Environmental Management Plan (EMP) for the proposed redevelopment of ERF 492 Divundu Extension 1 (from public open space to various business land uses) for the Divundu Village Council in Namibia - August 2022.

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1.0 ENVIRONMENTAL MANAGEMENT PLAN

2.1 Introduction and Background

Ritta Khiba Town and Environmental Planners have been appointed by Divundu village council as a neutral Environmental Consultant to undertake the Environmental Assessment (EA) for the proposed redevelopment of the ERF 492 Divundu Ext 1, Kavango East Region. Divundu village council intends to make use of the public open space for business purposes, tourism and hospitality-related activities, private educational Centre and remainder of Erf will remain public open space. These will smoothen the way forward for Divundu Village in reaching a town status.

This EMP will be instrumental during the planning, construction, and operational phases of the whole proposed project. The solid waste generated because of a new settlement will find its way to the existing dumpsite.

During the project life cycle, Divundu Village Council remains accountable for violation of any misconduct against the contents of this EMP. The purpose of this EMP is to deliver guidance to the project team in respect to, the construction of a new township on approximately 37.07 Ha and all the project life cycle activities. This encompasses all phases of the project except decommissioning phase at this point is a far-fetched dream. In case of decommissioning of the proposed development, an application to the Ministry of Environment should be done following all the legal requirements.

All in all, the objective of this EMP is to formulate mitigating measures that should be made enforced to all contractors during all phases of the project to prevent negative impacts where possible. This EMP is an obligatory measure to protect the natural and socio-economic environment on the proposed project site, its immediate environs, and the planet at large. It is a specific aim of this EMP to prevent long-term environmental degradation. All the Environmental specifications and the procedures discussed in this deed were also developed per the relevant legislation applicable to the proposed development.

2.2 Phases of the Project

This EMP was compiled in progression to the fulfilment of the EM Act of Namibia of 2007 and its regulations. The objective of this EMP is to formulate mitigating measures that should be made enforced on all contractors during all phases of the project. If all the contents of this EMP are not desecrated in any way, this will enhance a sustainable project implementation.

2.2.1 The Planning Phase

This EMP bids a superlative prospect to integrate pre-emptive environmental management measures to achieve sustainable development. While there is still the chance of unforeseeable impacts taking place; however, through the incorporation of contingency plans like this EMP during the planning phase, all necessary remedial activities can be operationalized to reduce potential impacts. Impacts that are likely to be encountered during this phase will be being linked to reallocation and reimbursements of illegal settlers.

2.2.2 The Construction Phase

During the construction phase localized, immediate positive, and negative impacts are most likely to be encountered. Impacts like dust pollution, noise pollution, land pollution/degradation, deforestation, employment creation, culture dilution, occupational health, and safety-related issues. All likely impacts during this phase can be mitigated or stabilized to environmentally acceptable standards if the contractors and the project proponent operationalize this EMP. Divundu Village council as the project proponent should therefore exercise a sound Environmental Management approach. This can be archived through hiring or employing a qualified and experienced Environmental Officer to interpret the contents of this EMP about the construction activities.

2. 2 The Operation Phase

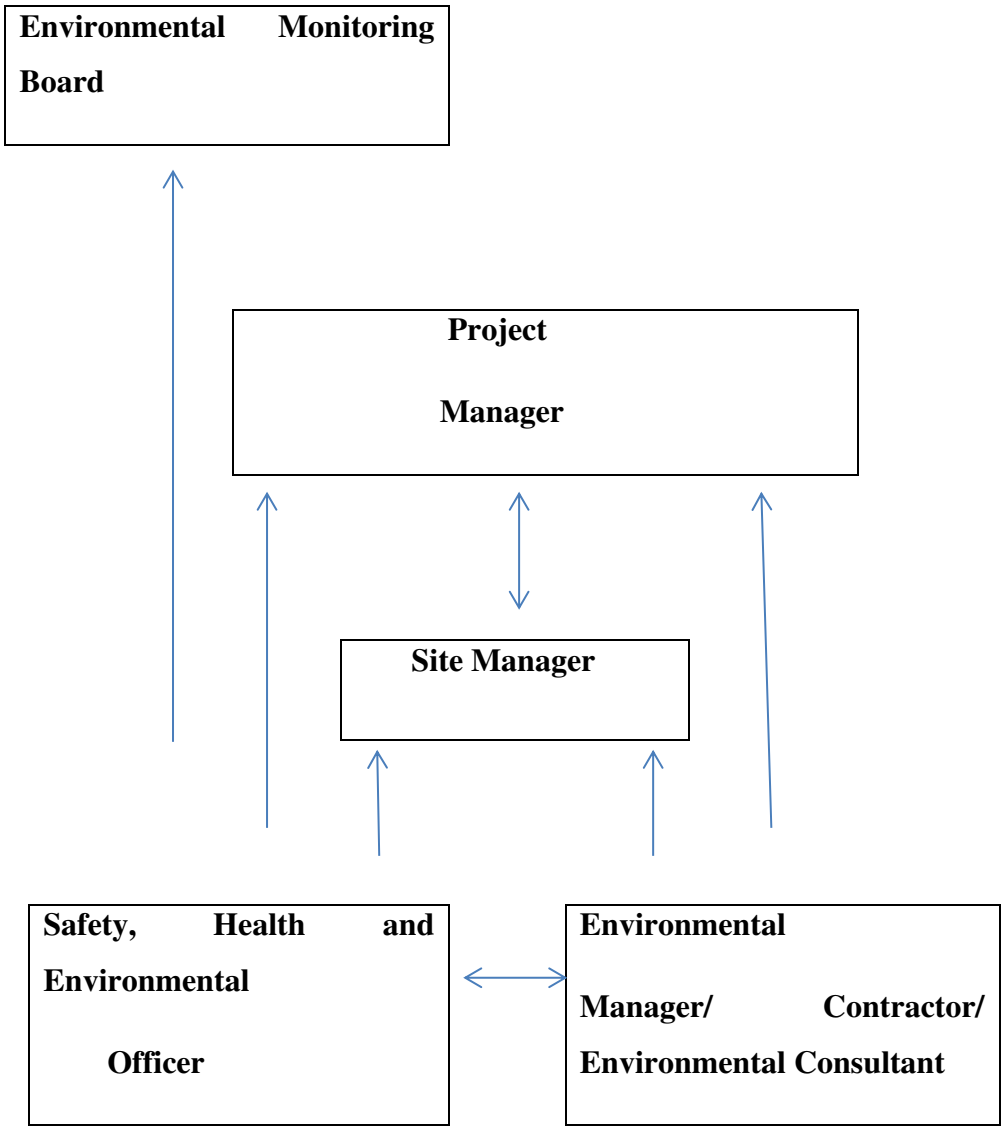
The proposed redevelopment will give birth to both positive and negative impacts on the receiving environment and the nation at large. During the operational phase, positively the project will improve social welfare through the creation of job opportunities and enhance business opportunities. The project operational phase is likely to bring some undesirable impacts like invasive alien species, culture dilution, population increase, solid waste accumulation, and increased resource utilization.

3.0 EMP AND PROJECT MANAGEMENT

3.1 Responsibilities during the Construction Phase

The official authorities will be entitled to ensure that all necessary fundamental techniques towards EMP implementation are executed. Specific responsibilities of Divundu Village Council, Project manager, Site Manager, Environmental Manager, and Safety Health and Environmental officer for the construction phase are shown on the flow chart diagram overleaf.

Table 6: Specific responsibilities



Responsibilities of the Site Manager

a) Familiarize with the Environmental Management Plan
b) Be familiar with all applicable environmental legislation and the Divundu Council Safety, Health, and Environmental policies
c) Ensure that audits are conducted to ensure compliance with the EMP
d) Liaise with the Project Manager, the Safety, Health, and Environmental Officer, and the Contactor on matters concerning the environment.
e) Avoid actions that are likely to have detrimental results on the environment
f) Prevent land, air, surface, and groundwater pollution on the site.
g) Have overall responsibility for the implementation of the EMP on site

Responsibilities of the Project Manager

a) Ensure that Divundu Village Council and the Contractor are aware of all specifications, legal requirements procedures about the project specifically with regards to the environment
b) Familiarize him or herself with the Environmental Assessment perspective
c) Ensure that all requirements within this EMP are communicated and adhered to by the Divundu Village council and its Contractor(s)
d) Monitor the implementation of the EMP throughout the project using the site.

The responsibilities Safety, Health and Environmental Officer

a) Familiarization with Environmental Impact Assessment Report
b) Be familiar with all applicable environmental legislation and the Divundu Council Safety, Health, and Environmental policies
c) Be fully familiar with the Environmental Management Plan.
d) Implement Occupational Safety, Health, and the Environment standards
e) Ensure that intermittent environmental routine audits are undertaken on the project execution
f) Maintain a daily site register, a public complaint register, a register of audits
g) Be fully acquainted with the conditions of the Record of Decision
h) Available on daily basis during the construction phase
i) Reporting to project manager
j) Undertake regular and comprehensive inspections on-site and surrounding areas to monitor compliance with the EMP

k) Take applicable action following non-compliance with the EMP
l) Convey the contents of this document to the site staff and discuss the contents in detail with the Project Manager and Contractor
m) Monitor and authenticate those environmental impacts are moderated
n) Compile progress reports regularly, with input from the Site Manager, for
o) Submission of a final post-construction audit carried out by an independent auditor/consultant to the Project Manager
p) Submit an environmental compliance report quarterly, in writing, to the

Ministry of Environment and Tourism (MET)

The responsibilities of Environmental Manager/ Contractor/ Consultant

a) Ensure daily inspections to determine compliance, using checklists
b) Simplify reporting system, recording, investigation, and follow-up of environmental-related Incidents as per Risk Management process
c) Proactively interpret and objectively analyses environmental data and initiate programs to mitigate against the environmental and related risks
d) Undertake principal responsibilities on performing environmental audits and employee guidance on issues related to safeguarding this EMP
e) Compile and submit a monthly report to Divundu Council, External Auditor & Project Management
f) Facilitate and integrate relevant environmental training programs for employees
g) Ensure compliance with this EMP
h) Review construction methods, techniques, and procedures identify environmental risk, draw conclusions, and recommend possible solutions
i) Cultivate, implement, and manage the necessary Environmental Management Systems

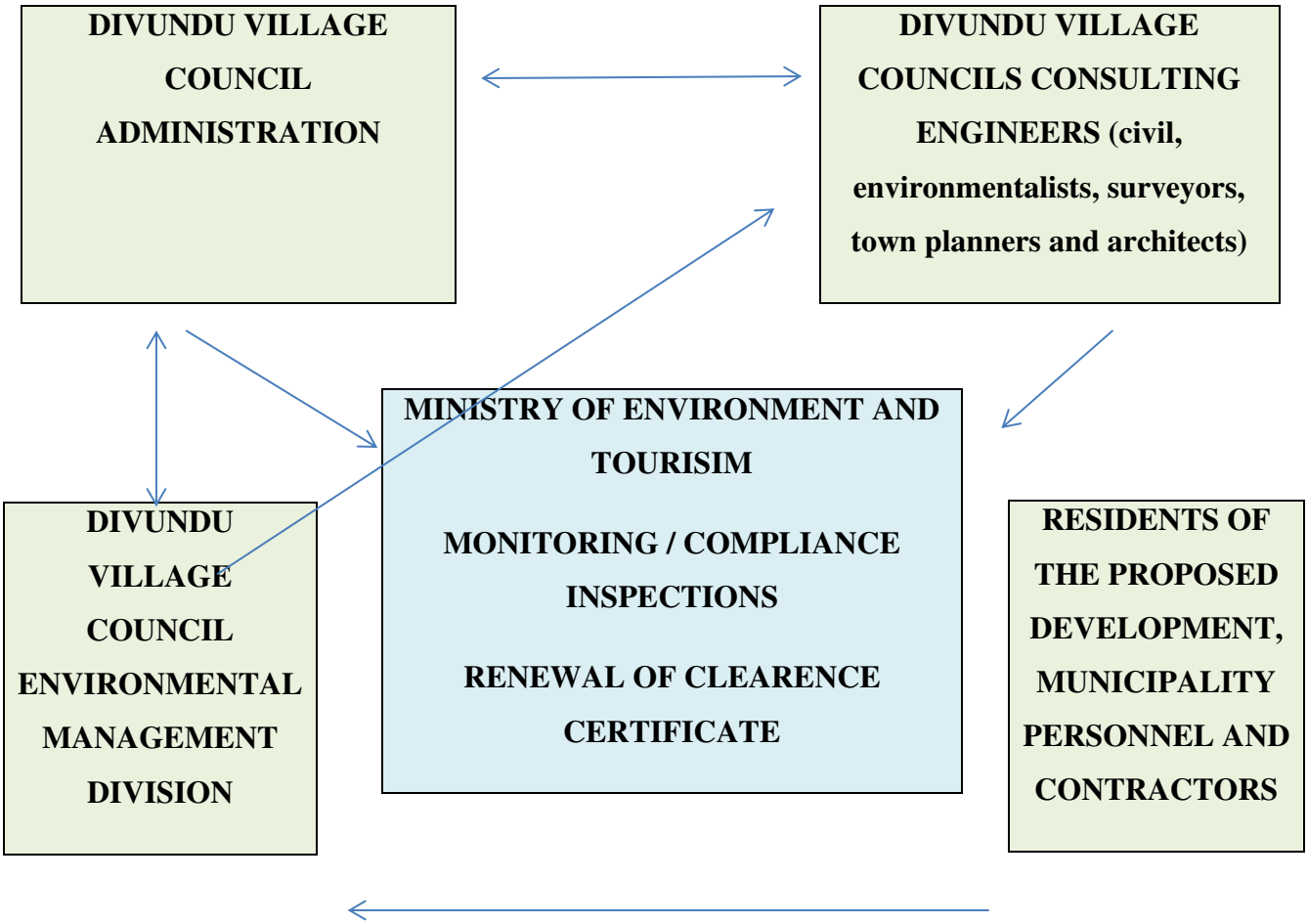
3.2 Responsibilities during the Operation Phase

The operation phase is a lifetime frame of the project. A sustainable approach will ensure smooth day-by-day running of the ecosystem within the project environs and the planet at large. Divundu Village Council remains the chiefly responsible authority for the sustainability of the project life cycle. During the operation phase possible impacts like job creation, urban expansion or urban growth, effects on groundwater or the water table, localized traffic increase, safety, health, and environmental hazards emanating from daily

operations, land pollution, impacts associated with illicit dealings, cultural dilution, the introduction of invasive alien species, surface, and groundwater pollution among others.

Below is a flow chart showing responsible authorities to be involved in the project life cycle ensuring EMP implementation on the proposed project site. MET will be the supervising or monitoring board.

Table 7: Specific responsibilities during operation phase



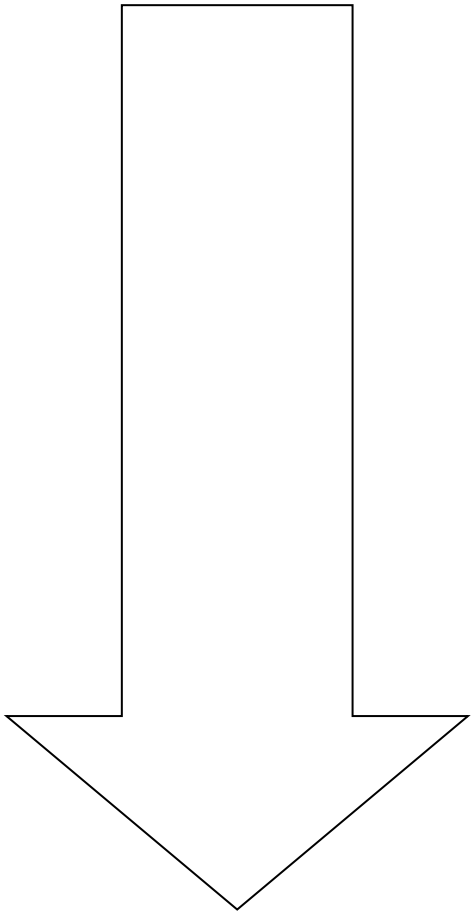
3.3 Environmental Mitigation Plan

Mitigating measures for negative impacts during all phases of the project will be outlined in this section. These are based on evidence testified in the existing literature on similar case studies and specific features on the proposed project site. The mitigation plan is based on a

source and sensitivities approach, allowing the identification and proposition of protective measures for undertaking all the challenges faced during project development and life cycle.

Table 8 below contains the possible impacts and proposed mitigating measures to be done to ensure a sustainable project implementation.

Table 8: Likely impacts and proposed mitigating measures



PHASE	IMPACT DEPICTION	MITIGATION	RESPONSIBILITY
CONSTRUCTION	-Noise Pollution and vibration is most likely to generate from earth moving machinery and blasting construction works. This will be a public nuisance as well as personnel on shift	▪ Observing working hours. ▪ use of well serviced equipment ▪ use of adequate personal protective equipment (PPE) e.g., earmuffs and earplugs	**CONTRACTOR/ SAFETY AND HEALTH OFFICER/ SITE MANAGER**
	-Safety and Health risks are most likely to be encountered during construction. Injuries, agronomics, falling from heights, use of Hazardous substances, pins, and needles	▪ Use of adequate PPE ▪ shift work on hazard prone areas ▪ safety and health awareness and education and training to construction personnel	**CONTRACTOR/ SAFETY AND HEALTH OFFICER/ SITE MANAGER**
	-Biodiversity to be lost through site clearance, use of earth moving machinery disturbs soil organisms	▪ avoiding disturbance of nearby environs ▪ refilling trenches using original soil	**CONTRACTOR/ SAFETY OFFICER/ SITE MANAGER**
	-Population increase resulting in immoral behaviours/ illicit dealings/ HIV and AIDS	▪ education/ awareness ▪ employing locals ▪ engage law enforcing agents, (neighbourhood watch program/ Nampol	**CONTRACTOR/ SAFETY AND HEALTH OFFICER/ SITE MANAGER**
	IMPACT DEPICTION	**MITIGATION**	**RESPONSIBILITY**
	▪ Solid waste generation/ littering	▪ Use of movable toilets on site	**CONTRACTOR/ SITE**

	▪ human waste from construction personnel, unpacked construction materials and food packaging are most likely to be the source of solid waste	▪ use of by-liners on site ▪ education and awareness ▪ ensure all waste generated is disposed at the dumpsite	**MANAGER/** **SAFETY AND HEALTH OFFICER**
	Dust pollution on the project site is most likely to emanate from dump trucks and earth moving machinery that's affecting the nearby environs and construction personnel	▪ dust suppression always	**CONTRACTOR/ SITE MANAGER/ SAFETY AND HEALTH OFFICER**
	Land degradation / Excavation of deep trenches most likely to be dangerous to animals and human beings during the night	▪ Use of warning signs/ reflectors at night ▪ closing of finished trenches as quickly as possible	**CONTRACTOR/ SITE MANAGER/ SAFETY AND HEALTH OFFICER**
CONSTRUCTION **OPERATION PHASE**	Paving or Surface modification likely to increase surface runoff and reduce infiltration. Thus, posing the risks of flooding.	Designing storm water drainage system and buffered roads to allow water movement. Use of gutters should be considered on municipal building plans	**CONTRACTOR OR SITE MANAGER**
	IMPACT DEPICTION	**MITIGATION**	**RESPONSIBILITY**
	Solid waste generation will cause littering, illegal dumping, suffocation of babies and pets with plastics, eyesore to	-Use of skip bins - Structuring a solid waste management division or team	**DIVUNDU VILLAGE COUNCIL**

	the public.	-education and awareness - garbage collection schedule -regulations on illegal dumping and littering	
	-Effluent or wastewater generated from households and public places must reach the treatment plant, but unfortunately events like leakages, blockages will discharge untreated effluent into the environment posing risks of diseases, ground and surface water pollution, non-point water pollution -Failure of the treatment plant to cause health risks to the community where treated effluent is recycled back	-setting up an emergency sewerage service team who can also maintain leakages and neutralize lost effluent -keeping the treatment plant well serviced by installing agent - education and awareness on the use of tissues to reduce the chances of blockages	**DIVUNDU VILLAGE COUNCIL**
	- Water use will decrease the water table yields thus causing fluctuations.	An integrated water use approach will help to reduce underground water extraction thus by applying reduce, recycle and reuse as well as the user pays principle.	**DIVUNDU VILLAGE COUNCIL**
	-Safety and Health risks for municipality workers on duty. Waste pickers,	▪ appointment of a safety, health, and environmental officer	**DIVUNDU VILLAGE COUNCIL**

	electricians, plumbers among others might be victims of occupational related hazards	▪ Provision of adequate PPE. ▪ education, awareness, and training courses	
	Introduction of invasive alien species is likely to emanate from decorating flowers, lawns and beautifying recreational or public open spaces as well as boundaries	▪ use of locally acceptable flowers ▪ maintenance of alien species ▪ education and awareness on invasive species	**DIVUNDU VILLAGE COUNCIL**
PHASE	**IMPACT DEPICTION**	**MITIGATION**	**RESPONSIBILITY**
OPERATION	Population increase resulting in immoral behaviours/ illicit dealings, burglary - spread off sexually transmitted dieses - social unrest -culture dilution	-Engaging Law enforcement agents e.g neighbourhood watch dogs, NAMPOL, security services -education, training, and awareness programs -women empowerment	**DIVUNDU VILLAGE COUNCIL**
	-traffic increase causing congestion, noise, and vehicle theft	- use of restriction traffic signs or regulations - use of traffic lights, traffic circles and recommended widths of streets -traffic controlling	**DIVUNDU VILLAGE COUNCIL**

3.4 Occupational Health and Safety Monitoring Program

The occupational health and safety monitoring program should include:

a) Surveillance of the working environment:

Divundu Village Council should document compliance using a suitable combination of portable and stationary sampling and monitoring instruments. Monitoring and analyses should be conducted according to internationally recognized methods and standards. Monitoring methodology, locations, frequencies, and parameters should be established individually for each task following a review of the hazards.

3.5 Conclusion

Arising from the analysis by the consultants, the proposed project is unlikely to generate any irreversible or permanent negative impacts. The report has provided adequate mitigation measures for the identified temporary impacts. It is therefore recommended that the proposed project be approved provided that the proposed recommendations given are strictly adhered to.

3.6 Recommendations

To sack negative impacts that may emanate from the construction and operation phases of the land development and its affiliations, relevant and cost-effective management, and mitigation measures should be put into practice. Divundu Village council as the project proponent should therefore be able to lead on issues related to social wellbeing as well as women empowerment initiatives.

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APPENDIX I: CONSULTANT RESUME

APPENDIX II: MAPS, SITE PLANS AND STRUCTURAL LAYOUTS

APPENDIX III: TERMS OF REFERENCE

APPENDIX IV: BACKGROUND INFORMATION DOCUMENT

APPENDIX V: PUBLIC CONSULTATION TEMPLATES