

**ENVIRONMENTAL IMPACT ASSESSMENT AND  
ENVIRONMENTAL MANAGEMENT PLAN FOR  
THE RENEWAL OF THE ENVIRONMENTAL  
CLEARANCE TO FINALISE THE TOWN PLANNING  
PROCEDURES FOR THE DEVELOPMENT OF A  
LODGE, NATURE ESTATE, RESIDENTIAL ERVEN  
AND RURAL RESIDENTIAL ESTATE ON THE  
REMAINDER OF FARM GOOD HOPE NO. 298,  
OTJIWARONGO, OTJOZONDJUPA REGION**

***April 2020***

<p>Project Name:</p>	<p><b><i>ENVIRONMENTAL IMPACT ASSESSMENT AND ENVIRONMENTAL MANAGEMENT PLAN FOR THE RENEWAL OF THE ENVIRONMENTAL CLEARANCE TO FINALISE THE TOWN PLANNING PROCEDURES FOR THE DEVELOPMENT OF A LODGE, NATURE ESTATE, RESIDENTIAL ERVEN AND RURAL RESIDENTIAL ESTATE ON THE REMAINDER OF FARM GOOD HOPE NO. 298, OTJIWARONGO, OTJOZONDJUPA REGION</i></b></p>
<p>The Proponent/Client:</p>	<p>Brandberg Construction P.O. Box 11588 Windhoek Namibia</p>
<p>Prepared by:</p>	<div data-bbox="669 947 1036 1100" data-label="Image"> </div> <hr/> <p>1<sup>st</sup> floor Bridgeview Offices &amp; Apartments, No. 4 Dr Kwame Nkrumah Avenue, Klein Windhoek, Namibia PO Box 6871, Ausspannplatz, Windhoek</p>
<p>Release Date:</p>	<p>April 2020</p>
<p>Author:</p>	<p>C. Du Toit C. Van Der Walt Cell: 081 127 3145 Fax: 061 248 608 Email: charlie@greenearthnamibia.com</p>

## **EXECUTIVE SUMMARY**

*Green Earth Environmental Consultants* were appointed by the proponent, Brandberg Construction, to conduct an Environmental Impact Assessment (EIA) and prepare an Environmental Management Plan (EMP) **to renew the Environmental Clearance (EC) for the construction of a lodge, nature estate, residential erven and a rural residential estate including public open spaces, public streets and servitudes on the Remainder of Consolidated Farm Good Hope No. 298, Otjiwarongo, Otjozondjupa Region.** The proposed development will take place over 2 phases. During Phase 1 the Remainder of Farm Good Hope No. 298 will be subdivided into 158 portions. During Phase 2, a township consisting of 306 erven will be established on Portion 149 which has been created in Phase 1. In the future, if there is a demand for more serviced erven, it is intended to establish similar townships on Portions 148, 150, 151 and 152. It is estimated that a further 3000 plus erven will be created through these processes. The proposed development will be serviced by the normal bulk services including electrical and water reticulation systems, a waterborne sewer system and street network in accordance with Municipal requirements. The new Environmental Clearance (EC) is required for the existing and ongoing operations on the above-named site. An EC must be renewed after it expired (3 years) to ensure that the Proponent is operating in conformance with the approved EMP as well as in accordance with the stipulations of the Act and its Regulations.

The land within the immediate vicinity of Farm Good Hope No. 298 is characterized by the residential areas of Otjiwarongo town to the north east and the natural open spaces of the surrounding commercial farms. In terms of the Regulations of the Environmental Management Act (No 7 of 2007) an Environmental Impact Assessment Renewal has to be done to address the following 'Listed Activities':

### **LAND USE AND DEVELOPMENT ACTIVITIES**

*5.2 Establishment of land resettlement schemes*

### **TOURISM DEVELOPMENT ACTIVITIES**

*6. The construction of resorts, lodges, hotels or other tourism and hospitality facilities.*

### **INFRASTRUCTURE**

*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 positive impacts associated with the proposed development on the Remainder of Farm Good Hope No. 298 are the availing of additional land to be developed and the opportunity for individuals to be able to purchase land near Otjiwarongo. It is envisaged that the project will create work in the construction phase and after completion. The development will give the area a much-needed economic injection which will have a multiplier effect in the community regarding sales and services. Services that will benefit

from this development are amongst other the retail and service sector and others. The project will also bring in investments and buying power.

Negative impacts associated with the development are the destruction of the current habitat and the proposed visual impacts of the new development, water will be used and the town will be expanded. Negative impacts derived from the project are mainly associated with the construction phase for instance an increase in traffic, dust and noise. However, the construction and operational activities further on need to be controlled and monitored by the assigned developers 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 thus furthermore believed that the proposed project will not pose any long-lasting negative effects to neighbours or on the environment. The following Environmental Impact Assessment was conducted in accordance to the Environmental Management Act (No 7 of 2007) and the environment was taken in full consideration throughout the assessment. Additional details will be presented in the following report.

After assessing the Environmental Impact Assessment Renewal which follow on to this paragraph the Environmental Commissioner of the Ministry of Environment and Tourism is herewith requested to:

1. Accept and approve the Environmental Impact Assessment Renewal and the Environmental Management Plan;
2. Issue an Environmental Clearance Renewal for the construction of a lodge, nature estate, residential erven and a rural residential estate including public open spaces, public streets and servitudes on the Remainder of Consolidated Farm Good Hope No. 298, Otjiwarongo, Otjozondjupa Region, for the following "listed activities":

#### **LAND USE AND DEVELOPMENT ACTIVITIES**

##### *5.2 Establishment of land resettlement schemes*

#### **TOURISM DEVELOPMENT ACTIVITIES**

*6. The construction of resorts, lodges, hotels or other tourism and hospitality facilities.*

#### **INFRASTRUCTURE**

*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.*

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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
MET	Ministry of Environment and Tourism
NAMPAB	Namibia Planning and Advisory Board's



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# 1. INTRODUCTION AND BACKGROUND

*Green Earth Environmental Consultants* were appointed by the proponent, Brandberg Construction, to conduct an Environmental Impact Assessment (EIA) and prepare an Environmental Management Plan (EMP) **to renew the Environmental Clearance (EC) for the construction of a lodge, nature estate, residential erven and a rural residential estate including public open spaces, public streets and servitudes on the Remainder of Consolidated Farm Good Hope No. 298, Otjiwarongo, Otjozondjupa Region.** It is required to renew the Environmental Clearance (EC) as the old EC has expired. The new EC is required for the existing and ongoing operations of Brandberg Construction. The Environmental Management Act (No 7 of 2007) requires that an Environmental Impact Assessment Renewal be conducted to request a Clearance Certificate Renewal for the following “listed activities”:

## **LAND USE AND DEVELOPMENT ACTIVITIES**

*5.2 Establishment of land resettlement schemes*

## **TOURISM DEVELOPMENT ACTIVITIES**

*6. The construction of resorts, lodges, hotels or other tourism and hospitality facilities.*

## **INFRASTRUCTURE**

*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.*

# 2. LAND INFORMATION AND DESCRIPTION

## 2.1. LOCATION, SIZE AND ZONING OF THE SITE

**Project location:** The Remainder of Consolidated Farm Good Hope No. 298 is located in the southwestern region of the Otjiwarongo Townlands, directly southeast of the town's high-income residential area. On the northern side the portion is defined by Road C33 which link Otjiwarongo with Kalkveld. The eastern boundary is defined by Trunk Road B1 which link Otjiwarongo with Okahandja. See *Figures* below for the locality plan of the site.

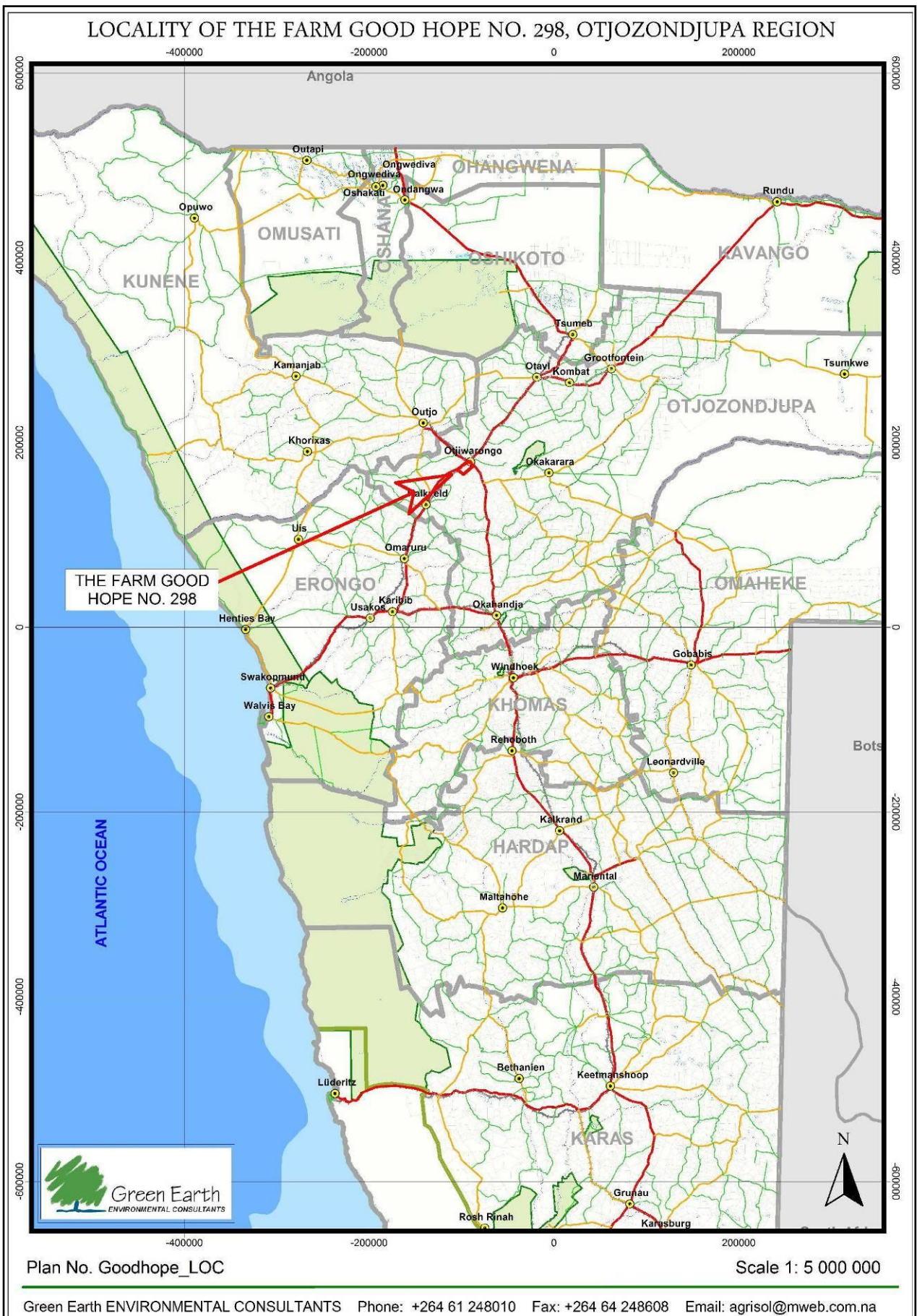


Figure 1: Location of Otjiwarongo and Farm Good Hope



Figure 2: Farm Good Hope Locality

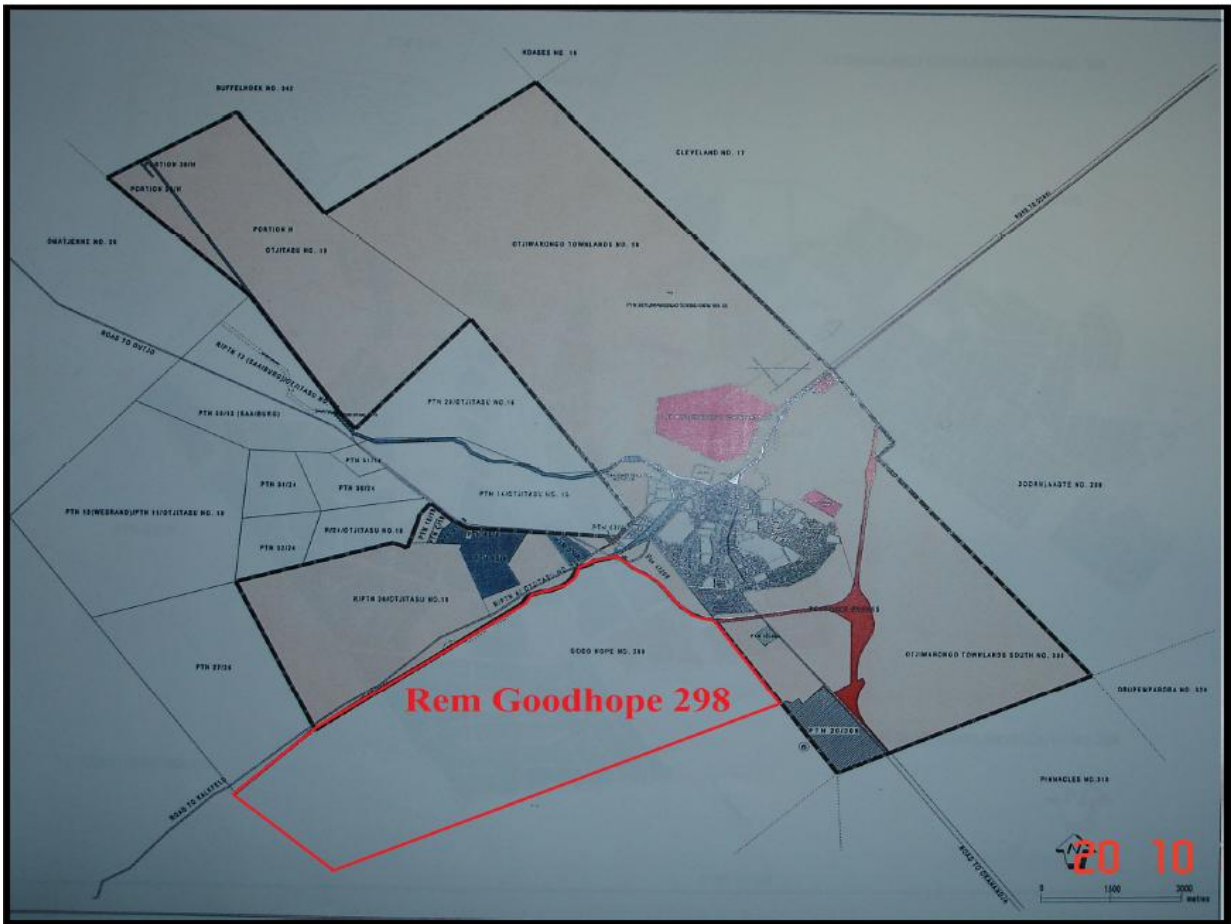


Figure 3: Plan showing location of Project Site

**The Current Activities and Status:** The Remainder of the Consolidated Farm Good Hope No 298 is 3 681.52 hectares in extent and is presently hosting a mixture of land uses including agricultural like extensive live stock and game farming and industrial activities like brick making and the sorting and handling of charcoal. The Remainder of the Consolidated Farm Good Hope No 298 has been included in the Otjiwarongo Structure Plan to provide for the future extension of the Town and the Portion has already been incorporated into the boundaries of the Otjiwarongo Municipality in terms of section 4(1)(b) of the Local Authorities Act (No 23 of 1992) and form now part of Otjiwarongo's Municipal area. See below the Otjiwarongo Structure plan showing the current Townlands Boundaries as well as the future Townlands Boundaries and Farm Good Hope's relative location to it.

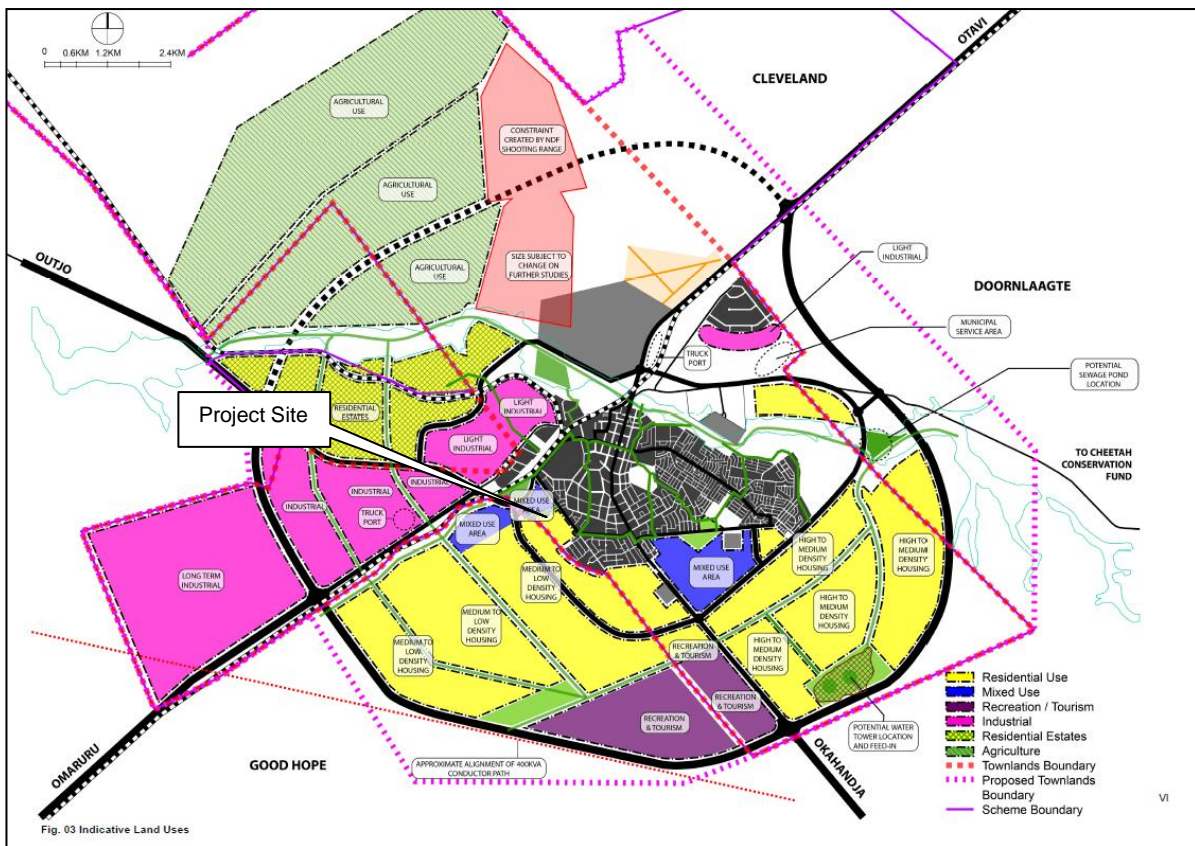


Figure 4: Structure Plan (done by Stubenrauch Planning Consultants)

**Development Proposal:** The Portion is ideally suited for a low density lifestyle development in the northern half and high income residential development on the southern side. It is intended to do a low density lifestyle development on the northern portion of the Remainder of Farm Good Hope. One of the unique assets that Namibia has to sell to its people is its pristine natural environment. The vision for the future development of this area is to use the unique natural environmental features to develop the site as a peaceful and tranquil living environment where residents can live in harmony with nature.

Several life style developments, although on much smaller portions of land, occur on private land outside but near to towns in Namibia of which some of the well know developments outside the City of Windhoek are Finkenstein Estate and Omeya Estate. These types of developments are popular due to the fact that they provide living areas closer to nature while not being too far from urban centres where the necessary social, health and economic services are available.

The **southern area**, adjacent to the current high income residential areas of Extension 5 and 7, Otjiwarongo will be developed as a further expansion of the residential area. This will alleviate the shortage of residential even in Otjiwarongo.

The proposed development will be phased. During **Phase 1** the Remainder of the Consolidated Farm Good Hope No 298 will be subdivided into 158 portions as per the subdivision plan below. These portions include portions for residential use, the zonings 'nature estate' and 'rural residence' as per the Otjiwarongo Town Planning Scheme.

Two portions of 800ha plus will also be created for agricultural use and the development of a lodge. The streets will be reserved as streets.

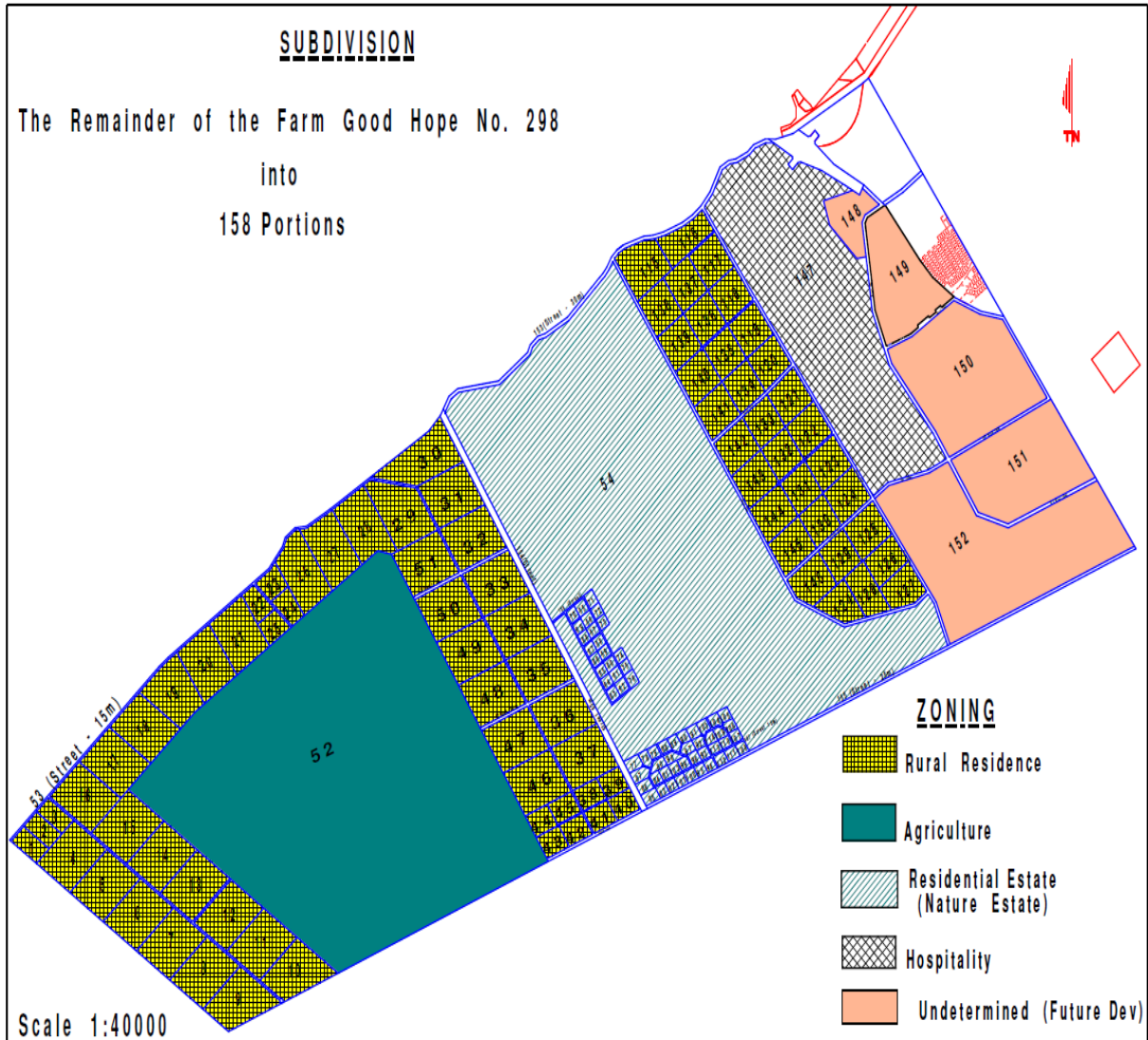


Figure 5: Subdivision Plan

The portions to be created are listed in the *Table* below. The portion sizes in hectare as well as the zoning or land use is also indicated in the *Table*. The portions (excluding street portions) vary from 5ha to 821ha. The portions to be zoned 'rural residence' are from 5ha to 24ha in extent. The portions included in the Nature Estate are between 1 and 1.6ha. A portion of 800ha (Portion 52) will remain for agricultural use and a portion (Portion 54) of 821ha will be created for the development of the lodge.

During **Phase 2** it is intended to establish a township of 306 erven on Portion 149 of the Remainder of the Consolidated Farm Good Hope No 298 which has been created in Phase 1. The allocation of land and land uses are summarised in the *Figure* below:

Land use	Total Area (Ha)	Number of Erven	Numbers	% Total
Residential	224 722	279	1 to 279	44%
Institutional	10 513	4	280 to 283	2%
Res II	22 300	3	284 to 286	4%
Light Industrial	10 236	1	287	2%
Gen Business	29 085	13	288 to 300	6%
Service Station	9 130	1	301	2%
POS	117 812	3	302 to 304	23%
Street	91 737	2	305 to 306	18%
Total Area	515 550	306	1 to 306	100%

Figure 6: Phase 2 Land Use

The subdivision and land use plan of the proposed township establishment is shown on the *Figure* below:



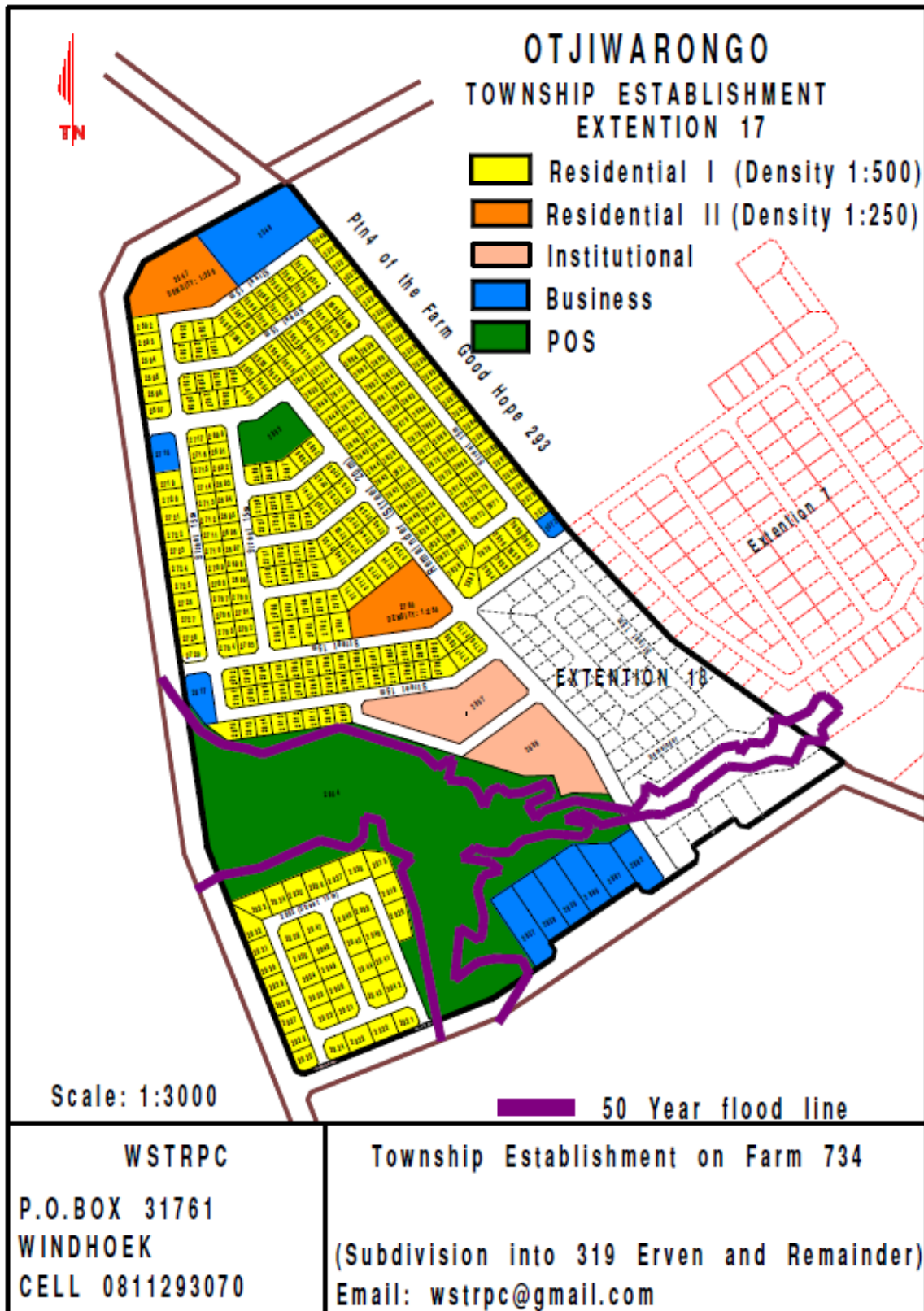


Figure 7: Subdivision Plan of Farm 734 (Otjiwarongo Extension 17)

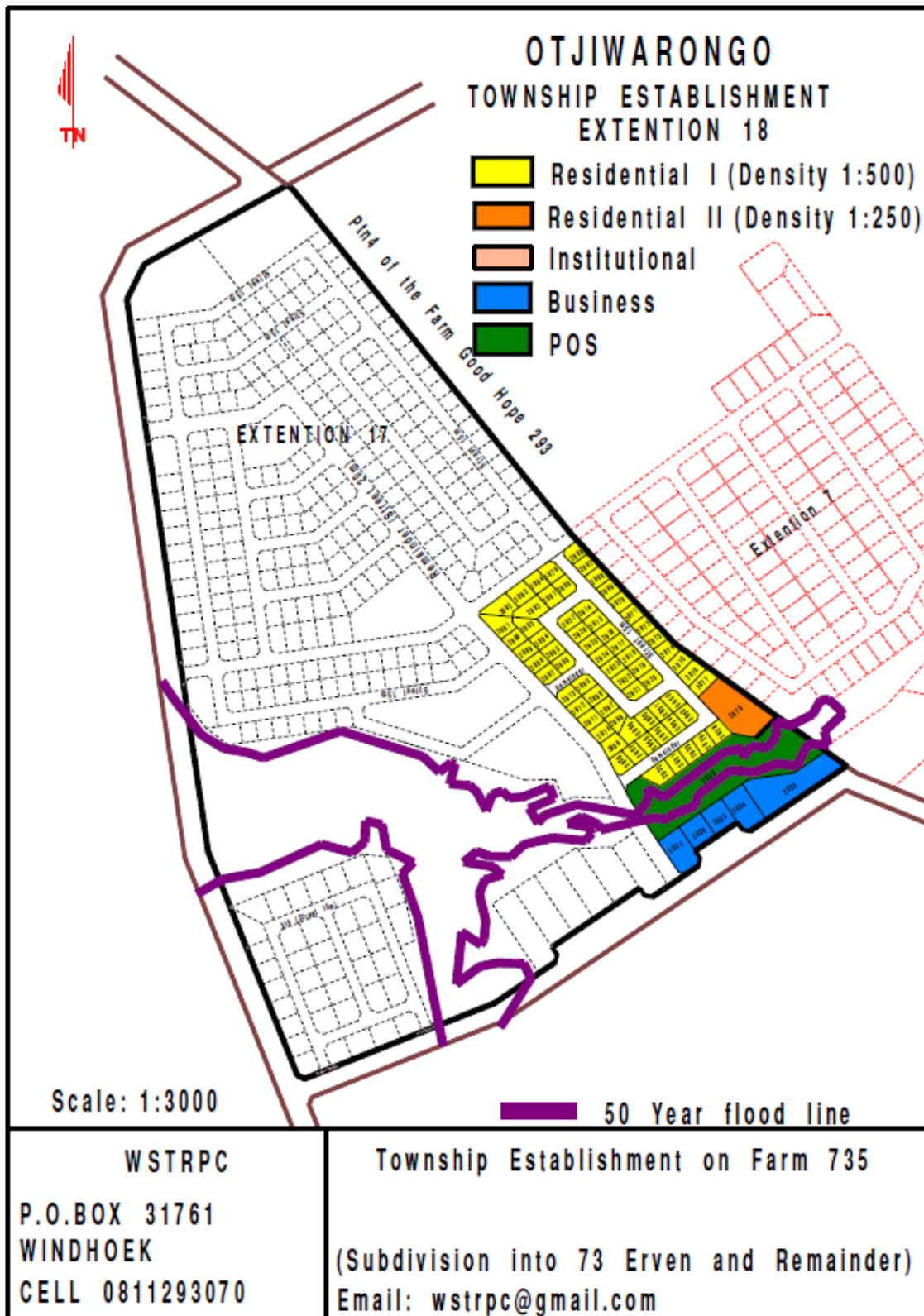


Figure 8: Subdivision Plan of Farm 735 (Otjiwarongo Extension 18)

The township to be established provides for the whole spectrum of land uses associated with such a town like residential erven, institutional erven (to be used for a school, church or clinic), business erven, industrial erven, a service station, public open spaces and streets.

In the future, if there is a demand for more serviced erven, it is intended to establish similar townships on Portions 148, 150, 151 and 152. It is estimated that a further 3000 plus erven will be created through these processes.

The proposed development will be serviced by the normal bulk services including electrical and water reticulation systems, a waterborne sewer system and street network in accordance with Municipal requirements.

### **3. CURRENT STATUS OF PROJECT**

It is the Proponent's intension to construct a lodge, nature estate, residential erven and a rural residential estate including public open spaces, public streets and servitudes on the site. Before any construction can start, the Proponent has to obtain the various statutory approvals from the Municipality of Otjiwarongo, the Ministry of Environment and Tourism, the Namibian Planning and Advisory Board, Townships Board as well as the Surveyor General's Office. The survey of the General Plan has been completed by the Land Surveyor and submitted to the Surveyor General's Office for approval. All other approvals have been obtained except for the approval of the General Plan which is now awaited by the Proponent. It is the intension of the Proponent to continue with the implementation of the project as soon as the General Plan is approved.

The processes to obtain the above approvals took longer than anticipated and the Environmental Clearance expired and thus must be renewed.

### **4. PREVIOUS APPROVALS OBTAINED**

The following approvals have been obtained to allow the implementation of this project:

#### **4.1. APPROVAL OTJIWARONGO MUNICIPALITY**

Otjiwarongo Municipality on 12 September 2016, per Council Resolution 9.8, approved the development of the Remainder of Consolidated Farm Good Hope No 298 in terms of Section 4 (1)(b) of the Local Authority Act (No. 23 of 1992). See copy of Council's Resolution below:



MUNICIPALITY  
**OTJIWARONGO**

TELEPHONE (09 264 67) 302231 / 32 / 302500 / 302059  
FAX (09 264 67) 302098  
e-mail enquiries@otjmun.org.na

PRIVATE BAG 2209  
**OTJIWARONGO**  
Namibia

**REF NO** 20160510 – Farm Goodhope No 298

**ENQUIRIES:** Mr Naude Slabbert

2016.09.14

**Att: Willem Schutz**

Willie Schutz Town & Regional Planning Consultants cc  
PO Box 31761

**WINDHOEK**

Namibia

Dear Sir

**DEVELOPMENT OF THE REMAINDER OF THE FARM GOODHOPE 298,  
OTJIWARONGO**

Your letter dated 15 July 2016 (Goodhope/App) bears reference.

Council on its meeting held on 12<sup>th</sup> September 2016 by Resolution 9.8 approved the development of the remainder of the Farm Goodhope 298, Otjiwarongo in terms of Section 4 (1)(b), of the Local Authority Act 1992 (Act 23 of 1992) subjected:

- Support the subdivision of the Remainder of the Consolidated Farm Goodhope No. 298 into 159 Portions and the Remainder
- Support the need and desirability for the Township establishment on newly created Portion 149 and 150 of the Consolidated Farm Goodhope No. 298
- Support the Township Establishment and Layout approval on Portion 149 and 150 of the Consolidated Farm Goodhope No. 298

Attached hereto is the Council Resolution and date stamped map.

For any further enquiries in this regard please do not hesitate on contact our offices.

Yours faithfully

**I /HOWOSEB**  
**CHIEF EXECUTIVE OFFICER**

/dn

## 4.2. APPROVAL NAMIBIA PLANNING & ADVISORY BOARD

The Minister of Urban and Rural Development through NAMPAB (Namibia Planning and Advisory Board) on 12 May 2017 approved the subdivision of the Remainder of Farm Good Hope No 298 into Farm No 686 to 744 and the Remainder as well as the Need and Desirability for the establishment of a Township on Farm No 734 and 735 to be known as Otjiwarongo Extension 17 and 18. See below the Ministerial Approval letter:

  
*Republic of Namibia*

**Ministry of Urban and Rural Development**

Tel: (+264 61) 2975111      Government Office Park      Private Bag 13289  
Fax: (+264 61) 2975096      Luther Street      Windhoek, Namibia  
E-mail: [enquiries@murd.gov.na](mailto:enquiries@murd.gov.na)  
Website: [www.murd.gov.na](http://www.murd.gov.na)

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Enquiries: T. Kamati      Our Ref: 17/41/O5      Date: 19 May 2017  
Tel: (+264+61) 297 5201      Your Ref:  
Fax: (+264+61) 2975305

**Willie Schutz Town and Regional Planning Consultants**  
**P O Box 31761**  
**WINDHOEK**

Dear Mr. Schutz

**ITEM NO. 28/2017: OTJIWARONGO: SUBDIVISION OF THE REMAINDER OF THE CONSOLIDATED FARM GOODHOPE NO. 298 INTO FARM NO. 586 TO 744 AND THE REMAINDER AND THE NEED AND DESIRABILITY FOR TOWNSHIP ESTABLISHMENT ON FARM NO. 734 AND 735 OF THE CONSOLIDATED FARM GOODHOPE NO. 29 (TO BE KNOWN AS OTJIWARONGO EXTENSION 17 AND 18)**

With reference to the above-mentioned application:

You are hereby informed that the Minister of Urban and Rural Development has, on 12 May 2017, approved the subdivision of the Remainder of the Consolidated Farm Goodhope No. 298 into Farm No. 586 to 744 and the Remainder in terms of Section 21 of the Townships and Division of Land Ordinance, 1963 (Ordinance 11 of 1963), as amended and the need and desirability for township establishment on Farm No. 734 and 735 of the Consolidated Farm Goodhope No. 298 (to be known as Otjiwarongo Extension 17 and 18) in terms of Section 5(5)(a)(i) of the Townships and Division of Land Ordinance, 1963 (Ordinance 11 of 1963), as amended.

Attached, please find the original Subdivision Certificate

Yours sincerely


  
**NAMPAB SECRETARIAT**



*All official correspondence must be addressed to the Permanent Secretary*

### 4.3. APPROVAL TOWNSHIPS BOARD

The Ministry of Urban and Rural Development through the Townships Board on 22 August 2017 approved the establishment of a Township on Farm No 734 and 745 of the Consolidated farm Good Hope No 298. See the approvals below:



Republic of Namibia

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## Ministry of Urban and Rural Development

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Enquiries: h. N. Van Wyk Tel: (+264+61) 297-5230 Fax: (+264+61) 297-5305 Email: hvanwyk@murd.gov.na	Government Office Park Luther Street  Our Ref.: 17/1/05 Ext 17 Your Ref.:	Private Bag 13289 Windhoek, Namibia  Date: 9 May 2018
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**Messrs Willie Schutz  
Town and Regional  
Planning Consultants  
P O Box 31761  
WINDHOEK**

**SUBJECT: OTJIWARONGO EXTENSION 17: ESTABLISHMENT OF THE TOWNSHIP  
ON FARM NO. 734 OF THE CONSOLIDATED FARM GOOD HOPE NO. 298.**

1. Your letter dated June 2017 has reference.
2. Approval has been granted in terms of Section 6 (2) and 6 (3) of the Townships and Division of Land Ordinance, 1963 (Ordinance 11 of 1963), for permission to establish the township of **Otjiwarongo Extension 17** on Farm No. 734 of the Consolidated Farm Good Hope No. 298 under Townships Board Resolution Item 203/2017 dated 22 August 2017.
3. You are hereby informed that all planning processes must be complied with, within two (2) years from the date of this letter.

Yours faithfully



**TOWNSHIPS BOARD SECRETARIAT**

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*All official correspondence must be addressed to the Permanent Secretary*



Republic of Namibia

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## Ministry of Urban and Rural Development

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Enquiries: h. N. Van Wyk  
Tel: (+264+61) 297-5230  
Fax: (+264+61) 297-5305  
Email: hvanwyk@murd.gov.na

Government Office Park  
Luther Street

Private Bag 13289  
Windhoek, Namibia

Our Ref.: 17/1/05 Ext 18  
Your Ref.:

Date: 9 May 2018

**Messrs Willie Schutz  
Town and Regional  
Planning Consultants  
P O Box 31761  
WINDHOEK**

**SUBJECT: OTJIWARONGO EXTENSION 18: ESTABLISHMENT OF THE TOWNSHIP  
ON FARM NO. 735 OF CONSOLIDATED FARM GOOD HOPE NO. 298.**

1. Your letter dated June 2017 has reference.
2. Approval has been granted in terms of Section 6 (2) and 6 (3) of the Townships and Division of Land Ordinance, 1963 (Ordinance 11 of 1963), for permission to establish the township of **Otjiwarongo Extension 18** on Farm No. 735 of the Consolidated Farm Good Hope No. 298 under Townships Board Resolution Item 204/2017 dated 22 August 2017.
3. You are hereby informed that all planning processes must be complied with, within two (2) years from the date of this letter.

Yours faithfully

**TOWNSHIPS BOARD SECRETARIAT**

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*All official correspondence must be addressed to the Permanent Secretary*

## 4.4. APPROVAL MINISTRY OF ENVIRONMENT AND TOURISM

The current Environmental Clearance Certificate was issued by the Ministry of Environment and Tourism on 30 May 2016 which expired on 29 May 2019. See below a copy of the current Certificate:

  
REPUBLIC OF NAMIBIA

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**MINISTRY OF ENVIRONMENT AND TOURISM**

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30 May 2016

Enquiries: Mr. Simon Hangele

**OFFICE OF THE ENVIRONMENTAL COMMISSIONER**

The Manager  
Brandberg Construction  
P.O. Box 6871  
Postspannplatz  
Windhoek

Dear Sir / Madam

**SUBJECT: ENVIRONMENTAL CLEARANCE FOR THE PROPOSED DEVELOPMENT OF A LODGE, NATURE ESTATE, RESIDENTIAL ERVEN AND RURAL RESIDENTIAL ESTATE ON THE REMINDER OF FARM GOOD HOPE NO. 298, OTJIWARONGO, OTJOZONDJUPA REGION**

The Environmental Impact Assessment and Environmental Management Plan submitted are sufficient as these have made an adequate provision of the environmental management for the proposed activities. From this perspective regular environmental monitoring and evaluations on environmental performance should be conducted. Targets for improvements should be established and monitored throughout this process.

This Ministry reserves the right to attach further legislative and regulatory conditions during the operational phase of the project. The proposed waste water treatment plant is not part of this Environmental Clearance Certificate.

On the basis of the above, this letter serves as an environmental clearance 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 Brandberg Construction and their consultants.

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

Yours sincerely,

  
Teofilus Nghitila  
ENVIRONMENTAL COMMISSIONER





**"Stop the poaching of our rhinos"**

All official correspondence must be addressed to the Permanent Secretary



The purpose of this submission is to renew the Environmental Clearance for further three (3) years to allow the Proponent to continue with the implementation of the project.

## **5. BULK SERVICES AND INFRASTRUCTURE**

The proponent appointed Element Consulting Engineers for the planning of the high level services required for the project. The report is attached to this EIA. The bulk services and infrastructure pertaining to this development were discussed with the Otjiwarongo Town Council at meetings on October 2014 and on 18 March 2015. The Otjiwarongo Town Council was represented by Town Engineer Mr Naude Slabbert. The issues discussed in these meetings appear in emails dated 22 March and 24 April 2015 of which copies are attached. From these meetings the following issues with regard to the availability/provision of bulk services should be noted:

### **5.1. ROADS AND ACCESS**

The access roads over Municipal land were also discussed and Mr. Naude indicated that since Council approved the incorporation and development of the Farm it implies that they will approve the indicated access from Lang Street to create the necessary linkages with the town. The ring roads proposed by the structure plan (which is not finalised or approved) was also discussed and it is proposed that the options be discussed with the roads authority (see proposals at the end).

The level/standard of services, as the service levels, as per the approval letter, should not be applicable to plots and estates (wildlife and other). Mr. Naude concur that a different/lower level of municipal services is applicable that differ from the original approval. The reasons are stated in an engineering report indicating the services proposed which are in line with our current procedures.

Based on the meetings with the Council, NamWater officials, Cenored and the Roads Authority, the following is proposed for the bulk services for the proposed development:

The proposed developments of Phases 1 and 2 will obtain access from the following roads and streets:

**Lang Street:** Lang Street which is located alongside the south western boundary of the existing build up area will be extended in a south easterly direction to provide access to the development which is located southwest of the extended Lang Street. The accesses to be taken from Lang Street are shown on the *Photo* below.



*Figure 9: Proposed Extension of Lang Street*

**Trunk Road B1:** The Roads Authority conditionally approved two accesses to link the proposed development with Trunk Road B1 from the northeast. Access A is taken from the B1 at the current access off the Otjiwarongo Stable. Access B is taken from the B1 at the current access to the Otjiwarongo Golf Course. From Accesses A and B the current roads will be upgraded and extended to link up with Lang Street.

**Main Road C33:** The Roads Authority conditionally approved an access (Access C) to link the proposed development with Main Road C33 from the southwest. From Access C a road will be constructed to link up with the proposed internal road network. See the plan below showing Accesses A, B and C.

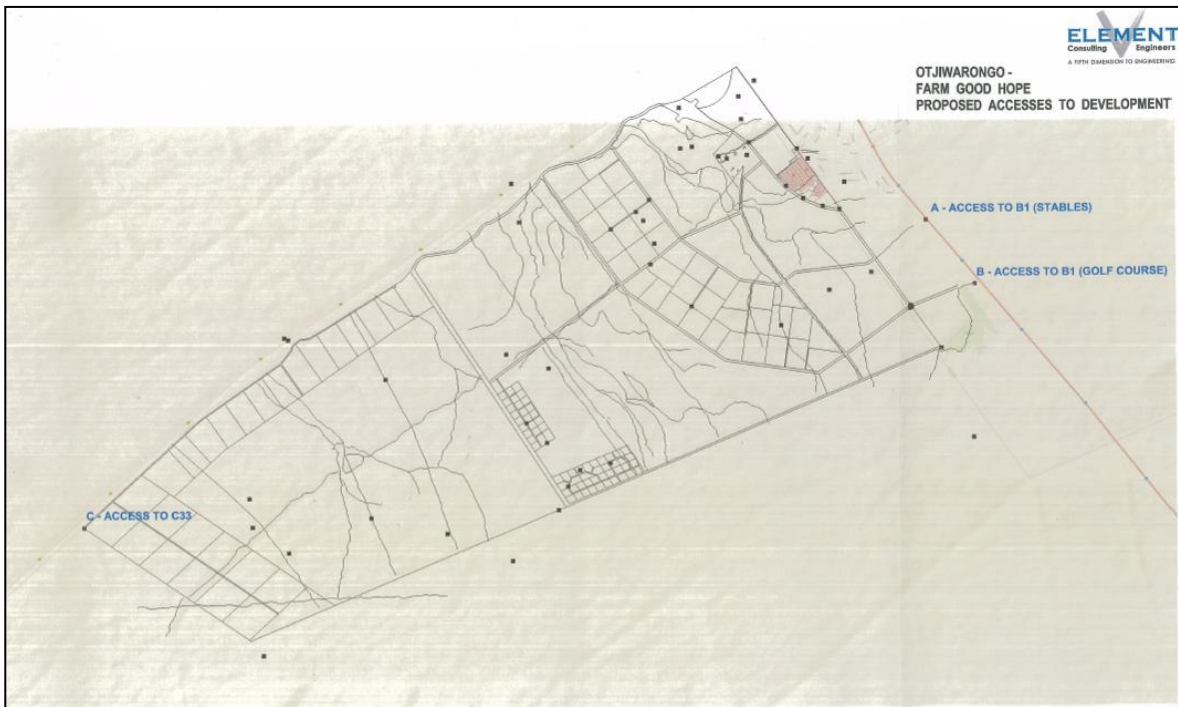


Figure 10: Map showing the roads

The roads will be constructed in accordance with the requirements of the Otjiwarongo Municipality. The road surfacing will vary in accordance to client specifications, but should under normal circumstances vary between interlocking paving, bitumen seal or gravel roads. Low water crossings and/or drifts will be used where roads cross lower lying areas and streams.



Figure 11: Current access to Project Site

**Main Road C33:** The Roads Authority conditionally approved an access (Access C) to link the proposed development with Main Road C33 from the southwest. From Access C a road will be constructed to link up with the proposed internal road network. The road linking Main Road C33 with the development crosses the railway line which link Walvis Bay with northern Namibia. An application was submitted to Trans Namib for permission to cross the railway line. A wayleave agreement will be signed between the current owner of the portion and later the Home Owners Association to formalise this railway crossing. Proper signage on both the road and railway line will be installed to warn road and rail users of this crossing.

## **5.2. WATER SUPPLY**

The development should make provision for its own storage facilities and reticulation networks. The impact of a higher supply required from NamWater will result in a change in the agreement with the municipality and probably a higher water tariff for the town (negotiations to be done during the detailed phase). This might have an impact on the total betterment fees as mentioned in the council resolutions, also taking into consideration that the municipality will take over infrastructure from the developer, which will all have an impact on the final amount determined by the municipality. Mr. Slabbert advised that a meeting be held with NamWater's representatives as well to discuss water supply.

*After a meeting with representatives of NamWater in Windhoek the following was noted:*

Existing infrastructure should have additional hydraulic capacity to provide the development with water (referring only to pipe network and pumps). Sources supplying into the existing infrastructure, however will first have to be developed to ensure sustainable supply.

The representatives also indicated that it would be preferred if sustainable water saving/water re-use options be applied in the development (which would be in line with the proposed re-use of treated effluent water).

## **5.3. ELECTRICITY SUPPLY**

The electricity demand for the development is estimated with the following criteria:

- Single phase supplies to all the group/town house type residential units
- Three phase supply to lodge
- Three phase supplies to all 10ha plots
- Three phase supplies to all the units at the nature estate

The After Diversity Maximum Demand (ADMD) of the group/town house type residential units is expected to be around 2.66 to 3kVA. The ADMD for the 10ha plots are expected to be around 5kVA and for the Nature Estate the units are expected to be around 10kVA. The aggregate of all other loads for example lodge, public lighting and street lighting etc. were evaluated individually.

With an allowance of 1000kVA for the WWTW, the total load for the Good Hope development can be expected to be: 12,650kVA.

There is presently not sufficient medium voltage (11kV) bulk capacity available from Cenored, who is the supply authority for this area, but there is adequate High Voltage supply available from NamPower. A new 132/66/11kV step down substation will be required with 2 X 10MVA transformers initially. The developer will be required to cover the cost of the substation on a pro rata basis. The lead time for such a substation would be a minimum of three years. This includes the EIA and the procurement of long delivery items such as the transformers.

The Internal Main medium voltage backbone shall be an 11kV underground cable network. This Internal Primary system shall feed mini substations, optimally positioned for an effective LV system. The Secondary system shall be a network of underground LV main feeder cables between the mini substations and Street Kiosks. These Street Kiosks shall feed erven per underground LV cables.

Each plot shall be reticulated with an 11kV overhead network. The system shall feed 16kVA pole mounted transformers positioned at each plot. The LV system from the pole mounted transformer shall be the responsibility of the plot owner. The lodge may be served with a medium voltage connection.

Note that energy conservation is an end user activity. Construction of dwellings and buildings should thus be energy efficient namely energy efficient lamps, light fittings and solar geysers should be implemented and the same applies for the eventual appliances to be used.

## **5.4. SOLID WASTE DISPOSAL**

It is proposed that the household waste is sorted into recyclables and non-recyclables at source/erf/plot and collected by an approved (to be approved by Otjiwarongo Town Council) operator to be recycled at an approved site or to be disposed of at an approved waste disposal/landfill site.

## **5.5. STORMWATER AND DRAINAGE MANAGEMENT**

The lower portions of the development will be positioned as not to be impacted by a 1:50 year flood event. Surface run off will be drained in the streets to the lower section of the site. If required, storm water catch pits and pipes will be designed for drainage. Where pipe systems and channels are to be incorporated for the stormwater drainage, adequate erosion protection will be specified at the outlets to prevent damage to natural water courses and the environment.

## **5.6. WASTEWATER/SEWER**

The existing oxidation ponds which serve the town are at capacity. The development should make provision for treatment of effluent, as existing infrastructure cannot accommodate more effluent.

The local authority has indicated that no sewerage connections are available for the developments. Treatment of the effluent from the residential development is envisaged to initially be by means of package treatment plants situated at the lowest points in the developments. It is however recommended that a detailed feasibility study is done to identify the possibility of a single wastewater treatment works with a treatment capacity in the order of 6 megalitres per day to cater for the entire development. With allowance for infiltration of stormwater and peaks, 6 megalitres per day can be regarded as a general estimate for sewage effluent after the entire development is complete.

Effluent quantities can be projected at 1000 l/day per erf. A total of approximately 4000 erven are planned which will result in 4 megalitres effluent per day for the residential zone.

Internal sewer reticulation will be done by means of Class 34 PVC-U sewer pipes (the diameters to be confirmed upon final design). Flow calculations and projections for future expansions and growth will be done according to the Guidelines for Human Settlement Planning and Design Volume 2.

Treatment will take place to required standards and the treated effluent will be discharged into an existing water course. The necessary discharge permits will be obtained for these purposes.

For the plots, each plot owner will be responsible for the treatment of sewage internally on the plot. Pertaining to the lodge and the nature estate, it is proposed that package treatment plants are used as well, with possible future connections to the proposed treatment works.

Concrete manholes at intervals not exceeding 60m will provide service access to the sewer network. The design and construction of the proposed sewer facilities will be in accordance with the requirements of the Otjiwarongo Municipality.

## **5.7. FIRE PROTECTION**

The water mains should be designed that supply is always assured and it should 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. Provision must be made for proper firefighting and it is foreseen that above ground pillar type fire hydrants will be required in consultation with the Otjiwarongo Municipality as well as their standards and requirements.

## **6. TERMS OF REFERENCE**

The proponent intends to develop a lodge, nature estate, residential erven and a rural residential estate including public open spaces, public streets and servitudes on the Remainder of the Consolidated Farm Good Hope No 298. To be able to implement and continue with the project an Environmental Clearance must be renewed. 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 environmental impact assessment was:

- To comply with Namibia's Environmental Management Act (2007) and its regulations (2012);
- To ascertain existing environmental conditions on the sites and to determine its environmental sensitivity;
- To inform I&APs and relevant authorities of the details of the proposed development 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.

The tasks that were undertaken for the Environmental Impact Assessment 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 renewed EIA and EMP from the assessment will be submitted to the Environmental Commissioner for consideration. Environmental Clearance Renewal will only be obtained (from the DEA) once the new EIA and EMP has been examined and approved for the listed activity.

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, Municipality and identified stakeholders. Consequences of 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.

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.

## **7. 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 erf and area in general were reviewed to determine potential environmental issues and concerns.

#### b) Site assessment (site visit)

The Remainder of the Consolidated Farm Good Hope No 298 and the immediate neighbourhood and surrounding area were assessed through several site visits by Green Earth and the Town Planner. The environmental parameters on site were investigated to enable further understanding of the potential impacts on site.

#### C) Public participation

Notices were placed in local newspapers (Republikein of 31 March and 7 April 2015 and The Namibian of 31 March and 7 April 2015) on two consecutive weeks inviting the public to participate and provide comments on the proposed project. Copies of the newspaper notices are attached to this report. The last date for comments and/or registration was 22 April 2015. See attached comments that were received.

#### d) Scoping

Based on the desk top study, site visits 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.

#### e) Environmental Management Plan (EMP)

To minimize the impact on the environment, mitigation measures have been identified to be implemented during planning, construction and implementation. These measures have been included in the Environmental Management Plan to guide the planning, construction and operation of the development which can also be used by the relevant authorities to ensure that the project is planned, developed and operated with the minimum impact on the environment.

## **8. ASSUMPTIONS AND LIMITATIONS**

It is assumed that the information provided by Du Toit Town Planning Consultants, Otjiwarongo Municipality and Brandberg Construction (the proponent) is accurate. No alternative sites were evaluated as the proposed site for the development that was chosen because it is already the property of Brandberg Construction. The 'No-Go option' (meaning to do nothing) was also considered but decided against as the subdivision of the Portion will lead to the more efficient use of the site with no significant additional negative impact on the prevailing environment. The site was visited several times and any happenings after this are not mentioned in this report. (The assessment was 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 activities.



## 9. 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 Remainder of the Consolidated Farm Good Hope No 298 is the following:

- The Namibian Constitution
- The Environmental Management Act (No. 7 of 2007)
- The Otjiwarongo Town Planning Scheme
- 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). It is therefore important that the international agreements and conventions are considered (see section 4.9).

In considering these environmental rights the proponent, Brandberg Construction, should consider the following in devising an action plan in response to these articles:

- Implement a “zero-harm” policy at Brandberg Construction, which 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 Brandberg Construction's ‘Code of Conduct’ and the Environmental Control System for employees, subcontractors and tenants.

## **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 to obtain an Environmental Clearance Certificate Renewal:

### ***LAND USE AND DEVELOPMENT ACTIVITIES***

*5.2 Establishment of land resettlement schemes*

### ***TOURISM DEVELOPMENT ACTIVITIES***

*6. The construction of resorts, lodges, hotels or other tourism and hospitality facilities.*

### ***INFRASTRUCTURE***

*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.*

Cumulative impacts associated with the development must be included as well as public consultation. The Act further requires all major industries and developers 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 Remainder of the Consolidated Farm Good Hope No 298 has been assessed in terms of the Environmental Management Act and the Regulations (Act No. 7 of 2007). From the assessment, it can be concluded that the project is in line with what is happening in the immediate surroundings and that the negative impacts deriving from the proposed development can be sufficiently mitigated by following the Environmental Management Plan.

## **OTJIWARONGO TOWN PLANNING SCHEME**

The Otjiwarongo Town Planning Scheme (as amended in Otjiwarongo Amendment Scheme No. 15 – approved 26 June 2015) applies to the area as indicated on the scheme maps and corresponds with the Townlands Diagram for Otjiwarongo Town and Townlands. The Remainder of the Consolidated Farm Good Hope No 298 is within the area of the Scheme.

The general purpose of this Scheme is the coordinated and harmonious development of the area of Otjiwarongo (including, where necessary, the reconstruction and redevelopment of any part which has already been subdivided whether there are buildings on it or not) in such a way as will most effectively tend to promote health, safety, order, amenity, convenience and general welfare as well as efficiency and economy in the process of development and improvement of communications, and where it is expedient in order to promote proper planning or development, may provide for the suspending the operation of any provision of law or any bylaw or regulation made under such law, in so far as such provision is similar to or inconsistent with any of the provisions of the Scheme.

## **CONCLUSION AND IMPACT**

Green Earth Environmental Consultants believe that the stipulations of the Otjiwarongo Town Planning Scheme had been followed and complied with in the assessment of this activity.

## **OTHER LAWS, ACTS, REGULATIONS AND POLICIES**

The laws, acts, regulations and policies listed below have also been considered during the Environmental Assessment:

Table 1: Laws, Acts, Regulations and Policies

Laws, Acts, Regulations & Policies consulted:	
<b>Water Resources Management Act</b>	The <b>Water Resources Management Act (No 11 of 2013)</b> 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.
<b>Nature Conservation Ordinance</b>	The <b>Nature Conservation Ordinance (No 4 of 1975)</b> covers game parks and nature reserves, the hunting and protection of wild animals, problem animals, fish and indigenous plant species. The Ministry of Environment and Tourism (MET) administer it and provides for the establishment of the Nature Conservation Board.
<b>Forestry Act</b>	The <b>Forestry Act (No 12 of 2001)</b> 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.
<b>Soil Conservation Act</b>	The <b>Soil Conservation Act (No 76 of 1969)</b> stipulates that the combating and preventing of soil erosion should take place; the soil should also be conserved, protected and improved, vegetation and water sources and resources should also be preserved and maintained. When proper mitigation measures are followed along the construction and implementation phase of the project, the natural characteristics of the property is expected to have a moderate to low impact on the environment.
<b>Labour Act</b>	The <b>Labour Act (No 11 of 2007)</b> states regulations to ensure the health, safety and welfare of employees and to protect employees from unfair labour practices. The Act also states that the employees should be provided with a working environment that is without risk to their health.
<b>Local Authorities Act (No. 23 of 1992)</b>	The purpose of the <b>Local Authorities Act</b> is to provide for the determination, for purposes of local government, of local authority councils; the establishment of such local authority councils; and to define the powers, duties and functions of local authority councils; and to provide for incidental matters.

## CONCLUSION AND IMPACT

Green Earth Environmental Consultants believe the above administrative, legal and policy requirements which specifically guide and govern the project will be followed and complied with in the assessment of the activity. A flowchart indicating the entire EIA process is shown in the *Figure* below.

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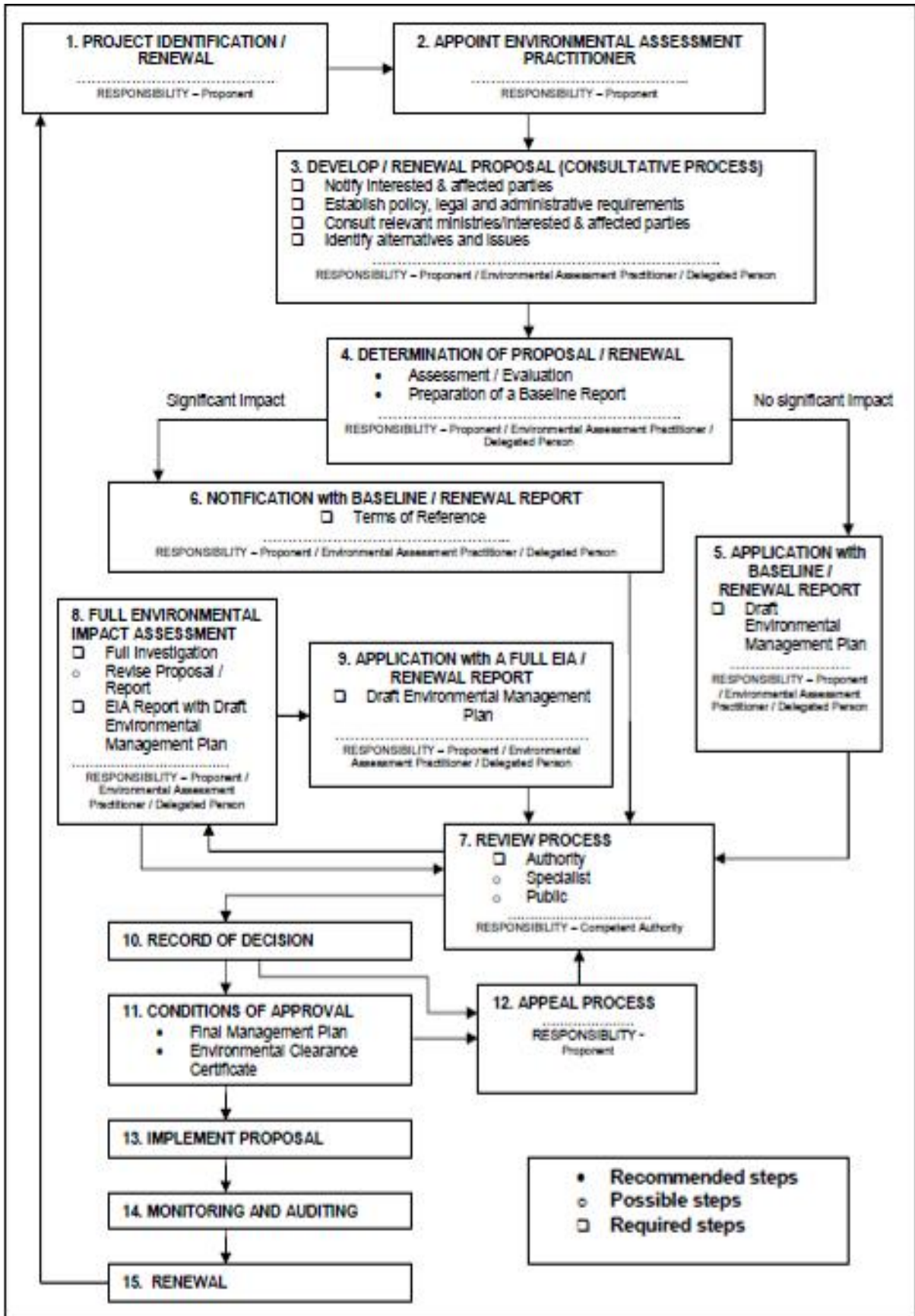


Figure 12: Flowchart of the Impact Process

## 10. AFFECTED RECEIVING ENVIRONMENT

### 10.1. CLIMATE

No specific climate data is available for the Remainder of the Consolidated Farm Good Hope No 298 however in general the area is characterized with a semi-arid highland savannah climate typified as very hot in summer and moderate dry in winter. The highest temperatures are measured in December with an average daily temperature of maximum 31°C and a minimum of 17°C. The coldest temperatures, conversely, are measured in July with an average daily maximum of 20°C and minimum 6°C (*Weather - the Climate in Namibia, 1998 – 2012*). The area therefore has low frost potential.

Rainfall in the form of thunderstorms is experienced in the area during the summer months between October and April. The annual average rainfall is 350mm to 400mm however the average evaporation rate is 3 400mm a year (*Weather - the Climate in Namibia, 1998 – 2012*). Over 70% of the rainfall occurs in the in the summer months' period between November and March. Rainfall in the area is typically sporadic and unpredictable however the average highest rainfall months are January to March.

The prevailing wind direction is expected to prevent the spread of any nuisance namely noise and smell. The predominant wind in the region is easterly with westerly winds from September to December (*Weather - the Climate in Namibia, 1998 – 2012*). Extreme winds are experienced in the months of August and September and thus significant wind erosion on disturbed areas is visible.

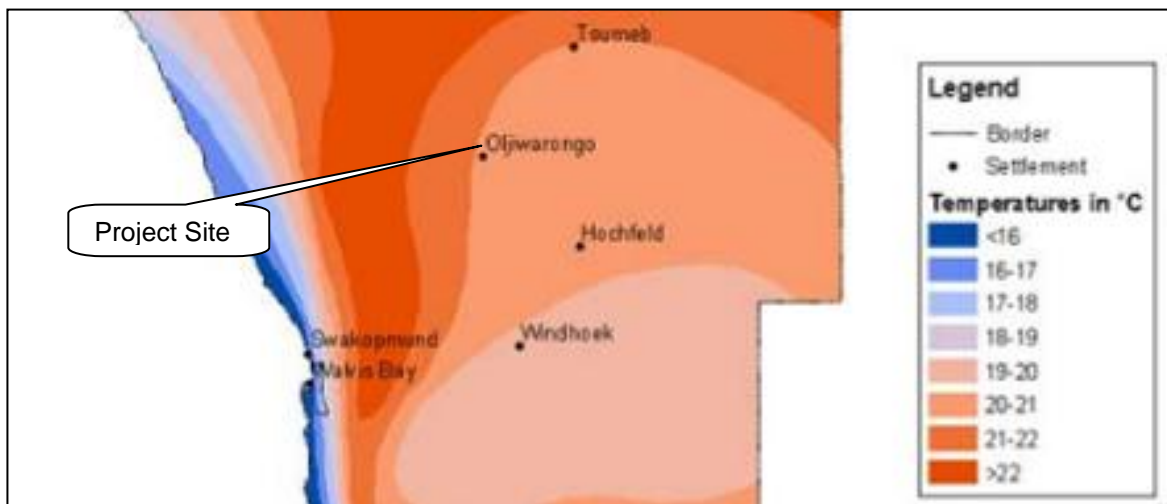


Figure 13: Average annual temperatures in Namibia (*Atlas of Namibia Project, 2002*)

## 10.2. BIODIVERSITY AND VEGETATION

The Remainder of the Consolidated Farm Good Hope No 298 is showing evidence of some human inference namely informal tracks are present and vegetation was cleared on some areas of the site and a few gravel roads are present on the site.

The natural terrain is relatively flat as can be seen on the photos of the area and site. All large trees located on the project site mainly grow in the natural drainage areas which will be accommodated in the development as public open spaces. Other trees outside the drainage areas will be incorporated in the development. No protected trees (especially *Acacia erioloba*) may be removed without a permit. Any removal of new vegetation that arises naturally should however still be done within a properly managed, planned and responsible manner to avoid the destruction of unnecessary ground cover. No animals were observed on the site when the site visit was carried out however it is strongly recommended that any animal whether large or small be protected and safeguarded from the construction and operation activities that may be harmful. The relocation of animals is the preferred choice.

The area in general contains a large diversity of annual and perennial grass, it is estimated that there is up to 101 grass species. Four of these species are endemic namely *Eragrostis omahekensis*, *Eragrostis scopelophila*, *Pennisetum foermeranum* and *Setaria finite* (Mannheimer & Curtis, 2009). However these species are not popular on the specific site or in the receiving environment. Only the necessary plants/vegetation will be removed for the construction phase since a large amount of vegetation has already been cleared.

Topographically there are no special features to be taken into account with the development. The rehabilitation of disturbed areas is important and should be done in accordance with the Environmental Management Plan (EMP). The natural characteristics of the project site namely the vegetation clearance and the destruction of habitats is expected to further on have a low impact on the environment before the mitigation measures are taken and after the mitigation measures are taken, the impact will be very low.



*Figure 14: Vegetation on Project Site*



*Figure 15: Vegetation on Project Site*





*Figure 16: Vegetation on Project Site*

### **10.3. HYDROLOGICAL COMPONENT**

The area where the project site is located has generally a low to average groundwater potential from a permeability and yield perspective (Grunert, 2003). However, groundwater is one of the important water sources and the protection thereof should be regarded as a high priority. The main uses of water in the area are for business, industrial and domestic purposes and agriculture and farming activities.

Although most of the surface water evaporates, runoff can be expected due to the impermeability of soils (Grunert, 2003). The storage and accumulation of substances, which might pollute river courses or basins because of surface water drainage, should be prevented. No potential pollutants should be channeled or directed towards any rivers.

From the hydrological assessment perspective, no major geological structures that will enhance groundwater recharge or flow are evident on the proposed project site and the development that will take place will not pose any long-term negative effects on the hydrological cycle (Grunert, 2003).

### **10.4. SOCIAL-ECONOMIC COMPONENT**

The proposed development will have a positive impact on the socio-economic environment. Apart from the developer's intention to make a profit out of the proposed development, advantages to the area are numerous. The availability of additional erven will attract more people to the area and that 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 various jobs during construction and permanent employment 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. Services that will benefit from this development in Otjiwarongo are amongst others shops, doctors, garages, and plumbers etc. The development will also bring in investments and buying power.

Investors would also see the advantage of establishing manufacturing activities in Otjiwarongo as the availability of staff accommodation would be a favorable factor in their considerations. During construction stages, the building industry will be well supported.

Although the Council will be faced with more demands for services, the revenue from rates and taxes would possibly be sufficient for the Council to become self-sufficient and less of a burden on Government.

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 and commercial/business related activities, the development 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 residential activities.

## **10.5. 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 on the site and no artifacts were observed on the site.

## **10.6. SENSE OF PLACE**

The Project Site is located inside the already established industrial/business/residential area of the town of Otjiwarongo. The Portion is also situated in reaching distance to bulk infrastructural networks consisting of roads and electricity. The proposed activities will not have a large/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.

## **10.7. HEALTH**

The safety, security and health of the labour force, employees and neighbors are of great importance, workers should be orientated with the maintenance of safety and

health procedures and they should be provided with PPE (Proper Protective Equipment). A health and safety officer should be 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.

## 11. GENERAL IMPACTS OF PROPOSED DEVELOPMENT

The following assessment methodology will be used to examine each impact identified, see *Table* below:

*Table 1: Impact Evaluation Criterion (DEAT 2006)*

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

Probability:	Duration:
5 – Definite/don't 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/don't know
4 – National	8 - High
3 – Regional	6 - Moderate

2 – Local	4 - Low
1 – Site only	2 - Minor
	0 - None

## 11.1. IMPACTS DURING THE CONSTRUCTION ACTIVITY

### 11.1.1. WATER USAGE

Water is a scarce resource in Namibia and therefore water usage should be monitored and limited in order to prevent unnecessary wastage. The proposed development will make use of water in its construction phase and water will be used in the operational phase however it is not anticipated that it will entirely be water-based operations.

#### Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Ecology	-VE	2	2	6	4	M	M

### 11.1.2. ECOLOGICAL IMPACTS

The proposed development will be constructed in a semi disturbed natural area which has little vegetation cover. No wildlife has been observed in the area except for occasional smaller animals. Thus, impacts on fauna and flora are expected to be minimal. Disturbance of areas outside the designated working zone is not allowed.

#### Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Ecology	-VE	2	4	6	4	M	M

### 11.1.3. DUST POLLUTION AND AIR QUALITY

Dust generated during the transportation of building materials; construction and installation of bulk services, and problems thereof are expected to be low and site specific due to the sandy nature of the top soils. Dust is expected to be worse during the winter months when strong winds occur. Release of various particulates from the site during the construction phase and exhaust fumes from vehicles and machinery related to the construction of bulk services are also expected to take place. Dust is regarded as a nuisance as it reduces visibility, affects the human health and retards plant growth.

It is recommended that regular dust suppression be included in the construction activities, when dust becomes an issue. No unnecessary revving of engines or operation of vehicles is allowed. In general, the servicing of these extensions is envisaged to have minimal impacts on the surrounding air quality.

#### Impact evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Dust & Air Quality	-VE	2	2	6	3	M	M

### 11.1.4. NOISE IMPACT

An increase of ambient noise levels at the proposed site is expected due to the construction activities. Noise pollution due to heavy-duty equipment and machinery will be generated. It is not expected that the noise generated during construction will impact any third parties due to the distance of the neighbouring activities. Ensure all mufflers on vehicles are in full operational order; and any audio equipment should not be played at levels considered intrusive by others. The construction staff should be equipped with ear protection equipment.

#### Impact evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Noise	-VE	2	2	6	3	M	M

### 11.1.5. HEALTH, SAFETY AND SECURITY

The safety, security and health of the labour force, employees and general public are of great importance. Workers should be orientated with the maintenance of safety and health procedures and they should be provided with PPE (Proper Protective Equipment). A health and safety officer should be employed to manage, coordinate and monitor risk and hazard and report all health and safety related issues in the workplace.

Safety issues could arise from the earthmoving equipment and tools that will be used on site during the construction phase. This increases the possibility of injuries and the contractor must ensure that all staff members are made aware of the potential risks of injuries on site. The presence of equipment lying around on site may also encourage criminal activities (theft).

Sensitize operators of earthmoving equipment and tools to switch off engines of vehicles or machinery not being used. The contractor is advised to ensure that the team is

equipped with first aid kits and that they are available on site, at all times. Workers should be equipped with adequate personal protective gear and properly trained in first aid and safety awareness.

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. Proper barricading and/or fencing around the site especially trenches for pipes and drains should be erected to avoid entrance of animals and/or unauthorized persons. Safety regulatory signs should be placed at strategic locations to ensure awareness. Adequate lighting within and around the construction locations should be erected, when visibility becomes an issue.

#### Impact evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Safety & Security	-VE	2	2	6	3	M	M

### 11.1.6. CONTAMINATION OF GROUNDWATER

Care must be taken to avoid contamination of soil and groundwater. Use drip trays when doing maintenance on machinery. Maintenance should be done on dedicated areas with linings or concrete flooring. The risk can be lowered further through proper training of staff. All spills must be cleaned up immediately. Excavations should be backfilled and sealed with appropriate material, if it is not to be used further.

#### Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Groundwater	-VE	3	2	6	3	M	M

### 11.1.7. SEDIMENTATION AND EROSION

The proposed construction activities will increase the number of impermeable surfaces and therefore decrease the amount of groundwater infiltration. Thus, the amount of storm water during rainfall events could increase. If proper storm water management measures are not implemented this will impact negatively on the water courses close to the site.

## Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Erosion and Sedimentation	-VE	2	2	6	3	M	M

### 11.1.8. GENERATION OF WASTE

This can be in a form of rubble, cement bags, pipe and electrical wire cuttings. The waste should be gathered and stored in enclosed containers to prevent it from being blown away by the wind. Contaminated soil due to oil leakages, lubricants and grease from the construction equipment and machinery may also be generated during the construction phase.

The oil leakages, lubricants and grease must be addressed. Contaminated soil must be removed and disposed off at a hazardous waste landfill. The contractor must provide containers on-site, to store any hazardous waste produced. Regular inspection and housekeeping procedure monitoring should be maintained by the contractor.

## Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Waste	-VE	2	2	6	3	M	M

### 11.1.9. CONTAMINATION OF SURFACE WATER

Contamination of surface water might occur through oil leakages, lubricants and grease from the equipment and machinery during the installation, construction and maintenance of bulk services at the site. Oil spills may form a film on water surfaces in the nearby low-lying areas causing physical damage to water-borne organisms.

Machinery should not be serviced at the construction site to avoid spills. All spills should be cleaned up as soon as possible. Hydrocarbon contaminated clothing or equipment should not be washed within 25m of any surface water body.

## Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Surface water	-VE	2	4	6	2	M	M

### 11.1.10. TRAFFIC AND ROAD SAFETY

All drivers of delivery vehicles and construction machinery should have the necessary driver's licenses and documents to operate these machines. Speed limit warning signs must be erected to minimise accidents. Heavy-duty vehicles and machinery must be tagged with reflective signs or tapes to maximize visibility and avoid accidents.

#### Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Traffic	-VE	2	2	6	4	M	M

### 11.1.11. FIRES AND EXPLOSIONS

There should be sufficient water available for firefighting purposes. Ensure that all fire-fighting devices are in good working order and they 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	-VE	2	2	6	2	M	M

### 11.1.12. SENSE OF PLACE

The placement, design and construction of the proposed development should be as such as to have the least possible impact on the natural environment. The proposed activities will not have a large/negative impact on the sense of place in the area since it will be constructed in a manner that will not affect the neighbouring erven/land and it will not be visually unpleasing.

#### Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Nuisance Pollution	-VE	2	2	6	3	M	M



## 11.2. IMPACTS DURING THE OPERATIONAL PHASE

### 11.2.1. ECOLOGICAL IMPACTS

Minimise the area of disturbance by restricting movement to the designated working areas during maintenance and drives.

#### Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Ecology Impacts	-VE	1	4	6	4	M	M

### 11.2.2. 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	-VE	2	2	6	3	M	M

### 11.2.3. CONTAMINATION OF GROUNDWATER

Oil and chemical spillages may have a health impact on groundwater users. Potential impact on the natural environment from possible polluted groundwater also exists. Spillages must be prevented to avoid groundwater contamination.

#### Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Groundwater contamination	-VE	2	3	6	3	M	M

## 11.2.4. GENERATION OF WASTE

Household waste from the activities and from the staff working at the site will be generated. This waste will be collected, sorted to be recycled and stored 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	-VE	1	2	6	3	M	M

## 11.2.5. FIRES AND EXPLOSIONS

Food will be prepared on gas fired stoves. There should be sufficient water available for firefighting purposes. Ensure that all fire-fighting devices are in good working order and they 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	-VE	2	2	6	2	M	M

## 11.2.6. 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 (Proper Protective Equipment). Workers should be warned not to approach or chase any wild animals occurring on the site. 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	-VE	1	2	6	3	M	M

### 11.3. CUMMULATIVE IMPACTS

These are impacts on the environment, which results from the incremental impacts of the construction and operation of the proposed development when added to other past, present, and reasonably foreseeable future actions regardless of what person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period. 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 project include vegetation and animal disturbance, uncontrolled traffic and destruction of the natural 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. Cumulative impacts could occur in both the operational and the construction phase.

## Impact Evaluation

Aspect	Impact Type	Scale	Duration	Magnitude	Probability	Significance	
						Unmitigated	Mitigated
Cumulative Impacts	-VE	3	4	6	3	M	M

### 12. INCOMPLETE OR UNAVAILABLE INFORMATION

The exact number of people that will be employed will depend on the type and scope of the activities and the number of individuals needed at each phase of the project. The Environmental Management Plan (EMP) will therefore include all the possible negative effects of the project in general that could be operated on the site in order to prevent any pollution or harmful impacts whether to neighbours or the environment.

### 13. ENVIRONMENTAL IMPACT ASSESSMENT EVALUATION

The Environmental Impact Assessment Renewal sets out potential positive and negative environmental impacts associated with the proposed project site which is the Remainder of the Consolidated Farm Good Hope No 298.

All concerns and potential impacts raised during the public participation process and consultative meetings were evaluated. Predictions were made with respect to their magnitude and an assessment of their significance was made per the following criteria:

The Nature of the activity: The project will include the construction of a lodge, nature estate, residential erven and a rural residential estate including public open spaces, public streets and servitudes on the Remainder of Consolidated Farm Good Hope No 298, Otjiwarongo, Otjozondjupa Region. The possible impacts that may occur are that water will be used in the construction and operational phases, waste water will be produced that must be handled, land will be used for the proposed activities, a sewage system will be constructed, and general construction activities will take place, namely the building of infrastructure.

The Probability of the impacts to occur: The probability of the above-named impacts to occur and have a negative or harmful impact on the environment and the community is small since the Environmental Management Plan will also guide these activities. Water will still be used, and wastewater produced, however guidelines will be set that will ensure the impact is minimum.

The Extent of area that the project will affect: The specific project will most likely only have a small impact on the proposed project site itself and not on the surrounding or neighbouring erven/developments except for noise, traffic, roads, electricity and dust and there may be a visual impact because of the size of the proposed road. Therefore, the extent that the project will have a negative impact on is not extensive and mostly site specific.

The Duration of the project: The duration of the project is uncertain because of the different land uses that will be included in the development and because the project may be phased. Water will still be used, and waste produced on a continuous basis and the structures that were constructed will remain and may be visually unpleasing to surroundings.

The Intensity of the project: The intensity of the project is mostly limited to the site however for the above-named items/processes where the intensity of the project will be felt outside the borders of the project site.

## 14. 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 (EIA) and prepare an Environmental Management Plan (EMP) **to renew the Environmental Clearance (EC) for the construction of a lodge, nature estate, residential erven and a rural residential estate including public open spaces, public streets and servitudes on the Remainder of Consolidated Farm Good Hope No. 298, Otjiwarongo, Otjozondjupa Region.**

The Remainder of Consolidated Farm Good Hope No 298, Otjiwarongo, Otjozondjupa Region is large enough to accommodate the proposed development and it will not have a negative effect on the environment. It is believed that the proposed development will address demand for erven in Otjiwarongo and largely benefit the social, cultural and economic needs of the area.

Negative impacts that can be associated with construction on the site are most likely to include: production of solid and liquid waste, dust emissions, atmospheric emissions, noise pollution, movement of soils, increased waste water generation and the disruption of groundwater from the foundation or other structures. 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 municipal waste disposal facilities, increase in water consumption and waste water generation, 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.

After assessing all information available on this project, *Green Earth Environmental Consultants* believe the construction of a lodge, nature estate, residential erven and a rural residential estate including public open spaces, public streets and servitudes on the Remainder of Consolidated Farm Good Hope No 298, Otjiwarongo, Otjozondjupa Region will not have a large negative impact on the environment.

## **15. RECOMMENDATION**

It is therefore recommended that the Ministry of Environment and Tourism through the Environmental Commissioner support and approve the Renewal of the Environmental Clearance for the development of the Remainder of Consolidated Farm Good Hope No 298, Otjiwarongo, Otjozondjupa Region and for the following listed activities:

### ***LAND USE AND DEVELOPMENT ACTIVITIES***

*5.2 Establishment of land resettlement schemes*

### ***TOURISM DEVELOPMENT ACTIVITIES***

*6. The construction of resorts, lodges, hotels or other tourism and hospitality facilities.*

### ***INFRASTRUCTURE***

*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.*

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