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

ENVIRONMENTAL SCOPING REPORT (ESR)

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 Scoping Report (ESR)

Environmental Scoping Report Prepared for

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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 Impact Assessment Report

This Environmental Scoping Report (ESR) follows on the Scope of Work delineated by Tulaing Group Pty Ltd. Existing information and input from commenting authorities, Interested and Affected Parties (I&APs) was used to identify and evaluate potential environmental impacts (both social and biophysical) associated with the proposed project.

Environmental flaws associated with the proposed project were identified through the ESR. 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 detailed assessment of the anticipated impacts was undertaken with the purpose of highlighting any areas of concern regarding to the proposed project during its construction, and operation. In addition, an independent sensitivity mapping analysis was undertaken. This analysis characterised the development site on the significant environmental aspects in order to reflect the sites suitable and unsuitable (no-go) development footprint areas. This action guided the final footprint of the PV Plant and the transmission line.

This report will also be used to motivate and define the previously identified, project alternatives (i.e. site, technology and layout) based on the findings of the environmental baseline study and the suitability of the site to the type of development. This ESR has been compiled in accordance with the regulatory requirements stipulated in the EIA Regulations (2012), promulgated in terms of the Namibian environmental legislation (Environmental Management Act (No. 7 of 2007))

The ESR aims to:

- Provide an overall assessment of the social, physical and biophysical environments of the area affected by the proposed establishment of the proposed airstrip;
- Undertake a detailed environmental assessment, in terms of environmental criteria and impacts (direct, indirect and cumulative), and recommend a preferred location for the proposed plant (based on environmental sensitivity);
- Identify and recommend appropriate mitigation measures for potentially significant environmental impacts; and
- Undertake a fully inclusive Public Participation Process (PPP)
- GIS sensitivity mapping was conducted to identify potential impacts, propose mitigation and inform the sensitivity analysis.

A systematic approach was adopted for the successful completion of the EIA in line with the regulated process. The diagram in Figure 1 below indicates the sequential process that will be followed for this study.

ii. Assumptions And Limitations

The following assumptions and limitations underpin the approach to this EIA study:

- The information received from the stakeholders, desktop surveys and baseline assessments are current and valid at the time of the study;
- A precautionary approach was adopted in instances where baseline information was insufficient or unavailable;
- Mandatory timeframes will apply to the review and adjudication of the reports by the competent authority and other government departments; and
- No land claims have been registered for the proposed site at the onset and registration of the study.

NB: The EAP does not accept any responsibility in the event that additional information comes to light at a later stage of the process. All data from unpublished research utilised for the purposed of this project is valid and accurate. The scope of this investigation is limited to assessing the potential biophysical, social and cultural impacts associated with the proposed project.

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.

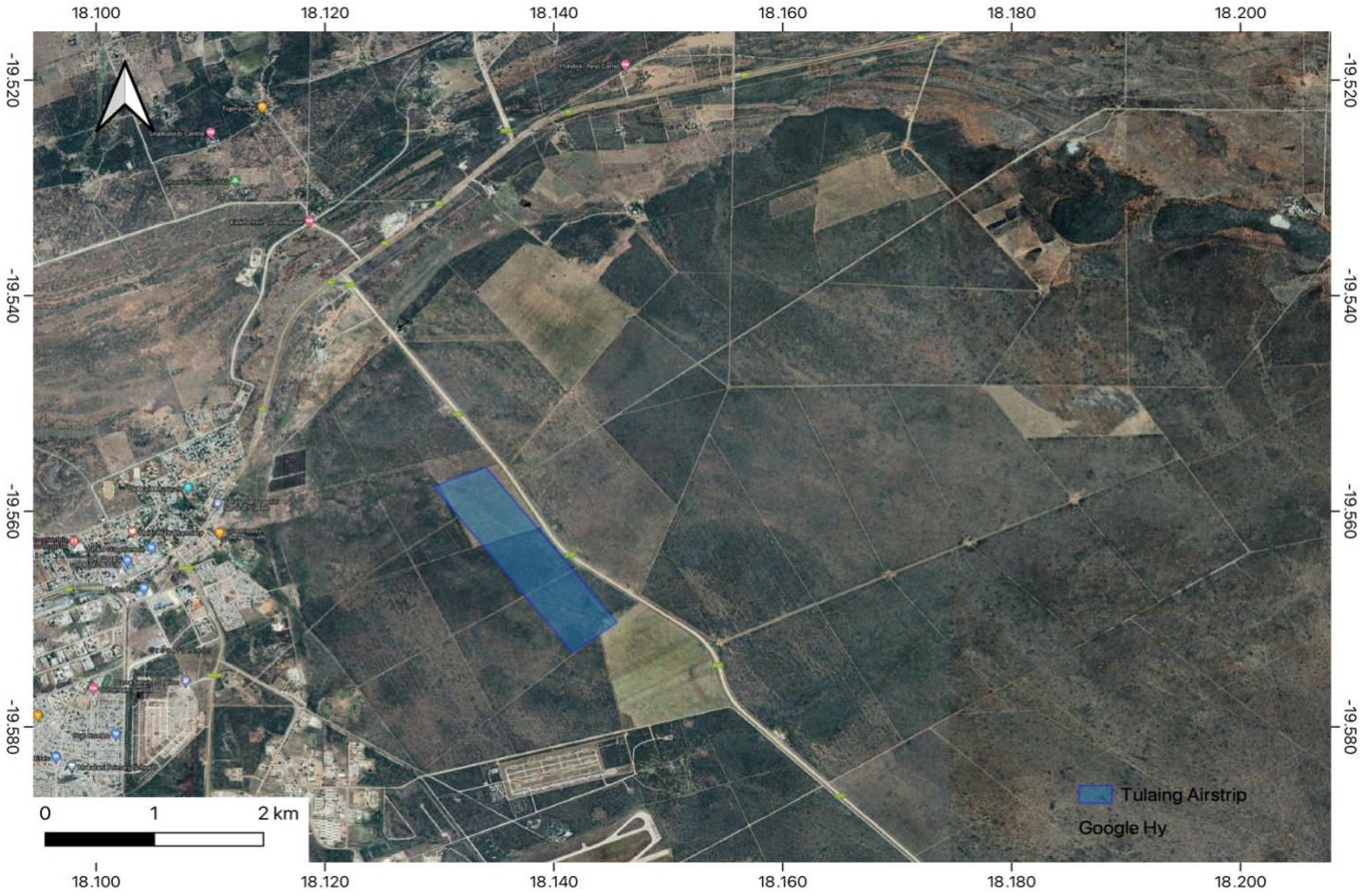


Figure 1: Proposed Project Site.

1.3. Project Overview

The proponent, Tulaing Group has several business interests in Grootfontein Town of Namibia. They have since spearheaded the establishment of Private Estate and a high-end Lodge establishment. The proposed development intends to improve business and tourism in Grootfontein.

In response to the developments and the business plan of promoting premium tourism, Tulaing Group is proposing the establishment of a private airstrip. The airstrip is aimed to be used for private use by Tulaing Group for private aircrafts travelling to Grootfontein for tourism, business and leisure. The project will involve construction of a private airstrip. According to current design plan, main components under the program will include of an airport as follows:

- 2km bitumen aircraft runway,
- Aircraft Hangar;

Figure 2: Typical Airstrip and Aircraft Hanger (Source: Robb Aircraft Report, 2017)

The proposed airstrip is designed to blend into the surrounding farm environment, through eco-friendly designs. This is aimed to also minimize visual aesthetics impacts and the ESR will be used by the design engineer for sustainability design specifications.

1.3.1. Accessibility

The site is easily accessible from the C342 road.

1.3.2. Infrastructure and Services

Water: There is an existing water connection on site, water is supplied by Grootfontein.

Ablution: There is sewer reticulation system connected to the site.

Electricity: There is an existing electricity connection on site

Communication: The site is connected with MTC, TN Mobile and satellite phones.

1.4. The project Environs

The project site is located on a farm area and the owners of the surrounding land-uses have been notified of the proposed development.

Figure 3: Top-The C342 road branching from the B8 road

Figure 4: Bottom-Existing water tank and borehole

1.5. Need and Desirability

The economic and social development goals of Namibia are embodied in (i) Vision 2030 and (ii) the National Development Plan 5 (NDP 5) 2017/2018 – 2021/2022 as well as NDPs 1, 2, 3, and 4. In addition, the Government has developed the Harambee Prosperity Plan (HPP) 2016/2017 – 2019/2020, which complements the Vision 2030 and NDP 5. All of the three plans set the goals, targets, and strategy for Namibia to move on a path to economic prosperity through a concerted strategy for the development of Namibia's economic growth. These Plans also include specific growth targets milestones and strategies for the sustainable deployment of Namibia's resources to achieve the stated economic and social development goals. Communication is one of the major targets aimed in the NDP5 and to stimulate development of any aspect, internet and voice connectivity is a pre-requisite.

This project, is a major step in addressing the objectives of the developmental plans and targets of the Namibian government through a major boost in tourism and infrastructure development in Grootfontein. A private airstrip also provides for a non-military option for leisure aircrafts in Grootfontein, since there is a lot of landing bottlenecks on the existing airstrip.

1.6. Project Alternatives

1.6.1. Site Location Alternatives

An alternative airstrip site has been proposed (refer to figure 3). Both two sites are practical, however the initial site selection is more preferable due to accessibility.

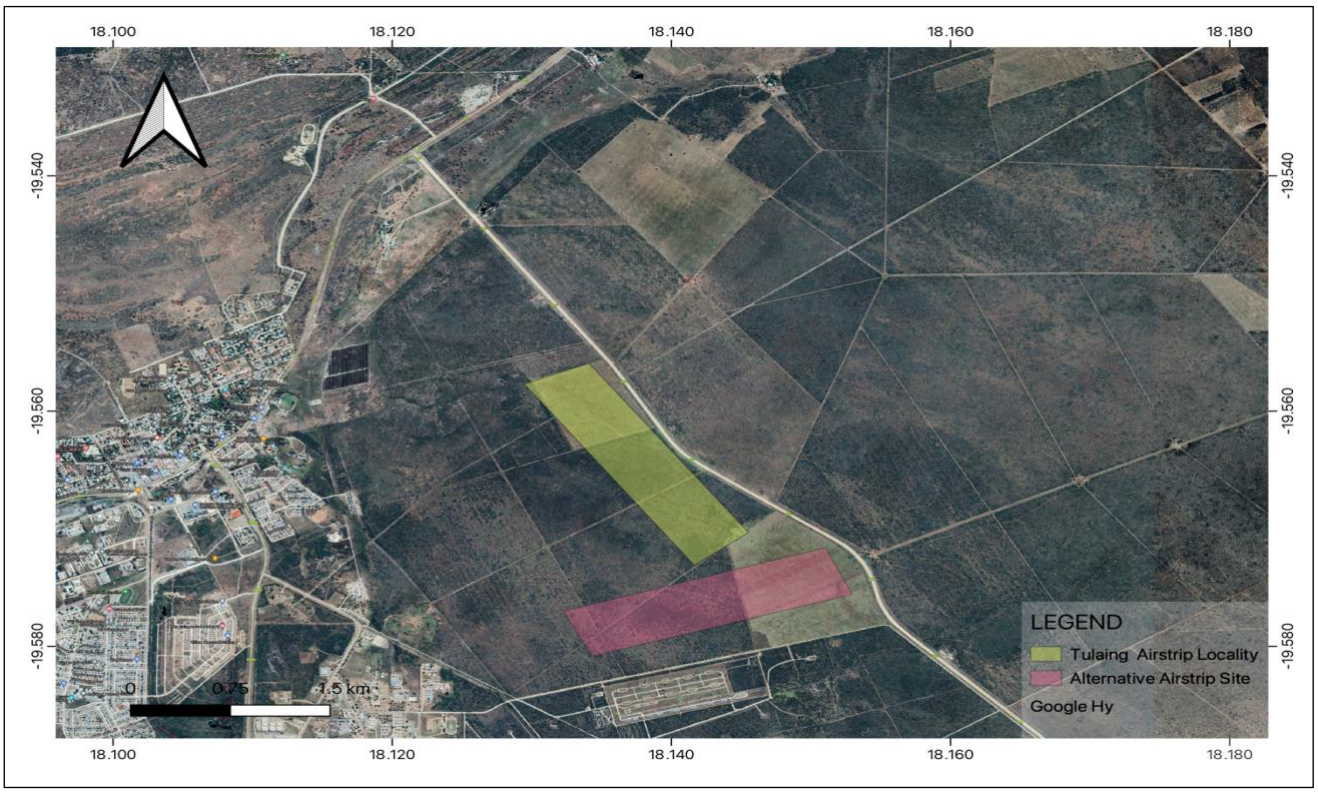


Figure 5: Alternative Locality

1.6.2. Alternative Activity

It is important, when considering appropriate activities for this site, to consider the restrictions that come with being situated in townland area. The proposed land-use can co-exist with the proposed and existing activities. The Grootfontein municipality was consulted and they gave a greenlight to the development, since it does not affect any municipal of town planning scheme zonation and activities.

1.6.3. The No-Go Alternative

The no-go alternative is the option of not undertaking the proposed activity or any of its alternatives. The no-go alternative also provides the baseline against which the impacts of other alternatives should be compared.

As the facility is desirable, the need established and existing, and the potential negative impacts minimal (with mitigation), the no-go option is not recommended for the development of the airstrip and hangar.

1.6.4. Conclusion

Based on the preceding alternative analysis and options, the project will go ahead and will ensure maximum environmental and safety performance systems are in place

2. CHAPTER TWO: POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

2.1. Introduction

An important part of the EIA is identifying and reviewing the administrative, policy and legislative frameworks concerning the proposed activity, to inform the proponent about the requirements to be fulfilled in undertaking the proposed project. This section looks at the legislative framework within which the proposed development will conform to; the focus is on the compliance with the legislation during the planning, construction and operational phases. All relevant legislations, policies and international statutes applying to the project are highlighted in the table below as specified in the Environmental Management Act, 2007 (Act No.7 of 2007) and the regulations for Environmental Impact Assessment as set out in the Schedule of Government Notice No. 30 (2012).

Table 1:Policies, legal and Administrative regulations

LEGISLATION/POLICY/GUIDING DOCUMENT	PROVISION	PROJECT IMPLICATION
The Constitution of the Republic of Namibia (1990)	The articles 91(c) and 95(i) commits the state to actively promote and sustain environmental welfare of the nation by formulating and institutionalizing policies to accomplish the sustainable objectives which include: - Guarding against overutilization of biological natural resources, - Limiting over-exploitation of non-renewable resources, - Ensuring ecosystem functionality, - Maintain biological diversity.	-Through implementation of the environmental management plan, the proposed development will be in conformant to the constitution in terms of environmental management and sustainability, through bringing development in an environmentally sensitive way.
Vision 2030 and National Development Plans	Namibia's overall Development ambitions are articulated in the Nations Vision 2030. At the operational level, five-yearly national development plans (NDP's) are prepared in extensive consultations led by the National Planning Commission in the Office of the President. Currently the Government has so far launched a 4th NDP which pursues three overarching goals for the Namibian nation: high and sustained economic growth; increased income equality; and employment creation.	-The proposed project is an important element in the propelling and connectivity in the country.
Civil Aviation Act, 2016 (Act No. 6 of 2016);	To consolidate the laws relating to civil aviation and civil aviation offences; to provide for the powers and functions of the Minister in relation to civil aviation; to establish the Namibia Civil Aviation Authority and to provide for its powers and functions; to establish the Air Navigation Services in the Authority.	The proposed airstrip should be in compliance to the CAA, This EIA is also part of a pre-requirement of compliance with the Act since an Environmental Clearance Certificate is required before an approval for establishing an Airstrip is given.

Environmental Assessment Policy of Namibia 1994	The Environmental Assessment Policy of Namibia requires that all projects, policies, Programmes, and plans that have detrimental effect on the environment must be accompanied by an EIA. The policy provides a definition to the term "Environment" broadly interpreted to include biophysical, social, economic, cultural, historical and political components and provides reference to the inclusion of alternatives in all projects, policies, programmes and plans.	-The construction and operation of the airstrip will only commence after being awarded an environmental clearance certificate, thus by abiding to the requirements of the Environmental Assessment Policy of Namibia. The EIA and EMP will cater for the sustainable management of biophysical environment.
Environmental Management Act No. 07 of 2007	The Act aims at ▪ Promoting the sustainable management of the environment and the use of natural resources by establishing principles for decision-making on matters affecting the environment; ▪ To provide for a process of assessment and control of projects which may have significant effects on the environment; ▪ The Act gives legislative effect to the Environmental Impact Assessment Policy. Moreover, the act also provides procedure for adequate public participation during the environmental assessment process.	-This document is compiled in a nature that project implementation is in line with the objectives of the EMA. EIA guiding procedures developed by MET were also used in the course of this project.
Electricity Act 4 of 2007	▪ Requires that any generation and or distribution complies with laws relating to health, safety and environmental standards (s 18(4)(b) ▪ In the event that exemption from acquiring a license is granted, the Minister may impose conditions relating to public health safety or the protection of the environment.	-Obliges the proponent to comply with all relevant provisions of the EMA and its regulations when installing electrical connections to the airstrip support infrastructure.

Hazardous Substances Ordinance 14 of 1974 Regulations Made in Terms of Hazardous Substances Ordinance 14 of 1974 sections 3 and 27	To provide for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances; to provide for the division of such substances into groups in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, application, modification, disposal or dumping of such substances; and to provide for matters connected therewith.	The proponent will have to conform to this requirement of the Act and its regulations through application for relevant licences with the relevant bodies highlighted thereto.
Soil Conservation Act 76 of 1969	The objectives of this Act are to: ✓ Make provisions for the combating and prevention of soil erosion, ✓ Promote the conservation, protection and improvement of the soil, vegetation, sources and resources of the Republic.	-The project will have a rather localized impact on soils and on the soil through clearance for tower platform. Soil protection measures will be employed and preservation of trees as much as possible.
Nature Conservation Ordinance 1996	To consolidate and amend the laws relating to the conservation of nature; the establishment of game parks and nature reserves; the control of problem animals; and to provide for matters incidental thereto.	The proposed project implementation is not located in any known or demarcated conservation area, national park or unique environments. The project site was selected with this ordinance in mind to ensure that Namibian nature is conserved.
Protected Areas and Wildlife Management Bill	This bill, when it comes into force, will replace the Nature Conservation Ordinance 4 of 1975. The bill recognizes that biological diversity must be maintained, and where necessary, rehabilitated and that essential ecological processes and life support systems be maintained. It protects all indigenous species and control the exploitation of all plants and wildlife.	Environmental recommendations and considerations on this project have ensured that the proposed activities will not fall within the boundaries of any protected area and that the project will not affect heavily endangered vegetation and animals on its site.

Forest Act, 2001 (Act No. 12 of 2001)	The Act gives provision for the protection of various plant species through the Ministry of Agriculture, Water and Forestry (MAWF), Directorate of Forestry).	-The project area is a farm establishment and the proposed site is already de-vegetated.
National Rangeland Policy and Strategy, 2012	The policy aims at enabling resource users (farmers and managers) to manage their rangeland resources in a sustainable manner and sustainable in that they are economically viable, socially acceptable, environmentally friendly and politically conducive.	-This proposed project will ensure that the local community benefits both economically and socially from the project, this in line with the recently declared Harambee Prosperity Plan and NDP 4&5.
National Biodiversity Strategy and Action Plan (NBSAP2)	The action plan was operationalised in a bid to make aware the critical importance of biodiversity conservation in Namibia putting together management of matters to do with ecosystems protection, biosafety, biosystematics protection on both terrestrial and aquatic systems.	-The project proponent has been advised by DPEE and recognises the need for ecosystems protection to manage the changing climatic environment. -This project is one of the drivers to reduce the rate of global environmental change given its contribution, to decreased use of burning fossil fuels for energy generation.
Wetland Policy, 2004	The policy provides a platform for the conservation and wise use of wetlands, thus promoting inter-generational equity regarding wetland resource utilization. Furthermore, it facilitates the Nation's efforts to meet its commitments as a signatory to the International Convention on Wetlands (Ramsar) and other Multinational Environmental Agreements (MEA's).	-In compliance to this Policy, the development will ensure a standard environmental planning such that it does not affect any wetlands within its locale through recognition of wetlands to promote the conservation and wise utilization of wetlands resources. -There are no existing wetlands/peatlands within 5km radius of the proposed project site.
Water Resources Management Act, 2013 (Act No. 11 of 2013)	This Act provides for the management, protection, development, use and conservation of water resources. This also forms the regulation and monitoring of water resources.	-The proposed development will not have any interference with surface and groundwater sources during construction and operation, apart from water requirements for construction which will be supplied through Grootfontein Municipality water reticulation system

National Heritage Act 27 of 2004	Heritage resources to be conserved in development.	-During the project implementation as soon as objects of cultural and heritage interests are observed such as graves, artefacts and any other object believed to be order than 50 years, all measures will be taken protect these objects until the National Heritage Council of Namibia have been informed, and approval to proceed with the operations granted accordingly by the Council.
National Monuments Act of Namibia (No. 28 of 1969) as amended until 1979	"No person shall destroy, damage, excavate, alter, remove from its original site or export from Namibia: (a) any meteorite or fossil; or (b) any drawing or painting on stone or a petroglyph known or commonly believed to have been executed by any people who inhabited or visited Namibia before the year 1900 AD; or (c) any implement, ornament or structure known or commonly believed to have been used as a mace, used or erected by people referred to in paragraph (b); or (d) the anthropological or archaeological contents of graves, caves, rock shelters, middens, shell mounds or other sites used by such people; or (e) any other archaeological or palaeontological finds, material or object; except under the authority of and in accordance with a permit issued under this section.	-The proposed site of development is not within any known monument site both movable or immovable as specified in the Act, however in such an instance that any material or sites or archeologic importance are identified, it will be the responsibility of the developer to take the required route and notify the relevant commission.
Pollution Control and Waste Management Bill	-This bill has not come into force. Amongst others, the bill aims to "prevent and regulate the discharge of pollutants to the air, water and land" Of particular reference to the Project is: Section 21 "(1) Subject to sub-section (4) and section 22, no	-To control air, water and land pollution as agitated by the Act the project proponent will ensure that the development will prevent pollution in all forms during construction and operation phases.

	person shall cause or permit the discharge of pollutants or waste into any water or watercourse." Section 55 "(1) No person may produce, collect, transport, sort, recover, treat, store, dispose of or otherwise manage waste in a manner that results in or creates a significant risk of harm to human health or the environment."	
Convention on Biological Diversity (CBD)	✓ Namibia is a signatory of the Convention on Biological Diversity and thus is obliged to conserve its biodiversity.	The project will preserve tree species on as part of their plans for greed and sustainable development.
United Nations Convection to combat Desertification	Namibia is bound to prevent excessive land degradation that may threaten livelihoods.	It will be the responsibility of the proponent to conserve vegetation on and around the area, to avoid encroachment of the desert environs in the area.

3. CHAPTER THREE: RECEIVING ENVIRONMENT

3.1. Introduction

In this chapter, the findings of the EIA Team on baseline surveys, public consultation and desk reviews undertaken are in respect to the ecology, society, economy and geo-political set up of the proposed project area. The geological make up and meteorology of the project site will also be discussed in this chapter to give an in-depth understanding of the project area in question.

3.2. Socio-Economic status

Grootfontein Town has a current population of approximately 24 000 inhabitants and the languages spoken in the town are Otjiherero, Nama/Damara and Afrikaans. It is the centre for a large cattle farming community while copper mining is also prevalent in the area. The section of Namibia around Tsumeb, Otavi & Grootfontein is often referred to as the 'Otavi Triangle. The area receives considerably higher rainfall than parts of Namibia situated further west and south and contains much of the country's best commercial farmland. Like all towns the Otavi triangle, Grootfontein is surrounded by both cattle ranching farms and fresh produce farms, which make the town a major hub for agriculture, and they share the same economic backbone with Tsumeb.

Although Grootfontein is not the regional Capital for Otjozondjupa region, it provides for an important link between North-eastern Namibia and the rest of Namibia. This linkage is also the link that connects Namibia to counties such as Botswana, Zambia, Zimbabwe, Angola and Democratic Republic of Congo. The linking road is the B8 national highway as well as a rail track for agricultural produce.

3.3. Climate

3.3.1. Temperature

Temperatures range between 6 °C and 44 °C. The highest temperatures are recorded in September and October and the lowest in June. During the day, temperatures increase to reach a maximum at around 15:00 in the afternoon. Ambient air temperature decreases to reach a minimum at around 07:00 i.e., just before sunrise.

3.3.2. Rainfall And Evaporation

Grootfontein has an annual average rainfall of 520 mm with most of the rainfall occurring in the summer months (October to April). Approximately two thirds of the rainfall occurs in the months of January, February and March, with the highest number of productive rainfall days (i.e. days with rainfall of 10 mm and more) registered in January and February.

3.3.3. Wind

The general the wind field is uniform with frequent south-easterly winds. There are also occasionally winds from the north.

Calm conditions prevail in the area with an average wind speed of 2.8 m/s. During day-time the wind field is mostly characterised by wind from the east-southeast, an average wind speed of 3.1 m/s and 0.7% calm conditions. The average wind during the night is at 2.5 m/s and blows mostly from the south-southeast with 1.6% calm conditions.

3.4. Topography

The town of Grootfontein is located in the northern section of the central Namibian Plateau on the northern edge of the Otavi Mountain land which is characterised by a typical karst landscape. The town is relatively flat (1 300 meters above mean sea level) and flanked to the south and east by the Otavi Mountains. The terrain of the proposed site area is characterised by a gentle undulating relief, just like the rest of the town. The exact project site the area is generally flat with a slight slope to the western end. The Waterberg plateau is located approximately 30 km to the south-west of the town.

3.5. Geology

The project area is underlain by the damara group and the rest of the area also has the Otavi group formations, these can be traced to the period 900-950Ma that was marked by extensive continental fragmentation with geosynclinals deposition in a major Late Proterozoic – Early Paleozoic tectono-thermal event referred as Pan-African event (Master, 1991). Downward flexing of the craton margins produced extensive intra-cratonic foreland basins (Thomas & al, 1993). The late Proterozoic to Early Palaeozoic Damara belt forms part of the Pan-African mobile system belt, which surrounds and bisects the African continent (Martin 1983, Miller 1983a).

The NE-trending Pan-African Damara Belt is 400 km wide and is located between the Congo and the Kalahari Cratons in the South West region of Southern Africa. The Damara Supergroup consists of a north east trending intracontinental arm and a north south trending coastal arm with a present outcrop width in Namibia of 150 km. The triple junction between the two arms is located off the coast near Swakopmund (Miller, 1983c). Evolution of the belt involves a complex history which includes rifting, spreading, convergence and collision of Kalahari and Congo Cratons. In addition to this, deformation, metamorphism and magmatism accompanied the collision. Subsequently the belt underwent episodes of continental rifting, ocean floor spreading, glaciation, subduction, collision and metamorphism over a time span of about 250 million years.

With regards to stratigraphy, rocks of the Damara Supergroup were deposited on an Archean granite-gneiss Basement exposed in the northern and southern zones, and in the inlier in the centre of the belt (Jacob & Kroner, 1977). The Basement complex crops out in several major inliers along the northern and southern margins of the Damara province, as well as numerous small inliers in the central parts. The Otavi Group consists of Abenab and the Tsumeb subgroups which are unconformably overlying the Nosib Group and the Basement Complex (Hedberg, 1979). The latest,

the Tsumeb Subgroup, is subdivided into 8 litho-zones (T1 to T8) from the clastic Ghaub Formation to the carbonate dominant Maieberg, Elandshoek as well as the Hüttenberg Formations.

3.6. Groundwater

The town of Grootfontein falls within the Etosha Basin Hydrogeological Region. Groundwater occurs in the Grootfontein Dolomitic Aquifer with the Mulden Sandstones acting as an aquiclude. The general area is located on the Elandshoek and Hüttenberg Formation lithozones in an ESE-WNW sloping valley formed as part of an anticlinal structure. The groundwater is expected to move in fold axes, pressure relief joints, faults or on lithological contact zones. The average natural groundwater levels in Tsumeb are at approximately 1 210 mamsl (60 m below the land surface in the town area) with little seasonal fluctuation in the levels.

Figure 6: Water supply borehole on site.

3.7. Hydrology

Grootfontein is located on the eastern side of the Etosha Basin catchment, which is an inland drainage system where runoff flows into the Etosha Pan from where it then evaporates. The area around Tsumeb is predominantly karstic, which means that it is formed from the dissolution of soluble base rock (mainly dolomite and limestone in this area) which is characterised by underground drainage systems with sink. The project site is located on an area where there are no open water sources and the nearest ephemeral stream is more than 5km to the South-west.

3.8. Pedology

There is a range of Otavi dolomite in the Grootfontein area and thus, apart from a thin layer of sandy-clay leptosols the area has small rock outcrops all over the areas, as in the Halali area.The Otavi group dolomite outcrops are bare rock with a very small amount of soil in the fissures or cavities. The soils generally have very high phosphorus values (more than90 ppm).

Figure 7: The soil is underdeveloped with rugged texture of up to fist size rocks.

3.9. Fauna

The area of Grootfontein, within which the project site is located is disturbed as a result of urban development, but it can be expected that the surrounding areas which support natural vegetation will support species of conservation concern including damara dik-dik, eland, Namibian dwarf python, leopard tortoise and possibly endemic birds such as Carp's black tit and Ruppel's parrot.

An in-depth fauna and flora study was not conduct for the project area since it falls within a townland. However a site baseline study established that the farm is host to *Kudu, steenbok,Oryx, Bushbuck, warthog, squirrels* and several birds. Natural aquatic communities are largely absent from the region as a result of the absence of surface water flow due to the high infiltration rates.

Stygobiotic (living in groundwater) amphipods are characteristic of karst landscapes and are known from the areas to the South-West of Grootfontein. The proposed development is not expected to have any adverse impacts on local fauna and flora.

3.10. Flora

Trees / Shrubs and Grasses

Grootfontein falls within the arid Savanna Biome (Harrison et al., 1997) and the vegetation in the Grootfontein are area can broadly be classified as Dolomite Karstveld (Burke et al, in press). Due to the comparatively high rainfall and unique dolomite lithology of the area, it is recognised as a centre of plant species diversity in Namibia (Maggs et al, 1998).

A preliminary desktop biodiversity assessment did not identify any special habitats around the project environment. However in the greater area surrounding the project site, there are inselbergs with dense vegetation and these species have been identified to be predominantly occurring in the project area, *Kirkia acuminata*, *Cissus nymphae folia*, *Moringa ovalijolia* and *Euphorbia guerichiana* which are relatively rare elsewhere occur on most of these sites. Other common trees are *Terminalia prunioides*, *Combretum apiculatum*, *C. mopane* and in some areas *Sclerocarya caffra*:

Figure 8: Vegetation on Farm Kranzfontein in Grootfontein

(As illustrated, the project area has bush encroachment and some sparse tree distribution within the farm. The greater portion of the farm is under agricultural activities, the other portion is under a 5MW solar Plant and another portion is earmarked for development of the Farm Kranzfonteing Luxury Estate. Dominant trees in the area are Acacia tortilis, Brachystegia sperciformis, Ficus Burkei, Acacia luederitzii and *pterocarpus angolensis*.

4. CHAPTER FOUR: PUBLIC CONSULTATION

Public and Stakeholder involvement, is a key component of the EA process. The public consultation process, as set out in Section 21 of Regulation No 30 of EMA, has been followed during this assessment and the details thereof documented below.

4.1. Printed Media

4.1.1. Background Information Document

A Background Information Document (BID) was drafted at the onset of the EA process to act as a useful information handout about the proposed project development. In addition, the BID provided details on the public consultation process with contact details for further information. This document was advertised for availability through various means of newspaper articles, Public meeting and electronic mail; see Appendix B of this document.

4.1.2. Newspaper Advertisements & Articles

Newspaper notices about the proposed project and related Environmental Assessment processes was circulated in two newspapers for two weeks. These notices appeared in the “Confidante” and “New Era” newspapers, shown in Appendix B.

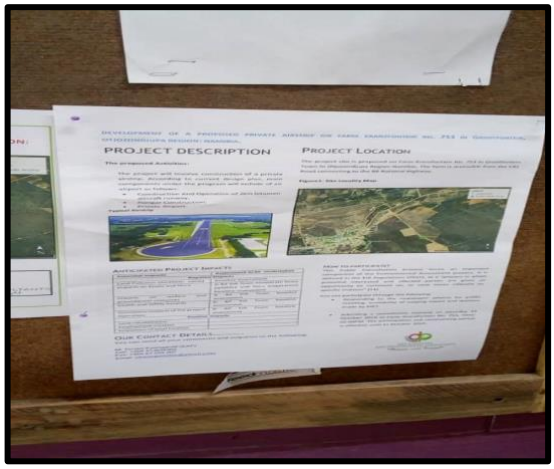
4.1.3. Site Notices

A site notice was placed at the project site and Walvis Bay Municipality Notice Board. These provided information about the project and related EA while providing contact details of the project team.

Figure 9(top): Site Notice at Project Site.

Figure 10(Middle Site notice at Grootfontein municipality)

Figure 11: Site notice at Spar Grootfontein



4.1.4. Building a Stakeholder Database

A stakeholder database for the project collected through a variety of means. During the advertisement of the project (though public notices in local newspapers and site-notices) the list was augmented as Interested & Affected Parties (I&AP) registered and contact information of stakeholders updated, please refer to Appendix B.

4.1.5. Stakeholder Meetings & Key Conversations

A public meeting was scheduled on 19 October 2019 and the meeting was well attended. The, consultant ensured that the Municipality and all neighbours of the project site were adequately consulted. The consultant administered questionnaires through email to all members who attended the meeting as well as other members who were recommended by the public that they should be consulted.

Figure 12: A public meeting was announced meeting was conducted in Grootfontein.

4.1.6. Comments and review period

From the onset of the public consultation process and the initial information sharing through the BID, newspaper and site notices, various stakeholders have registered and provided comments. All of the immediate neighbours are not in support of the initiative due to several reasons. The Scoping Report and Environmental Management Plan was made available to the public and stakeholders for comment and review.

Questionnaires and proof of stakeholder's engagement are attached in appendix B of this EAR.

5. CHAPTER FIVE: ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACTS

5.1. Overview

As part of the Environmental Impact Assessment process, all the environmental aspects and their associated impacts included as part of the Environmental Impact Assessment have been assessed. A user-friendly assessment from which impacts ranked as having medium or high significance have been identified and assessed.

In line with the environmental objective of focusing attention specifically on impacts of potentially significant risk and how best to mitigate for these, the following approach was recommended regarding the concept of whether issues in the EIA table need to be actively addressed in the EMP:

i. If environmental aspects are evaluated to be of low significance, they do not require specific management plans, and need not be actively addressed in the EMP (although they may still be listed and reported on);
ii. A decision on the need to actively address any issue with a "Medium" significance ranking will require consideration of other relevant factors, such as the nature of the impact, risks associated with possible cumulative aspects, and the degree of concern of stakeholders, and;
iii. If environmental aspects receive a "High" significance ranking, they must be addressed by means of active management, mitigation or rehabilitation measures.

For each negative impact of high or medium significance, mitigation objectives are set (i.e., ways of reducing negative impacts), and attainable management actions are subsequently addressed in the EMP in line with the Equator Principles mitigation framework. Without management, these impacts would either breach statutory limits or be unacceptable to statutory authorities or to stakeholders, as they would result in a significant deterioration of one or more environmental resources

This assessment is conducted in line with the Namibian Environmental Management legislation and International best practices on telecommunication infrastructure. The proponent will implement an Environmental Management Plan (EMP) in order to prevent, minimise and mitigate negative impacts. An Environmental Management Plan developed to address all the identified expected impacts, the plan will be monitored and updated on a continuous basis with aim for continuous improvement to addressing impacts.

5.2. Assessment Of Impacts

This section sets out the overall approach that was adopted to assess the potential environmental and social impacts associated with the project. To fully understand the significance of each of the potential impacts each impact must be evaluated and assessed. The definitions and explanations for each criterion are set out below in Table 2: Assessment Criteria and

Table 2: Assessment Criteria

Duration – What is the length of the negative impact?	
None	No Effect
Short	Less than one year
Moderate	One to ten years
Permanent	Irreversible
Magnitude – What is the effect on the resource within the study area?	
None	No Effect
Small	Affecting less than 1% of the resource
Moderate	Affecting 1-10% of the resource
Great	Affecting greater than 10% of the resource
Spatial Extent – what is the scale of the impact in terms of area, considering cumulative impacts and international importance?	
Local	In the immediate area of the impact
Regional / National	Having large scale impacts
International	Having international importance
Type – What is the impact	
Direct	Caused by the project and occur simultaneously with project activities
Indirect	Associated with the project and may occur at a later time or wider area
Cumulative	Combined effects of the project with other existing / planned activities
Probability	
Low	<25%
Medium	25-75%
High	>75%

Table 3: Impact Significance

Class	Significance	Descriptions
1	Major Impact	Impacts are expected to be permanent and non- reversible on a national scale and/or have international significance or result in a legislative non- compliance.
2	Moderate Impact	Impacts are long term, but reversible and/or have regional significance.
3	Minor	Impacts are considered short term, reversible and/or localized in extent.
4	Insignificant	No impact is expected.
5	Unknown	There are insufficient data on which to assess significance.
6	Positive	Impacts are beneficial

(Adopted from ECC-Namibia, 2017)

5.3. Likely Positive Impacts

The following is summary of the positive socioeconomic impacts identified during the EIA process for the proposed aircraft landing strip at farm Kranzfontein:

- Payment of Taxes;
- Employment creation through expanded operations;
- Boost to local economies through expanded operations, and;
- Promotion in local tourism

5.4. Identification of Likely Negative Impacts

This Environmental Assessment process has taken into consideration the sensitivity of the receiving environment (physical, biological, socioeconomic and ecosystem services and functions) with respect to the proposed development. The following is the summary of the likely sources of negative impacts on the receiving environment that have been evaluated and assessed in this report with respect to the proposed aircraft landing strip without mitigations:

1. **Construction:**

- Soil / ground preparation and supporting Infrastructure construction;
- Foundation excavations and building;
- Structural development / Actual construction;
- Supporting infrastructure (internal access, energy requirements, water supply, waste water management and solid waste management).

2. **Operational:**

- Day to day running of the airstrip generating liquid and solid waste, noise, dusty, interact with local people, visitors, wild life and the broader natural receiving environment.

5.4.1. Summary of Receptors Likely to be Negatively Impacted

The following is the summary of the key environmental receptors that may be negatively impacted by the proposed activities during the construction and operational stages of the proposed airstrip:

1) Disruption / disturbance of local fauna, flora and potential habitats.
2) Effects on the ecosystem functions, services, use values and non-use use;
3) Visual and land degradation;
4) Land and water pollution;
5) Resource use;
6) Air quality, noise and dust;
7) Refuelling spillages;
8) Solid waste management;
9) Sewage disposal;
10) Accident;
11) Archaeological, paleontological and historical aspects, and;

Table 4: Environmental Impacts and Aspects Assessment

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance	Infrastructure/ Activity
TOPOGRAPHY	Landscape Scenery	Visual aesthetic impact	Construction and Operation	Moderate	Moderate	Local	Direct	Medium 25 - 75%	Minor	Airstrip and supporting Infrastructure.
SOIL	Soil	Contamination to soil from paints and other potentially hazardous substances	Construction and Operations	Moderate	Small	Local	Direct	Low <25%	Minor	Airstrip and supporting Infrastructure.
	Soil	Spillages of fuel, oil and lubricants.	Construction	Short	Small	Local	Direct	Low <25%	Minor	Airstrip and supporting Infrastructure.
	Soil	Erosion	Construction	Moderate	Small	Local	Direct	Low <25%	Minor	Airstrip and supporting Infrastructure.
LAND CAPABILITY	Terrestrial ecology	Change in land use	Construction and Operations	Permanent	Great	Local	Direct	Low <25%	Moderate	Airstrip and supporting Infrastructure.
	Carrying capacity	Increase in human activities in the environment	Construction and Operations	Moderate	Moderate	Regional	Direct	Low <25%	Minor	Airstrip and supporting Infrastructure.
WATER	Surface water quality	Water pollution from oils, lubricants and chemicals spillages.	Construction and Operations	Moderate	Small	Local	Direct	Medium 25 - 75%	Moderate	Airstrip and supporting Infrastructure.
	Surface water quality	Turbidity and high sediment load	Construction	Moderate	Small	Local	Direct	Low <25%	Moderate	Airstrip and supporting Infrastructure.
AIR QUALITY	Air Quality	Construction phase dust	Construction And Operations	Short	Small	Local	Direct	Low <25%	Minor	Airstrip and supporting Infrastructure.
WASTE	Groundwater quality	Hazardous waste such as waste lubricants and stored chemicals may be release into the environment.	Construction and Operations	Short	Small	Local	Direct	Low <25%	Minor	Airstrip and supporting Infrastructure.
	Surface water quality	Threatened from chemicals being washed into nearby rivers	Construction and operations	Moderate	Moderate	Regional	Direct	Medium 25 - 75%	Moderate	Airstrip and supporting Infrastructure.

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance	Infrastructure/ Activity
	Surface water quality	Construction and Operational solid waste	Construction and operations	Moderate	Moderate	Regional	Direct	Medium 25 - 75%	Moderate	Airstrip and supporting Infrastructure.
FAUNA	Terrestrial ecology and biodiversity	Loss of habitat and driving away of local animals	Construction and Operations	Short	Small	Local	Direct	Low <25%	Minor	Airstrip and supporting Infrastructure.
	Terrestrial ecology and biodiversity	Destruction of vertebrate fauna (e.g., road kills; fence and powerline mortalities)	Construction and Operations	Short	Small	Local	Direct	Low <25%	Minor	Airstrip and supporting Infrastructure.
	Avifauna	Aircraft avifauna kills	Operations	Short	Small	Local	Direct	Low <25%	Minor	Airstrip and supporting Infrastructure.
SOCIAL	Noise Pollution	Increased noise levels	Construction And Operations	Moderate	Small	Local	Direct	Low <25%	Minor	Airstrip and supporting Infrastructure.
	Socio Economic Activities	Temporary and permanent employment prospects.	Construction and Operations	Long	Moderate	Regional	Direct	Medium 25 – 75%	Positive	Airstrip and supporting Infrastructure.
	Socio Economic Activities	Climate change impacts	Operations	Long	Moderate	Regional / National	Direct	High >75%	Positive	Airstrip and supporting Infrastructure.
	Contribution to National Economy	Employment, local procurement, duties and taxes.	Construction and Operations	Short	None	Regional / National	Direct	Low <25%	Positive	Airstrip and supporting Infrastructure.
HERITAGE	Artefacts, archaeological high value components	Destruction or affecting paleontological and archaeological artefacts	Construction	Moderate	Small	Local	Direct	Low <25%	Minor	Airstrip and supporting Infrastructure.
HEALTH AND SAFETY	Health Sanitation	Poor ablution and waste management facilities may be detrimental to human health.	Construction	Moderate	Moderate	Local	Direct	Medium 25 – 75%	Moderate	Airstrip and supporting Infrastructure.
	Aviation Safety	Aircraft accidents	Operation	Moderate	Moderate	Local	Direct	Medium 25 – 75%	Moderate	Airstrip and supporting Infrastructure.
	Property and human life	Electrocution, fires resulting in fatalities, damage to properties, veldt fires and power surges.	Construction and Operation	Moderate	Great	Local	Direct	Medium 25 – 75%	Major	Airstrip and supporting Infrastructure.

Environmental Impact	Valued Ecosystem Component	Impact	Project Phase	Duration	Magnitude	Extent	Type	Probability	Significance	Infrastructure/ Activity
	Natural Environment	Spillage/ release of chemicals into the environment	Operation	Moderate	Great	Local	Direct	Medium 25 – 75%	Major	Airstrip and supporting Infrastructure.
AVIAN IMPACTS	Air traffic	Air Traffic disturbances	Operation	Moderate	Great	Local	Direct	Medium 25 – 75%	Major	Aircraft
	Avifauna	Bird fatalities	Operation	Moderate	Moderate	Local	Direct	Medium 25 – 75%	Moderate	Aircraft
TRAFFIC	Air Traffic	Uncontrolled Flights	Operation	Moderate	Great	Local	Direct	Medium 25 – 75%	Major	Aircraft

6. CHAPTER 6: RISK ASSESSMENT OF POTENTIAL IMPACTS

6.1. Risk Assessment Criteria

The risk assessment has been conducted to identify medium- and high-risk aspects associated with the proposed airstrip that may result in environmentally unacceptable impacts. The risk assessment has been undertaken in accordance with the Anglo-American Risk Matrix.

6.1.1. Negative Impacts Risk Assessment

The environmental aspects and their associated negative impacts included as part of the Environmental Impact Assessment of all potential negative impacts associated with the proposed construction and operation of an airstrip at farm Kranzfontein have been assessed as detailed in Table 4. The faunal and flora loss / disturbances are closely linked to habitat loss directly linked to the proposed project activities.

6.1.2. Socioeconomic Risk Assessment

The overall economic gains associated with the proposed project are resulting in increased farming, tourism and business opportunities. Additionally, his comes with employment creation, improved social services, payment of Government taxes and increased forex exporting earnings has been rated “High”. A significant number of Namibians benefit from employment opportunities, contractual and local procurement preferential support, the skills transferred, training, awareness raising in various subjects, and other direct and indirect benefits received by the wider society. The employees are from across the country, therefore the gains are widespread and for an extended period, benefiting extended families and various generations.

6.1.3. Cumulative Risks Assessment

The cumulative risks associated with the proposed airstrip at Farm Kranzfontein are negligible from overall negative contribution prepositives. However, from an overall positive perspective, the cumulative risk assessment outputs are high with potential to not only support Tulaing Group’s operations, but positive socioeconomic benefits will also support the growth of other sectors such leisure, travel and tourism far beyond the current diamond exploration and recovery operations.

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