# ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT FOR THE PROPOSED NAMIBIA INTERNATIONAL CONVENTION CENTRE, WINDHOEK-NAMIBIA

## ENVIRONMENTAL SCOPING REPORT

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EnviroPlan Consulting cc
....innovative planning for sustainability

***PROPONENT:***

***SA AND B GLOBAL RESOURCES NAMIBIA***

# Contents

**List of Figures**



**List of Tables**

## 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 SA & B Global Resources 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 fatal flaws associated with the proposed project 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 detailed assessment of the anticipated impacts were 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 EIAR 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 EIAR 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 EIAR aims to:

- Provide an overall assessment of the social, physical and biophysical environments of the area affected by the proposed development;
- 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

The proponent, **SA& B Global Resources (SA&B)** intends to spearhead the establishment of the Namibia International Convention Centre in Windhoek. The proposed project will oversee the establishment different sub-projects as part of the development proposal.

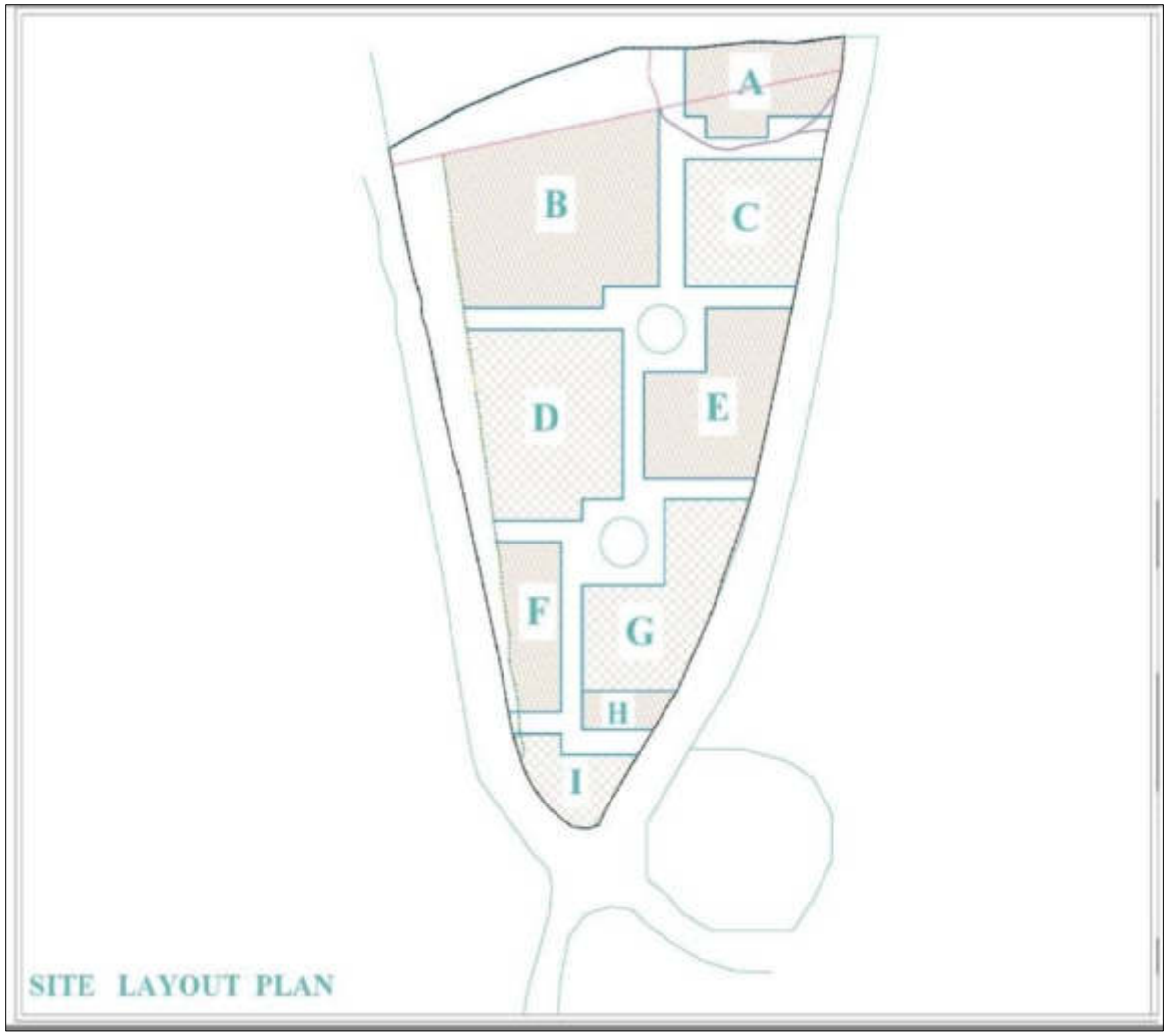
As per the requirements of the Township and Division of Land Ordinance 1963 and the Environmental Management Act No. 7 of 2007, SA&B hereby appointed EnviroPlan Consultants to undertake an Environmental Scoping Assessment (ESA), formulate an Environmental Management Plan (EMP) and apply for an Environmental 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 proposed Namibia International Convention Centre in Windhoek. The assessment is done in accordance to the guidelines on the 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 development is situated on portion 327 of Venus Ext 1 is situated in Prosperita Industrial area. The proposed development is approximately 20ha. in extent and is currently vacant, dominated by grass, bushes, shrubs. Notable in the surrounding are disused and dilapidated buildings on the project area, bordered by the B1 highway to the North and North-East, and industrial buildings and warehouses to the east also housing Nammilk, Steel Africa, Highway Importers and Nampharm.

The site locality map on Fig 1 gives an overview of the project site and exact project location:




| | GUIDE FOR LAYOUT PLAN |
|---|---|
| A | CAR PARK, LANDSCAPING AND SOLAR FARM |
| B | CONVENTION CENTRE WITH WALL OF FAME & ART GALLERY, WITH CAR PARK, LANDSCAPING. |
| C | 5 STAR SPECIALIST HOSPITAL WITH LANDSCAPING AND CAR PARK |
| D | 7 STAR HOTEL WITH CAR PARK AND LANDSCAPING |
| E | SHOPPING MALL WITH DANCING WATER FOUNTAIN |
| F | 3 STAR HOTEL WITH CAR PARK AND LANDSCAPING |
| G | WATER PARK ( WITH LANDSCAPING & CAR PARK ) |
| H | UTILITIES (WATER) |
| I | ICT HUB WITH CAR PARK AND LANDSCAPING |

**Figure 1: Proposed Layout.**

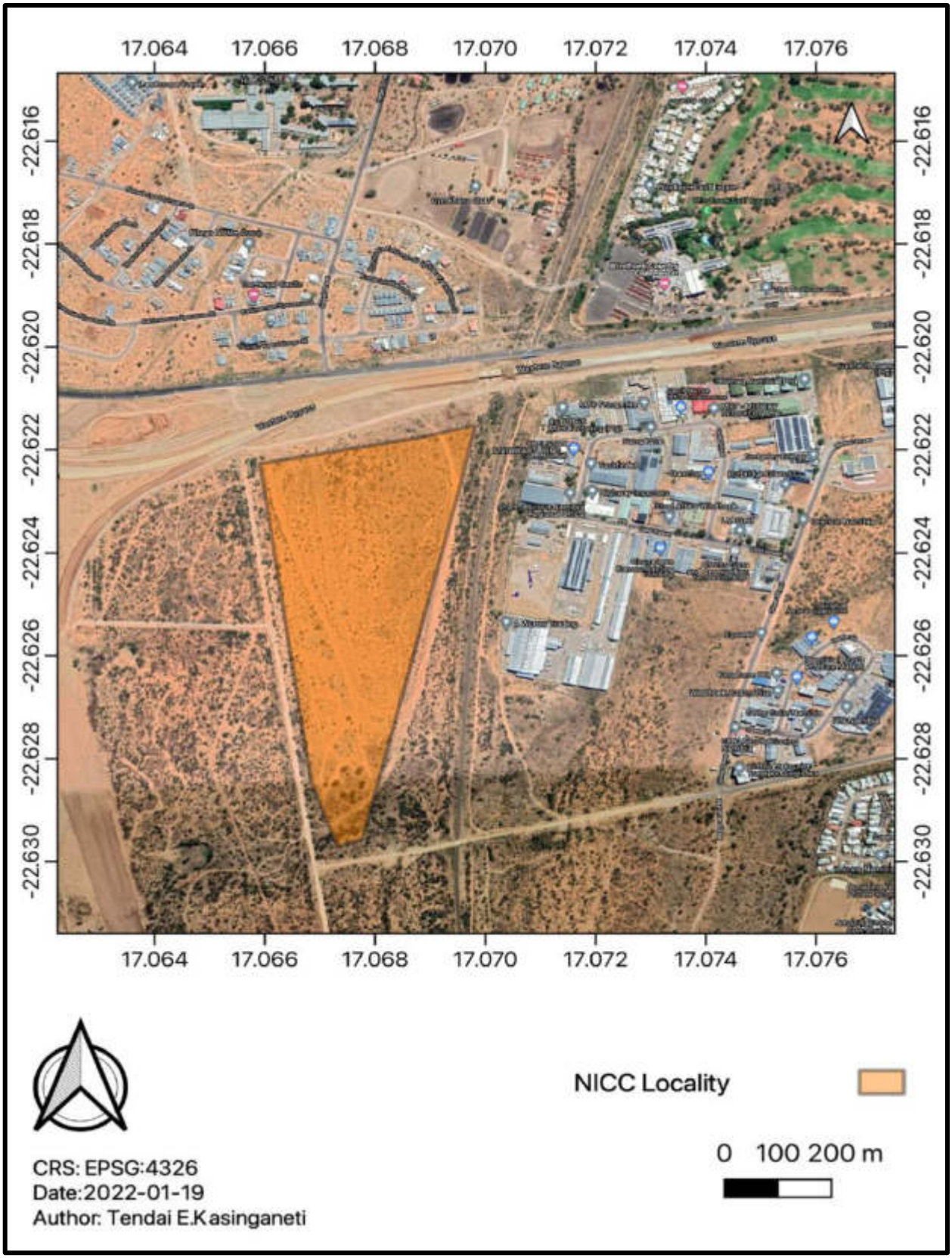



**Figure 2: Proposed Project Site Locality.**

## 1.3. Description

### 1.3.1. DEVELOPMENT PROPOSAL & LAYOUT

Namibia has established itself as one of the most stable democracies in Africa with consistent peaceful transition of power since its independence 31 years ago. It's profile as a business-friendly destination has also grown in leaps and bounds.

The proposed monumental Namibian Tourism and Humanitarian project has been designed to accelerate the tourism ascendancy of Namibia and Africa. The first phase of the project will entail the construction and operation of the following;

1) Namibia International Convention Centre with a Wax Museum, Hall of Fame and Art Gallery;
2) 7- star hotel, and 4-star hotel
3) Shopping arcade.
4) ICT Hub
5) 5 Star Hotel

Phase 2 of the development will entail the following; NB**: Phase 2 is not covered by this ESR**

1) 5MW solar farm
2) 5 Star Sports Hospital
3) Waterpark

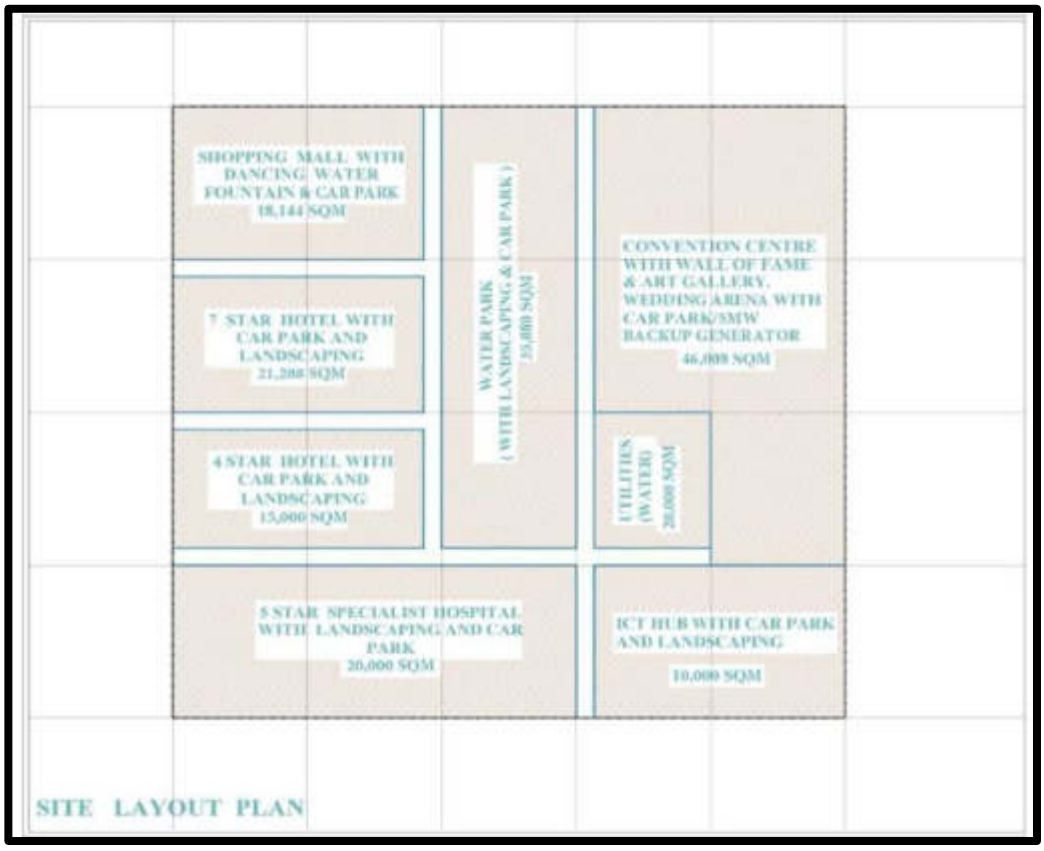



**Figure 3: Development Layout**

### 1.3.2. INFRASTRUCTURE AND SERVICES

The proponent at the developers' costs shall liaise with the City of Windhoek for the provision of municipal services such as electricity, water reticulation, sewerage reticulation and domestic waste management. The services can easily be easily connected to the proposed project site. Since the site is adjacent to the existing Prosperita, water, sewer and electricity services are near and can be connected direct.

### 1.3.3. ROADS AND STORM WATER

Access to the respective portion is through the end of Michelle McClean street. There are existing access roads to the site, hence the project development will have a minimum environmental impacts in regards to access infrastructure. The roads would be constructed in line with municipal engineering standards and specifications and all traffic signs and road markings provided.

Storm water would be taken off from surface run-off and drain towards the existing drainage system. Adequate and proper drainage should be constructed that avoid instances of waterlogging and flooding of the development area. It would be attempted to maintain the natural flow of storm water flow with minimum disruptions.

# 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**

The pursuit of sustainability is guided by a sound legislative framework. In this section, relevant legal instruments as well as their relevant provisions have been surveyed. An explanation is provided regarding how these provisions apply to this project

| Aspect | Legislation | Relevant Provisions | Relevance to the Project |
|---|---|---|---|
| **The Constitution** | Namibian Constitution First Amendment Act 34 of 1998 | − Article 16(1) guarantees all persons the right to property. It therefore provides everyone a right to acquire, own and dispose of property, alone or in association with others and to bequeath such property.<br>− "The State shall actively promote and maintain the welfare of the people by adopting policies that are aimed at maintaining ecosystems, essential ecological processes and the biological diversity of Namibia. It further promotes the sustainable utilisation of living natural resources basis for the benefit of all Namibians, both present and future." (Article 95(l)). | − The project will enable the full execution of right to practice any profession, or carry on any occupation, trade or business by availing necessary provisions such as practising any profession, or carry on any occupation, trade or business in the country.<br>− Through implementation of the environmental management plan, the proponent will ensure conformity to the constitution in terms of environmental management and sustainability.<br>− The proponent is obliged to conform to all dictates of the constitution in regards to their proposed project, complying to all relevant Namibian laws and regulations as required. |
| **National Development Plans** | | − Namibia's overall Development ambitions are articulated in the National 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. The Government has so far launched a 4th NDP focusing on high and sustained economic growth, increased income equality Employment creation. | − The proposed project will propel NDP4 targets in tourism. Adding on, this will create employment which will work towards the NDP and Vision 2030. |

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| **Archaeology** | National Heritage Act 27 of 2004 | – Section 48(1) states that "A person may apply to the Namibian Heritage Council (NHC) for a permit to carry out works or activities in relation to a protected place or protected object" | – Any heritage resources discovered would require a permit from the NHC for relocation. |
| | 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:<br>– Meteorites, fossils, petroglyphs, ornamental infrastructure graves, caves, rock shelters, middens, shells that came into existence before the year 1900 AD; or<br>– any other archaeological or palaeontological finds | – The proposed site of development is not within any known monument sites, both movable and immovable as specified in the Act, however in finding any materials specified in the Act, contractors on site will take the required route and notify the relevant commission. |
| **Environmental** | Environmental Management Act 7 of 2007 | – Requires that projects with significant environmental impacts are subject to an environmental assessment process (Section 27).<br>– Requires for adequate public participation during the environmental assessment process for interested and affected parties to voice their opinions about a project (Section 2(b-c)).<br>– According to Section 5(4) a person may not discard waste as defined in Section 5(1)(b) in any way other than at a disposal site declared by the Minister of Environment and Tourism or in a manner prescribed by the Minister.<br>– Details principles which are to guide all EIAs | – This Act and its regulations should inform and guide this EIA process. |
| | EIA Regulations GN 57/2007 (GG 3812) | – Details requirements for public consultation within a given environmental assessment process (GN No 30 S21).<br>– Details the requirements for what should be included in a Scoping Report (GN No 30 S8) an EIA report (GN No 30 S15). | – This Act and its regulations should inform and guide this EIA process. |
| | Pollution and Waste Management Bill (draft) | – This bill defines pollution and the different types of pollution. It also points out how the Government intends to regulate the different types of pollution to maintain a clean and safe environment.<br>– The bill also describes how waste should be managed to reduce environmental pollution. Failure to comply with the requirements considered an offence and is punishable. | – The project should be executed in harmony with the requirements of the act to reduce negative impacts on the surrounding environs from waste during construction or operation. Windhoek waste management by-laws will be abide to during construction and operation. |

| | | | |
|---|---|---|---|
| | Soil Conservation Act 76 of 1969 | − This act makes provision for combating and for the prevention of soil erosion, it promotes the conservation, protection and improvement of the soil, vegetation, sources and resources of the Republic of Namibia. | − The Project impact on soil will rather be localised, however the Act should provide for guidelines of operation during construction to prevent soil erosion and contamination during operation. |
| | 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, and biosystematics protection on both terrestrial and aquatic systems. | − Forming part of the EIA of and EMP for this Project, the proponent will consider all associated impacts, both acute and long term, and will propose methods and ways to sustain the local biodiversity. |
| **Forestry** | Forest Act 12 of 2001 | − Tree species and any vegetation within 100m from a watercourse may not be removed without a permit (S22(1)<br>− Provision for the protection of various plant species. | − The clearing of vegetation is prohibited (subject to a permit) 100m either side of a river. Certain tree species occurring in the area are protected under this Act. Permits must be obtained from MAWF in accordance with the Act. However, on site there are no trees that require clearing permit. |
| **Water** | Water Act 54 of 1956 | − The Water Resources Management Act 24 of 2004 is presently without regulations; therefore, the Water Act No 54 of 1956 is still in force:<br>− A permit application in terms of Sections 21(1) and 21(2) of the Water Act is required for the disposal of industrial or domestic wastewater and effluent.<br>− Prohibits the pollution of underground and surface water bodies (S23(1).<br>− Liability of clean-up costs after closure/ abandonment of an activity (S23(2)).<br>− Protection from surface and underground water pollution | − The protection of ground and surface water resources should guide development's layout plans, because areas surrounding this may possibly be groundwater sensitive. |

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|---|---|---|---|
| **Health and Safety** | Labour Act (No 11 of 2007) in conjunction with Regulation 156, 'Regulations Relating to the Health and Safety of Employees at work'. | − 135 (f): "the steps to be taken by the owners of premises used or intended for use as factories or places where machinery is used, or by occupiers of such premises or by users of machinery about the structure of such buildings of otherwise to prevent or extinguish fires, and to ensure the safety in the event of fire, of persons in such building;" (Ministry of Labour and Social Welfare).<br>− This act emphasizes and regulates basic terms and conditions of employment, it guarantees prospective health, safety and welfare of employees and protects employees from unfair labour practices. | The proponent will employ several people from the local and shall ensure securing a safe environment and preserving the health and welfare of employees at work. This will include applying appropriate hazard management plans and enforcing Occupational Health and Safety (OHS) enforcement by contractors. |
| | Public Health and Environmental Act, 2015 | − Under this act, in section 119: "No person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health." | − The project construction activities will ensure compliance to the terms of the Act. |
| **Services and Infrastructure** | Road Ordinance 1972 (Ordinance 17 0f 1972) | − Width of proclaimed roads and road reserve boundaries (S3.1)<br>− Control of traffic during construction activities on trunk and main roads (S27.1)<br>− Infringements and obstructions on and interference with proclaimed roads. (S37.1)<br>− Distance from proclaimed roads at which fences are erected (S38) | − Although the project is a major boost for the suburb and the commodities market, the proponent needs to ensure that the development do not affect the major roads within their vicinity during construction and operation phases. |
| | Townships and Division of Land Amendment Act, 1992 (Act 28 of 1992) | − "(I) Whenever any area of land constitutes, by reason of its situation, a portion of an approved township, or adjoins an approved township, the Executive Committee may, by proclamation notice in the Gazette and after consultation with the Board, extend the boundaries of that township to include such area". (Minister of Regional and Local Government)<br>− A new township needs to be created for approval by the Namibian Planning Advisory Board and the Township Board. | − Through conducting this EIA and preparation of the necessary town planning approvals are in process, however the construction and operation will need to be regulated accordingly. |

# 3. CHAPTER THREE: RECEIVING ENVIRONMENT

## 3.1. Current Project Area Status

The proposed project site is located on an open portion of land site to the west of Prosperita industrial area. The portion measures 20 ha. and it is currently vacant. The area has old dilapidated buildings, indicating earlier occupation pre-independence as illustrated below;

**Figure 4: Existing dilapidated infrastructure**

As an indication of previous occupation, the project area has old buildings, and dilapidated go-carting infrastructure. The project area is not pristine, because it has been previously affected, and much of the vegetation around the project area has been removed.

**Figure 5: Domestic and construction waste disposal on site**

Due to the area lying dormant and vacant for a prolonged period of time, some locals now disposing domestic waste and construction rubble on site. The proposed development will bring organization and waste disposal will be done at designated sites.

**Figure 6: Project are road infrastructure**

Top Left: A road portion of Michelle McClean street giving access to the project area. The road crosses the railway line (top right) with runs to the east of the project area. Michelle McClean street connect to another access road, that also gives access to the project area from the west (bottom left). This road is also in use by the contractor constructing the B1 1 highway, with is running to the North of the project area (bottom right). The traffic access infrastructure will potentially be affected by the project and a traffic impact assessment will be commissioned in the long run.

## 3.2. Socio-economic

The site is located in an urban environment which is considered as suitable for the proposed development in Windhoek. The assessment of socio-economic impacts is based on information provided by the client, as well as a desk top study of the National Census (2011) data. The assessment addresses the socio-economic impacts that could be caused by the proposed development and the findings as well as recommendations are provided in the Environmental and Social Management plan.

According to the 2011 Census, Windhoek City has an estimated population of 325 858 and falls within the Khomas Region which has an estimated population 342 141 people out of a total of 2 113 077 in Namibia equating to 16% of the total population (Namibia Statistics Agency, 2011). Since the 2001 Census the region has grown in population by 39.5% which is extremely high. As much as 95% of the population is urbanised, with a density of 9.2 people per square kilometre which is higher than the country average of 2.6 people per square kilometre but still low compared with urban areas in other countries.

Most Windhoek residents are Namibian (94%) with Oshiwambo (41%) being the dominant language, or cultural group, followed by Afrikaans speakers (19%), Nama/Damara (12%) and Otjiherero (10%) (Namibia Statistics Agency, 2011). Being host to Namibia's capital, Khomas Region literacy rate is high at 97% with only a low percentage (5%) of the adult population (over 15 years) never having attended school. Only 70% of people in the labour force (excluding students, homemakers, and pensioners who are part of the labour force) have employment and this is regarded as low. However this may be accounted for by analysing the source of household income which depicts that income comes mostly from salaries and wages (73%) but also from other business not related to farming (14%) and this may be indicative of informal activities (Namibia Statistics Agency, 2011). The Census showed that the median age in Khomas is 25 years of age which is older than most of the other regions and this reflects the migration of working age people to urban areas.

In summary, the Census results highlight the urbanised and more developed nature of the Khomas Region which is host to the country's capital city, Windhoek. Job opportunities and better services have attracted people from other areas of the country. However, while living conditions as a whole are more favourable in Windhoek than elsewhere in Namibia, there are still issues with informal settlements and the challenges related to these.

The proposed project development will see a boost in local economy and uplifting of the socio-economic state of the city through tourism, ICT development, infrastructure development and foreign direct investments.

## 3.3. Climate

Namibia is generally known to be a hot and dry country, but temperatures do vary greatly. Summer is from October to April and day time temperatures can reach up to 4 oC. Average summer temperatures range from 20oC to 34oC. In winter, from June to September, average night time temperatures range from 6°C to 10°C and daytime temperatures range between 18°C and 22°C. The average annual rainfall varies from less than 50 mm along the coast to 350 mm in the central interior and 700 mm in the Caprivi. The rainy season is from October till April1.

Windhoek is located in a semi-desert climatic region which has a low average annual rainfall of 375 mm and a high rate of evaporation (Windhoek City Council, 2013). Rainfall peaks during summer between January and March (Namibia Meteorological Service, 2013) at an average high

of 91 mm per month and is extremely unpredictable. At the peak of summer (December to February), average temperatures vary between 17 and 30°C with average mid-winter temperatures (June to July) varying between 7 and 21°C (Namibia Meteorological Service, 2013). For most of the year (70%) mean wind speeds are below 3.3 m/s and over the year average at 2.5 m/s (Namibia Weather, 2013). Winds favour no specific direction and wind speed increases during August and September which is the windiest period (Namibia Meteorological Service, 2013). Droughts are common, as are floods, and trends depict a pattern of drought approximately once every ten years (Namibia Meteorological Service, 2013).

## 3.4. Ecology (Floara and Fauna)

The construction of the proposed Namibia International Convention Centre and its sub projects could potentially impact on the bio-physical environment, because of habitat destruction and disruption. A site baseline assessment was conducted and an Ecological Impact Assessment is recommended to assess the potential impacts. The study was informed by a comprehensive literature review followed by a rapid site assessment. The findings and recommendations from this assessment are summarised below and a full ecological assessment if required, will be conducted and submitted as part of a full ESIA.

The general Windhoek area is commonly referred to as the Highland Savannah and has a vegetation structure that is classified as shrubs and low trees (Mendelsohn *et al*. 2002). The area is also regarded as “average to high” in overall species diversity while the overall terrestrial endemism is “high” (Mendelsohn *et al*. 2002). According to Simmons (1998a) central Namibia has between 161-200 endemic vertebrates (all vertebrates included). The Savannah Biome, of which the Windhoek area forms part, is underrepresented in the 37 % of the protected area network in Namibia. Only 7.5 % of the Savannah biome is covered within the protected area network, while the Highland Savannah only has 0.2% of the area having formal protection. The closest nationally protected area to Windhoek is the Daan Viljoen Game Park that is located approximately 25 km to the west. No conservancies are within the immediate area of prosperita and cimbebasia but freehold conservancies do surround Windhoek i.e. Khomas Hochland (west); Oanob (southwest); Namatanga and Seeis (east) (Mendelsohn *et al*. 2002). The mountains around Windhoek have over 500 species of which 7% of these are considered to be endemic (Burke, 2007). The Auas Mountains are considered to be an area of special ecological importance with highly restricted range plants, butterflies and lizards (Burke & Wittneben 2008, Curtis & Barnard 1998).

### 3.4.1. REPTILES, AMPHIBIANS AND INVERTEBRATES

The overall reptile diversity and endemism in the general Windhoek area is estimated to be between 71-80 species and 13-16 species, respectively (Mendelsohn *et al.* 2002). 35 snake species with 10 species being “endemic” and 18 lizard species (with 6 species being “endemic”) are the most important groups of reptiles expected from the general Windhoek area followed by geckos (10 species with 8 species being “endemic”).

Geckos expected and/or known to occur in the general Windhoek area have the highest occurrence of endemics (80%) of all the reptiles in this area. Tortoises are viewed as the group of reptiles most under threat in Namibia as they are either consumed as food; indiscriminately killed when encountered or even used by traditional healers (Griffin 1998a). Four reptile species expected to occur in the area of which two are tortoises (*Stigmochelys pardalis*, *Psammobates oculiferus, Python natalensis* & *Varanus albigularis*) are classified as "vulnerable" and "protected game". One species – *Python anchietae* – is classified as "protected game", but not as vulnerable. Nineteen reptile species have some form of international conservation status (10 CITES Appendix II & III species and 6 SARDB species; *Python natalensis* has both a CITES & SARDB status) with *Python natalensis* classified as "vulnerable" and *Naya nigricincta* as "rare" although *N. nigricincta* is however more common in Namibia than South Africa. Only 8 species (all "least concern") are classified by the IUCN (2014) although most reptiles have not yet been assessed for the IUCN Red List for endangered species.

Of importance to note are the restricted range of the Herero Girdled Lizard (*Cordylus pustulatus)* which only occurs within Namibia with specimens only known from the higher regions of the Auas Mountains; the mountains east of Windhoek and the mountainous areas of the Von Bach Recreational Area (Griffin 2003). *C. putulatus* is furthermore classified as "insufficiently known" and considering its restricted range and understudied ecology, makes this species one of the most important occurring in Namibia. This species is however not expected to occur at lower lying elevations such as the proposed development area. Owing to the fact that reptiles are an understudied group especially in Namibia, it is expected that more species may be located in the general Windhoek area including the proposed development site in Prosperita. The proposed development site is however not pristine and is bordered by urban infrastructure and it is therefore not expected to have a severe impact on unique reptiles.

### 3.4.2. MAMMALS

Namibia is well endowed with mammal diversity including the well-known big and hairy as well as a legion of smaller and lesser-known species. Currently 14 mammal species are considered endemic to Namibia are mainly associated with the Namib and escarpment with 60% of them rock-dwelling (Griffin 1998c). Overall terrestrial diversity and endemism amongst mammal species is classified as "high" in the central part of Namibia (Mendelsohn *et al.* 2002). The overall diversity (7-8 species) and abundance of large herbivorous mammals is "high" in the general Windhoek area with kudu and Oryx having the highest density of the larger species (Mendelsohn *et al.* 2002). The overall mammal diversity in the general Windhoek area is estimated at between 61-75 species with 5-6 species being endemic to the area (Mendelsohn *et al.* 2002). These species are mainly located in Daan Viljoen Game Park which has 65 species of mammals.

31.3% of the mammalian species that occur or are expected to occur in the general Windhoek area are represented by rodents, of which 16% are classified as "endemic". This is followed by bat species at 22.5% and 1 species being "endemic" and "rare" (i.e. *Cistugo seabrae*) and carnivores at 21.3% of which 1 species is "endemic". Of most importance is the House Mouse (*Mus musculus*) that is considered to be an invasive alien in the area is generally regarded as

casual pests and are known to be carriers of “plaque”. None of the important mammal species are exclusively associated with the proposed development area and are not expected to be adversely affected by the proposed convention centre development.

### 3.4.3. AVIAN DIVERSITY

Windhoek area is not classified as an Important Birding Area (IBA) although bird diversity in the area is viewed as high. At least 209 species of terrestrial (“breeding residents”) birds occur and/or could occur in the general Windhoek area at any time (Hockey *et al.* 2006, Maclean 1985, Tarboton 2001). The most important species known or expected to occur in the area are the endemics especially Rűppel’s parrot and the rockrunner that have unique habitat requirements; species classified as endangered (i.e. Ludwig’s bustard and white-backed vulture); near threatened (kori bustard) and vulnerable (martial eagle and secretary bird) by the IUCN (2014) and those classified as endangered (tawny, booted and martial eagles), near threatened (white-backed vulture, Verreaux’s eagle, peregrine falcon & marabou stork) and vulnerable (lappet-faced vulture) by Simmons & Brown (*In press*).

However, not all the important birds are expected to occur in the Prosperita area due to its close proximity to an existing urban environment as well as other anthropogenic influences.

None of the important bird species are exclusively associated with the proposed development area and are not expected to be adversely affected by the proposed new development, however several bird colonies were identified on site.

**Figure 7:Bird nesting identified in the project area**

## 3.5. Flora

Trees / Shrubs and Grasses

The Highland Savannah, although varied is characterised by Combretum apiculatum subsp apiculatum, various Acacia species and climax grasses on undisturbed area. The best palatable grass species have often been denuded in the general area over time due to over and selective grazing (Giess, 1971). Simmons (1998a) classified the plant endemism in the general Windhoek area to be between 61 and 70 species depending on the locality. The overall plant diversity (all species "higher" plants) in the general area is "high" and estimated at 400-499 species (Mendelsohn et al. 2002).

Plant endemism is also "high" with >35 species expected from the general area while the actual Auas Mountains south of the Auasblick area have >500 species (Mendelsohn et al. 2002). The vegetation of the surrounding areas are unique and have species reminiscent of the highland plateau grasslands in central South Africa and the Drakensberg (e.g. Themeda triandra) and the fynbos (e.g. Passerina montana) as well as succulents from the Northern Cape and South-western Namibia (e.g. Crassula & Ebracteola species) (Burke, 2007).

Various protected tree species encountered were found to occur at low densities throughout the area. No endemic species were observed at the proposed development site.)

**Figure 8: Protected tree species on site(a) Albizia anthelmintica, (b) Acacia erioloba and Boscia albintrunca (c) Searsia lancea**

The general area is relatively pristine for an urban environment but some refuse dumping was found to take place on the peripheries. The general surroundings of the development area has some dense patches of *Acacia mellifera* and *A. reficiens* which are culprits of bush encroachment as well as some open areas as indicated in Figure 8 below. The densities are currently not considered to be problematic with regards to bush encroachment as farming is not priority in the area.

Various invasive alien species were encountered throughout the proposed Auasblick development area. The threat of such species to the local ecology is known, but eradication is rarely undertaken. The alien species encountered included Dodonaea angustifolia, Opuntia sp., Pennisetum setaceum and Prosopis sp., see below;

**Figure 9:Alien invasive plant species encountered on site-Dodonaea angustifolia the green plant on the sides of the railway line, various Opuntia species (bottom) and Pennisetum setaceum.**

## 3.6. Areas of Importance

The proposed development area site with the riverbed is found to contain a wide variety of flora including lichens and is an important habitat to a variety of fauna such as the endemic rock-runner. It is therefore recommended that this area must be protected from development and must be incorporated into the project's green space (open area) and linked with other areas so as not to have an "island" scenario.

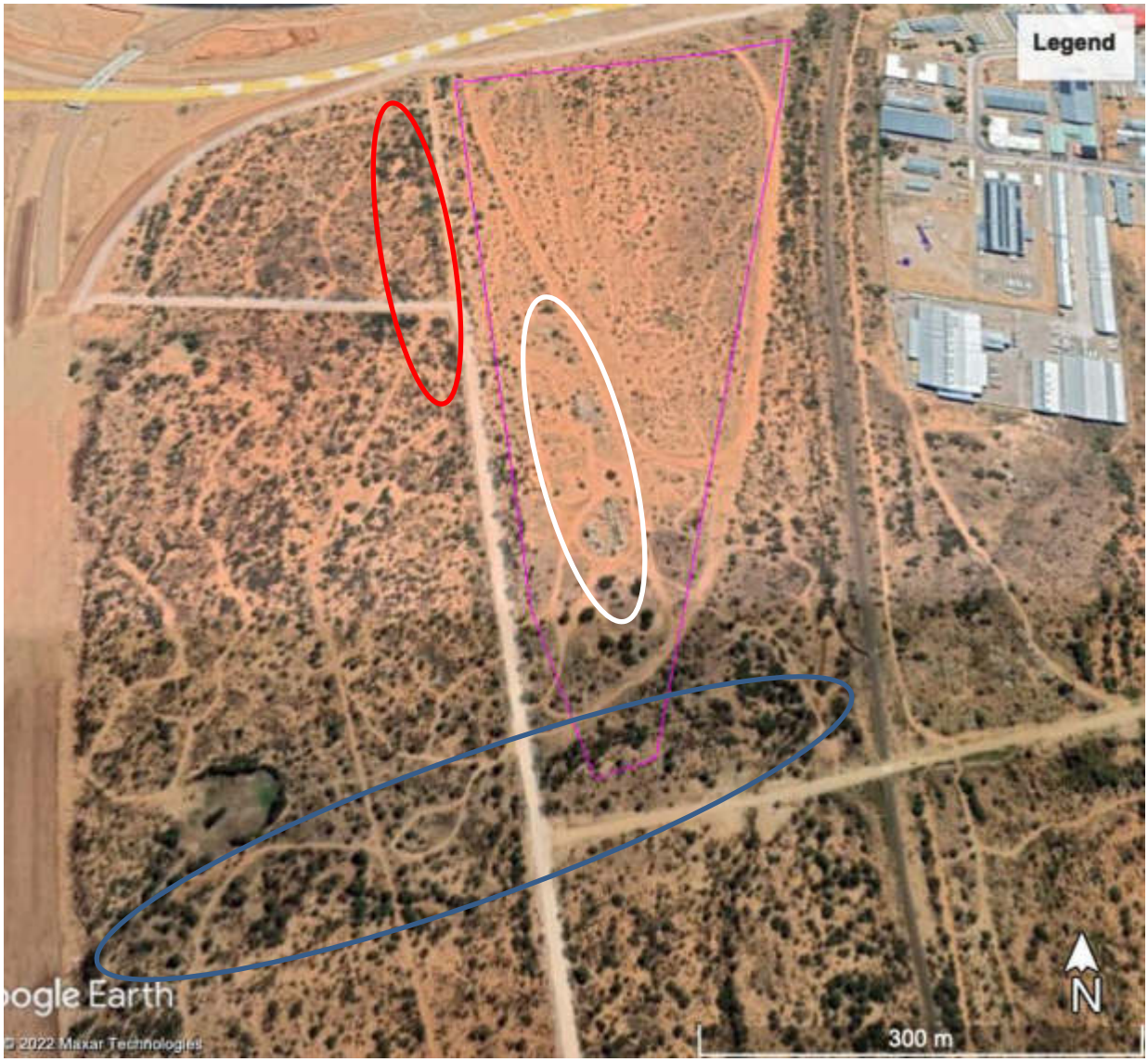


**Figure 10: Figure 10 | The build areas (white oval) with old buildings will need to be cleared by National Heritage Council of Namibia. Proposed blue circle and red circle are also important to project. The red area has bird nestings, blue circle (ecologically rich area.**

The most important tree/shrub species confirmed during the rapid assessment occurring in the proposed development area are *Acacia erioloba*, *Boscia albitrunca* and *Searsia lancea* which are protected under the Forestry Ordinance No. 37 of 1952 and *Albizia anthelmintica* and *Ziziphus mucronata* which are protected by various other Forestry laws (Curtis and Mannheimer 2005 and Mannheimer and Curtis 2009). However, these protected species were found to occur at low densities throughout the area as scattered individuals and are not exclusively associated with the proposed development area. The most notable species that are most likely to be adversely affected by the proposed developments would be the variety of reptiles and birds. Specifically those that are associated with the proposed development area as well as the potential effect that such a development may have on carnivores.

## 3.7. Hydrology

A reconnaissance level field assessment was conducted to confirm the current hydrologic conditions at the proposed area and to identify potential hydrologic risks associated with establishment of the proposed township development. The site is relatively flat however, due to its gradient the site can have minor drainage issues but this will be compensated by adequate and proper drainage systems in the layout designs/plans. The potential hydrologic feature at risk is the perennial river that is nearby the site.

As part of the detailed EIA, a stormwater assessment for the construction and operation phase of the proposed development is recommended to determine the impacts as well as identify mitigation measures to minimise any adverse effects associated with the new development. The stormwater assessment. A flood recurrence intervals of 1:5 year and 1:20 year are considered to be adequate for the purposes of roads design and development of NICC. The findings and recommendations from the assessment will be provided as support to the full ESIA.

The proposed development falls in a "*high environmental control zone*" as per the Windhoek Environmental Structure Plan of September 2004. These control zones are associated with the sensitive groundwater resources in and around Windhoek. The control zones are based upon the following parameters;

- The critical sensitivity of the southern Windhoek aquifer.
- The sensitivity of the catchment of the Goreangab Dam, and surface water resources, including rivers and streams throughout Windhoek.
- The sensitivity of the environment or a specific critical environmental component.
- The relative importance of the 'sense of place' or the specific character of Windhoek determined through resident participation, which includes topography and landscape quality as well as cultural / historical resources.
- The need to protect open space in Windhoek, which includes the river and aquatic systems, as well as the ridgelines, hills and mountains, and natural areas surrounding the city.
- The need to protect, manage and conserve sensitive natural vegetation cover.

In addition, surface water and groundwater issues will be determined in an independent specialist assessment, recommended.

It is anticipated that the NICC and its associated infrastructure and sub-developments will have an influence on the natural drainage and flow of surface water in the area. The alterations will result in an increase of surface water runoff due to the change in permeability characteristics. However, all services will be constructed as per the general municipal standards, with paved roads, gravel sidewalks, full-bore gravity sewer reticulation, water reticulation, underground electrical and Telecom networks and stormwater drainage where needed.

The result of developing the proposed development will be an increase of impermeable areas that will in return also increase the potential stormwater runoff for the area. The proposed site is located at the top or close to the top of the respective catchment areas and will have an effect on the existing stormwater drainage system downstream. Due to the construction of municipal services and housing in the proposed NICC development, there will be a reduction in the infiltration of rainfall into the soil and an increase in the runoff from this area.

The roads are expected to form stormwater channels for surface water, from where it will drain into a stormwater drainage system. The stormwater drainage system will then discharge into the natural drainage channels on the site and where applicable, culverts will be constructed to transport the water from one side of the road to the other. The stormwater assessment found that there will be a significant increase in stormwater runoff from the site, which will be discharged through the existing stormwater drainage systems.

## 3.8. Geology and Soils

Windhoek, is located in the Central Highlands of Namibia approximately 1 540 m above mean sea level and approximately 300 km inland of the ocean (Lahnsteiner and Lempert, 2007). Windhoek is located in a valley surrounded by the Auas, Eros and Otjihavera mountains. The geology is characterised by historical episodes of folding, faulting, thrusting and rifting and this is evidenced by the numerous faults in the north-western region (Gold and Muller, 2001). The biotite schist of the Kuiseb Formation is characteristic of the wider Windhoek area including the proposed site. Biotite schist is a moderately course-grained foliated crystalline rock with monoclinic biotite minerals and is known for its weathering property (Africon, 2004).

The area of Properita (the proposed development site) is moderately hilly with a well-developed drainage pattern and covered by sparse highland savannah vegetation (cf Geiss 1971). On the north-western side the area is bounded by a prominent ridge of Wasserberg quartzite (Kleine Kuppe Fmn) and on the southeast by semi-parallel outcrops of mica schist and amphibolite (Matchless Suite), striking in a roughly north-easterly direction (Geological Survey 1998). Faulting in a direction perpendicular to the strike is visible in many places, some of the faults showing ferrous calcrete encrustation resulting from artesian groundwater.

## 3.9. General Archeology

The area under which the proposed development site is situated is moderately hilly with a well-developed drainage pattern, and is covered by sparse highland Savannah vegetation (cf Geiss 1971). On the north-western side of the site, the area is bounded by a prominent ridge of Wasserberg quartzite (Kleine Kuppe Fmn) and on the southeast by semi-parallel outcrops of mica schist and amphibolite (Matchless Suite), striking in a roughly north-easterly direction (Geological Survey 1998).

Faulting in a direction perpendicular to the strike is visible in many places, some of the faults showing ferrous calcrete encrustation resulting from artesian groundwater. Down-cutting of the

drainage has left a number of ancient colluvial deposits in elevated positions, although most of the sedimentation within the area is probably tertiary in age, taking the form of silty sand terraces flanking the wider stream courses.

Due to erosion of the central highlands during the recent geological times, this has resulted in the removal or occasional burial of archaeological evidence for early human occupation. Most archaeological sites in the central Namibian highlands date to within the last ten thousand years. Of these, the majority are very recent, probably dating to within the last two thousand years (Kinahan 1999). A considerable number of archaeological sites have been recorded in the Windhoek Townlands, often as a result of discoveries made in the course of civil engineering works.

In recent years, several burials have been located and excavated in the course of building and roadwork expeditions in this part of Windhoek Townlands. Given the existence of old buildings and proof of previous occupation, a HAIA is recommended.

## 3.10. Traffic Impact

The proposed NICC will be located in Prosperita, however the roads that are connecting to the site are also leading to Grove Mall, Cimbebasia and Rehoboth. The area currently has significant existing vehicular traffic, with volumes noted to be high during 07:00 to 08:00 AM peak and 16:45 to 17:45 PM peak hours. Construction of the proposed development is expected to take place over a period of 12 to 15 months and during this time, negative impacts are expected to arise from the increased vehicular traffic and heavy load transport. A Traffic Impact Assessment (TIA) is recommended and it will inform the full TIA which will evaluate the expected traffic impact of the proposed development on the road network surrounding the site, and identified the required mitigation measures.

# 4. CHAPER 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 NICC 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 EA 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, City of Windhoek Public Notices, notices in Cimbebasia and Prosperita. These provided information about the project and related EA while providing contact details of the project team.

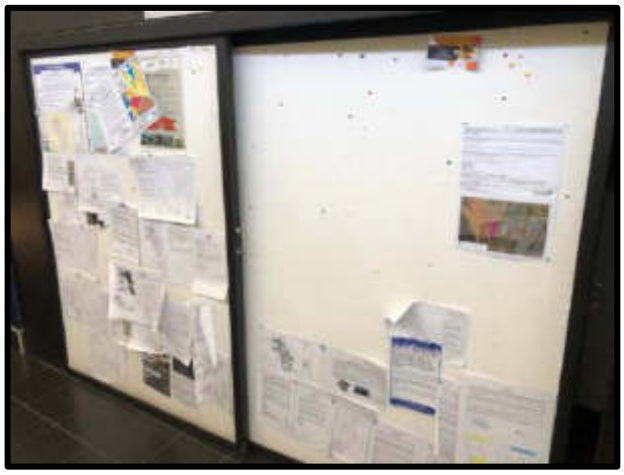

**Figure 11(top): Site Notice at City of Windhoek**
**Figure 12(Middle): ESIA notice in Prosperita**
**Figure 13: Bottom-ESIA notice in Cimbebasia**

### 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 Saturday 23 October 2021 at Namibia Scientific Society, Time 09:00AM. Despite notification in newspapers and site notices, the meeting was poorly attended. The attending I&APs did not give objections to the development.

The below images of the public meeting were captured as well, the attendance register is annexed as appendix A.

**Figure 14: Public consultative meeting at Namibia Scientific Society**

### 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

The proponent has committed to sustainability and environmental compliance through coming up with a corrective action plan for all anticipated environmental impacts associated with the project. This is also in line with the Namibian Environmental Management legislation and International best practices on construction and land development. The proponent will implement an Environmental Management Plan (EMP) in order to prevent, minimise and mitigate negative impacts. The environmental management plan is being 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 .

**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% |

(***Adopted from ECC-Namibia, 2017)***

**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)**

**Table 4: Environmental Impacts and Aspects Assessment**

| Environmental Impact | Valued Ecosystem Component | Impact | Project Phase | Duration | Magnitude | Extent | Type | Probability | Significance |
|---|---|---|---|---|---|---|---|---|---|
| **TOPOGRAPHY** | Landscape Scenery | Visual aesthetic impact | Construction | Moderate | Moderate | Local | Direct | Medium 25 - 75% | Minor |
| | Clearing of a large portion of land | Visual aesthetic impact | Construction | Moderate | Moderate | Local | Direct | Medium 25 - 75% | Minor |
| **SOIL** | Soil | Contamination to soil from waste disposal | Construction | Moderate | Small | Local | Direct | Low <25% | Minor |
| | Soil | Spillages of fuel, oil and lubricants. | Construction | Short | Small | Local | Direct | Low <25% | Minor |
| | Soil | Erosion from road opening and trenching | Construction | Moderate | Small | Local | Direct | Low <25% | Minor |
| **LAND CAPABILITY** | Terrestrial ecology and aquatic ecosystems | Change in land use | Construction | Permanent | Great | Local | Direct | Low <25% | Moderate |
| **WATER** | Surface water quality | Water pollution from oils and lubricants from vehicles and machinery. | Construction | Moderate | Moderate | Local | Direct | Medium 25 - 75% | Moderate |
| | Surface and groundwater | Water pollution from oils and lubricants | Operation | Moderate | Small | Local | Direct | Low <25% | Moderate |
| | Surface and groundwater | Increase in stormwater runoff, local pollution and river sedimentation | Construction & Operation | Moderate | Moderate | Local | Direct | Medium 25 - 75% | Minor |
| **AIR QUALITY** | Noise Pollution | -Noise During Construction and operation | Construction | Moderate | Moderate | Local | Direct | Medium 25 - 75% | Moderate |
| | Dust Pollution | -Construction dust | Construction | Moderate | Moderate | Local | Direct | High >75% | High |

| Environmental Impact | Valued Ecosystem Component | Impact | Project Phase | Duration | Magnitude | Extent | Type | Probability | Significance |
|---|---|---|---|---|---|---|---|---|---|
| **WASTE** | Groundwater quality | Hazardous waste such as waste oil and lubricants. | Construction | Short | Small | Local | Direct | Low <25% | Minor |
| | Topography and Landscape | Visual impacts due to infrastructure and unsustainable handling and disposal of waste. | Construction | Short | Small | Local | Direct | Low <25% | Minor |
| **FAUNA** | Aquatic life | Antifouling paints, eutrophication and sedimentation of streams. | Construction, | Moderate | Small | local | Direct | Low <25% | Minor |
| | Terrestrial ecology and biodiversity | Destruction of vertebrate fauna (e.g. road kills; fence and construction /land clearing mortalities) | Construction | Long | Moderate | Local | Direct | Low <25% | Minor |
| **FLORA** | Terrestrial ecology and biodiversity | Proliferation of invasive species inland | Construction | Long | Moderate | Local | Direct | High >75% | Moderate |
| | Terrestrial ecology and biodiversity | Loss of unique flora and special habitats in the local environment because of general nuisance and animal migrate. | Construction | None | Moderate | Regional | Direct | Low <25% | Moderate |
| **SOCIAL** | Noise Pollution | Increased noise levels | Construction | Moderate | Small | Local | Direct | Low <25% | Minor |
| | Socio Economic Activities | Temporary and permanent employment prospects. | Construction | Long | Moderate | Regional | Direct | Medium 25 – 75% | Positive |

| Environmental Impact | Valued Ecosystem Component | Impact | Project Phase | Duration | Magnitude | Extent | Type | Probability | Significance |
|---|---|---|---|---|---|---|---|---|---|
| | Contribution to National Economy | Employment, local procurement, duties and taxes. | Construction | Short | None | Regional / National | Direct | Low <25% | Positive |
| **HERITAGE/ARCHAEOLOGY** | Artefacts, archaeological high value components | Destruction or affecting paleontological and archaeological artefacts | Construction | Moderate | Moderate | Local | Direct | Medium 25 – 75% | Moderate |
| **TRANSPORT IMPACT ASSESSMENT** | Increased traffic, increased pedestrian activity, air pollution and pressure on existing roads., archaeological high value components | Effects on traffic flow and safety. | Construction and operataion | Moderate | Moderate | Local | Direct | Medium 25 – 75% | Moderate |
| **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 |
| | Property and human life | Electrical hazards and fires may result in fatalities, damage to properties and power surges. | Construction | Moderate | Great | Local | Direct | Medium 25 – 75% | Major |

# 6. CONCLUSION

Based on the impacts identified by this study during site visit, process analysis, desk study and stakeholder consultations conducted, an integrated environmental risk analysis was carried out using the DEFRA Guidelines for Environmental Risk Assessment and Management 'Green Leaves III' (latest edition) as well as the international Procedures for best practices. The risk analysis shows that the project will have some negative impacts on the environment (Biophysical, economic, social and political), it has been also noted that the project will deliver some positive impacts on the receiving environment, as well as on social and economic aspects.

However, it is imperative to note that the project is being undertaken within an already disturbed locale. In order to prevent or mitigate negative impacts and to increase positive impacts a coordinated project management strategy according to an Environmental Management Plan, developed specific to this development.

## Appendix A: References

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