risks through proper posture, tool selection, and task rotation. Guards and interlocks must be in place to prevent injuries from machinery.

4.9 Psychosocial Hazards

Long hours, high workloads, and harassment can all contribute to workplace stress. Employers should manage these risks through healthy work organization, clear communication, and worker support mechanisms. Namibian workplaces should have policies against violence and harassment, as well as reporting and response procedures.

4.10 Workplace inspection

Workplace inspections play a pivotal role in ensuring the safety and well-being of employees. They serve to verify compliance with safety regulations, identify potential hazards and deficiencies, promote improvement in safety measures, and deter non-compliance.

4.11 Who Conducts Inspections

Workplace inspections are conducted by Labour Inspectors, employed by the Ministry of Labour, Industrial Relations and Employment Creation. They have broad authority to conduct inspections and enforce safety regulations. Additionally, Approved Inspection Authorities (AIAs) can also perform inspection duties. These are independent, qualified organizations appointed by the Minister.

4.12 Inspection Procedures

Inspection procedures can be broadly divided into three stages: planning and preparation, on-site inspection, and closing meetings and reports.

4.13 Planning and Preparation

Inspections may be targeted at high-risk sectors, routine, or in response to complaints. Before they begin, inspectors may review the workplace's safety records, previous inspection reports, and relevant industry guidelines.

4.14 On-Site Inspection

The on-site inspection begins with an opening meeting where the inspector introduces themselves and outlines the goals of the inspection. This is followed by thoroughly examining the workplace, including facilities, processes, equipment, and worker practices. Inspectors may also interview employees and management to gain insights about safety practices and concerns. The inspection concludes with identifying and assessing potential hazards, non-compliant practices, and areas needing improvement.

4.15 Closing Meeting and Report

The inspection concludes with a discussion of findings and a formal inspection report. This report summarizes the findings, outlines required corrective actions, and establishes deadlines.

4.16 Inspection Criteria

Inspections broadly assess compliance with safety regulations, which cover areas like general safety, machinery and equipment, chemical hazards, physical hazards, occupational health, and recordkeeping.

4.17 Inspection Frequency

The frequency of inspections is not mandated by the Labour Act. It depends on factors like the workplace risk level, complaints from workers, and resource availability.

4.18 Follow-up Actions

Employers must legally address hazards and violations identified in the inspection report within the set deadlines. Inspectors may revisit to verify that corrective measures have been implemented. Failure to comply can lead to fines, improvement notices, prohibition notices, or even workplace closure in severe cases.

4.19 Health and Safety Management

HIV/AIDS and Tuberculosis Training

The contractor should approach the Ministry of Health and Social Services to appoint a health officer to facilitate HIV/AIDS and TB education programmes periodically onsite during the construction phase.

Road Safety

Vehicles' contents/consignments should be adequately secured to avoid items falling off the vehicle. All trucks carrying sand or fine material loads should be covered with a shade net cover to prevent these materials from being blown off onto approaching vehicles from both directions. Construction vehicles may only be used to transport personnel to and from the construction site. This offence is punishable by law due to the extreme safety risk involved.

Safety around excavated and work areas

A meeting with the neighbouring community shall be held, and the safety precautions of the construction area explained; Excavations should be left open for an absolute minimum time only; Excavate short lengths of trenches and box areas for services or foundations in such a way that the trench will not be left unattended for more than 24 hours, Demarcate the following regions with danger tape or orange demarcation netting: - All excavation works; - Soil and other building material stockpiles.

Temporary waste stockpiles

Provide additional warning signage in areas of movement and in "no person allowed" areas where workers are not active; work areas must be set out and isolated with danger tape daily; all building materials and equipment are to be stored only within set out and demarcated work areas, Only construction personnel will be allowed within these demarcated work areas, and Two dry chemical powder fire extinguishers should be available at fuel storage areas, the workshop area, and the site office.

Ablutions

Separate ablutions (toilets) should be available for men and women, as clearly indicated. Portable toilets (i.e. easily transportable) should be available at every construction site:

- ❖ One toilet for every 25 females
- ❖ One toilet for every 50 males

Sewage waste must be removed regularly to an approved (municipal) sewage disposal site. Alternatively, pump it into sealable containers and store it until it can be removed, and Workers responsible for cleaning the toilets should be provided with latex gloves and masks.

Health, safety, Environment, Training and Awareness

| Objectives | Potential Impact | Management Action | Implementation | Monitoring |
|--|--------------------------------|--|----------------|--|
| 1. Minimise the risk of HIV infection and the increase of STD's. | Risk of HIV infection. | <ul style="list-style-type: none"> ❖ Provide an AIDS awareness programme to permanent as well as temporary staff. ❖ Distribute free condoms ❖ Provide entertainment in the workers camp – e.g., TV, table tennis, darts, and football. | Contractor | <p>Verify that an awareness and education programme on the risks of HIV/AIDS and recommended preventative measures has been conducted, and that recreation facilities are in place.</p> <p><u>Frequency:</u> Monthly</p> |
| 2. Minimise the occurrence of construction related injuries. | Construction related injuries. | <ul style="list-style-type: none"> ❖ Make sure that all staff are equipped and know how to use safety and protective gear. This includes hard hats, goggles, hearing protectors, dusk masks, steel-toed shoes etc. ❖ Keep a comprehensive first aid kit at construction points. ❖ Establish an emergency rescue system for evacuation of serious injured people. ❖ Emergency procedures for accidents should be communicated to all employees. ❖ Dangerous areas must be clearly marked and access to these areas controlled or restricted. ❖ Train people who handle fuels in the correct procedure / technique to transfer fuels. ❖ Make sure all vehicles are roadworthy. Repair faulty brakes, exhausts etc. immediately. ❖ Good driving and adherence to safety rules will result in a minimum number of road and workplace accidents. ❖ Fire extinguishers must be available at all refuelling sites. Staff should be trained to handle such equipment. ❖ Cooking places should be located at a safe distance from fuel / explosives storage areas and vehicle parking sites. ❖ Make sure that all grass and bushes are removed around fireplaces. ❖ Nobody is allowed to dispose a burning or smouldering object in an area where it may cause the ignition of a fire. ❖ The contractor must ensure that no veld fires will be caused as a result of his activities. ❖ Hazardous substances must be kept in adequately protected areas to avoid soil, air or water pollution. ❖ Work areas, such as these for the maintenance of equipment, must be on concrete slabs. | Contractor | <p>Checks to ensure that correct procedures are followed and that protective clothing are worn at all times during construction.</p> <p>Visual checks to ensure that machinery and equipment used during construction are in good working condition.</p> <p><u>Frequency:</u> Do this at the start of construction and then check monthly.</p> |

Health, safety, Environment, Training and Awareness

| Objectives | Potential Impact | Management Action | Implementation | Monitoring |
|---|--------------------------------|--|-----------------------|---|
| 3. Reduce the occurrence of injuries related to construction. | Construction related injuries. | ❖ All staff should be equipped and know how to use safety and protective gear. This includes hard hats, goggles, hearing protectors, dusk masks, steel-toed shoes etc. | Contractor | Checks to ensure that correct procedures are followed and that protective clothing are worn at all times during construction. Visual checks to ensure that machinery and equipment used during construction are in good working condition. <u>Frequency:</u> Do this at the start of construction and then check monthly. |

5. OPERATIONAL PHASE HEALTH AND SAFETY MANAGEMENT

5.1 Flood Risk Prevention

- ❖ All services (power and sewer lines) must be placed in the evaluated road reserve to prevent it from being influenced during rainy seasons.
- ❖ The culverts need to be maintained. The timeframe of the actions mentioned above is continuous, and the responsibility and monitoring lie with the MEFT

5.2 Noise and Dust

Noise and dust can cause stress and health impacts on nearby residents and construction workers. Therefore, high priority needs to be placed on mitigation measures at the site to manage noise and dust pollution within the area. 8.1 Noise Prevention: Noise associated with construction and traffic activities will be heard from the site. Constant noise can cause stress and have a health impact on construction workers and nearby residents. However, mitigation measures need to be in place to prevent noise pollution. The following measures are provided below to minimize noise:

- ❖ No noisy activities onsite between 17:00 and 07:00,
- ❖ Construction activities on Saturday shall be between 08:00 and 13:00,
- ❖ Sunday and public holidays - no noisy activities onsite and
- ❖ In the event that work is necessary outside the designated working hours, all receptors (residents or businesses within 500 m from the work areas) need to be notified at least two days in advance.

The duration of the actions mentioned above is short, and the impact ceases after the operational phase starts—the responsibility for monitoring lies with the Contractor, the development ECO, and the MEFT.

5.3 Dust Prevention

The movement of construction vehicles on bare soil will cause excessive dust, exposing nearby residents and workers to dust pollution. Fugitive dust from construction sites can spread crystalline silica, impacting nearby residents' and site workers' health. Fugitive dust from the construction site can also cause poor visibility for road users. Mitigation measures must be put in place to prevent dust pollution. The following measures are provided below to minimize dust:

- ❖ Provide a suitable screen/panels surrounding the construction site to reduce the spread of dust from the site,
- ❖ Dust palliatives need to be applied to the road surfaces to prevent dust clouds,
- ❖ A watering truck with semi-purified water should be used on gravel roads with the most vehicle movement, especially during dry and windy conditions. However, due consideration should be given to water restrictions during times of drought and applicable seasons,
- ❖ Stockpiles of building material need to be kept moist, or the surfaces need to be stabilized. A nylon mesh cover which reduces dust lift by $\pm 50\%$ can be an alternative option,
- ❖ Limit the size of stockpiles of large quantities of soil, topsoil and other fine materials,
- ❖ Dust protection masks should be issued to all workers exposed to dust on the site, and
- ❖ Improve awareness of ambient air quality and consideration regarding wind speed and direction when undertaking dust-generating activities.

The duration of the actions mentioned above is short-term, and the impact ceases after the operational phase starts. The responsibility for implementation and monitoring lies with the contractor, the ECO of the development, and the MEFT.

5.4 Traffic Management

The construction of the infrastructure will disrupt the surrounding traffic. Mitigation measures should be in place to minimize the anticipated disruption of the surrounding traffic during the construction of the infrastructure development.

5.5 Traffic Mitigation

- ❖ Develop a Traffic Plan to reduce traffic flow interference from construction activities. The plan may include advance public notice of routing, use of public transportation, and satellite parking areas with a shuttle service.
- ❖ Schedule operations, affecting traffic for off-peak hours. Minimize obstruction of through-traffic lanes. Provide a flag person to guide traffic and ensure construction site safety properly.
- ❖ Construction vehicles should be restricted during peak hours, between 07:00-08:00 and 17:00-18:30.
- ❖ Appropriate advance road warning signage needs to be used.

The actions mentioned above are short-term and will end when the operation phase commences. The contractor is responsible for implementation and monitoring. However, the road infrastructure will become permanent, and the MEFT will be responsible for maintaining the streets.

5.6 Environmental Training and awareness

Construction workers must receive training on environmental safety practices, including proper handling and disposal of hazardous materials, efficient use of resources, and pollution prevention. By providing comprehensive training, construction companies will empower their workforce to make environmentally responsible decisions and prevent accidents and incidents that can harm the environment. All construction workers at the development site are to undergo environmental training and awareness programs. The following aspects should be included:

- ❖ Explanation of the importance of complying with the ESMP.
- ❖ Discussion of the potential environmental impacts of construction activities.
- ❖ Employees' roles and responsibilities, including emergency preparedness.
- ❖ Explanation of the mitigation measures that must be implemented when particular workgroups carry out their respective activities.
- ❖ Explanation of the specific mitigation measures within this ESMP, especially unfamiliar provisions.

During the training sessions, an attendance register should be completed, including the names, positions designations and signatures of everyone who attended the training and kept on file for auditing purposes. The ECO must approve all the training sessions before they are conducted.

5.7 Environmental Conservation

Materials Camp and Lay-Down Areas: A suitable location for the materials camp and lay-down areas should be identified with the assistance of the ER, and the following should be considered in selecting these sites:

- ❖ The areas designated for the proposed services infrastructure should be used as far as possible, and
- ❖ Sensitive areas (e.g. watercourses) should be avoided.

The duration of the actions mentioned above is short-term. The responsibility for the implementation of the ESMP lies with the contractor, MEFT and ECO.

5.8 International Environmental Safety Standards

Several international organizations, such as the International Organization for Standardization (ISO) and the United Nations Environment Programme (UNEP), have developed standards and guidelines to regulate environmental safety in construction. These standards cover various aspects, including energy efficiency, waste management, and carbon emissions reduction.

- ❖ ISO 14001: Environmental Management Systems
- ❖ ISO 50001: Energy Management Systems
- ❖ UNEP Sustainable Buildings and Climate Initiative

ISO 14001 is a widely recognized standard that provides a framework for organizations to establish and maintain an effective environmental management system. It helps construction companies identify and manage their environmental impacts, such as air and water pollution, waste generation, and resource consumption. By implementing ISO 14001, construction projects can improve their environmental performance and demonstrate their commitment to sustainable development.

ISO 50001 focuses on energy management, helping construction companies optimize their energy use and reduce greenhouse gas emissions. By implementing energy-efficient practices and technologies, construction projects can reduce their environmental impact and achieve significant cost savings through reduced energy consumption.

The UNEP Sustainable Buildings and Climate Initiative aims to promote sustainable construction practices worldwide. It guides sustainable building design, construction materials, and energy-efficient technologies. By following these guidelines, construction projects can contribute to global efforts to mitigate climate change and achieve a more sustainable future.

5.9 Grievance Mechanism (For the WPS infrastructure development project)

During the infrastructure development project for Buffalo and Susuwe, a person or group of people who are adversely affected, directly or indirectly, due to the project activities will register their grievances through the project GRM. The grievances can be related to social issues such as eligibility criteria and entitlements, disruption of services, temporary or permanent loss of livelihoods and other social and cultural issues. Grievances also related to environmental problems such as damage to infrastructure due to construction-associated vibrations or transportation of raw material, noise, traffic congestions, decrease in quality or quantity of private/ public surface/groundwater resources during construction of infrastructure, damage to home gardens and agricultural lands etc., can be raised. Therefore, the project allows those who have a complaint or feel aggrieved by the project to communicate their concern, complaints and grievances through an appropriate process.

To achieve this objective, a GRM has been included in this ESIA for the project (See full GRM in Annex 5). The Complaints Register, which will form part of the GRM set out in this ESIA, will be used as part of the project and will provide an accessible, rapid, fair, and effective response to concerned stakeholders, especially any vulnerable group who often lack access to formal legal regimes.

While recognizing that many complaints may be resolved immediately, the Complaints Register and GRM set out in this ESIA encourage mutually acceptable resolution of issues as they arise. The GRM set out in this ESIA has been designed to:

- ❖ Be a legitimate process that allows for trust to be built between stakeholder groups and assures stakeholders that their concerns will be assessed fairly and transparently;
- ❖ Allow simple and streamlined access to the Complaints Register and GRM for all stakeholders and provide adequate assistance for those who may have faced barriers in the past to be able to raise their concerns;
- ❖ Provide clear and known procedures for each stage of the GRM processes and provide clarity on the types of outcomes available to individuals and groups;

- ❖ Ensure equitable treatment to all concerned and aggrieved individuals and groups through a consistent, formal approach that is fair, informed and respectful to a concern, complaints and grievances;
- ❖ To provide a transparent approach, by keeping any aggrieved individual/group informed of the progress of their complaint, the information that was used when assessing their complaint and information about the mechanisms that will be used to address it, and
- ❖ Through continued assessment, continuous learning and improvements to the GRM are enabled; the learnings may reduce potential complaints and grievances.

Eligibility criteria for the GRM include:

- ❖ Perceived negative economic, social or environmental impact on an individual and group or concern about the potential to cause an effect;
- ❖ Specified kind of impact that has occurred or has the potential to occur, and explanation of how the project caused or may cause such implications; and
- ❖ Individual and/or group filing of a complaint and grievance is impacted or at risk of being affected; or the individual and/or group filing a complaint and grievance demonstrates that it has authority from an individual and or group that has been or may potentially be impacted on to represent their interest.

Local communities, IPs, and other interested stakeholders may always file a grievance/complaint with the MEFT or PMU. Affected local communities should be informed about the ESIA provisions, including its grievance mechanism and how to make a complaint.

5.10 Rapid response and preparedness in terms of emergency

On a construction site, emergencies and disasters can occur at any time, potentially causing catastrophic injuries to workers and/or damage to property. That's why contractors should plan for workplace emergencies at work sites to minimize employee injuries/illnesses and property loss when an emergency occurs.

- ❖ First response: Life safety and stabilization. Life safety is always the priority. The actions taken in the initial minutes of an emergency are critical:
- ❖ Promptly warning employees to evacuate, shelter, or lockdown can save lives.
- ❖ A call for help to public emergency services that provides complete and accurate information will help the dispatcher send the proper responders and equipment.
- ❖ An employee trained to administer first aid or perform CPR can be lifesaving.
- ❖ Action by employees with knowledge of operations and process systems can help control a disaster and minimise property damage and environmental release. The second priority is the stabilization of the incident and property conservation. Many actions can be taken to minimise potential damage:
- ❖ The use of fire extinguishers by trained employees can extinguish a small fire.
- ❖ Forecasting severe weather events hours before they arrive provides valuable time to protect a work site.
- ❖ Establish a plan and have resources quickly available to prepare a site. The plan should also include a process for damage assessment, salvage, protection of undamaged property, and cleanup following an incident.

These actions help minimise further damage and disruption.

5.11 Monitoring and Evaluation

The main objectives of the monitoring plan are the following:

- ❖ Verify the correct application of the monitoring measures as presented in the Environmental and Social Management Plan (ESMP);

- ❖ Establish a monitoring program for the most relevant environmental data sets parameters, identifying the monitoring activities and frequencies;
- ❖ Identify the impacts foreseen by the project and any unforeseen deviations, allowing for the implementation of corrective measures as needed;
- ❖ Assure stakeholder's requirements concerning environmental and social performance;
- ❖ Check the overall effectiveness of the operational procedures in protecting the receiving environment;
- ❖ Comply with regulations, standards and conditions, and;
- ❖ Compare actual impacts with those predicted in the EIA and ESMP Report, aiming to improve the assessment and monitoring processes.

5.12 EHS Accident and Incidence Reporting

Workplace incidents

Workplace accidents are serious matters that require immediate attention and reporting. Employers must report work-related injuries, diseases, and deaths to the Ministry of Labour, Industrial Relations, and Employment Creation, as stipulated in the Labour Act (2007), Section 53. The Employees' Compensation Act (1941) also outlines the need to report specific injuries and incidents to the Social Security Commission (SSC) for compensation purposes.

Reporting Deadlines

Serious injuries and diseases must be reported immediately to the nearest Labour Inspector. Fatal accidents require immediate reporting to the Labour Inspector and the Namibian Police. Compensation claims to the SSC should generally be made within a year of the injury or diagnosis of occupational disease.

Reporting Procedures

Employers can report using prescribed forms available from the Ministry of Labour and the SSC. The required information includes details of the accident, the injured worker, the extent of injuries, and witnesses (if any).

Accident Investigation

Investigating an accident is crucial for understanding why the accident occurred and preventing similar incidents. Investigations identify areas where safety systems failed and recommend improvements. Employers may be required to conduct thorough investigations, especially of severe incidents.

Investigation Process

Timely investigations help preserve evidence and gather fresh witness accounts. The investigation team may involve safety representatives, supervisors, and workers with relevant knowledge. Methods include interviews, site inspections, equipment examination, and record reviews. A detailed report outlines findings, root causes, and recommendations for improvement.

Compensation Claims

The Social Security Commission (SSC) administers compensation funds to injured or ill workers whose employers contribute to the fund. This is outlined in the Employees' Compensation Act (1941). It covers

employees who sustain injuries or contract diseases during employment. Types of compensation include temporary disability benefits, permanent disability benefits, medical expenses, and survivor's benefits (in case of death).

Claim Procedure

Workers must inform their employer of the injury or illness. They then need to obtain the necessary forms from the SSC and submit them. The SSC may require medical examinations to determine the extent of the disability.

Important Considerations

The accident scene should be disturbed as little as possible before the investigation. Injured workers have the right to refuse unsafe work and participate in safety matters without fear of reprisal. Employers must maintain thorough records of workplace accidents, investigations, and compensation claims.

6. GENERAL ESMP CONTROL MEASURES, ENVIRONMENT AND SAFETY MANAGEMENT

Based on the results of the impact and risk assessment for the proposed Infrastructure development for WPS Station at Buffalo and Susuwe a detailed ESMP has been prepared covering the following components:

- ❖ General procedures for ESMP implementation in line with MEFT operations and EMS;
- ❖ Environmental and safety management systems;
- ❖ Protection of the biological diversity covering flora, fauna, habitat and rehabilitation of all disturbed areas within the developmental and the surrounding areas;
- ❖ Disturbance of fauna, including estuarine birds at the Bwabwata-Okavango RAMSAR site by noise caused by the increased use of helicopters and;
- ❖ Socioeconomic issues, and;

Each ESMP framework covers an aspect, impact description, risk/gain ranking, action plans and control measures, responsible person(s), timing, management objectives, and applicable regulations.

7. ENVIRONMENTAL PERFORMANCE MONITORING

7.1 Overview

As per the provisions of the ESMP, the environmental performance monitoring activities are recommended to be undertaken during the preconstruction, construction and operational stages of the proposed project development because this approach makes it possible to identify unpredicted effects and take the necessary precautions to eliminate the likely negative impacts before the effects become significant. The following is a summary of the environmental performance monitoring:

- ❖ **Monitoring Plan:** Environmental monitoring is partly in-house (data collection during preconstruction, construction, and operational) and outsourced (employing a consultant) to undertake the assessment and recommend measures to be implemented. Key aspects that are monitored include Flora, fauna and habitat, as well as helicopters;
- ❖ **Implementation of the ESMP:** The ESMP monitoring plan by MEFT shall focus on collecting and analyzing the required datasets and proposing recommendations on what needs to be done for both the long-term and short (day-to-day) monitoring operations. The ESMP implementation shall be undertaken as an in-house activity;
- ❖ **ESMP Auditing:** Compliance auditing of the ESMP implementation and monitoring thereof is critical to the environmental performance monitoring and management system. The ESMP auditing is an internal activity that shall be often supported by external consultants as may be required and linked to the EMS monitoring and auditing requirements, and;
- ❖ **EMS Auditing:** MEFT Personnel are responsible for managing these impacts through regular environmental audits to evaluate compliance and effectiveness of the ESMP, as well as compliance with statutory requirements. This includes both internal audits and external surveillance audits.

7.2 EMS Auditing

As stated in the EMA 7 of 2007, the MEFT is committed to conducting regular environmental audits to evaluate compliance and effectiveness of the ESMPs, as well as compliance with applicable legal and other requirements. This includes both internal audits and external surveillance and certification audits. A three-tier system of environmental auditing is recommended for this ESMP:

- ❖ **Internal Area Environmental Audits** (conducted by the environmental monitors on either a monthly or quarterly basis);
- ❖ **Environmental Management Team Audits** (conducted by the DEA);
- ❖ **Environmental Surveillance Audits** (conducted by external auditors once a year) and;
- ❖ **Procedures, Drills and Equipment, Accident Reporting and Investigation.**

7.3 Environmental Performance Monitoring Report

Based on the results of the ongoing environmental monitoring activities and by the provisions and conditions of the Environmental Clearance Certificate (ECC), Environmental Performance Monitoring Reports shall be compiled and submitted to the Environmental Commissioner, Department of Environmental Affairs, Ministry of Environment Forestry and Tourism, demonstrating compliance with the ESMP, legal and other requirements, and ongoing assessment of risks/aspects.

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

The proposed development has been well designed according to the standards of the Physical Planning department and the relevant regulatory agencies. The proposed development project will have economic benefits such as income generation for the proponent, employment creation, use of underutilized plots, and increased revenue for the National and Regional Governments.

8.2 Recommendations

Based on the results of this Environmental and Social Impact Assessment (ESIA) and Environmental Social Management Plan (ESMP) report, it's as a result of recommended that the proponent IWPP-MEFT be issued with an Environmental Clearance Certificate (ECC) for the proposed infrastructure development at Buffalo and Susuwe in the Bwabwata National Park, Kavango East and Zambezi Region, northeast Namibia. Mitigation measures / appropriate management intervention measures to be implemented by IWPP-MEFT concerning the impacts ranked as having either a "high" or "medium" significance are provided in the ESMP Section of this Report. The recommendations for the prevention and mitigation of adverse impacts are as follows;

- ❖ It is important that informative signs (billboards) be erected at the site. These should indicate the operation hours and when works are likely to be started and completed. A list of all Engineers and Contractors, details of the proposed project, and all the Approval numbers.
- ❖ All solid waste and debris resulting from excavation and construction activities must be disposed of at approved dumpsites. The wastes should be properly segregated and separated to encourage the recycling of some useful waste materials, e.g., some excavated stone materials can be used as backfills.
- ❖ All construction materials, mainly sand, gravel, hardcore, and wood, must be sourced/procured from legalized dealers.
- ❖ Construction activities must be undertaken only during the day, i.e., between 0800 and 1700 hours. This will minimize disturbance to the general public within the proximity of the site/project, especially the nearby residents.
- ❖ Proper and regular maintenance of construction machinery and equipment will reduce the emission of hazardous fumes and noise from rubbing metal bodies' friction.

- ❖ Heavy construction activities should be limited (or avoided) during the rainy season to minimize the chances of soil degradation (soil erosion).
- ❖ Maintenance activities must be carried out in the service bay to reduce the chances of oils, grease, or other maintenance materials coming into contact with the environment (water or soil).
- ❖ Workers should receive complete personal protective equipment (PPE) and safety gear. They should have working boots, complete overalls, helmets, gloves, earmuffs, nose masks, goggles, etc. A fully equipped first aid kit must be provided within the site.
- ❖ The contractor must provide adequate security during the construction period, especially at night when there are no construction activities.
- ❖ The Proponent is advised to ensure the contractor adheres to the architectural plans and that proper backfilling and landscaping are done to rehabilitate the environment and improve its aesthetic value.

Finally, having completed the ESIA and ESMP process for the proposed project, we recommend approval of this report and, subsequently, issuing the Environmental Clearance Certificate to the proponent to enable them to commence implementation of the project.

ANNEXURE 1: STANDARD OPERATING PROCEDURE (SERIOUS INCIDENT REPORTING)

In accordance with the Code of Conduct, all Officers are required to immediately report any serious incidents to MEFT management. A serious incident is defined as any event that has an adverse effect on MEFT and its Officers, project personnel, community members, members of the public or on the environment that could give rise to liabilities or reputational risks to MEFT, implementing partners and other stakeholders.

An incident will be considered serious if it:

- Has, or is likely to have a material adverse effect on people or the environment.
- Has, or is it likely to be categorized as a severe human rights impact.
- Has attracted or is likely to attract substantial adverse attention from third parties.
- May lead to adverse media coverage.
- Gives or has the potential to give rise to material legal or financial liabilities and reputational risks.

Serious Incidents include but are not limited to:

- Loss of life or serious injuries occurring during routine patrols, anti-poaching operations, searches, arrests, or any other MEFT law enforcement activities inside or outside of protected areas;
- Loss of life or serious injuries caused by natural or other disasters;
- Kidnapping, murder, and any form of violence;
- Serious and costly damage to park infrastructure;
- Any accusation of or direct violation of human rights, including sexual and gender-based violence, abuse, and harassment;
- Forcible or non-consensual eviction of people from protected areas;
- Significant environmental damage; and
- Events of mass mortality of wildlife.

When a Serious Incident occurs:

- The Officers involved should immediately notify their direct Supervisor who will also report the event to the Police Station if the incident involves the loss of life.
- The Supervisor will initiate the internal reporting processes.
- The Deputy Director should complete the serious incident notification form (see annexure 1) within 48 hours and submit the available information to the Director.
- In consultation with the IWPP Project staff, the Director will review and finalize the notification and submit it to the donor (KfW).
- Further investigation will be undertaken if required. Further investigation is likely for:
 - Incidents involving loss of life
 - Reported events of gender-based violence
 - Reported events of violent interaction with or between communities
 - Mass wildlife mortalities

- Upon completion of the investigation, the Deputy Director should ensure that a serious incident report is completed that includes the processes and outcomes of the investigation (annexure 2). Ideally, this report should be submitted within two weeks. However, it is recognized that other agencies are likely to be involved in this process and accessing the required information from them may take longer.
- Once the serious incident report has been completed, the Deputy Director will submit this report to the Director for distribution as appropriate (and also to the donor KfW).
- Where required, a corrective action plan will be developed and submitted along with the serious incident report.
- The Deputy Director will report on the implementation and outcomes of the corrective action plan.
- Once all corrective actions have been taken, the incident can be closed.

ANNEXURE 2: SERIOUS INCIDENT NOTIFICATION FORM

| General Information | | | |
|--|--|--|------|
| Project name, country, region | | | |
| Completed by | | | |
| Contact details | | | |
| Details about the Serious Incident (to be submitted within 48 hours of SI occurrence) | | | |
| Date and time of the Serious Incident | | | |
| Location of the Serious Incident | | | |
| Type of Incident | Health and Safety of Workers <input type="checkbox"/> Community Health and Safety <input type="checkbox"/> Social Cohesion <input type="checkbox"/> Human Rights <input type="checkbox"/> Forced Evictions <input type="checkbox"/> Other <input type="checkbox"/> | Indigenous Peoples' rights <input type="checkbox"/> Gender-based Violence <input type="checkbox"/> Stability of the Environment <input type="checkbox"/> Legal Compliance <input type="checkbox"/> Reputational Risk <input type="checkbox"/> Please specify: <input type="checkbox"/> | |
| Brief description of SI What happened? Details of the people affected, status, names, ages, gender. | | | |
| Was anyone injured or killed as a result of this event? | | Yes / No / N/A | |
| If "Yes" provide further details. | | | |
| Was any damage experienced as a result of this event? | | Yes / No / N/A | |
| If "Yes" provide further details: | | | |
| What remedial action(s) have been taken? | | | |
| Description of immediate response and related responsibilities, such as person(s) taken to hospital, police informed, national authorities involved etc. | | | |
| Serious Incident Notification Approval | | | |
| | Position | Name | Date |
| Prepared by | | | |
| Approved by (Project Senior Management) | | | |
| General Information | | | |
| Project name, country, region | | | |

| | |
|---|--|
| Name of person submitting the information | |
| Name of main person(s) / organisations involved in the Incident | |
| Name of the alleged victim(s), their age, sex, and place of residence | |
| Confirmation of details about the Incident | |
| Date and time of the Incident | |
| Location of the Incident – provide detailed information on the location | |
| Type of Incident (as per the notification form) | |
| Detailed chronological description of the incident and its circumstances | |
| Root Cause Analysis | |
| Detailed description of key causal factors, including outside factors or potential management failings and identification of absent / Inadequate /failed/unused management and control measures | |
| Specification of roles and responsibilities relevant to the Incident, including the involvement of authorities | |
| Description of any reaction to the incident by the victims, involved families or communities as well as local/national/international media | |
| Methods applied for conducting the root cause analysis, (e.g., interviews, document reviews, site visits, police report etc.) | |
| Immediate Response | |
| Description of immediate response and related responsibilities, such as person(s) | |

| | | | |
|---|----------|----------|------|
| taken to hospital, police informed, national authorities involved etc. | | | |
| Corrective Actions | | | |
| Description of corrective actions, next steps, and related responsibilities to prevent the Incident from happening again. | By Whom: | By When: | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| Incident Report Approval | | | |
| | Position | Name | Date |
| Prepared by | | | |
| Approved by (Senior Management) | | | |

ANNEXURE 3: PARK MANAGEMENT RULES AND REGULATIONS TO BE ADHERED TO BY THE CONTRACTOR AND STAFF

| Environmental issue | Rules/Regulations | Relevant project phase |
|--------------------------------------|---|-----------------------------|
| Social and third party safety issues | Local people within communities must be preferentially selected for temporary job opportunity to encourage social growth and development in the National Park, Region and Namibia as a country. | Construction and Operations |
| | Working hours will be from 7:00 – 17:00 Mondays to Fridays and 7:00 to 13: 00 on Saturdays. Limit the work on Saturdays as well as after 17:00 on weekdays as far as possible. No working (Construction) at Night should be permitted. No working on Sundays and public holidays. | Construction |
| | Poaching and plant theft will not be tolerated and staff found in possession will be prosecuted | Construction and Operations |
| | No firearms are allowed | Construction |
| | Smoking is permitted only in designated areas | Construction and Operations |
| | Zero tolerance to alcohol at the construction site. | Construction |
| | Provide appropriate Mobile toilet facilities for the workers on the site and workers should be strictly enforced to use these facilities. These facilities (i.e. portable toilets) shall not discharge any effluent into the environment. Sewerage needs to be emptied on a regular basis (to prevent overflowing) and discharged at the Katima Mulilo sewerage facility. | Construction |
| | All construction vehicles to use only the dedicated access route to the construction area. | Construction |
| | All activities should be limited to the footprint area accordingly to the design plan | Construction |
| | Warning signs will be erected and maintained at the site boundaries. | Construction |
| | Monitor and respond to any activities which may have negative social impacts on site for either staff or surrounding communities (e.g. operation of shebeens) | Construction and Operations |
| | All issues raised should be discussed | Construction and Operation |
| Tourism | Access to construction site during construction should not be permitted. | Construction |

| | | |
|--------|--|------------|
| Visual | Construction activities should be limited to the footprint as per design plan with large and protected | Design and |
|--------|--|------------|

| Environmental issue | Rules/Regulations | Relevant project phase |
|--|--|-------------------------------|
| | trees not to be destructed | Construction |
| | Night lights will be used only where necessary and should be designed to illuminate only that which requires illumination. The use of standard high pole flood lights should be avoided where possible: Yellow light should be used rather than white light for outdoor illumination where required. | Design and construction |
| | Develop infrastructure within the framework of the national policy for housing in Protected Area as promulgated in 2010. | |
| | Avoid littering at all times; appropriate waste bin clearly labelled should be used. | Construction and Operation |
| | The complex should use earthy color paints to camouflage with the background vegetation | Construction |
| | Maintenance on the access gate should be done often | Operation |
| | Rehabilitation of areas temporarily disturbed within the footprint should commence as soon as activities in the area are completed | Construction |
| | By implementing all other management and mitigation measures in this EMP, most of the visual impacts and the sense of place will be minimized. | Construction and Operation |
| | All paint colors used should blend in with the site | Construction and Operation |
| Waste management and handling and storage of hazardous substances (including hydrocarbons) | No litter or waste accumulation should be permitted on site. | Construction and Operation |
| | No burning or burying of waste material will be allowed on site. All National Park Rules should be adhered to. | Construction and Operation |
| | Suitable receptacles for waste disposal will be provided at appropriate locations on site. These receptacles will be clearly marked for different waste types. | Construction and Operation |
| | Employees will be shown the importance of correct waste disposal as well as waste minimization and recycling through training. | Construction and Operation |

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| | Waste will be removed from site and disposed of at a suitable licensed waste disposal facility (Kongola and Bagani Waste Disposal Facilities) | Construction and Operation |
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| Environmental issue | Rules/Regulations | Relevant project phase |
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| | Hydrocarbon contaminated soils should be treated accordingly or disposed of at an approved Hazardous disposal site. | Construction and Operation |
| | Spillages of potentially harmful substances must be cleared immediately and disposed of at an appropriate site (need to be reported at site meetings) | Construction and Operation |
| | Spill kits are to be kept on site | Construction and Operation |
| | All petroleum products or other hazardous substances (i.e. paints) to be stored in lined and bunded areas. | Construction and Operation |
| | Dispensing of petroleum products to take place over a drip tray or within a lined and bunded area. | Construction and Operation |
| | Use drip trays under machinery, vehicles and equipment with minor fuel or hydraulic fluid leaks. | Construction and Operation |
| | Repairs and maintenance to machinery, vehicles and equipment during construction to be undertaken in a workshop (off-site). | Construction |
| | Any on-site emergency repairs to be undertaken over impervious surfaces. | Construction and Operation |
| | Written evidence of safe disposal of Hazardous waste will be kept. | Construction and Operation |
| | Apply for waste water discharge permit from DWAF before any actual construction | Construction |

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| <p>Carry out inspection on regular basis (Soak ways and Septic tanks)</p> <p>Septic tanks should be designed and aligned with best practice guidelines</p> <p>Ensure that all staff are aware of “do”s and don”ts” of septic tanks (Use of septic tanks as per guidelines from contractor/engineer (including the addition of “enzymes” to ensure that microbial activity is effective) - Ensure that all fuels stored and managed to reduce risk of spillages - Respond to level of septic tank</p> | <p>Construction and Operation</p> |
| <p>- Contractor and MEFT is to ensure that responsible staff dispose of sludge as per agreed plan</p> | <p>Construction</p> |

| Environmental issue | Rules/Regulations | Relevant project phase |
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| | | and Operation |
| | Manage water utilization by implementation water saving measures | Construction and Operation |
| Stormwater | With reference to the low laying area where water accumulates during a rain, event immediately next to the C49 (refer to section 5.3 of the Scoping Report), the design plan ensure the natural flow of flood water is not cut off but diverted back to its natural flow. Also, no infrastructure should be constructed within this low laying area. | Construction and Operation |
| | Rainfall run-off at development site should not cause undue erosion | |
| | Regular inspections and if required remedial contouring or drainage should be done to ensure rainfall run off does not cause erosion. | Construction and Operation |
| Water usage and Consumption | Monitor water usage on a monthly basis and calculate usage per person Undertake regular inspections of all water pipes | |
| Air quality | Limit the speed limit within the construction site at about 30 km/h | Construction |
| | Vehicles and equipment will be maintained in good working order | Construction |
| | Construction activities prone to result in dust should be avoided at high winds conditions or mitigations measures (i.e. spraying of water on the access routes) needs to be implemented. (this relates to dust generating activities undertaken in high wind conditions (from the north-west). | Construction |

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| Biodiversity | <ul style="list-style-type: none"> • Minimize disturbance to wildlife and tourists in the park • The design Plan includes the identified large trees before any construction activities. • Demarcate area which shall be subjected to disturbance • Identify large trees (i.e. with stem diameter more than 10 cm) and protected trees before any actual construction activities. These should be marked clearly. Prevent cutting down protected tree species or trees with a stem diameter over 10 cm as far as practically possible. • Consult Conservancies to help identify the protected plant species • Permits will be required for the removal of protected tree species (as is required by the Forestry Act). • The design plan should be adhered to and construction activities limited to the footprint size • Detailed instructions to be issued on rehabilitation of disturbed areas • Initiate Induction and Training to include Environmental awareness and consequences, for all contractor staff regarding disturbing, trapping or killing of wildlife. | Construction |
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| Environmental issue | Rules/Regulations | Relevant project phase |
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| | <ul style="list-style-type: none"> • Speed limits will be enforced so as to prevent road kills. • No excavations will be left open overnight unless fenced off. • The construction site should be fenced off with Elephant proof fence to avoid possibility of large mammals (Elephants) roaming the sight at night time. • Ensure that all waste generated during activities is removed from the site and disposed of appropriately at indicated above. • No open fires will be permitted on site. • Employees and contractors will be shown the value of biodiversity and the need to conserve the species and systems that occur within the National Park area through appropriate training to all staff working at the site. • Ensure Park Entry permit is up to date and that all employees adhere to the Park Rules and Regulations. • Ensure guidelines and rules are regularly communicated to workers and this is enforced with appropriate signage. • Any animals that are accidentally killed by construction activities or injured need to be immediately reported to the nearest MEFT Rangers Station • Surveillance & monitoring of possible illegal wildlife trade • Use existing borrow pits at Bagani and Kongola | |
| Noise | <ul style="list-style-type: none"> • Vehicles will travel maximum 30 km/h on construction site. • Noise-generating activities limited to daytime hours since noise impacts are most significant during the night. • General construction activities should follow good engineering practice that will including: (Regular maintenance of all diesel-powered equipment, Enclosure of major sources of noise, Following of good design philosophies for vibrating structures that are known to be noisy, Vehicle reverse sirens should not be used (if it does not prove to be a safety issue). • Equipment & machinery that is used intermittently should be shut down when not in use • Minimize individual vehicle engine, transmission and body noise or vibration through the implementation of an equipment maintenance programme and minimize the need for trucks or equipment to reverse. • Create awareness to construction team | Construction |
| Environmental issue | Rules/Regulations | Relevant project phase |

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| Archaeology | In the event that archaeological resources are discovered during construction, a chance find emergency procedure will be implemented which includes the following: (All work at the find will be stopped to prevent damage, An appropriate heritage specialist will be appointed to assess the find and related impacts; and Permitting applications will be made to the necessary authorities, if required) | Construction |
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| Environmental Issue | Aspect | Rules/Regulations | Relevant Project Phase |
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| Non-biodegradable waste: | Wet concrete and concrete slurry | Must be mixed on a protected surface (tarpaulin / surface bed) to avoid soil and groundwater contamination. | Construction |
| | Waste concrete slurry | Must be poured into an open leak-proof container / drum, allowed to dry out and dry residue disposed of as with solid concrete. | Construction |
| | Water for cleaning mortar, cement, concrete, etc. from tools and equipment | Must be kept in a leak-proof container / drum and reused for the same purpose, after which it must be allowed to separately dry out and dry residue disposed of as with solid concrete. | Construction |
| | Left-over chemical liquids (solvents, thinners, petrochemicals, paints, varnish, oil, diesel, petrol, etc.) | Must be stored in leak- and deterioration proof containers and transported to an approved noxious waste disposal site or agent. | Construction |
| | Water used to clean painting tools (brushes, trays, buckets, etc.) | Must be kept in a leak-proof container / drum and reused for the same purpose, after which it must be allowed to separately dry out and dry residue disposed of as with left-over chemical liquids. | Construction |
| | Masonry (concrete, brick & | To be sorted and separated at source or generation | Construction |

| Environmental Issue | Aspect | Rules/Regulations | Relevant Project Phase |
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| | plaster) | point and stockpiled in protected controlled manner. Dry material to be buried at the bottom of any borrows pits to be closed at the end of construction, at least 500 mm deep. | |

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| | Plastics (packaging, wrapping, electrical insulation, pipes, packaging straps, etc.) and derivatives (polystyrene, Styrofoam, packaging pellets, food containers, etc.) | To be sorted and separated at source or generation point and stockpiled in protected controlled format. To be removed in enclosed containers or packaging and transported to the closest recycling agent or depot. Not to be buried or burned | Construction |
| | Metal (off-cuts from reinforcement, welding, roof sheets, fencing, metal ties, nails & screws, packaging, broken metal components, tins, cans, cables, etc.) | To be sorted and separated at source or generation point and stockpiled in protected controlled format. To be removed in enclosed containers or packaging and transported to the closest recycling agent or depot. | Construction |
| | Glass (broken window panes, bottles, etc.) | Not to be buried or burned | Construction and Operation |
| | Ceramics (broken tiles, sanitary ware, etc.) | To be sorted and separated at source or generation point and stockpiled in protected controlled format. To be removed in enclosed containers or packaging and transported to the closest recycling agent or depot. | |
| | Textiles (fibre insulation, woven bags, curtaining fabrics, pinning board, etc.) | Not to be buried or burned | Construction |
| | Food-packaging | To be sorted and separated at source or generation point and stockpiled in protected controlled format. To be removed in enclosed containers or packaging and transported to the closest recycling agent or depot. | Construction |
| Biodegradable waste: | Construction grey-water from | Provide temporary 5m ³ horizontal PVC tank or | Construction |
| Environmental Issue | Aspect | Rules/Regulations | Relevant Project Phase |

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| | kitchen, laundry, showers and toilets. | prefabricated septic tank (OBECO) to retain all solids. Provide overflow into shallow evaporation / percolation pond. Cover and rehabilitate pond after completion. Empty solids from tank / septic tank at approved ponds in Divundu or Kongola. Allow one 5 m ³ tank for 50 persons. | |
| | Paper (paper, cardboard, boxes, cement bags, etc.) | May be burnt on site in a controlled manner to complete ash. Ash to be buried. | Construction and operation |
| | Timber (pallets, off-cuts, supports, boards, shuttering, etc.) | May be burnt on site in a controlled manner to complete ash. Ash to be composted with vegetable waste. | Construction and operation |
| | Vegetable origin food waste, ash, leaves, plant-clippings, green wood, animal origin food waste (meat, bones, cheese, fish, etc.) | Dedicated composting station to be established on site to the approval of the Principal Agent or Chief Warden | Construction and Operation |

