ENVIRONMENTAL IMPACT ASSESSMENT: THE PROPOSED DEVELOPMENT OF A PRIVATE AIRSTRIP ON FARM KRANZFONTEIN NO. 753 IN GROOTFONTEIN, OTJOZONDJUPA REGION: NAMIBIA.

ENVIRONMENTAL MANAGEMENT PLAN (EMP)

DATE: JULY 2021

D&P ENGINEERS
AND ENVIRONMENTAL CONSULTANTS
"Purpose with Passion"

TULAING
Group [PTY] Ltd.
"Fuelled by Ethics"



The Proposed Development of a Private Airstrip on Farm Kranzfontein No. 753 In Grootfontein, Otjozondjupa Region: Namibia

Environmental Management Plan (EMP)

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Definitions

TERMS	DEFINITION
BID	Background Information Document
EAP	Environmental Assessment Practitioners
ECC	Environmental Clearance Certificate
ECO	Environmental Control Officer
EIA (R)	Environmental Impact Assessment (Report)
ESIA	Environmental and Social Impact Assessment
EMP	Environmental Management Plan
EMPR	Environmental Management Plan Report
GHG	Greenhouse Gasses
ISO	International Organization for Standardization
I&Aps	Interested and Affected Parties
MEFT: DEA	Ministry of Environment, Forestry and Tourism's Directorate of Environmental Affairs
NHC	National Heritage Council
NEMA	Namibia Environmental Management Act
ToR	Terms of Reference
UNFCCC	United Nations Framework Convention on Climate Change

i. Purpose of This Environmental Management Plan

This Environmental Management Plan follows on environmental flaws associated with the proposed construction and operation of the proposed private airstrip, which were identified through the Environmental Scoping Report. A conscious decision was made based on the recommendations and guidelines by the Directorate of Environmental Affairs EIA guidelines in order to assess both significant and less significant environmental impacts proposed by the development. The developed Environmental Management Plan (EMP) for this proposed activity will have to be effectively implemented by the client, to ensure that adverse environmental impacts are not considered.

The framework within which this EMP is developed includes identifying various activities, their occurrence in the construction and operation processes and the likely impacts that are associated with those activities.

It is therefore necessary to subcategorize the EMP into Construction and Operational activities. The first category of the EMP which deals with project activities identified and highlight the activities impacts and the phases they are likely to occur. In this respect, this EMP alludes on anticipated construction activities and the mitigation measures that will need to be applied to reduce the severity of the impacts the proposed development may have on the surrounding environment. This will also include rehabilitation measures that will need to be implemented once the construction is completed and how to continuously monitor the plant in accordance to monitoring parameters highlighted herein.

ii. EMP PRINCIPLES

The following principles have informed the compilation of this environmental management Plan:

- The environment is considered to be composed of both biophysical and social components.
- Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.
- Development must be socially, environmentally and economically sustainable.
- Construction, in general, is a disruptive activity and all due consideration must be given to the environment, particularly the social environment, during the execution of the project to minimize the impact on the affected parties.
- Minimization of areas disturbed by construction activities will reduce the severity of the construction related environmental impacts and reduce rehabilitation requirements and costs.

- As minimum requirements, relevant standards relating to international, national, regional and local legislation, where applicable, shall be adhered to. This includes requirements relating to waste emissions (e.g. hazardous, airborne, liquid and solid), waste disposal practices, noise regulations, road traffic ordinance etc.
- Reasonable measures to avoid pollution and environmental degradation are to be provided for.
- The costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling, or minimizing further pollution, environmental damage or adverse health effects must be paid for by the person responsible for harming the environment.
- The responsibility for the environmental, health and safety consequences of the proposed development exists throughout its life cycle

1. CHAPTER ONE: BACKGROUND

1.1. Introduction

Tulaing Group (PTY) Ltd is proposing the establishment of a Private airstrip on Farm Kranzfontein No. 753, in Grootfontein. The airstrip is earmarked for private use by Tulaing Group for private aircrafts travelling to Grootfontein for tourism, business and leisure. In addition, the airstrip will also be used to service the proposed Tulaing Private Estate on the same farm.

In terms of the Namibian environmental legislation (Environmental Management Act (No. 7 of 2007)) and the Environmental Assessment Regulations of 2012; an Environmental Impact Assessment (EIA) is required to obtain an Environmental Clearance Certificate from the Ministry of Environment Forestry and Tourism (MEFT) before the project can proceed.

Furthermore, as per the requirements of the Environmental Management Act No. 7 of 2007, Tulaing has appointed D&P Engineers and Environmental Consultants (DPE) to conduct an Environmental Assessment (EA) and develop an Environmental Management Plan (EMP) for the proposed airstrip establishment. This has been followed by an application for Environmental Clearance Certificate (ECC) to the Ministry of Environment and Tourism (MET): Directorate of Environmental Affairs (DEA).

In this respect, this document forms part of the application to be made to the DEA's office for an Environmental Clearance certificate for the private airstrip in Grootfontein, in accordance with the guidelines and statutes of the Environmental Management Act No.7 of 2007 and the environmental impacts regulations (GN 30 in GG 4878 of 6 February 2012).

1.2. Project Location

The proposed Private Airstrip is located on Farm Kranzfontein No. 753 in Grootfontein Town in Otjozondjupa Region-Namibia. Farm Kranzfontein is located to the North-Eastern end of Grootfontein town CBD and sited at the corner of B8 National highway to Rundu and the C42 district road.

Figure 1 below gives the project locality in Grootfontein.

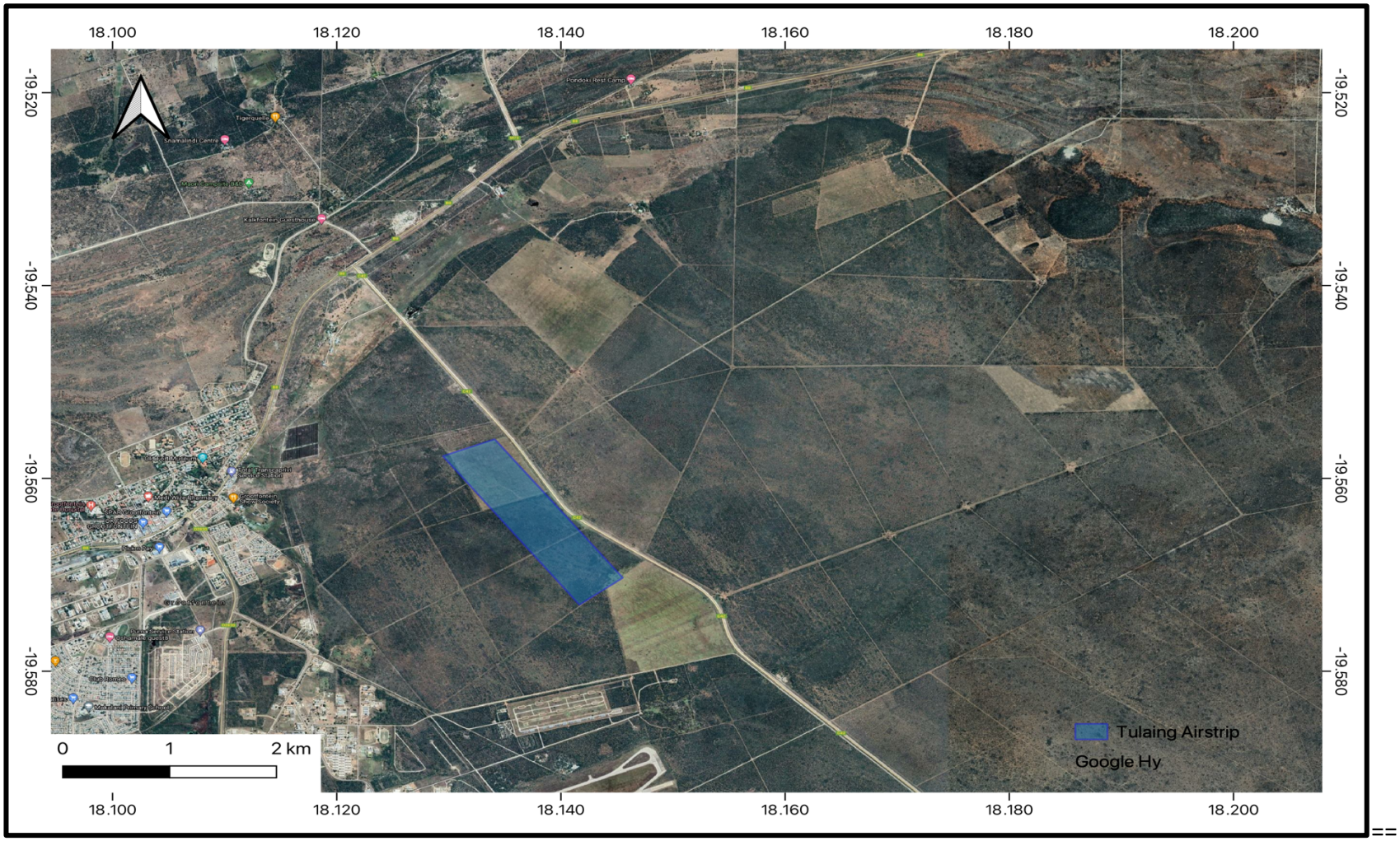

Figure 1: Proposed Project Site.

2. CHAPTER TWO: PURPOSE OF THE ENVIRONMENTAL MANAGEMENT PLAN (EMP)

2.1. Overview

This EMP has been developed for the proposed private airstrip. It forms the operational framework within which the proposed establishment is to operate within. All anticipated environmental and social impacts identified in the environmental scoping report are addressed, with a mitigation action, monitoring requirements, key indicator and responsibilities.

This EMP is incessant, and it requires compliance monitoring, updating and or amendment if the scope of operations change. All personnel working on the project will be legally required to comply with the standards set out in this EMP.

This section describes the Environmental Management Plan (EMP) for impacts associated with the proposed development. The EMP stipulates the management of environmental programs in a systematic, planned and documented manner. The EMP below includes the organizational structure, planning and monitoring for environmental protection at the proposed farm area development and other areas of its influence. The aim is to ensure that the proponent maintains adequate control over the project operations to:

- To prevent negative impacts where possible;
- Reduce or minimise the extent of impact during project life cycle;
- Prevent long-term environmental degradation.
- Ensure public safety and health is protected

2.2. Legal and other requirements compliance

This report presents the EMP and has been undertaken in accordance with the requirements of the Environmental Management Act, No. 7 of 2007 and the Environmental Assessment regulations of 2012. As such, key requirements in accordance to this Act, classifies the proposed project as listed and invokes the need for an Environmental Management Plan to sustainably implement this project.

2.3. The EMP Administration

There is a strong need to clearly outline the roles and responsibilities of all stakeholders to ensure that the EMP is fully implemented. There is also a need for the proponent to appoint an overall responsible person (Site Manager) to ensure the successful implementation of the EMP.

It solely remains the responsibility of Tulaing Group to ensure;

- That all members of the project team, including contractors, comply with this EMP;
- That all personnel are provided with sufficient training, supervision, and instruction to fulfil this requirement; and

- Ensuring that any persons allocated specific environmental responsibilities are notified of their appointment and confirm that their responsibilities are clearly understood.

3. CHAPTER THREE: ENVIRONMENTAL MANAGEMENT PLAN (EMP)

The proposed private airstrip will have environmental impacts as indicated in the previous chapter. This section describes the Environmental Management Plan (EMP) for impacts associated with the proposed development. The EMP stipulates the management of environmental programs in a systematic, planned and documented manner. The EMP below includes the organizational structure, planning and monitoring for environmental protection at the proposed project development and other areas of its influence. The aim is to ensure that the proponent maintains adequate control over the project operations to:

- To prevent negative impacts where possible;
- Reduce or minimise the extent of impact during project life cycle;
- Prevent long term environmental degradation.

3.1. EMP Administration

There is a strong need to clearly outline the roles and responsibilities of all stakeholders to ensure that the EMP is fully implemented. To ensure that the EMP is effectively implemented, the consultant also recommends that MEFT: DEA also conduct regular inspection visits on site to enforce conducting of quarterly and biannual reports.

Furthermore, there is also a need for the proponent to appoint an overall responsible person (project manager) to ensure the successful implementation of the EMP as highlighted below:

Table 1: Roles and Responsibilities in EMP Implementation

ROLE	ENVIRONMENTAL RESPONSIBILITIES
Tulaing Group	Responsible to enforce EMP implementation during construction and operation phases.
Environmental Control Officer (ECO)	Implement, review and update the EMP. • Ensure all reporting and monitoring required under EMP is undertaken, documented and distributed as needed • Conduct environmental site training (tool box talks) and inductions with the support of an environmental consultant. • Conducts environmental audit at work site with the support of environmental consultant. • Close out all non-conformances. • Ensure materials being used on site are environmentally friendly and safe.
The Directorate of Environmental Affairs	Approve the EMP and any amendments to the EMP. • Approve reports of environmental issues and non-conformances as issued. • Review and approve environmental reports submitted as part of EMP implementation • Ensure that the client is compliant to the EMP through biannual reporting on environmental performance.
Project Manager	Control and monitor actions required by the EMP. • Report all environmental issues to HSE Manager. • Ensure documented procedures are followed and records kept on site. • Ensure any complaints are passed onto the management within 24 hours of receiving the complaint.
Workers	Follow requirements as directed by the EMP when conducting work. • Report any potential environmental issues to site engineer/project manager, indicating spilt oil, excess waste, excessive dust generation, dirty water running off the site and other possible non-conformances

Figure 2: Environment and Safety Management Systems

ASPECT	IMPACT	RISK	ACTION PLANS AND CONTROL MEASURES	MANAGEMENT OBJECTIVES	RESPONSIBILITY	TIMING
Integration of Environmental Management	Improved Environmental Management	High	▪ Include environmental management in Tulaings's Strategic Long-term Business Plan, by integrating environmental management linked to the operations of the airstrip.	▪ There is compliance with national and international civil aviation requirements ▪ There is compliance with all national standards related to or associated with the operations of the runway, such as environment, water, air quality, waste management, pollution management and all applicable components	Environmental Control Officer	Ongoing
Establishment and review of Environmental Risks and Improved Environmental Performance.		High	▪ Develop a set of environmental risks (using standard risk assessment methodology), to be reviewed and, where necessary, updated in line with Environmental Aspects Procedure. ▪ Adopt more results-driven research and monitoring approach, focusing attention specifically on fauna, flora and biodiversity related impacts of potentially medium and high risk, and how best to mitigate for these. ▪ Improve on performance reporting by determining key indicator species by which recovery rates of impacted areas can be determined more effectively.		Environmental Control Officer Environmental Scientist	Ongoing
Maintain Safety Management System (SMS)	Improved Health and Safety	High	▪ Maintain high safety standards for the operations of the Runway.		Safety Officer	Ongoing

Comply with the national and international civil aviation requirements	Improved Health and Safety	High	▪ Ensure compliance with the national and international civil aviation requirements		Pilot	Ongoing
Comply with all other applicable national regulations	Improved Environmental Management, Health and Safety	High	▪ Ensure compliance with all other national legislations, regulations, requirements and standards		Environmental Control Officer	Ongoing

Figure 3: Construction and Operation EMP (C&O EMP)

Impact	Description	Effects	Class	Time frame	Responsibility	Action	Phase
Noise pollution	Noise will be generated through: -Construction activities -Moving vehicles. -Landing and take-offs of helicopters and fixed wing aircraft operated by Tulaing.	- The health of working personnel could be disturbed. - Community residents could be disturbed by the noise. - General annoyance -Driving away of local animals' species near the project site	Environmental	Ongoing	-Environmental Control Officer -Site Manger	- A construction interval will be established, used and adhered to. - Workers will be issued earplugs to protect them from excessive noise. - Public will be notified through printed timetable stating planned operational activities. - Construction activities will be conducted during daytime. -Site notices will be erected on, around the site-notifying visitors, and nearby residents of different hazards on site. -No go areas marked as sensitive environments, especially for birds needs to be avoided during construction and operation. - Ensure that flight paths avoid the sensitive areas, unless in an emergency situation. - Ensure that fixed wings aircrafts landing and take-offs as well as holding zones	**Construction& Operation**

Impact	Description	Effects	Class	Time frame	Responsibility	Action	Phase
						avoid sensitive environments and other infrastructure.	
Dust Generation	Dust will accumulate because of the land preparation, onsite movements of vehicles and machines, wind blowing on loose material during construction and tipping. Aircraft landing may result in dust generation to surrounding residents especially for helicopters.	- Can lead to respiratory illnesses especially to those working in the area. - General air pollution. -Nuisance to nearby residents -The process can also drive away wild animals within the project area surroundings	Environmental	Ongoing	-Environmental Control Officer -Site Manager	- Dust suppression will be done through watering dust sources surfaces. -Watering down dusty surfaces, -Ensure that protective equipment such as respirators are distributed to employees, and ensure their use. -Site notices to be erected on and around the site to inform visitors and surrounding residents. -The runway will be paved with bitumen to prevent dust generation.	**Construction& Operation**
Loss of Biodiversity and general environmental deterioration	-Vegetative plants on site will be removed -Habitat destruction for both ground dwelling species and tree dwelling species. -Soil disturbance on and around the site.	-The clearing of vegetation will result in the breaking of the ecosystem processes in the area. -Loss of aesthetic value of the proposed project area. -The few small animals still habiting the place such as small rodents and birds will be forced away.	Environmental	Ongoing	-Environmental Control Officer -Site Manager	- The proposed project area is already disturbed, hence there is little vegetation to be affected by the development. - Ground disturbance will only be limited to the boundary area to avoid affecting a large area. -Upon completion of construction activities more regreening of the construction footprint affected area is recommended. A local landscaper can be engaged. **Runway:** -Avoid extending the runway and associated infrastructure activities (e.g. boundary tracks, fencing, etc.). **General:** -Make use of existing tracks/roads as much as possible throughout the area. -Rehabilitate all new tracks created.	**Construction& Operation**

Impact	Description	Effects	Class	Time frame	Responsibility	Action	Phase
						-Implement and maintain track discipline limited to predetermined tracks with maximum speed limits (e.g. 30km/h) as this would result in fewer faunal road mortalities and overall destruction of vegetated areas which serve as habitat to a variety of fauna. -Avoid off road driving in areas prone to scarring -Nocturnal driving should also be avoided as this result in the destruction of slow moving fauna – e.g. various reptiles and other nocturnal species. -Avoid and/or limit the use of lights during nocturnal activities and lighting should face downwards to minimise "light pollution". -Prevent and discourage any form of poaching, illegal collecting of veld foods (e.g. bird eggs, etc.) and the indiscriminate killing of perceived dangerous species (e.g. snakes, etc.) as this would diminish and negatively affect the local fauna. -Select equipment storage sites with care – i.e. avoid important habitats (use existing disturbed areas (e.g. vicinity of power line). -Initiate a suitable and appropriate refuse removal policy. -Educate/inform contractors and staff on dangerous (e.g.snakes) and protected species (e.g. tortoises) to avoid and the consequences of killing and/or illegal collection of such species. -Employ an environmental officer to ensure compliance,	

Impact	Description	Effects	Class	Time frame	Responsibility	Action	Phase
						especially of the rehabilitation of all the affected areas	
Greenhouse gas emissions	Green House Gasses (GHGs) emissions will be produced from the following activities: • Fuels combustion for (construction aircraft and vehicles and equipment) • Ground excavation releases phosphorus found underground and releases particulate matter into the atmosphere.	-Global climate change - Air pollution	Environmental	Ongoing	-Environmental Control Officer -Site Manager -Department of Environmental Affairs.	-Adopt the use of ethanol blended fuels wherever necessary. -Design an operation system that cuts on fuel consumption. - Use of solar energy system during construction for lighting and other minor energy needs. - Modern helicopters and aircrafts Should use high quality non air polluting fuels.	**Construction &Operation**
Waste Generation	-Construction and operation are associated with a lot of raw material and activities that results in pollution -The construction and maintenance activities may generate e-waste and this needs to be disposed of in a sustainable manner.	-Pollution from oil spills resulting from the handling of various machineries used during the construction phase -Construction rubble, empty packaging containers/bags and materials remnants.	Environmental	Ongoing	-Environmental Control Officer -Site Manager	- Ensure that all waste from construction activities is stored and contained in designated containers and transported to an approved waste disposal site. -Bulky waste such as building rubbles must be collected and disposed of for landfilling. -Visual inspections monitoring	

Impact	Description	Effects	Class	Time frame	Responsibility	Action	Phase
Safety and Health risks	Aircraft and Construction related Safety and Health hazards	-Injuries to workers such as Occupational dermatitis, slips and fall of humans and objects, musculoskeletal disorders, etc.	Health and safety	Ongoing	ECO	- Equip workers with Personal Protective Equipment (PPE), provide trainings on how to effectively use the PPE. -Provide platforms for briefings and meetings about possible safety and health hazards in the work place -Provide site signs warning and informing about different hazards on site. - Maintain high safety standards for the operations of the aircraft runway. - Ensure compliance with the national and international civil aviation requirements. - Maintain high safety standards for the operations of the aircraft and landing strip.	**Construction and operation**
	Electrical hazards	-Fatalities and fires	Health and safety	Ongoing	ECO	-Employees should be trained on electrical safety before working on site. -Safety representative with training on electrical hazards emergency management should be station on site always during construction -Safety signs during construction and operation should be put on site, no go areas should be labelled, PPE specifications should be clear to maintenance personnel.	**Construction and Operation**
	Avifauna	**-Bird fatalities**	**-Environmental**	**Permanent**	**-Environmental Control Officer -Site Manager**	**-New towers must be built below 60m height to avoid bird fatalities. -Construct unguyed towers with platforms that will accommodate possible future co-locations and build them at existing 'antenna farms', away from areas of high migratory bird traffic, wetlands and other known bird areas. -Where towers over 60m are absolutely necessary, use the minimum amount and intensity of lighting allowed under FCC regulations.**	**Operation**

Impact	Description	Effects	Class	Time frame	Responsibility	Action	Phase
						-Minimize the tower 'footprint' on newly constructed towers. **-If the tower is decommissioned, it should be removed as soon as possible.** **-Use visual daytime markers in areas of high diurnal birds.** **-Security lighting for on-ground facilities should be minimized, point downwards or be down-shielded.** **-Conduct on-site bird fatalities monitoring on the tower at least every month.** **-The use of white strobes results in less circling behavior by nocturnal migrants and thus fewer mortalities than red pulsating lights.**	
	Aviation Impacts	-Bird fatalities -Air transports impacts	-Socio-economic -Environmental	Permanent	-Environmental Control Officer -Site Manager	-The towers should comply with aviation guidelines so that they do not impact air transport systems. -Air traffic visibility systems such as lighting at the tip of the tower. -The towers should be designed so that they are visible to birds.	**Construction and operation**
Land use change	-There will be change in land use and visual aesthetics	-The area will no longer be suitable for agriculture. -Sudden change in landscape appearances may be unfavourable to the conservatives.	-Social -Terrestrial environment	Permanent	-Environmental Control Officer -Site Manager	-The development should blend into the existing area through designing and colour coding. -Green designing will bring life to the site and blend with surrounding areas through the installation of a Palm Tree Tower, that fits into the coastal ecological composition.	**Construction and operation**
Positive Impacts							
Employment creation	The development provides an opportunity of outsourcing work	- Improves disposable income to those employed and their immediate families.	Socio-economic	Project life time	-Site Manager	- Work with local leadership (councillor) on acquiring non-skilled labour from the residents.	**Construction and operation**
Business linkages	-Tourism, transport and general investment will be upscaled in the Grootfontein area.	-Local suppliers will be presented with an	-Socio-economic	Construction phase	-Site Manager	-The proponent will outsource most of its materials and services from Grootfontein.	**Construction and operation**

Impact	Description	Effects	Class	Time frame	Responsibility	Action	Phase
		opportunity to empower their businesses. -Construction workers can be provided with accommodation, food and services from the local community increasing business activities.					
Infrastructure development	The development presents a unique opportunity for infrastructure development in Grootfontein area.	-Improvement in aircraft infrastructure.. -Development of the facilities will also pave way for future developers to grow interests in the area and result in ripple effects and quick growing of the area.	-Socio-economic	Construction phase	-Site Manager	-The runway should also cater the general area to boost tourism.	**Construction and operation**

4. CHAPTER FOUR: ENVIRONMENTAL MONITORING PLAN

4.1.1. Objectives of the Monitoring Plan

The main objectives of the monitoring plan are the following:

- Verify of the correct application of the monitoring measures as presented in the Environmental Management Plan (EMP);
- 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;
- Provide assurance to stakeholders requirements with respect to 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 EMP Report and thereby aim to improve the assessment and monitoring processes.

5. CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

5.1. Recommendation from Environmental Assessment Practitioner

Based on the information provided it is the opinion of D & P Engineers and Environmental Consultants cc that no fatal flaws have been identified for the proposed development and that the information contained in this report is sufficient enough to allow DEA to make an informed decision.

The Environmental Consultant therefore recommends that Environmental Clearance be granted for the proposed development based on the following recommendations:

- The proposed activity is not anticipated to have significant environmental impacts.
- There is however a visual impact.
- The following recommendations should be implemented in order to ensure that potential impacts associated with the establishment and operation of the site are minimised:
    i. Any areas disturbed during construction and operation must be rehabilitated.
    ii. Construction to take place during working hours.
    iii. Trampling and disturbance associated with construction should be limited to within 5m (five metres) of the footprint of the site.
    iv. On completion of the project all litter and construction debris shall be immediately removed from the site.
    v. Mitigation measures to reduce the potential visual impact should be implemented as far as possible.
    vi. Aircraft safety should be prioritised at all times.
    vii. A grievance redressal system should be set up, to ensure minimal disturbance of nearby land uses.