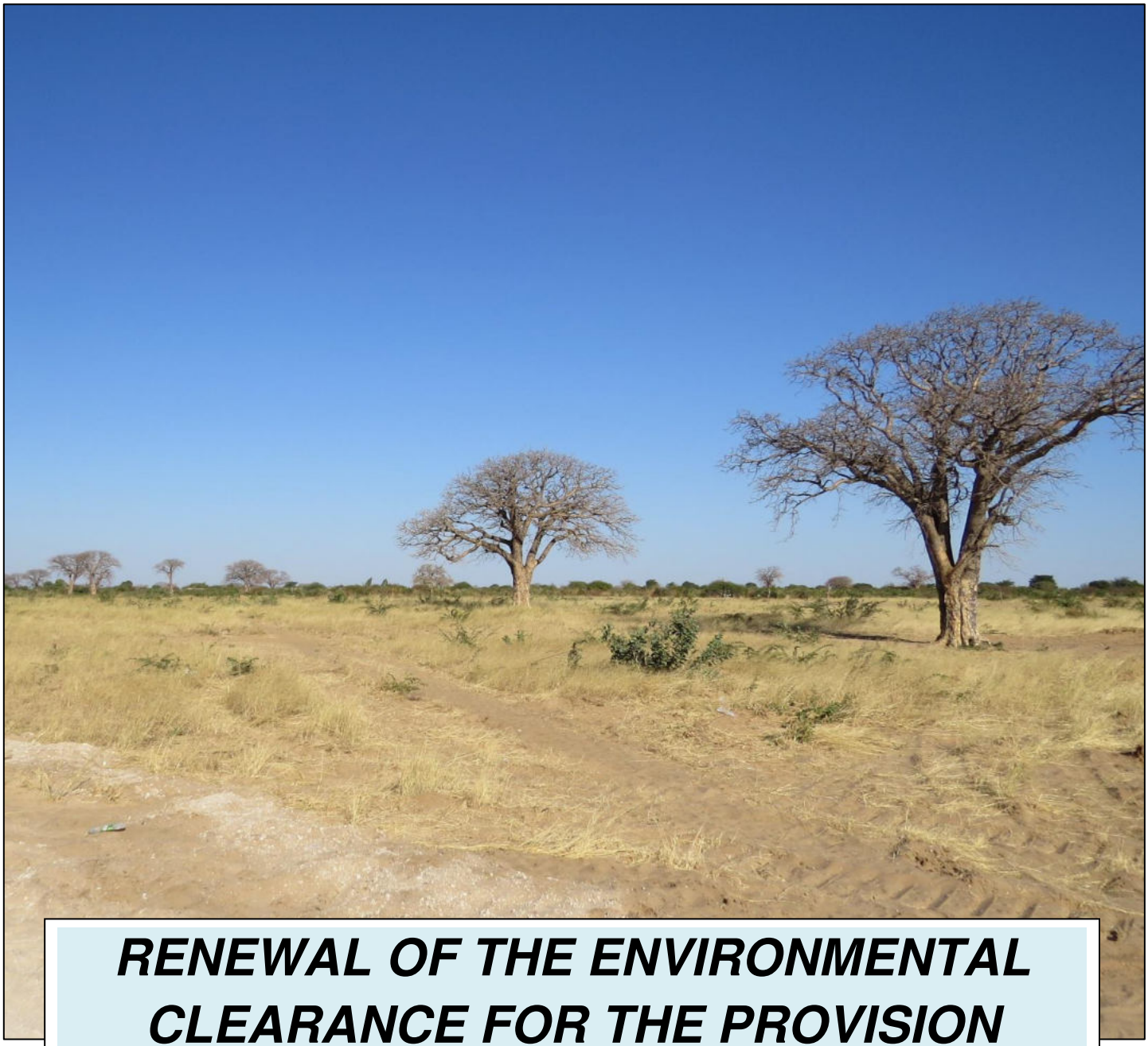

RENEWAL OF THE ENVIRONMENTAL CLEARANCE FOR THE PROVISION OF MUNICIPAL SERVICES ON EXTENSION 10, KAISOSI, RUNDU

July 2022

App – 0010414

Project Name:	***RENEWAL OF THE ENVIRONMENTAL CLEARANCE FOR THE PROVISION OF MUNICIPAL SERVICES ON EXTENSION 10, KAISOSI, RUNDU***
The Proponent:	**AT-HELMSMAN GROUP** **P.O. BOX 21225** **WINDHOEK** **NAMIBIA**
Prepared by:	Green Earth ENVIRONMENTAL CONSULTANTS 1st floor Bridgeview Offices & Apartments, No. 4 Dr Kwame Nkrumah Avenue, Klein Windhoek, Namibia PO Box 6871, Ausspannplatz, Windhoek
Release Date:	July 2022
Consultant:	C. Du Toit C. Van Der Walt Cell: 081 127 3145 Email: charlie@greenearthnamibia.com

EXECUTIVE SUMMARY

Green Earth Environmental Consultants were appointed by the proponent, AT-Helmsman Group, to conduct the Environmental Impact Assessment renewal to obtain a renewed environmental clearance for the provision of Municipal Services on Extension 10, Kaisosi, Rundu, Kavango Region.

An Environmental Impact Assessment was conducted 17 January 2017 and therefore the Environmental Clearance is due for renewal. The previous ECC expired on 23 January 2020. The implementation of the development was delayed by factors like the slowing down of the economy, Covid 19 and other factors. The proponent, AT-Helmsman Group, has taken over the development from the previous proponent, MPP Civils. To allow the new proponent, AT-Helmsman Group, to proceed with the development, the ECC must be renewed.

In accordance with the Environmental Impact Assessment Regulations (GN 30 in GG 4878 of 6 February 2012) of the Environmental Management Act (No. 7 of 2007), the activities listed below, which forms part of the proposed operations, may not be undertaken without a renewed Environmental Clearance:

ENERGY GENERATION, TRANSMISSION AND STORAGE ACTIVITIES

1. The construction of facilities for -
(b) the transmission and supply of electricity.

WASTE MANAGEMENT, TREATMENT, HANDLING AND DISPOSAL ACTIVITIES

2.1 The construction of facilities for waste sites, treatment of waste and disposal of waste.
2.2 Any activity entailing a scheduled process referred to in the Atmospheric Pollution Prevention Ordinance, 1976.
2.3 The import, processing, use and recycling, temporary storage, transit or export of waste.

WATER RESOURCE DEVELOPMENTS

8.6 Construction of industrial and domestic wastewater treatment plants and related pipeline systems.

INFRASTRUCTURE

10.1 The construction of-
(a) oil, water, gas and petrochemical and other bulk supply pipelines.
(b) public roads.
10.2 The route determination of roads and design of associated physical infrastructure where -
(a) it is a public road.
(b) the road reserve is wider than 30 meters; or
(c) the road caters for more than one lane of traffic in both directions.

The environmental impacts during the operational phase of the proposed project:

IMPACTS DURING OPERATIONAL PHASE			
Aspect	**Impact Type**	**Significance of impacts Unmitigated**	**Significance of impacts Mitigated**
Ecology Impacts	-	L	M
Dust and Air Quality	-	L	M
Groundwater Contamination	-	L	M
Waste Generation	-	L	M
Failure of Reticulation Pipeline	-	L	M
Fires and Explosions	-	L	M
Safety and Security	-	L	M

IMPACT EVALUATION CRITERION (*DEAT 2006*):		
Criteria	**Rating (Severity)**	
Impact Type	+	Positive
	O	No Impact
	-	Negative
Significance of impacts	L	Low (Little or no impact)
	M	Medium (Manageable impacts)
	H	High (Adverse impact)

The type of activities that is carried out on the site does not negatively affect the amenity of the locality and the activities will not adversely affect the environmental quality of the area. None of the potential impacts identified are regarded as having a significant impact to the extent that the proposed project should not be allowed. However, the operational activities further on need to be controlled and monitored by the assigned managers and the proponent. Mitigation measures will be provided that can control the extent, intensity, and frequency of these named impacts in order not to have substantial negative effects or results. It is believed that the overall cumulative impact on the biophysical environment will be low and there will be a positive impact on the socio-economic environment.

The Environmental Impact Assessment renewal which follows upon this paragraph was conducted in accordance with the guidelines and stipulations of the Environmental Management Act (No 7 of 2007) meaning that all possible impacts have been considered and the details are presented in the report.

Based upon the conclusions and recommendations of the renewed Environmental Impact Assessment Report and Environmental Management Plan, the Environmental Commissioner of the Ministry of Environment, Forestry and Tourism is herewith requested to:

1. Accept and approve the Environmental Impact Assessment renewal.
2. Accept and approve the renewed Environmental Management Plan.
3. Issue an Environmental Clearance renewal for the provision of Municipal Services on Extension 10, Kaisosi, Rundu, Kavango Region and for the following listed activities:

ENERGY GENERATION, TRANSMISSION AND STORAGE ACTIVITIES

1. The construction of facilities for -

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LIST OF ABBREVIATIONS

EC	Environmental Clearance
ECO	Environment Control Officer
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
I&APs	Interested and Affected Parties
MAWLR	Ministry of Agriculture, Water and Land Reform
MEFT	Ministry of Environment, Forestry and Tourism

1. INTRODUCTION

Green Earth Environmental Consultants were appointed by the proponent, AT-Helmsman Group, to obtain an environmental clearance renewal for the provision of Municipal Services on Extension 10, Kaisosi, Rundu, Kavango Region.

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In accordance with the Environmental Impact Assessment Regulations (GN 30 in GG 4878 of 6 February 2012) of the Environmental Management Act (No. 7 of 2007), the activities listed below, which forms part of the proposed operations, may not be undertaken without an Environmental Clearance:

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(c) the road caters for more than one lane of traffic in both directions.

The following Environmental Impact Assessment renewal contains information on the project and the surrounding areas and activities.

2. TERMS OF REFERENCE

To be able to continue with the operations of the project, an Environmental Clearance renewal is required. For this environmental impact exercise, *Green Earth Environmental Consultants* followed the terms of reference as stipulated under the Environmental Management Act.

The aim of the initial environmental impact assessment was:

- To ascertain existing environmental conditions on the site to determine its environmental sensitivity.
- To inform I&APs and relevant authorities of the details of the proposed activities and to provide them with an opportunity to raise issues and concerns.
- To assess the significance of issues and concerns raised.
- To compile a report detailing all identified issues and possible impacts, stipulating the way forward and identify specialist investigations required.
- To outline management guidelines in an Environmental Management Plan (EMP) to minimize and/or mitigate potentially negative impacts.
- To comply with Namibia's Environmental Management Act (2007) and its regulations (2012).

The tasks that were undertaken for the Environmental Impact Assessment renewal included the evaluation of the following: climate, water (hydrology), vegetation, geology, soils, social, cultural heritage, groundwater, sedimentation, erosion, biodiversity, sense of place, socio-economic environment, health, safety and traffic.

The EIA and EMP from the assessment will be submitted to the Environmental Commissioner for consideration. An Environmental Clearance renewal will only be obtained (from the DEA) once the renewed EIA and EMP has been examined and approved for the listed activities.

The public consultation process as per the guidelines of the Act has been followed. The methods that were used to assess the environmental issues and alternatives included the collection of data on the project site and area from the proponent and identified stakeholders. All other permits, licenses or certificates that are further on required for the operation of the proposed project still needs to be applied for by the proponent.

3. PROJECT DESCRIPTION/SITE INFORMATION

3.1. LOCALITY OF SITE

An environmental clearance renewal for the provision of Municipal Services on Extension 10, Kaisosi, Rundu, Kavango Region is required. See below the locality and site layout maps:

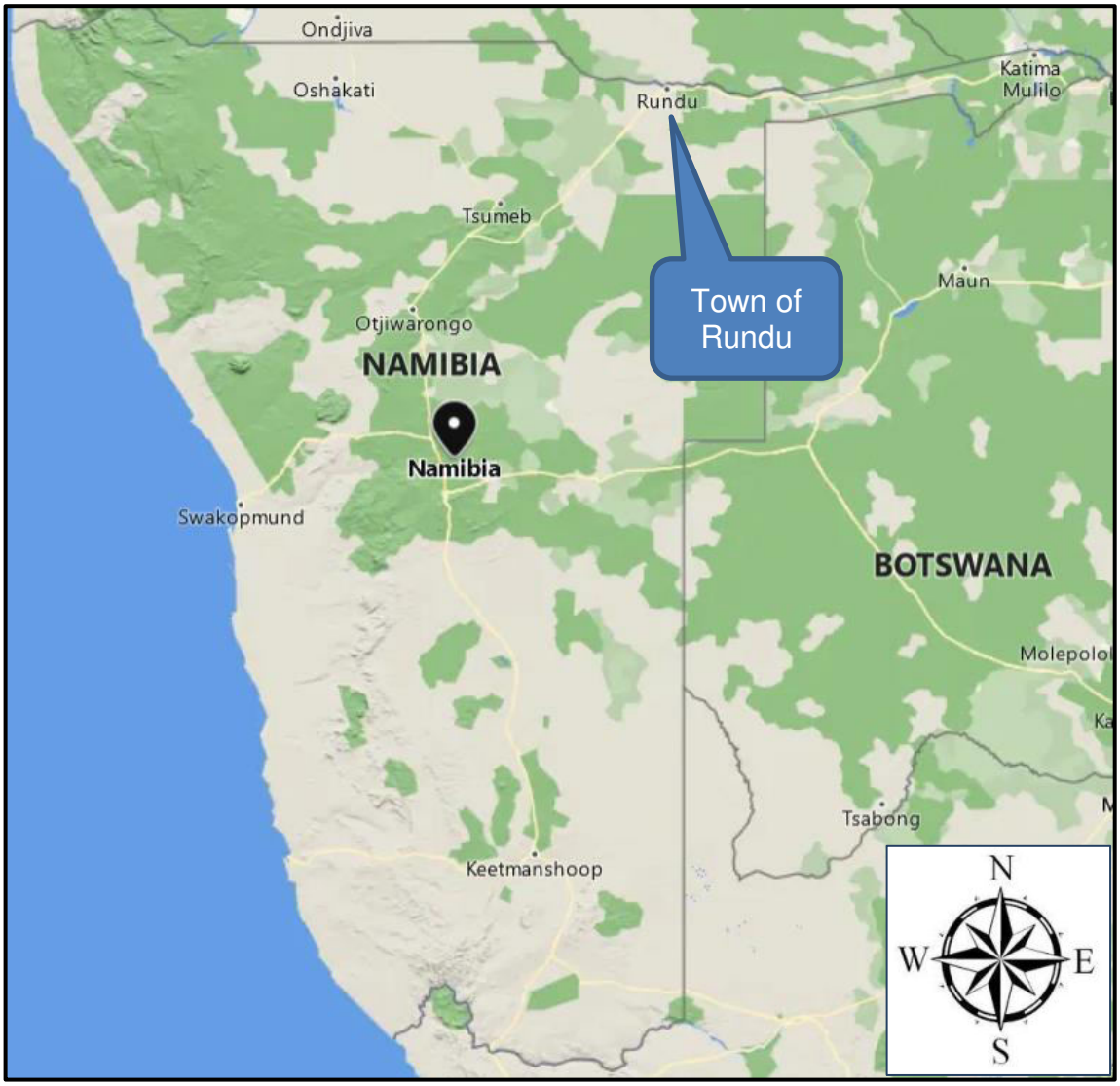

Figure 1: Rundu, Kavango Region

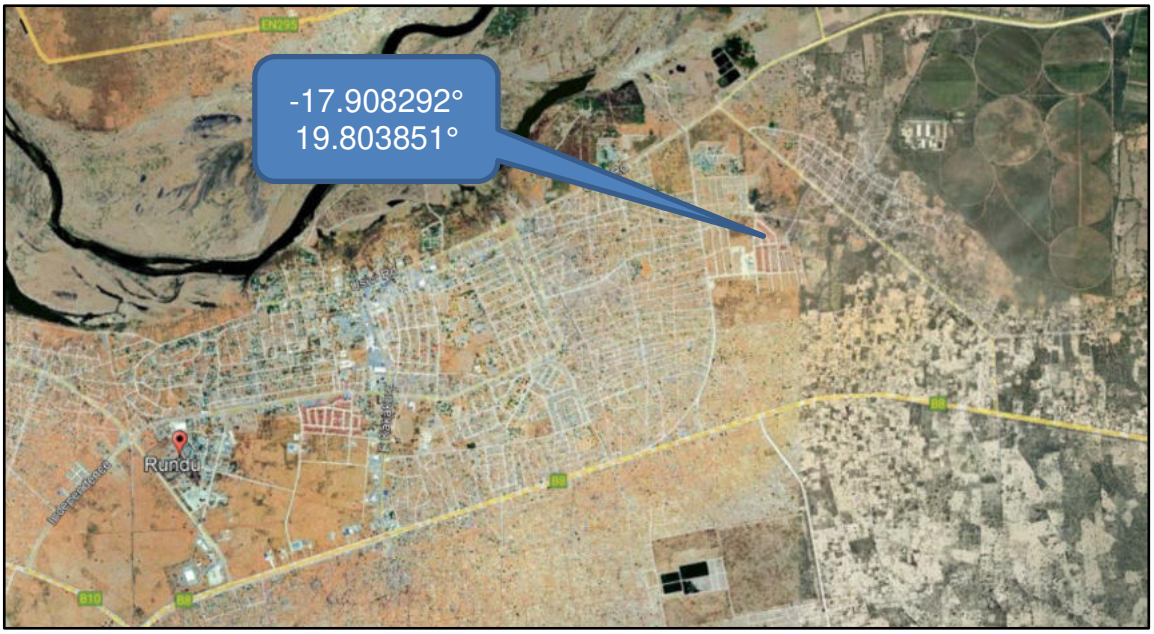

Figure 2: Area where the Project Site is located

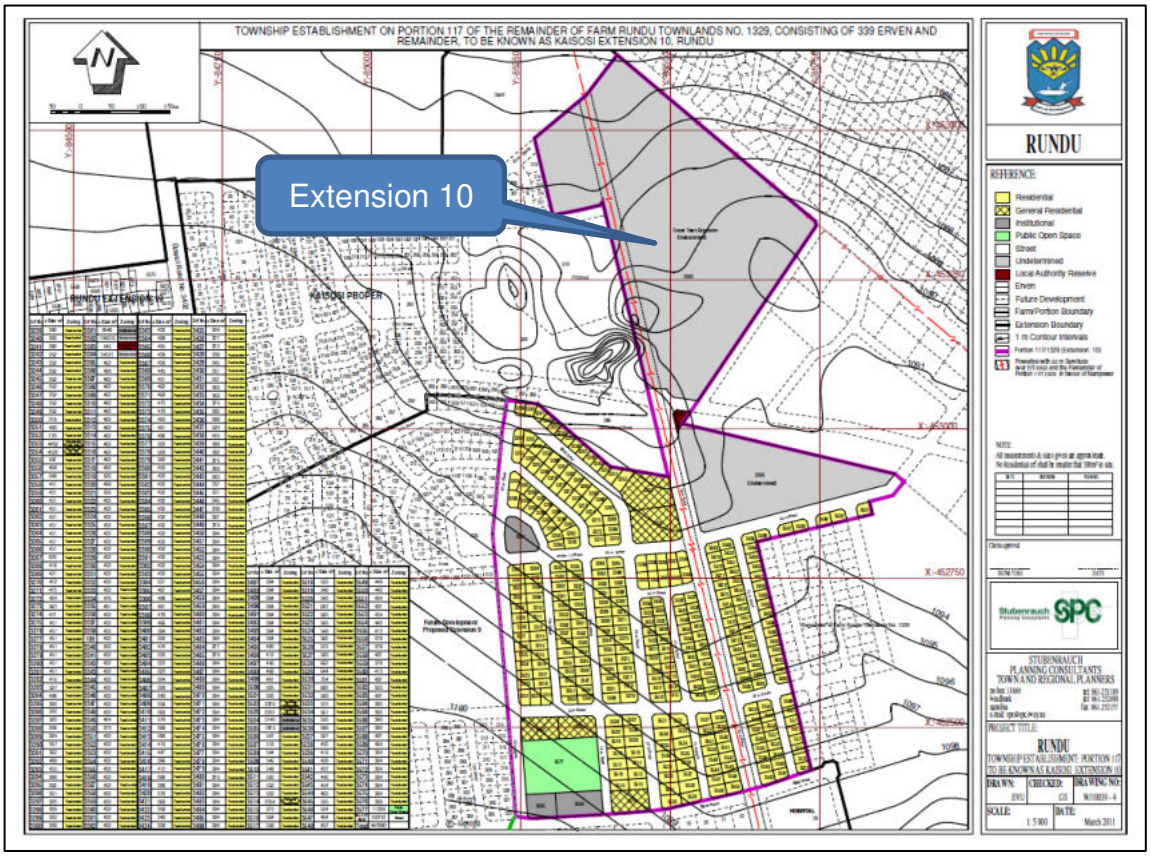

Figure 3: Subdivision Map (Stubenrauch Planning Consultants, 2011)

4. BULK SERVICES AND INFRASTRUCTURE

Based on the approved layouts, Lithon Project Consultants submitted detailed designs to Rundu Town Council for the design and construction of the bulk services including the sewer network, supply of electricity, water reticulation and internal and external access roads. The bulk services will be provided as follow:

4.1. ACCESS

The Project Area is connected to the District Road D3402. Access will be from this road. This road is under the jurisdiction of the Roads Authority. The access design will consider the type of vehicle using the access, the approach gradient to the access, the distance from the nearest intersection, the speed limit on the road as well as the vertical and horizontal lines of sight. The designs will be submitted to the Roads Authority for approval.

The internal road network, as and where required, will be constructed according to the approved layout. Road types will be normal G2 gravel roads. Road bed preparation and compaction of the structural layers will be done to the standards as prescribed by SANS 1200 and will be monitored and controlled by means of regular control testing and analysis through an accredited Geo-Technical laboratory. Layer works will be according to the standards as depicted in the *Table* below:

Table 1: Standards for Road Layer Works

	LAYER	ELEMENT	GUIDELINE
1	Roadbed preparation	Roadbed preparation 150 mm depth.	Compaction to 100% of modified AASHTO density (In-situ sand 150 mm deep).
2	Sub-base/Selected layer	150 mm thick on roads.	Imported gravel or suitable gravel taken from cut or borrow compacted to 98% of modified AASHTO density.
3	Wearing course	150 mm thick constructed from sub base material as specified in SANS 1200 ME clause 3.2.2.	Compacted to 100% of modified AASHTO density, with minimum CBR = 45 at 95% of modified AASHTO density. Nominal maximum size of stone 37.5 mm.
4	Ancillaries		Provision must be made for Road Signs, Sleeve Pipe and Cable Duct Marker Blocks.

Figure 4: Access to the Project Site

4.2. WATER SUPPLY

The supply of bulk water to Extension 10 would be the responsibility of the Town Council of Rundu. All drawings and plans for the potable water reticulation have been submitted to the Town Council and discussed with them. Verbal 'No Objection' was given. Water will be supplied to the relevant portions, from where the bulk water is supplied via internal water networks.

Although the Guidelines for Human Settlement and Design (Red Book) recommends a minimum pressure of 25m in a water supply network, the Consultant considers this to be very conservative and has recommended a minimum pressure of 15m within the network. The latter is recommended due to the area being a low income residential area where household installations do not require pressures of more than 10m of pressure and would in turn provide a wider area being served by a single reservoir.

The calculation of the Annual Average Water Demand (AAWD) for the residential developments will be based on the "Red Book", with a consumption of 600 l/day per single residential plot and 600 l/day for the General Residential plots with a Floor Space Ratio density ranging between 1:150 - 1:250.

4.3. INTERNAL WATER DISTRIBUTION NETWORK

The performance of a finished water distribution system is judged by its ability to deliver the required flows while maintaining desirable pressure and water quality. Customer water demands and fire flow requirements must therefore be met. Meeting these requirements depends upon the proper design and performance of bulk and distribution piping, ground storage facilities and booster pumping stations. The internal water distribution network of the Kaisosi Development will be so designed as to provide water at a volume and pressure to meet the demand.

The internal distribution network will consist of uPVC piping with specials and fittings meeting the requirements of Rundu Town Council. Construction of the network will be according to the prescribed standards of Rundu Town Council and will comply with SANS 1200. The *Table* below provides a summary of the design standards for water supply reticulation that will be used as guidelines:

Table 2: Design standards applicable to internal water reticulation

	PARAMETER	ELEMENT	GUIDELINE
1	Pressure	Maximum (Static) Minimum (at peak flow)	9,0 bar (90m) 1,5 bar (15m)
2	Flow Velocities	dia ≤150 mm dia ≥ 200 mm	1,0 m/s – 3,5 m/s 1,5 m/s – 2,5 m/s
3	Peak Factor	Design peak (calculated using equivalent erven)	4 minimum Dependant on size of development
4	Pipe Location	Reserve	Within road reserve at distance applicable to Rundu Town Council
5	Cover to pipes	Minimum: Gravel roads Tarred roads and traffic areas Other areas Maximum: All areas	1000mm 800mm 600mm 1500mm

4.4. WASTE WATER/SEWERAGE

The waste water/sewerage outfall generated by the development will be collected through a gravity flow water borne sewage network constructed in accordance with SANS 1200 and fully meeting the requirements of the Town Council of Rundu. The pipe network will consist of normal uPVC piping and specials with concrete manholes appropriately spaced to facilitate proper and easy maintenance on the network. The pipe network will connect to the existing Rundu Town network and transferred to the existing oxidation ponds.

The following design standards will be used as guidelines for the design and construction of the internal sewage collection network:

Table 3: Design standards applicable to internal sewer reticulation

	PARAMETER	ELEMENTS	GUIDELINES
1	Minimum Velocity at full flow	Gravity Sewer	0.7 m/s
2	Peak Factors	Industrial	2.5
3	Stormwater Infiltration		15% of design flow
4	Pipe Capacity	Flow level as percentage of diameter	80% at design flow
5	Minimum Gradients for Pipes	110mm dia 160mm dia 200mm dia 225mm dia 250mm dia 300mm dia and bigger	1/120 1/200 1/300 1/350 1/400 1/500
6	Hydraulic Calculations	Manning Equation	n=0,012
7	Pipe Materials	All Pipes	uPVC - 400 kPa Hoop Stiffness
8	Location of Sewer	Street Layout	As prescribed by the Rundu Town Council
9	Connections	For Stands	110mm uPVC with slip on couplings
10	Cover over pipe	Road Reserves	800 mm (min)
11	Manholes	Spacing	80m maximum

4.5. STORMWATER AND DRAINAGE MANAGEMENT

The design of the internal roads will include provision for storm water infrastructure to accommodate the storm water generated by the development as well as storm water received by the site from adjacent areas through natural cross drainage. Appropriate

storm water infrastructure will be constructed to prevent any damage to the development or adjacent areas.

4.6. ELECTRICITY SUPPLY

There is an 11kV power line of NORED running along the D3402 to which the electrical supply will be connected via an 11kV:0.4kV transformer and further distributed to all the plots. The use of conventional techniques to provide electricity supply on site is proposed, which would limit cost and reduce implementation times. Energy efficiency may be used to allow for limited development in the current context, where there is a limited electricity supply capacity, while maintaining functionality. This will tend to be more expensive and would have to be considered at length.

It is also foreseen that the development would be provided with conventional streetlights and telecoms services. Should telecom services be required, each plot should apply to Telecom Namibia and these services will probably be provided to the homesteads via overhead lines.

4.7. SEWAGE DISPOSAL

The site is connected to the existing sewer connection which is linked with the Municipal sewer system.

4.8. SOLID WASTE DISPOSAL

The expected solid waste to be generated by the development can be classified as general municipal waste. Solid waste removal will be handled by the Rundu Town Council under their normal waste collection program and facilities and be disposed off at the Rundu solid waste site.

4.9. FIRE PROTECTION

The area being a low income residential development is viewed as a Low-Risk Group 3 fire risk area. The water mains will be so designed that supply is assured at all times and will be correctly sized for a design flow equivalent to the sum of the design instantaneous peak domestic demand for the area and the design fire flow. “Guidelines for the Provision of Engineering Services in Residential Townships” by-laws relating to fire flow conditions will be adhered to.

Meeting the fire flow requirements depends upon the proper design and performance of bulk and distribution piping, ground storage facilities and booster pumping stations, which would form part of the internal reticulation design. Depending on the size of the general residential developments to be provided on each general residential plot, fire protection designs will be done and might require booster connections and/or booster pump stations for individual developments.

The minimum design fire flow will be 350 ℓ/minute with all hydrants within a radius of 270 metres from the fire discharging simultaneously.

Provision will be made for proper firefighting through the installation of above ground pillar type fire hydrants fully complying with applicable legislation/regulations such as SANS 1128-1 and meeting the requirements of the Rundu Town Council Fire Department. The picture depicts a typical installation of the above. These hydrants will be appropriately spaced not to exceed a distance of 240 meters apart.

Figure 5: Fire hydrant

On-site fire protection will be dealt with on an individual basis through the submission of proper building plans to the Rundu Town Council for approval in compliance with Part T of SANS 0400 – 1990 and the national Building regulations. The water supply from the distribution lines to the individual plots will be individually metered and each installation will be registered with the Rundu Town Council.

5. APPROVALS OBTAINED

See below previous Environmental Clearance Certificate obtained 17 January 2017:

REPUBLIC OF NAMIBIA

MINISTRY OF ENVIRONMENT AND TOURISM

Tel: (00 26461) 284 2111
Fax: (00 26461) 229 936

Cnr Robert Mugabe &
Dr Kenneth Kaunda Street
Private Bag 13306
Windhoek
Namibia
17 January 2017

Enquiries: Mr. Ipeinge Mundjulu
E-mail: Ipeinge.mundjulu@met.gov.na

OFFICE OF THE ENVIRONMENTAL COMMISSIONER

The Managing Director
MPP Civils
P O Box 6871
Ausspannplatz
Windhoek, Namibia

Dear Sir/Madam

SUBJECT: ENVIRONMENTAL CLEARANCE CERTIFICATE FOR THE PROVISION OF MUNICIPAL SERVICES ON EXTENSION 9 AND 10, KAISOSI, RUNDU

The Environmental Impact Assessment and Environmental Management Plan submitted is sufficient as it made provision of the environmental management concerning the proposed activities. From this perspective regular monitoring and evaluation on environmental performance should be conducted. Targets for improvements should be established and monitored from time to time.

This Ministry reserves the right to attach further legislative and regulatory conditions during the operational phase of the project.

On this basis, this letter serves as an environmental clearance certificate for the project to commence. However, this clearance letter does not in any way hold the Ministry of Environment and Tourism accountable for misleading information, nor any adverse effects that may arise from this project's activities. Instead, full accountability rests with MPP Civils and their consultants.

This environmental clearance is valid for a period of 3 (three) years, from the date of issue unless withdrawn by this office.

Yours sincerely,

Teofilus Nghitila
ENVIRONMENTAL COMMISSIONER

All official correspondence must be addressed to the Permanent Secretary

6. APPROACH TO THE STUDY

The assessment included the following activities:

a) Desktop sensitivity assessment

Literature, legislation, and guidance documents related to the natural environment and land use activities available on the area in general were reviewed in order to determine potential environmental issues and concerns.

b) Site assessment (site visit)

A site visit was conducted in the immediate neighbourhood and the surrounding area was assessed. Previous site visits to investigate the environmental parameters on site to enable further understanding of the potential impacts on site also took place.

c) Public participation

Public notices, informing the general public of the proposed project and inviting Interested and Affected Parties to provide comments on the proposed development, appeared in the Namibian and Republikein. A notice was also displayed on site. No objections or comments were received in respect of these notices.

c) Scoping

Based on the desk top study, site visit and public participation, the environmental impacts were determined in five categories: nature of project, expected duration of impact, geographical extent of the event, probability of occurring and the expected intensity. The findings of the scoping have been incorporated in the environmental impact assessment report below.

7. ASSUMPTIONS AND LIMITATIONS

It is assumed that the information provided by the proponent/client is accurate. A limitation is that no alternative site for assessment was provided. The proponent has no alternative site in this area for the proposed activities and therefore has to use this site. The assessment is based on the prevailing environmental conditions and not on future happenings on the site. However, it is assumed that there will be no significant changes to the proposed project, and the environment will not adversely be affected between the compilation of the assessment and the implementation of the proposed construction activities.

8. ADMINISTRATIVE, LEGAL AND POLICY REQUIREMENTS

To protect the environment and achieve sustainable development, all projects, plans, programs and policies deemed to have adverse impacts on the environment require an EIA according to Namibian legislation. The administrative, legal and policy requirements

to be considered during the Environmental Assessment for the proposed project are the following:

- The Namibian Constitution
- The Environmental Management Act (No. 7 of 2007)
- Other Laws, Acts, Regulations and Policies

THE NAMIBIAN CONSTITUTION

Article 95 of Namibia's constitution provides that:

"The State shall actively promote and maintain the welfare of the people by adopting, inter alia, policies aimed at the following:

Management of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future; in particular, the Government shall provide measures against the dumping or recycling of foreign nuclear and toxic waste on Namibian territory." This article recommends that a relatively high level of environmental protection is called for in respect of pollution control and waste management.

Article 144 of the Namibian Constitution deals with environmental law and it states:

"Unless otherwise provided by this Constitution or Act of Parliament, the general rules of public international agreements binding upon Namibia under this Constitution shall form part of the law of Namibia". This article incorporates international law, if it conforms to the Constitution, automatically as "law of the land". These include international agreements, conventions, protocols, covenants, charters, statutes, acts, declarations, concords, exchanges of notes, agreed minutes, memoranda of understanding, and agreements (*Ruppel & Ruppel-Schlichting, 2013*).

CONCLUSION AND IMPACT

In considering the environmental rights, AT-Helmsman Group should consider the following in devising an action plan in response to the articles:

- Implement a "zero-harm" policy that would guide decisions.
- Ensure that no management practice or decision result in the degradation of future natural resources.
- Take a decision on how this part of the Constitution will be implemented as part of AT-Helmsman Group's Environmental Control System (ECS).

ENVIRONMENTAL MANAGEMENT ACT (NO. 7 OF 2007)

The Environmental Impact Assessment Regulations (GN 30 in GG 4878 of 6 February 2012) of the Environmental Management Act (No. 7 of 2007) that came into effect in 2012

requires/recommends that an Environmental Impact Assessment Renewal and an Environmental Management Plan (EMP) be conducted for the following listed activities in order to obtain an Environmental Clearance Certificate:

ENERGY GENERATION, TRANSMISSION AND STORAGE ACTIVITIES

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WASTE MANAGEMENT, TREATMENT, HANDLING AND DISPOSAL ACTIVITIES

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Cumulative impacts associated with the project must be included as well as public consultation. The Act further requires all major industries to prepare waste management plans and present these to the local authorities for approval.

The Act, Regulations, Procedures and Guidelines have integrated the following sustainability principles. They need to be given due consideration, particularly to achieve proper waste management and pollution control:

Cradle to Grave Responsibility

This principle provides that those who handle or manufacture potentially harmful products must be liable for their safe production, use and disposal and that those who initiate potentially polluting activities must be liable for their commissioning, operation and decommissioning.

Precautionary Principle

If there is any doubt about the effects of a potentially polluting activity, a cautious approach must be adopted.

The Polluter Pays Principle

A person who generates waste or causes pollution must, in theory, pay the full costs of its treatment or of the harm, which it causes to the environment.

Public Participation and Access to Information

In the context of environmental management, citizens must have access to information and the right to participate in decisions making.

CONCLUSION AND IMPACT

The proposed activities have been assessed in terms of the Environmental Management Act (No. 7 of 2007) and the Regulations (2012). From the assessment, it can be concluded that the activities will have impacts on the prevailing environment but that the negative impacts can be sufficiently mitigated and managed by the Environmental Management Plan which is part of this document.

Table 4: Other laws, acts, regulations and policies

Laws, Acts, Regulations & Policies consulted:		
Electricity Act (No. 4 of 2007)	In accordance with the Electricity Act (No. 4 of 2007) which provides for the establishment of the Electricity Control Board and provide for its powers and functions; to provide for the requirements and conditions for obtaining licenses for the provision of electricity; to provide for the powers and obligations of licenses; and to provide for incidental matters: the necessary permits and licenses will be obtained.	The Proponent must abide to the Electricity Act.
Pollution Control and Waste Management Bill (guideline only)	The **Pollution Control and Waste Management Bill** is currently in preparation and is therefore included as a guideline only. Of reference to the mining, Parts 2, 7 and 8 apply. Part 2 provides that no person shall discharge or cause to be discharged, any pollutant to	The Proponent must adhere to the Pollution Control and Waste Management Bill.

	the air from a process except under and in accordance with the provisions of an air pollution license issued under section 23. Part 2 also further provides for procedures to be followed in license application, fees to be paid and required terms of conditions for air pollution licenses. Part 7 states that any person who sells, stores, transports or uses any hazardous substances or products containing hazardous substances shall notify the competent authority, in accordance with sub-section (2), of the presence and quantity of those substances. The competent authority for the purposes of section 74 shall maintain a register of substances notified in accordance with that section and the register shall be maintained in accordance with the provisions. Part 8 provides for emergency preparedness by the person handling hazardous substances, through emergency response plans.	
Water Resources Management Act	The **Water Resources Management Act (No. 11 of 2013)** stipulates conditions that ensure effluent that is produced to be of a certain standard. There should also be controls on the disposal of sewage, the purification of effluent, measures should be taken to ensure the prevention of surface and groundwater pollution and water resources should be used in a sustainable manner.	The Act must be consulted. Fresh water abstraction and waste-water discharge permits should be obtained when required.
Solid and Hazardous Waste Management Regulations: Local Authorities 1992	Provides for management and handling of industrial, business and domestic waste.	The Proponent must abide to the solid waste management provisions.

Hazardous Substances Ordinance (No. 14 of 1974)	The **Ordinance** applies to the manufacture, sale, use, disposal and dumping of hazardous substances, as well as their import and export and is administered by the Minister of Health and Social Welfare. Its primary purpose is to prevent hazardous substances from causing injury, ill-health or the death of human beings.	The Proponent must abide to the Ordinance's provisions.
Atmospheric Pollution Prevention Ordinance of Namibia (No. 11 of 1976)	Part 2 of the **Ordinance** governs the control of noxious or offensive gases. The Ordinance prohibits anyone from carrying on a scheduled process without a registration certificate in a controlled area. The registration certificate must be issued if it can be demonstrated that the best practical means are being adopted for preventing or reducing the escape into the atmosphere of noxious or offensive gases produced by the scheduled process.	The proponent should adhere to the stipulations of the Atmospheric Pollution Prevention Ordinance.
Nature Conservation Ordinance	The **Nature Conservation Ordinance (No. 4 of 1975)** covers game parks and nature reserves, the hunting and protection of wild animals, problem animals, fish and indigenous plant species. The Ministry of Environment, Forestry and Tourism (MEFT) administer it and provides for the establishment of the Nature Conservation Board.	The proposed project implementation is not located in a demarcated conservation area, national park or unique environments.
Forestry Act	The **Forestry Act (No. 12 of 2001)** specifies that there be a general protection of the receiving and surrounding environment. The protection of natural vegetation is of great importance, the Forestry Act especially stipulates that no living tree, bush, shrub or indigenous plants within 100m from any river, stream or watercourse, may be removed without the necessary license.	No removal of protected tree species or removal of mature trees should happen. The Ministry of Environment, Forestry and Tourism should be consulted when required.

EU Timber Regulation: FSC (2013)	Forest Stewardship Council (FSC) came into effect in March 2013, with the aim of preventing sales of illegal timber and timber products in the EU market. Now, any actor who places timber or timber products on the market for the first time must ensure that the timber used has been legally harvested and, where applicable, exported legally from the country of harvest.	The Proponent is advised to adhere to the regulation.
Labour Act	The **Labour Act (No. 11 of 2007)** contains regulations relating to the Health, Safety and Welfare of employees at work. These regulations are prescribed for among others safety relating to hazardous substances, exposure limits and physical hazards. Regulations relating to the Health and Safety of Employees at Work are promulgated in terms of the Labour Act 6 of 1992 (GN156, GG1617 of 1 August 1997).	The proponent and contractor should adhere to the Labour Act.
Communal Land Rights	Communal land is land that belongs to the State and is held in trust for the benefit of the traditional communities living in those areas. Communal land cannot be bought or sold, but one can be given a customary land right or right of leasehold to a part of communal land in accordance with the provisions of the **Communal Land Reform Act (No. 5 of 2002)** and **Communal Land Reform Amendment Act (No. 13 of 2013)**. The Communal Land Reform Act provide for the allocation of rights in respect of communal land to establish Communal Land Boards to provide for the powers of Chiefs and Traditional Authorities and boards in relation to communal land and to make provision for incidental matters. Consent and access to land for the proposed project	Consent should be obtained from Traditional Authorities, Communal Boards, Chiefs, Kings, Queens etc. if required.

	should be requested from the relevant traditional authority through the Regional Council and Regional Communal Land Boards.	
Traditional Authorities Act (No. 17 of 1995)	The **Traditional Authorities Act (No. 17 of 1995)** provide for the establishment of traditional authorities, the designation and recognition of traditional leaders; to define their functions, duties and powers; and to provide for matters incidental thereto.	Traditional Authorities should be consulted when required.
Public and Environmental Health Act	The Public and Environmental Health Act (No. 1 of 2015) provides with respect to matters of public health in Namibia. The objects of this Act are to: (a) promote public health and wellbeing; (b) prevent injuries, diseases and disabilities; (c) protect individuals and communities from public health risks; (d) encourage community participation in order to create a healthy environment; and (e) provide for early detection of diseases and public health risks.	The proponent and contractor should adhere to the Public and Environmental Health Act.
Coronavirus (Covid-19) Pandemic	The current global **Coronavirus (Covid-19)** pandemic and the associated State of Emergency and health restrictions globally may result in some delays and logistic disruptions. The pandemic might have an impact on obtaining equipment, specialist workforce mobilisation and implementation of the project. The health restrictions may have an impact on campsite set-up, traveling of personal/workers and building of the infrastructure. The proponent, contractor and subcontractors should adhere to all the international, regional and local Covid-19 health restrictions and protocols.	The proponent, contractor and workforce should adhere to the restrictions and regulations.
National Heritage Act	All protected heritage resources discovered need to be reported immediately to the National	The National Heritage Council should be consulted when required.

(No. 27 of 2004)	Heritage Council (NHC) and require a permit from the NHC before it may be relocated. This should be applied from the NHC.	
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; 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 for 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.
Public Health Act (No. 36 of 1919)	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 proponent will ensure that all legal requirements of the project in relation to protection of the health of their employees and surrounding residents is protected and will be included in the EMP. Relevant protective equipment shall be provided for employees in construction. The development shall follow requirements and specifications in relation to water supply and sewerage handling and solid waste management so as not to threaten public health of future residents on this piece of land.

Soil Conservation Act (No. 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;	Only the area required for the operations should be cleared from vegetation to ensure the minimum impact on the soil through clearance for construction.
Air Quality Act (N0. 39 of 2004)	The **Air Quality Act (No. 39 of 2004)** intends to provide for national norms and standards regulating air quality monitoring, management and control by all spheres of government; for specific air quality measures; and for matters incidental thereto.	The proponent and contractor should adhere to the Air Quality Act.
Vision 2030 and National Development Plans	Namibia's overall development ambitions are articulated in the Nation's 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 employment creation.

CONCLUSION AND IMPACT

It is believed the above administrative, legal and policy requirements which specifically guide and governs the activity will be followed and complied with in the planning, implementation and operations process.

A flowchart indicating the entire EIA process is shown in the *Figure* below:

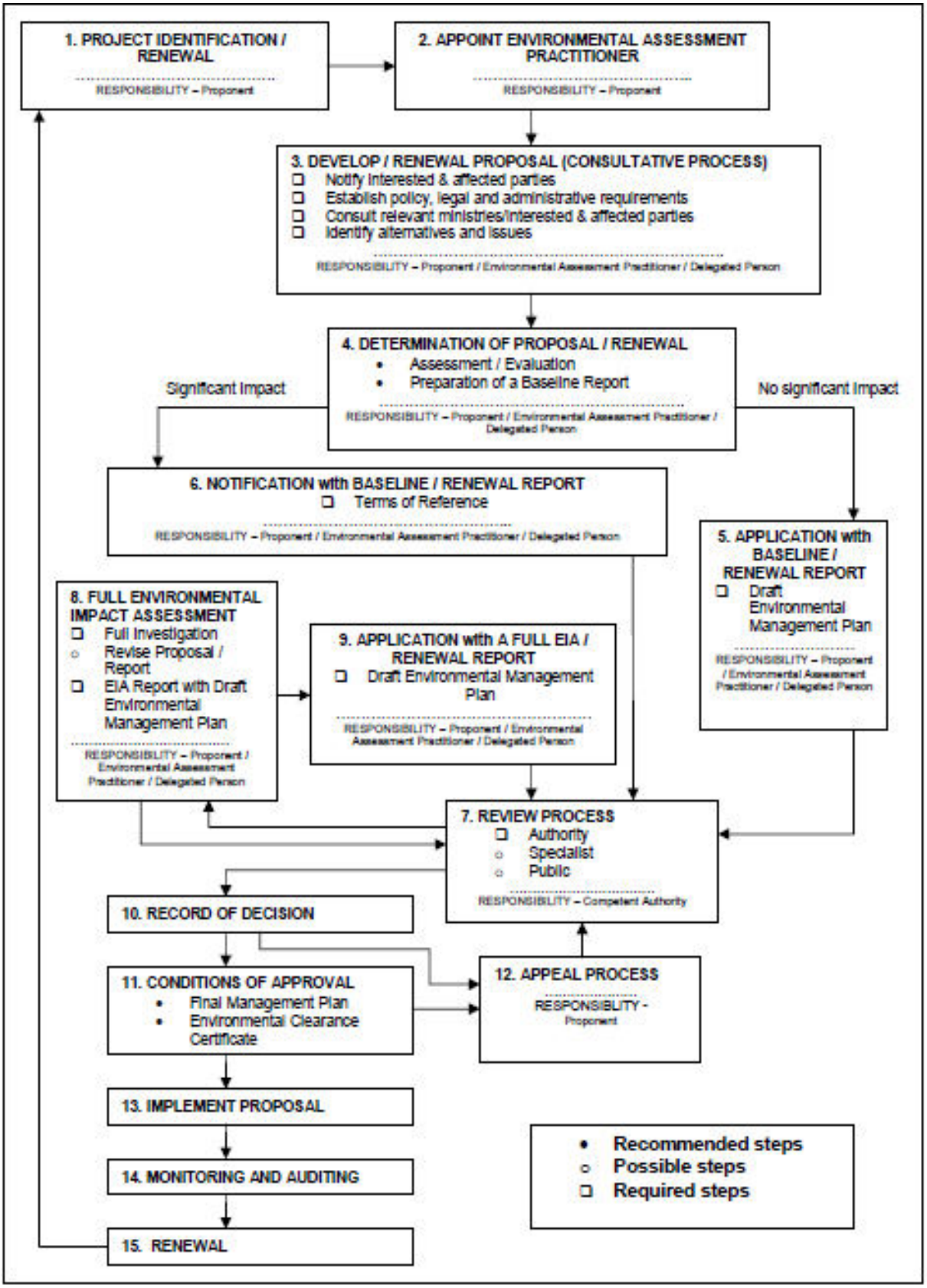

Figure 6: Flowchart of the assessment Process

9. AFFECTED NATURAL AND SOCIAL ENVIRONMENT

9.1. CLIMATE

The climate of the study area is summarized in the table below:

Classification of climate	Semi-arid area
Average rainfall	Rainfall is averaged to be less than 400mm - 450mm per year
Variation in rainfall	Variation is averaged to be 30 - 40% per year
Average evaporation	1960 - 2100mm per year
Precipitation	The highest rainfall is experienced in January/February
Water deficit	1500 - 1700mm per year
Temperatures	The average temperature is above 22ºC
Wind direction	Predominantly easterly

CONCLUSION AND IMPACT

The activities will not have an impact on the climate.

9.2. GEOLOGY, SOILS AND GEOHYDROLOGY

The surface geology of the area consists of formations of the Kalahari Group which has a thickness of up to 30m in the study area. Within the Kalahari Group the following six lithological classifications are recognized: Duricrusts, Kalahari sand, Alluvium and lacustrine deposits, Sandstone, Marl, Basal conglomerate and gravel.

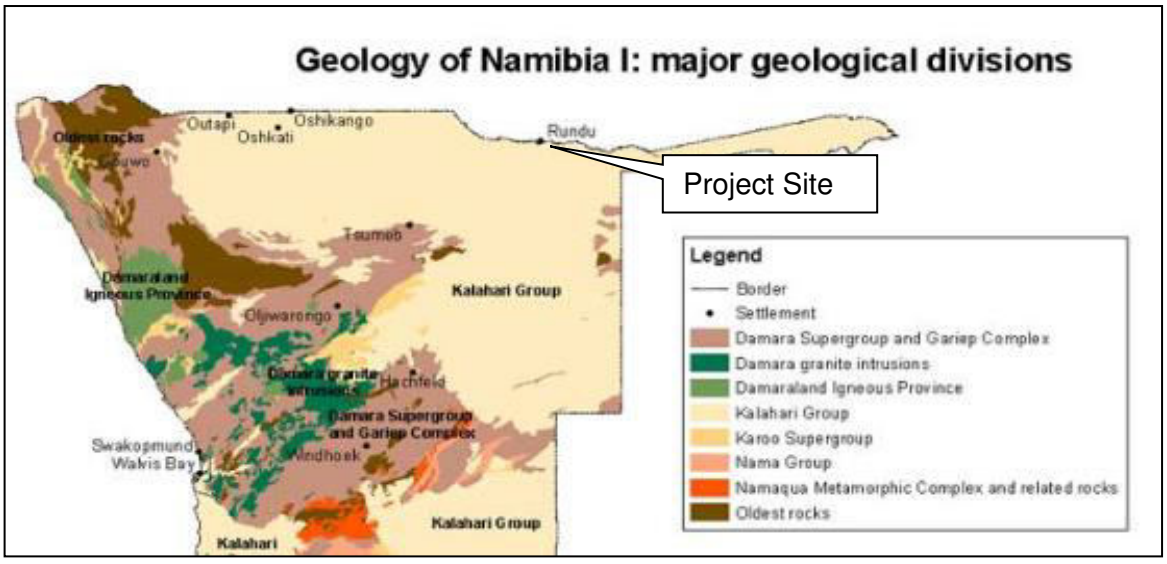

Figure 7: Geology of Namibia (Atlas of Namibia Project, 2002)

CONCLUSION AND IMPACT

The activities will not impact on the geology, soils and geohydrology of the area. The surface drainage canals will be kept open in order that water can flow through.

9.3. BIODIVERSITY AND VEGETATION

Extension 10, Kaisosi, Rundu is located in the Tree and Scrub Savannah Biome which is characterized by woodland vegetation structure type with extremely high green vegetation biomass. However, the project site is located in the build-up Municipal Area which means that it has been cleared of vegetation and is thus showing evidence of serious human inference namely informal tracks, lacking vegetation and gravel roads.

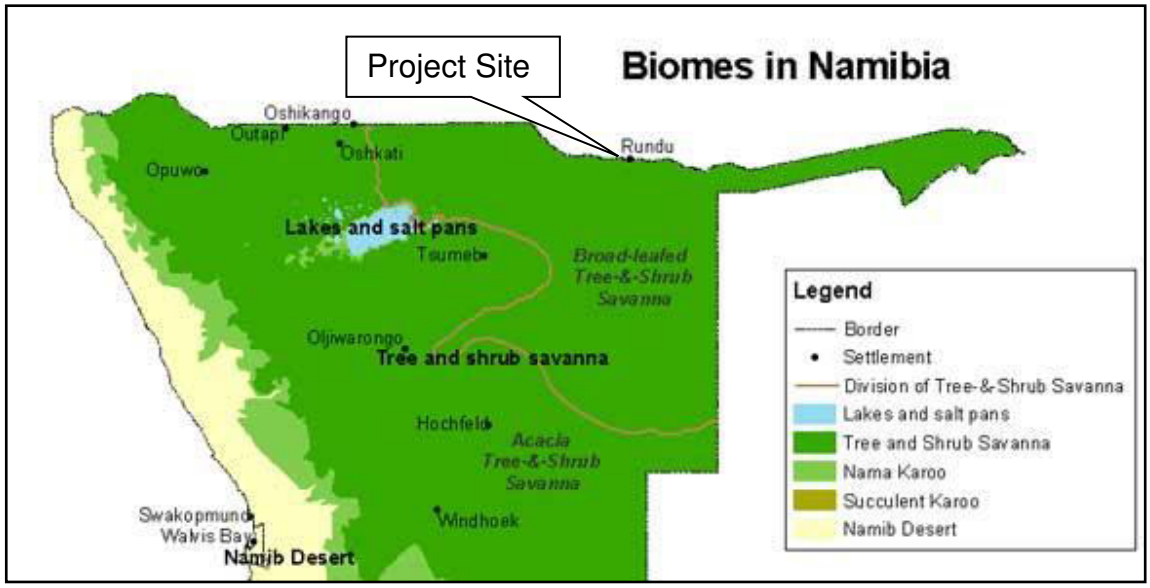

Figure 8: Biomes in Namibia (Atlas of Namibia, 2002)

The proposed construction and operation are expected to have a low impact on the natural environment.

CONCLUSION AND IMPACT

The activities will have a low impact on vegetation, shrubs and trees.

9.4. SOCIAL-ECONOMIC COMPONENT

The proposed development will have a positive impact on the socio-economic environment. Apart from the developer's intension to make a profit out of the proposed development, advantages to the area are numerous. The creation of an additional 321

erven on Kaisosi Ext. 10 will lower the backlog in the provision of serviced erven and houses. The proposed development will create the need for more business activities such as medical care, building maintenance, vehicle maintenance, electrical, cabinet making and additional support for our schools and other existing businesses etc.

The proposed project will create a large amount of jobs during construction and there will also be permanent employment opportunities for people after completion. Full time employment opportunities will be created for domestic workers, gardeners and other related work. The development will give the area a much needed economic injection which will have a multiplier effect in the community regarding sales and services. The development will also bring in investments and buying power. During construction stages the building industry will be well supported.

Most of all advantages will be the affordability of erven for the local and national community. For this to be achieved it is imperative to keep the costs to a minimum in the initial stages. Since the majority of land use in and around the area is characterised by open land, residential developments and farms, it will not have a negative impact on the neighbours or the surrounding areas. The socio-economic characteristics of the area in which the project site is located, are in close proximity to existing activities.

CONCLUSION AND IMPACT

The activities will have a positive impact on the community since employment will be created and erven will be made available.

9.5. CULTURAL HERITAGE

The proposed project site is not known to have any historical significance prior to or after Independence in 1990. The specific area does not have any National Monuments and the specific site has no record of any cultural or historical importance or on-site resemblance of any nature. No graveyard or related article was found in the area. However, the Namibian National Heritage Act (No. 27 of 2004) provides for the protection and conservation of places and objects of heritage significance and the registration of such places and objects and to provide for incidental matters.

CONCLUSION AND IMPACT

No heritage resources or graveyards were observed on the site or in the area.

9.6. SENSE OF PLACE

Extension 10, Kaisosi, Rundu is located inside the already established industrial area of the town. The site is also situated in reaching distance to bulk infrastructural networks consisting of roads and electricity. The proposed activities will not have a negative impact

on the sense of place in the area. An untidy or badly managed site can detract from the ecological well-being and individuality of the area. Unnecessary disturbance to the surroundings could be caused by poorly planned or poorly managed operational activities. The project site should be kept neat and clean where possible. Vegetation should not be removed or harmed if not necessary since it covers topsoil which prevents erosion. Noise and dust should be limited in the construction phase because of the neighbouring industrial and business activities.

CONCLUSION AND IMPACT

The impact on the sense of place will be low.

9.7. HEALTH

The safety, security and health of the labour force, employees and neighbours are of great importance, workers should be orientated with the maintenance of safety and health procedures and they should be provided with PPE (Personal Protective Equipment). A health and safety officer are employed to manage, coordinate and monitor risk and hazard and report all health and safety related issues in the workplace. The introduction of external workers into the area is sometimes accompanied with criminal activities posing security risks for neighbours. However, the proponent will take certain measures to prevent any activity of this sort. The welfare and quality of life of the neighbours and workforce needs to be considered for the project to be a success on its environmental performance. Conversely, the process should not affect the overall health of persons related to the project including the neighbours.

CONCLUSION AND IMPACT

The proposed activities will have a low impact on the health of the community.

10. INCOMPLETE OR UNAVAILABLE INFORMATION

The number of people that will be employed on the site will depend on the type and scope of the activities.

11. IMPACT ASSESSMENT AND EVALUATION

The Environmental Impact Assessment sets out potential positive and negative environmental impacts associated with the project site. The following assessment methodology will be used to examine each impact identified, see *Table* below:

Table 5: Impact Evaluation Criterion (DEAT 2006)

Criteria	Rating (Severity)	
Impact Type	+	Positive
	O	No Impact
	-	Negative
Significance of impact being either	L	Low (Little or no impact)
	M	Medium (Manageable impacts)
	H	High (Adverse impact)

Probability:	Duration:
5 – Definite/do not know	5 - Permanent
4 – Highly probable	4 – Long-term (impact ceases)
3 – Medium probability	3 – Medium term (5 – 15 years)
2 – Low probability	2 – Short-term (0 – 5 years)
1 – Improbable	1 - Immediate
0 - None	
Scale:	**Magnitude:**
5 – International	10 – Very high/do not know
4 – National	8 - High
3 – Regional	6 - Moderate
2 – Local	4 - Low
1 – Site only	2 - Minor
	0 - None

The impacts on the receiving environment are discussed in the paragraphs below:

11.1. IMPACTS DURING THE OPERATIONAL PHASE

11.1.1. ECOLOGICAL IMPACTS

Staff, workers and visitors should only make use of walkways and existing roads to minimise the impact on the environment. Minimise the area of disturbance by restricting movement to the designated working areas during maintenance.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Ecology Impacts	-	2	2	4	2	L	M

11.1.2. DUST POLLUTION AND AIR QUALITY

Vehicles transporting goods and staff will contribute to the release of hydrocarbon vapours, carbon monoxide and sulphur oxides into the air. Possible release of sewer odour, due to sewer system failure of maintenance might also occur. All maintenance of bulk services and infrastructure at the project site has to be designed to enable environmental protection.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Dust & Air Quality	-	2	2	4	3	L	M

11.1.3. CONTAMINATION OF GROUNDWATER

Spillages might also occur during maintenance. This could have impacts on groundwater especially in cases of large sewer spills. Proper containment should be used in cases of sewerage system maintenance. Oil and chemical spillages may have a health impact on groundwater users. Potential impact on the natural environment from possible polluted groundwater also exits.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Groundwater contamination	-	2	2	4	2	L	M

11.1.4. GENERATION OF WASTE

Household waste from the activities at the site and from the staff working at the site will be generated. The waste will be collected, sorted to be recycled and stored in on site for transportation and disposal at an approved landfill site.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Waste Generation	-	1	2	2	2	L	M

11.1.5. FAILURE IN RETICULATION PIPELINES

There may be a potential release of sewage, stormwater or water into the environment due to pipeline/system failure. As a result, the spillage could be released into the environment and could potentially be a health hazard to surface and groundwater. Proper reticulation pipelines and drainage systems should be installed. Regular bulk services infrastructure and system inspection should be conducted.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Failure of Reticulation Pipeline	-	2	2	4	2	L	M

11.1.6. FIRES AND EXPLOSIONS

There should be sufficient water available for firefighting purposes. Ensure that all fire-fighting devices are in good working order and are serviced. All personnel have to be trained about responsible fire protection measures and good housekeeping such as the removal of flammable materials on site. Regular inspections should be carried out to inspect and test firefighting equipment by the contractor.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Fires and Explosions	-	2	2	4	2	L	M

11.1.7. HEALTH, SAFETY AND SECURITY

The safety, security and health of the labour force, employees and neighbours are of great importance, workers should be orientated with the maintenance of safety and health procedures and they should be provided with PPE (Personal Protective Equipment). No open flames, smoking or any potential sources of ignition should be allowed at the project location. Signs such as 'NO SMOKING' must be prominently displayed in parts where inflammable materials are stored on the premises.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Safety & Security	-	1	2	4	2	L	M

11.2. CUMULATIVE IMPACTS

These are impacts on the environment, which results from the incremental impacts when added to other past, present, and reasonably foreseeable future actions regardless of which person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. In relation to an activity, it means the impact of an activity that in it may not become significant when added to the existing and potential impacts resulting from similar or diverse activities or undertakings in the area.

Possible cumulative impacts associated with the proposed project include sewer damages/maintenance, uncontrolled traffic and destruction of the vegetation or the environment. These impacts could become significant especially if it is not properly supervised and controlled. This could collectively impact on the environmental conditions in the area.

Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Cumulative Impacts	-	2	3	4	2	L	M

12. CONCLUSION

In line with the Environmental Management Act (No 7 of 2007), *Green Earth Environmental Consultants* have been appointed to conduct an Environmental Impact Assessment renewal for the provision of Municipal Services on Extension 10, Kaisosi, Rundu, Kavango Region. It is believed that the proposed activities can largely benefit the employment and residential / housing needs.

The negative environmental impacts that may be visible in the operational phase of the project include: increases in solid waste generation for example food and plastics, etc., increased stress on waste disposal facilities, increase in water consumption and waste water generation, possibility of fuel spillages, can result in an increase in traffic on the nearby roads and there can be an impact on the occupational health and safety of workers. However, this project is believed to be an asset to this area.

After assessing all information available on this project, *Green Earth Environmental Consultants* believe that the activities will not have a large negative effect on the environment if operations are conducted in accordance with the Environmental Management Plan.

13. RECOMMENDATION

It is therefore recommended that the Ministry of Environment, Forestry and Tourism through the Environmental Commissioner support and approve the environmental clearance renewal for the provision of Municipal Services on Extension 10, Kaisosi, Rundu, Kavango Region and for the following listed activities:

ENERGY GENERATION, TRANSMISSION AND STORAGE ACTIVITIES

1. The construction of facilities for -

(b) the transmission and supply of electricity.

WASTE MANAGEMENT, TREATMENT, HANDLING AND DISPOSAL ACTIVITIES

2.1 The construction of facilities for waste sites, treatment of waste and disposal of waste.

2.2 Any activity entailing a scheduled process referred to in the Atmospheric Pollution Prevention Ordinance, 1976.

2.3 The import, processing, use and recycling, temporary storage, transit or export of waste.

WATER RESOURCE DEVELOPMENTS

8.6 Construction of industrial and domestic wastewater treatment plants and related pipeline systems.

INFRASTRUCTURE

10.1 The construction of-

(a) oil, water, gas and petrochemical and other bulk supply pipelines.

(b) public roads.

10.2 The route determination of roads and design of associated physical infrastructure where -

(a) it is a public road.

(b) the road reserve is wider than 30 meters; or

(c) the road caters for more than one lane of traffic in both directions.

LIST OF REFERENCES

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Mannheimer, C. & Curtis, B. 2009. *Le Roux and Muller's Guide to the Trees & Shrubs of Namibia.* Windhoek: Macmillan Education Namibia, pp. 249 – 439.

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Water Resource Management Act, 2004. *Office of the Prime Minister*. Windhoek. Namibia, pp. 6 – 67.

APPENDIX A: CURRICULUM VITAE OF CHARLIE DU TOIT

1. Position:	Environmental Practitioner	
2. Name/Surname:	Charl du Toit	
3. Date of Birth:	29 October 1960	
4. Nationality:	Namibian	

5. Education:	Name of Institution	University of Stellenbosch, South Africa
	Degree/Qualification	Hons B (B + A) in Business Administration and Management
	Date Obtained	1985-1987
	Name of Institution	University of Stellenbosch, South Africa
	Degree/Qualification	BSc Agric Hons (Chemistry, Agronomy and Soil Science)
	Date Obtained	1979-1982
	Name of Institution	Boland Agricultural High School, Paarl, South Africa
	Degree/Qualification	Grade 12
	Date Obtained	1974-1978

6. Membership of Professional Association:	EAPAN Member (Membership Number: 112)	

7. Languages:		Speaking	Reading	Writing
	English	Good	Good	Good
	Afrikaans	Good	Good	Good

8. Employment Record:	From	To	Employer	Position(s) held
	2009	Present	Green Earth Environmental Consultants	Environmental Practitioner
	2005	2008	Elmarie Du Toit Town Planning Consultants	Manager
	2003	2005	Pupkewitz Megabuild	General Manager
	1995	2003	Agra Cooperative Limited	Manager Trade
	1989	1995		Chief Agricultural Consultant

1985	1988	Namibia Development Corporation Ministry of Agriculture	Agricultural Researcher

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engaged.

_____

Charl du Toit

APPENDIX B: CURRICULUM VITAE OF CARIEN VAN DER WALT

1. **Position:** Environmental Consultant

2. **Name/Surname:** Carien van der Walt

3. **Date of Birth:** 6 August 1990

4. **Nationality:** Namibian

5. **Education:**

Institution	Degree/Diploma	Years
University of Stellenbosch	B.A. (Degree) Environment and Development	2009 to 2011
University of South Africa	B.A. (Honours) Environmental Management	2012 to 2013

6. **Membership of Professional Associations:**

   EAPAN Member (Membership Number: 113)

7. **Languages:**

Language	Speaking	Reading	Writing
English	Good	Good	Good
Afrikaans	Good	Good	Good

8. **Employment Record:**

From	To	Employer	Positions Held
07/2013	Present	Green Earth Environmental Consultants	Environmental Consultant
06/2012	03/2013	Enviro Management Consultants Namibia	Environmental Consultant
12/2011	05/2012	Green Earth Environmental Consultants	Environmental Consultant

9. **Detailed Tasks Assigned:**

Conducting the Environmental Impact Assessment, Environmental Management Plan, Public Participation, Environmental Compliance and Environmental Control Officer

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience. I understand that any wilful misstatement described herein may lead to my disqualification or dismissal, if engage.

_____

Carien van der Walt

APPENDIX C: ENVIRONMENTAL MANAGEMENT PLAN