

ENVIRONMENTAL IMPACT ASSESSMENT REPORT

24G APPLICATION

CLEARING OF INDIGENOUS VEGETATION FOR CROPLANDS, ON A PORTION OF THE FARM SKUTWATER 115 MS WITHIN MUSINA LOCAL MUNICIPALITY, VHEMBE DISTRICT

REFERENCE NO: 12/1/9/S24G-V49

**Musina Local Municipality
Vhembe District**

LIMPOPO PROVINCE



October 2020

TITLE: SKUTWATER 115 MS

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ISSUE: 24 G Environmental Impact Assessment Report



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Executive Summary

The project area forms part of a longstanding crop production entity located on the farms Weipe 114 MS, Bismarck 116 MS and Skutwater 115 MS. A Notice of Intention to Issue a Compliance Notice in terms of Section 31L of NEMA was issued, dated 30th March 2020. Tua Conserva Environmental & Conservation Services cc was appointed to undertake an Environmental Impact Assessment (EIA) for 24G compliance. The EIA Report fulfills the requirements of NEMA and has been conducted in compliance with the latest environmental legislation; it includes the Screening Process as was compulsory from the 4th October 2019. The intention is to supply an EIA Report to the Environmental Authorities and registered I&AP's with relevant information to assist LEDET in their recommendations for the assessment of this project application.

The project is a 24G application intended for rotational farming of crops; water will be from existing allocations. What will be assessed is the impacts resulted from the clearing of indigenous vegetation and ability of the receiving environment to accommodate the development and to assess alternatives with mitigation recommendations. The remaining undeveloped portion of Skutwater 115 MS was used as control for the assessment.

Interested and affected parties are divided in two categories, the first are those from direct adjoining surrounding property(s) and secondly are the competent authorities. No written concerns or issues were received.

The impact of the areas identified could have an impact on habitat, fauna, vegetation-and cultural resources. This will be addressed in the specialist report(s) and guided by the Screening Tool indications. The proposed development is based on sustainable farming that dates back four decades and can continue for another four decades by sustainable farming principles. The setting is deep-rural and will the impacts on social and economic benefits for the local economy as well as for the provincial-, national- and export fiscus. A workforce of 1500 persons is indicative of the socio-economic importance for the area.

The Screening Tool was also used for planning purposes and will be submitted with the application. It reflected a low sensitivity for the biophysical area for vegetation-, wildlife and terrestrial biodiversity. Historically the surrounding farming areas have been used for more than six decades for farming and are reflected in the receiving environment, as confirmed by on-site visits and surveys.

The assessing of the placing of the cleared area must take into consideration the past activities and the direct and indirect affects of fragmentation due to supporting infrastructure when incorrectly located.

What is of utmost importance is the forces of nature that played a crucial role in the current financial dilemma that the applicant experience. It started with the 2000 tropical storm whereafter with the onset of 2013 till 2017 various flooding and a tornado created havoc on the farming activities of the applicant. These destructive forces were followed by the spread of specific viruses targeting tomatoes for which the flooding provided ideal conditions for infection. The remedy is to change crops, easier said than done



when your farming structure and equipment has been adapted and focussed on tomatoes. The remedy is to use un-infected croplands and/or cultivate virgin soil. This is what happened, a decision was made to cultivate; and when brought to the applicant's attention he atoned and proceeded with rectification process.



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ABBREVIATIONS

- DLRRD Department of land Reform and Rural Development (former DAFF)
- DWS Department of Water and Sanitation
- EIA Environmental Impact Assessment
- EMPr Environmental Management Program Report



LEDET Department of Economic Development, Environment and Tourism
Limpopo province
LIHRA Limpopo Heritage Resources Agency
I&AP Interested & Affected Parties



24G ENVIRONMENTAL IMPACT ASSESSMENT REPORT FOR THE CLEARING OF
INDIGENOUS VEGETATION FOR CROPLANDS, ON SKUTWATER 115 MS, MUISNA
MUNICIPALITY, VHEMBE DISTRICT

REFERENCE NO: 12/1/9/S24G-V49

1 INTRODUCTION

1.1 General

This report contains the results of an investigation and impact assessment report for the proposed clearing of indigenous vegetation for the establishment of new crops land as mentioned in the application and which is submitted in terms of Environmental Impact Assessment Regulations, 2014 namely: Regulation 984, Listing Notice 2, Activity 15 of the National Environmental Management Act, 1998 (Act no. 107 of 1998) as amended and in respect the assessment process applicable.

A site visit must still be conducted.

1.2 Application objective

The Environmental Impact Report (EIR) was conducted to supply the Department of Economic Development, Environmental and Tourism (LEDET) with the necessary information to decide regarding the EIR and the issuing of a fine and subsequent environmental authorisation.

1.3 Applicant and developer

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1.4 Information on EAP

1.4.1 Details of EAP

EAPASA Registered: No. 2019/785
Tua Conserva Environmental and Conservation Services cc
P. O. Box 960
FAUNA PARK
POLOKWANE
0787
Represented by: Mr. J. Claassens
Contact : Cell: 082 885 9118
E-mail: tuaconserva@gmail.com
Attached as Appendix D



1.4.2 Experience of EAP: Appendix A

Mr. Claassens is a South African-based career nature conservationist with 45 years' experience in Southern Africa, e.g. South Africa, Botswana, Zambia, Namibia (Eastern-Capri) and Mozambique. He has two relevant tertiary- and one postgraduate qualification in Conservation-, Game and Veld Management and for Public Administration.

Mr Claassens worked for 23 years in governmental Conservation, Environmental and Tourism institutions. His current and past scope of work includes conducting Scoping and Environmental Impact Assessments (Housing, Water supply, Electricity supply, Road structures, Industrial development, Land reform and farming projects for successful land claims), as well as State of the Environment Assessments (SoeR), Environmental Spatial Development Framework, Strategic Environmental Assessments, Project Management and Ecological-and Conservation Management Surveys with management plans.

2 LEGAL AND POLICY REQUIREMENTS

Table 1: Legislation List

INTERNATIONAL		
ENVIRONMENT AND NATURAL RESOURCES	Convention to Combat Desertification (CCD)	The United Nations Convention on the Combating of Desertification defines land degradation as the : “reduction or loss of the biological or economic productivity and complexity of rain fed cropland, irrigated cropland or range, pasture, forest and woodlands in arid, semi-arid and dry sub-humid areas, resulting from land uses or from a process or combination of processes, including processes, arising from human activities and habitation pattern, such as the: <ul style="list-style-type: none"> • long-term loss of natural vegetation; • soil erosion caused by wind/water, and • deterioration of the physical, chemical and biological or economic properties of soil.
	Convention on Biological Diversity (CBD)	The CBD aims to effect international co-operation in the conservation of biological diversity and to promote the sustainable use of living natural resources worldwide. Membership of this convention has led to the publication of the White Paper on the Conservation, and Sustainable Use of South Africa's Biodiversity (DEAT 1997), which aims to ensure the sustainable use of biodiversity in all sectors, including industry (DEAT 1999).
	UNESCO	Control and Managing registered World Heritage Sites. In this report the Mapungubwe Cultural Landscape.
NATIONAL		



CONSTITUTIONAL RIGHTS	<p>The Constitution of South Africa (Act 108 of 1996).</p>	<p>Introduces a Constitutional framework for post 1974 South Africa. Chapter 2;</p> <p><u>Environment:</u></p> <p>Section 24: Everyone has the right-</p> <p>a. to an environment that is not harmful to their health or well-being; and</p> <p>b. to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that :</p> <p>i. prevent pollution and ecological degradation;</p> <p>ii. promote conservation; and</p> <p>iii. secure ecologically sustainable development and use natural resources while promoting justifiable economic and social development.</p> <p><u>Justice Administrative Action</u></p> <p>Section 33</p>
ENVIRONMENTAL , CONSERVATION AND NATURAL RESOURCES	<p>National Environmental Management Act (Act No. 107 of 1998) (NEMA)</p>	<p>The State must respect, protect, promote and fulfil the social, economic and Environmental rights of everyone and strive to meet the basic needs of previously disadvantaged communities;</p> <ul style="list-style-type: none"> • sustainable development requires the integration of social, economic and environmental principles. • everyone has the right to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that – • prevent pollution and ecological degradation; • promote conservation.
	<p>National Environmental Management Waste Act, 2008 (Act No. 59 of 2008)</p>	<p>The Waste Act promote effective waste management practices through the promotion of the waste management hierarchy which prioritises waste avoidance, reuse, recycling, recovery and treatment, and disposal as a last resort.</p>
	<p>National Environmental Management: Biodiversity Act (Act No. 10 of 2004)</p>	<p>The objectives of this Act are –</p> <p>(a) within the framework of the National Environmental Management Act, to provide for –</p> <p>(i) the management and conservation of biological diversity;</p> <p>(ii) the use of indigenous biological resources in a sustainable manner; and</p> <p>(iii) the fair and equitable sharing among stakeholders of benefits arising.</p>



NEMA Threatened Ecosystems in South Africa	The objectives are to reduce the rate of ecosystem and species extinction. This includes further degradation and loss of structure, function and composition of threatened ecosystems. The purpose of listing protected ecosystems is primarily to preserve witness sites of exceptionally high conservation value.
Environmental Conservation Act No 73 Of 1989	<ul style="list-style-type: none"> ❖ Waste disposal practices (S20) ❖ National Noise Control Regulations (GN R154 dated 10 January 1992)
National Heritage Resources Act 25 of 1999	<ul style="list-style-type: none"> ❖ Stipulates assessment criteria and categories of heritage resources according to their significance (S7) ❖ Provides for the protection of all archaeological and palaeontological sites, and meteorites (S35) ❖ Provides for the conservation and care of cemeteries and graves by SAHRA where this is not the responsibility of any other authority (S36) ❖ Lists activities which require developers any person who intends to undertake to notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development (S38) <p>Requires the compilation of a Conservation Management Plan as well as a permit from SAHRA for the presentation of archaeological sites as part of tourism attraction (S44)</p>
The National Water Act (Act No. 36 of 1998)	<p>The National Water Act is important because it provides a framework to protect the natural water resources against over exploitation and to ensure that there is water for social and economic development and water for the future (DWA).</p> <p>Water resources are water bodies such as rivers, streams, wetlands, estuaries and groundwater. The National Water Act aims to protect, use, develop, conserve, manage and control water resources as a whole. Rivers, dams, wetlands, the surrounding land, groundwater, as well as human activities that influence them, will be managed as one cycle. One of the principles of the Act is sustainability which includes ensuring that the environment is protected.</p>
National Parks Act 57 Of 1976	Regulates the control, protection and management of National Parks
National Forests Act (Act No. 84 of 1998)	<p>Natural forests and woodlands form an important part of that environment and need to be conserved and developed according to the principles of sustainable management;</p> <p>Parliament therefore enacts the following law:</p>



		<i>Prohibition of destruction of natural forests and the destruction of indigenous trees in any natural forest.</i>
	National Veld and Forest Fire Act 101 of 1998	Regulates veld and forest fires
	Animal Diseases and Parasites Act No 35 of 1984	This act prescribes the controls to be implemented for diseases designated by the act or its amendments as “controlled” (e.g. Animal Disease Control disease), or any disease not currently present in South Africa. The Directorate of Veterinary Services of the Department of Agriculture is responsible for the implementation of the controls laid down in the act.
	Conservation of Agricultural Resources Act (Act No. 43 of 1983)	The objects of this Act are to provide for the conservation of the natural agricultural resources of the Republic by the maintenance of the production potential of land, by the combating and prevention of erosion and weakening or destruction of the water sources, and by the protection of the vegetation and the combating of weeds and invader plants.
	Fencing Act, No 31 of 1963	Regulates all matters relating to fencing
	Mineral and Petroleum Resources Act	To make provision for equitable access to and sustainable development of the
PROVINCIAL		
ENVIRONMENTAL & CONSERVATION	Limpopo Environmental Management Act No 7 of 2003 (LEMA)	Regulates provincial conservation issues

2.1 Relevant authorizations applicable to project

2.1.1 Department of Land Reform and Rural Development (former DAFF)

The necessary applications will be applied for after the result of the consideration of the environmental authorisation has been processed.

- CARA Regulation 2: Cultivation of Virgin Soil; and
- Section 15(1) of the National Forests Act, 1998, as amended: Application regards Protected Trees.

3 LOCATION AND DESCRIPTION OF PROPOSED ACTIVITY

Project locality

The project has one footprint areas on a part of Skutwater 115 MS. The farm is situated approximately 54 kilometers west of Musina, district of Vhembe in the Limpopo Province via R572 and Weipe district road. Map 1 below provides a demographic view of the project.

Locality Map is attached. Appendix B.

The project has one footprint site which will be developed. The co-ordinates (WGS84) of the area are supplied in Table 1 below. Map 1, below, provides the lay-out for the project being assessed in this report.

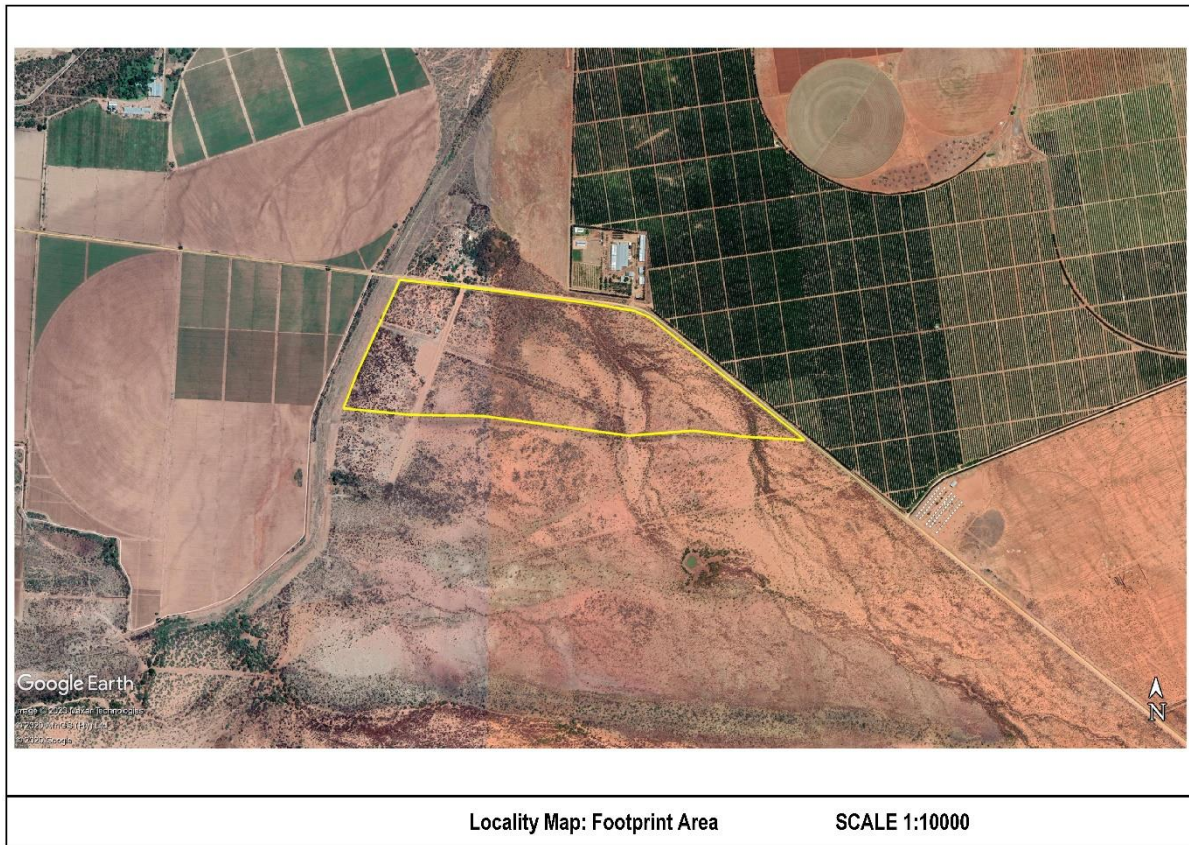


Table 2: Area location

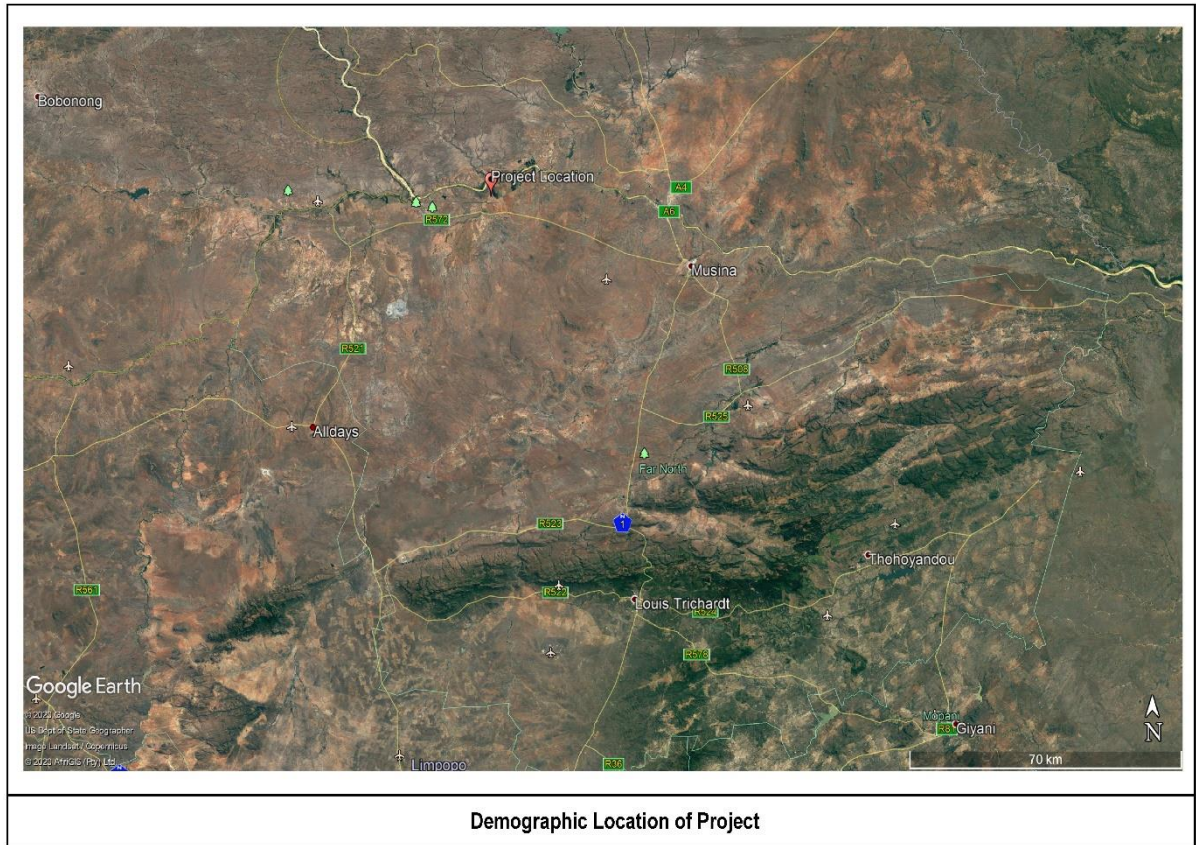
The co-ordinates (WGS84) of the proposed sites are approximate:

Development Center Point	Latitude	Longitude
Center Point	22° 11' 30.38"S	29° 32' 52.07"E

Development Corners	Latitude	Longitude
Corner 1	22°11'17.16"S	29°32'33.84"E
Corner 2	22°11'21.17"S	29°33'09.67"E
Corner 3	22°11'37.05"S	29°33'31.39"E
Corner 4	22°11'35.87"S	29°32'24.84"E



Map 1: Skutwater 115 MS with footprint area



Map 2: Geographic location of project

Historical background to the Weipe farming area

The Weipe Farming Development Node was established in the 1960’s by the former Agricultural Department. It included the allocation of “river farms”, a district road to serve the farms and included the planning of a storage dam inland.

1968

Monochrome aerial photos for the area shows the Weipe district road which is even today used and functional where it was supported by concrete buttresses where it traverses the floodplain. No croplands are evident on the farms Weipe, Skutwater and adjoining farms. Farming was mostly cattle and private nature reserves¹. A gravel landing strip is visible on the project area of Skutwater.

Farming across the Limpopo River in the former Rhodesia already commenced.

1977

Extensive croplands (±746 ha) are visible on Weipe, with a small dam-wall erected in the Kongolooop watercourse. No development on the adjoining farms.

1987

¹ Proclamation of Skutwater Ranch Private Nature Reserve and was Gazetted on the 27th January 1965. It also included the farms Alyth 118 MS, Almond 120 MS and Semple 119 MS and was 4,387 morgen in total.



Weipe croplands was extended, a portion of Skutwater and Katina and Alyth is developed. The new era of pivots for irrigation is visible. Notably is that the portion of Skutwater located east of the Kongoloop watercourse is not used for croplands.

1999

Croplands extended towards farms Newmark, Semple and Overvlakte. The portion of Skutwater located east of the Kongoloop watercourse is not developed for croplands.

2020

The portion of Skutwater located east of the Kongoloop watercourse is cleared of indigenous vegetation for cropland; resulting in 24G application.

Description of activity

The proposed project was cleared of indigenous vegetation for new crop lands. The area has been cleared without an environmental authorisation.

Nature of Activity

The project is an agriculture development, forming part of the Weipe Agriculture Node, and where the clearance of indigenous vegetation on 81.5 hectares for new crop lands took place in the period before the 19th February 2020.

Pre-application meeting was conducted by phone (due to Covid).

Listing Notice 2: Regulation 984:

- Activity 15: The clearance of an area of 81.5 hectares of indigenous vegetation, mostly trees and shrubs

4. DESCRIPTION OF THE ENVIRONMENT THAT MAY BE AFFECTED

4.1 Present environment

4.1.1 Landuse

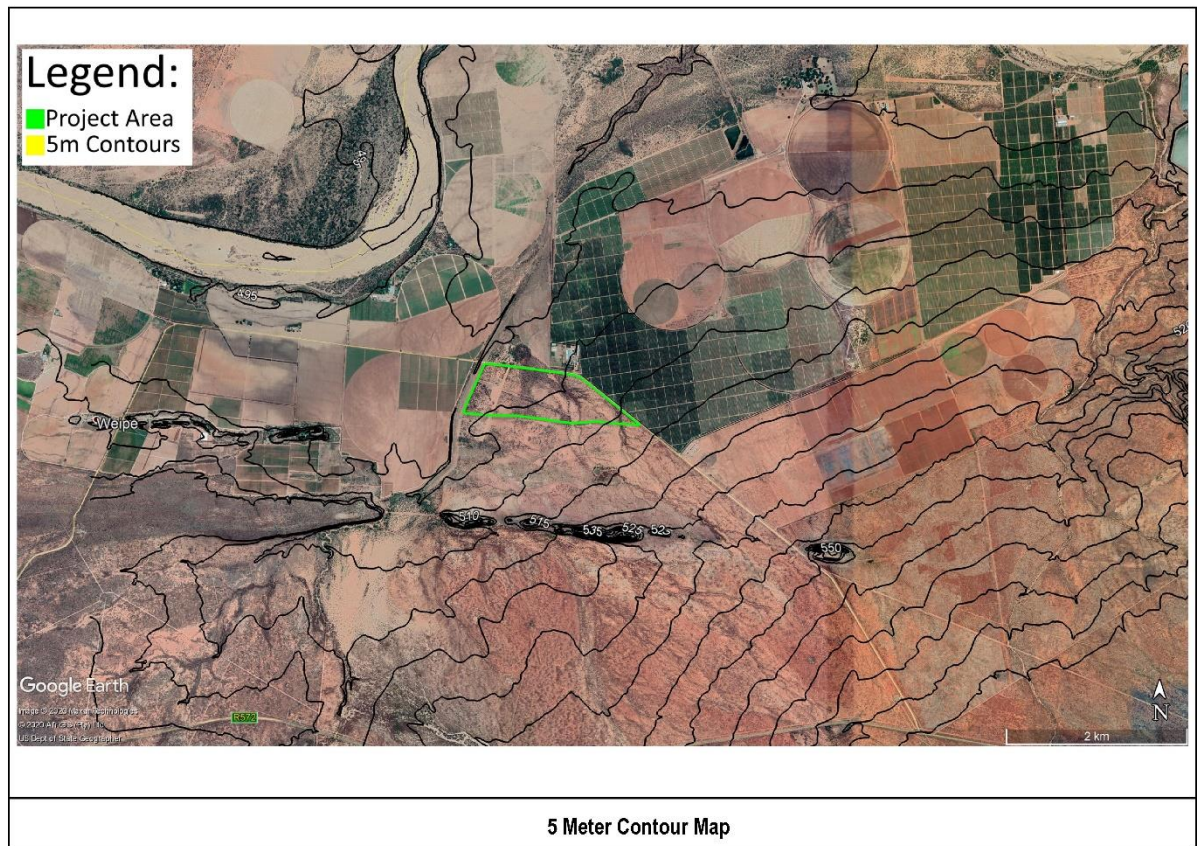
Skutwater 115 MS is zoned for agriculture and is currently used for crops and game.

4.1.2 Topography

Topography

The project is in the Limpopo valley. The topography is predominantly flat with surface drainage, no watercourses are present on the footprint. The site has a slope from south to north (815 – 510 m.a.b.s.l) over ±1 kilometre. Refer to Map 3 below.

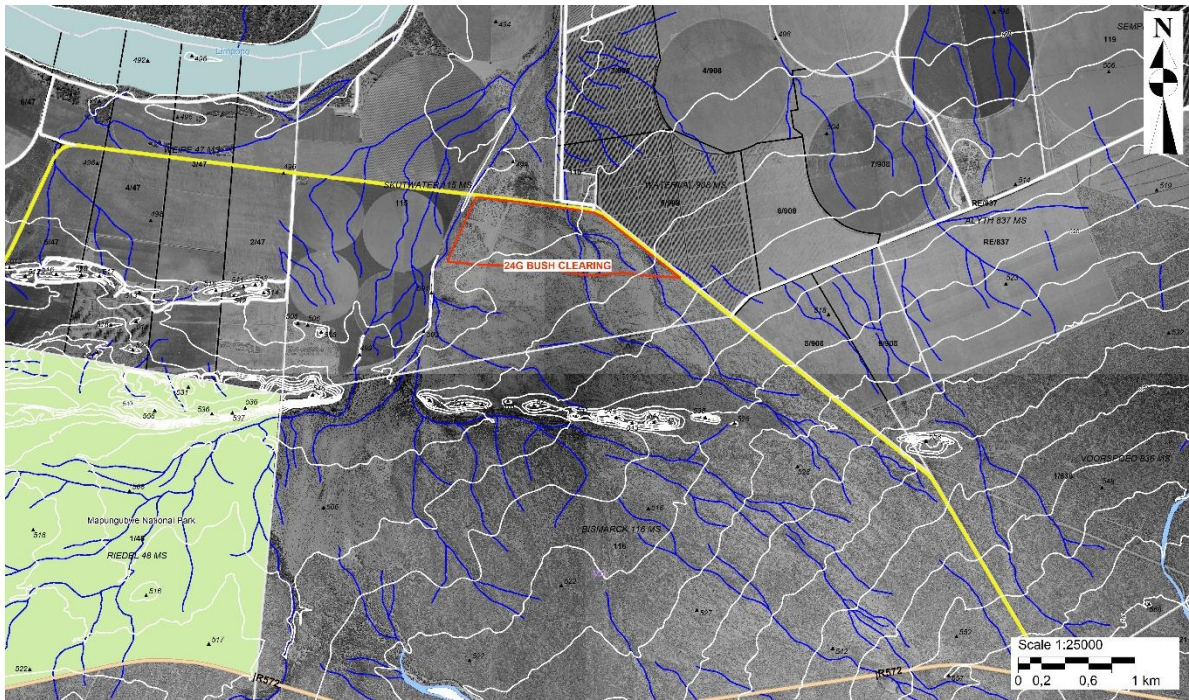




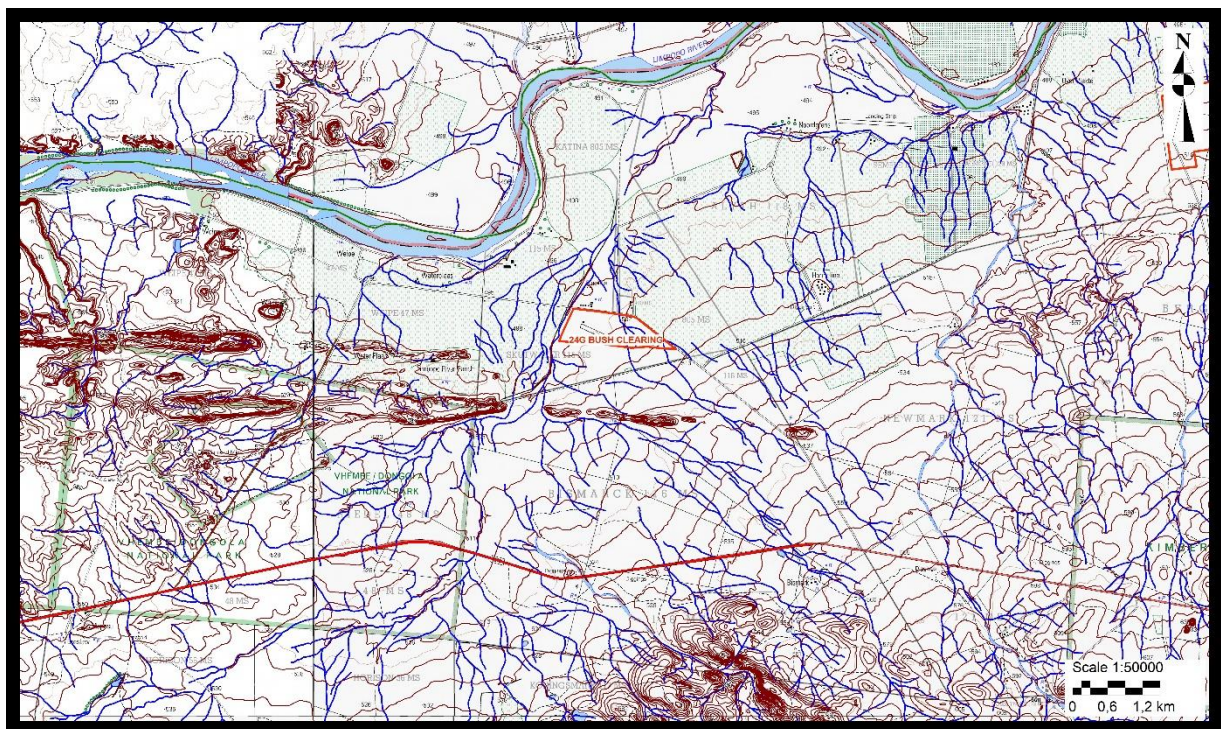
Map 3: Topography and contours in developed landscape

Drainage

The drainage is northwards towards the Limpopo River. The Kongoloop watercourse bisects the farm Skutwater, the project area is located directly adjoining on the east of this watercourse. This watercourse drainage has previously been extensively altered by the farming activities by creating bund-walls to direct surface flow of the water due to flat topography (Map 4) into a channel which collects water from the crop-and citrus lands on the farms Bismarck, Weipe, Skutwater and Katina and Newlands which collectively drains into the Limpopo River. The alterations were to contain and direct the flow of water by flooding from inland and also from the Limpopo River. The natural surface flow of the water has been altered also by road R572 which channelled the water onto the Weipe road, altered flow from the adjoining farmlands contributed also influencing the natural waterflow. Two choke points was created on the Weipe road which directs the water onto this road which has on “outlet” near to the Kongoloop watercourse. What can be expected of the surface flow from the project site is that specific drainage design will have to be incorporated to accommodate the water from the Weipe road as well as the water from the project site itself. Map 4 provides an indication of the natural flow in the developed landscape. The drainage lines shown is not reflecting the situation at present. Map 5 also shows the original surface flow of water with the contours indicating the flat landscape and the floodplains west of the Kongoloop watercourse. The solution will be to design a drainage plan which includes the surface drainage water received from the R572 and Weipe road.



Map 4: Monochrome aerial photo indicating drainage patterns



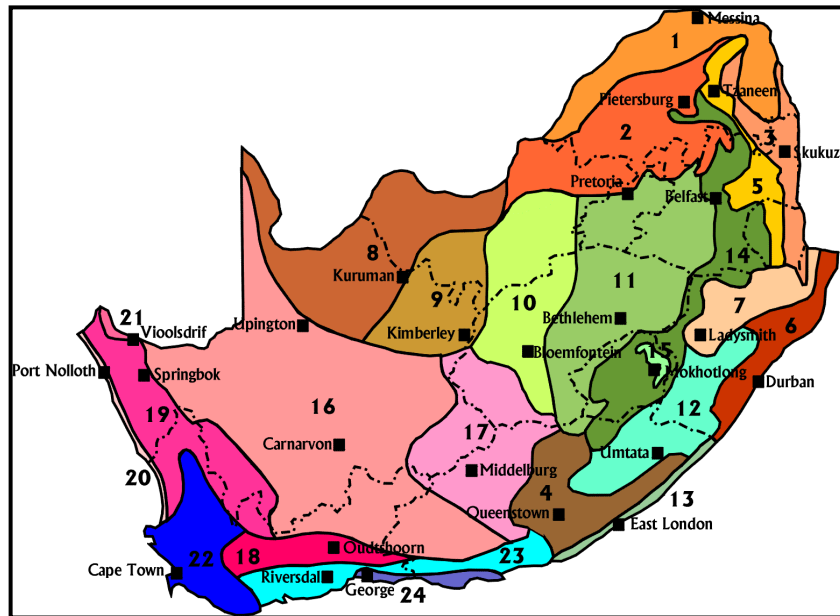
Map 5: Topographical showing natural drainage patterns

4.1.3 Climate

The project falls within the Northern Arid Climate Region. It is described as lower than average (300 – 500 mm p.a.) and somewhat erratic precipitation for the Savanna type regions, with semi-arid and hot conditions in the Limpopo and Olifants River basins. Rainy season lasts from about November to March, with the peak falling in January.



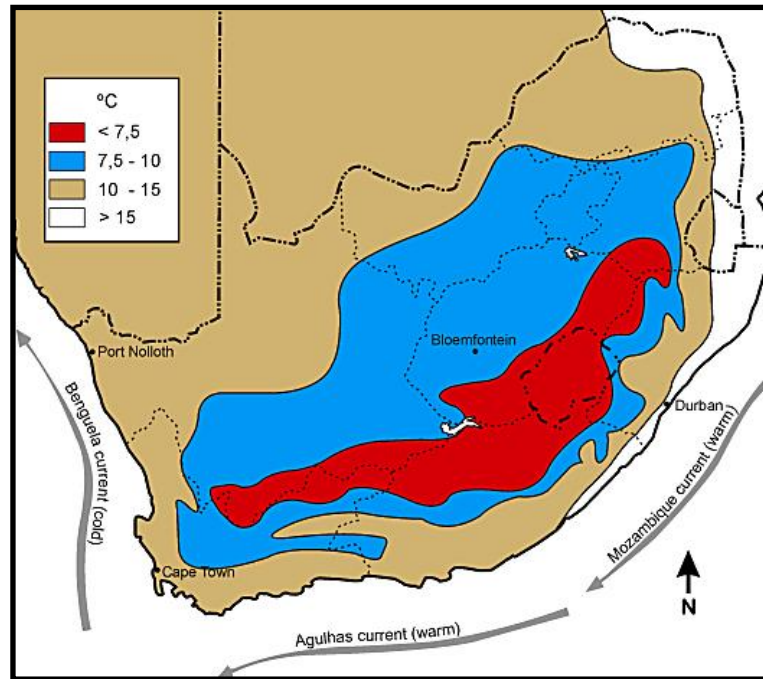
Winds are light to moderate and blow mostly from the north-eastern sector. Almost frost free. More recent the drainage is more severe due to intense in-land rainstorms and is an effect of climate change. This cause and effect were confirmed by most of the farmers alongside the Limpopo River.



Map 6: Arid Zones for South Africa

Region	Climatic properties	Locality	Vegetation	Economic Uses
1. Northern Arid Bushveld	Lower than average (300 – 500 mm p.a.) and somewhat erratic precipitation for the Savanna type regions, with semi-arid and hot conditions in the Limpopo and Olifants River basins. Rainy season lasts from about Nov to Mar, with the peak falling in Jan. Winds are light to moderate and blow mostly from the north-eastern sector. Almost frost free.	Northern and north-western parts of the Northern Province.	Dominated by stunted shrubby growth with mostly dense Mopane <i>Colophospermum mopane</i> , with e.g. <i>Acacia nigrescens</i> and Boabab <i>Adansonia digitata</i> , White Seringa <i>Kirkia acuminata</i> , Stem Fruit <i>Englerophytum magalismontanum</i> . Grasslayer includes Redgrass <i>Themeda triandra</i> , Common Nine-awn grass <i>Enneapogon cenchroides</i> , Guinea Grass <i>Panicum maximum</i> and Tassel Three-awn <i>Aristida congesta</i> .	Ecotourism, cattle and game farming, subtropical fruit and vegetables (mainly through irrigation).





Map 7: Climate Zones (minimum)

4.1.4 Regional Geology

The geology of the area in the immediate vicinity characterized mainly by red sandy soils. (1:250 000 Geological Series: 2228 Alldays). The reddish sandy gravel soil is underlain by Metaquartzite which is part of the Beit Bridge Complex

4.1.5 Soil characteristics

The site is covered with a 50mm to 300mm alluvial and dark reddish to reddish brown sandy soils.

4.1.6 Biological aspects

4.1.6.1 Vegetation

Biome: Savannah

Physiographic region: Soutpansberg

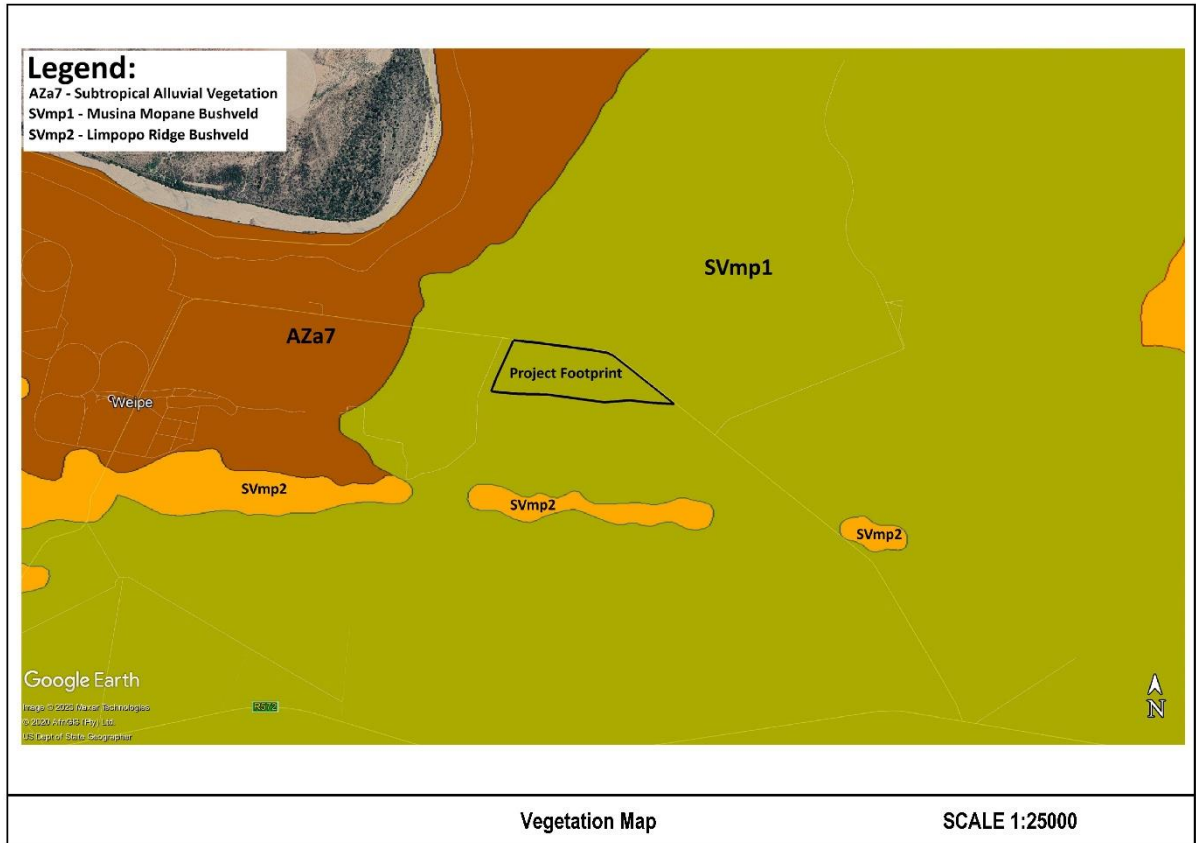
Veldtype

According to Acock's (1975) classification of the vegetation of South Africa, the study area falls within Veld Type 14, Arid Sweet Bushveld. According to the classification of Low and Rebelo (1996), there is also only one veld type present, namely Veld Type 17, Sweet Bushveld. According to Mucina & Rutherford (2006), the study area is situated in the Central Bushveld Bioregion with Musina Mopane Bushveld (Map Code: SVmp1), Map 8.

The proposed project will alter the receiving vegetation by the clearing of the indigenous vegetation. Protected tree species do occur on the farm. The prominent trees are mopane,

Shepherd's Tree (*Boscia albitrunca*) and Water Thorn (*Acacia² newbournii*) which is of importance. Map 6 provides a sense of place in relation to veldtypes.

The physical environment includes croplands, natural vegetation and transformed vegetation by human activities. This veldtype conservation status is considered as adequately conserved.



Map 8: Vegetation map

4.1.6.2 Fauna

The project area has in effect been utilised (human interference) over a period of time due to:

- Farming activities.
- Erection of fences.
- Development of infrastructure.
- Human settlement.
- Eskom main power line.
- Temporary military camp.
- Landing strip.

This isolation (partly) resulted in the disruption of natural and historic migration (macro- and micro) of larger, medium, and smaller mammals. The small mammal species were able to survive in small quantities in relation to the available habitat and external impacts. Larger herbivores are present in the adjoining game farms; erection of game

² Field Guide to the Acacias of South Africa, Nico Smit. Briza Publications. P 5. An explanation for continued use of the name *Acacia* for African species of the genus.



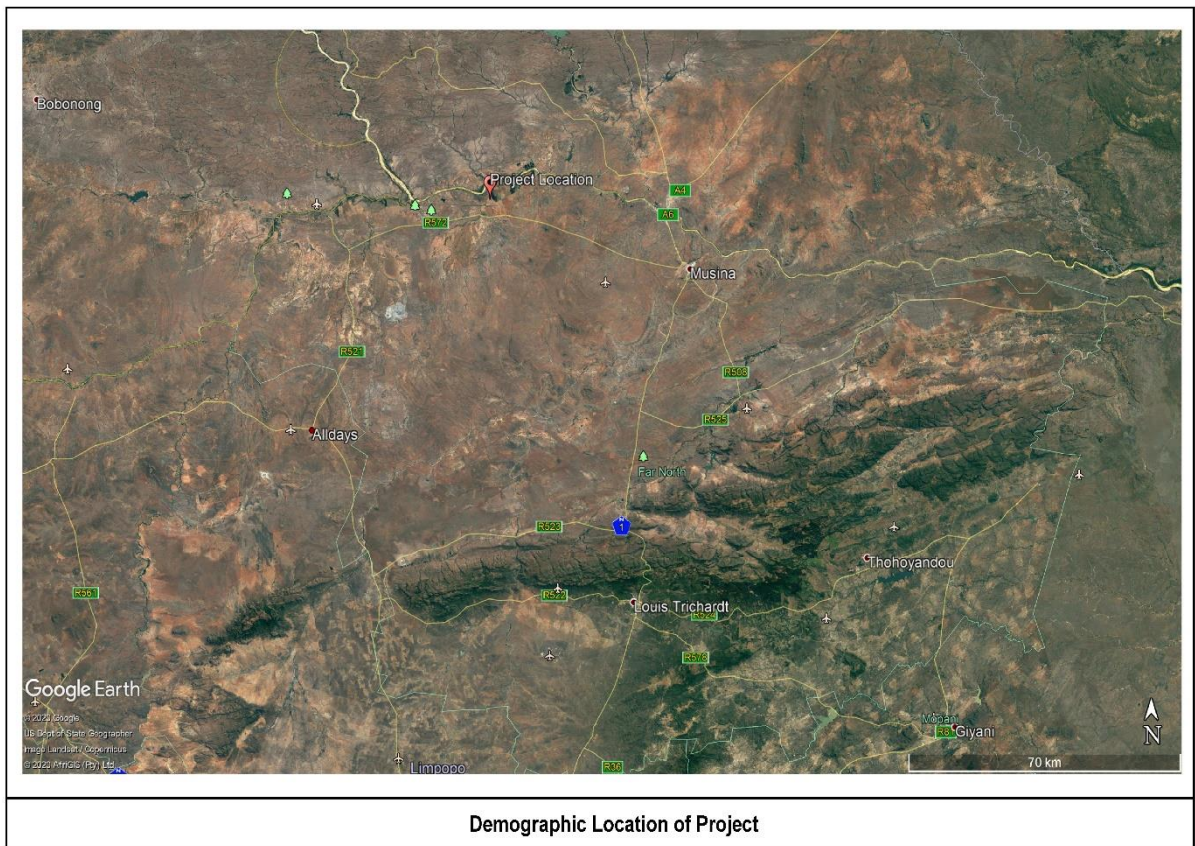
fences according to exemption specifications fenced the game into specific areas. Larger carnivores such as leopard use the farm as part of their roaming territorial, indicating that the farm forms part of the home range as semi-permanent. Elephant was historically- and currently present and is cause of nuisance in croplands.

4.1.6.3 Sense of Place, Surrounding land uses, Protected-and Cultural Areas and Biodiversity
Sense of place

The location of the project can be considered as deep-rural and demographically remote from towns and rural villages and work opportunities is rare due the remoteness and land use mainly focus on ecotourism with agriculture (game, cattle and crops).

The processing and canning factory is located at Musina ±60 kilometres to the east.

Demographic location in relation to area can be seen in Maps 9 and 10 below.



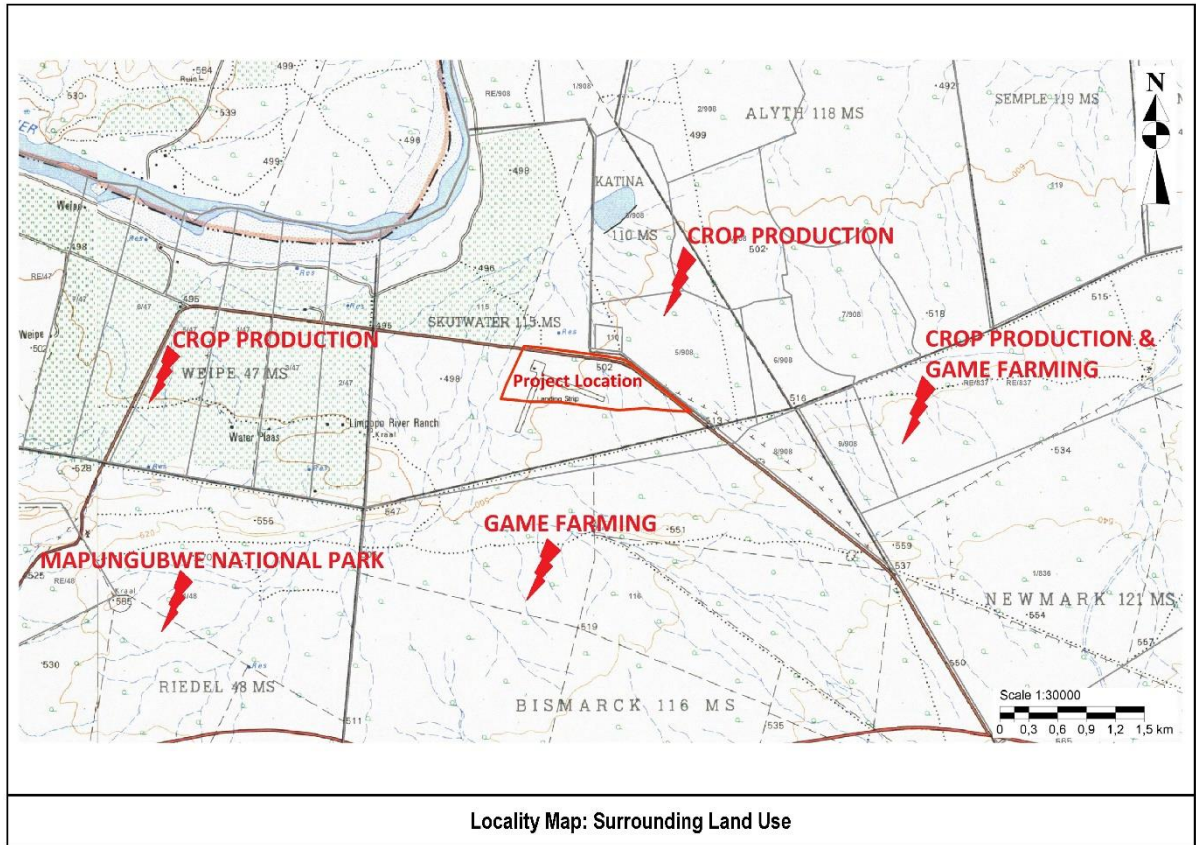
Map 9: Demographic location (Google image)

Surrounding land uses

The adjoining land uses is crop-, citrus and game farming.

The land uses and other planning information are supplied below and provide an indication of related planning parameters that can play a role in the lay out of the proposed project.





Map 10: Surrounding land uses with common boundaries with project area

Farms

- Katina 110 MS: Citrus farming (NE)
- Skutwater 115 MS: Crops (N & W)
- Bismarck 116 MS: Game (S)
- Weipe 47 MS: Crops (W)

Protected Areas

Mapungubwe National Park is located 4.2km to the west not directly adjoining.

The farm Skutwater formed part of the Skutwater Ranch Private Nature Reserve and was Gazetted on the 27th January 1965. It also included the farms Alyth 118 MS, Almond 120 MS and Semple 119 MS and was 4,387 morgen in total.

The status of this Private Nature Reserve can be described as inactive. The ownerships have changed and no Conservation Management Plan is available when enquired (by the EAP) from the applicant and adjoining owners. Mr. R. Visagie of LEDET working with protected areas confirmed with the EAP that these areas are as yet not confirmed on their database and when inspected would most probably removed as being a protected area (personal comment).

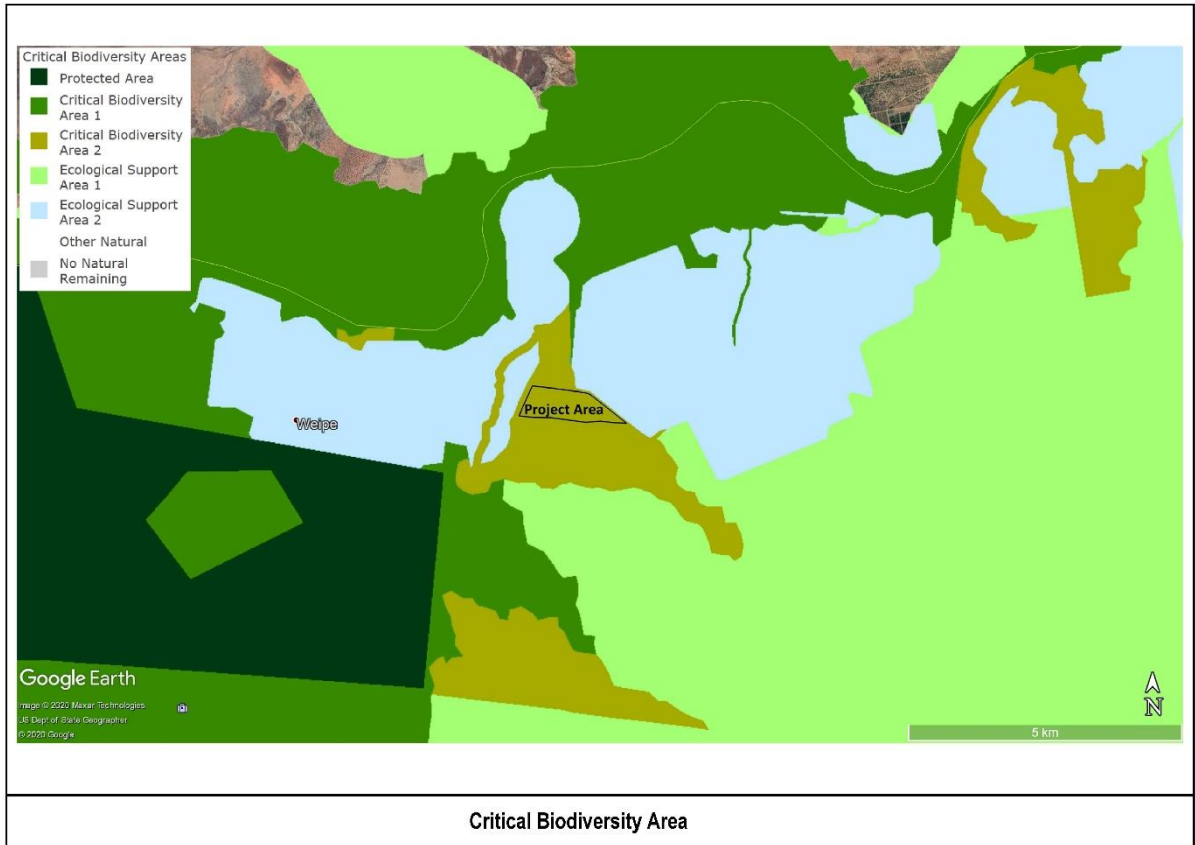
Cultural Landscape

Mapungubwe World Heritage site is located to the west. The project is located outside the cultural buffer zone for the mentioned heritage landscape. Refer to Heritage Report for more detail attached as Appendix C2.

Biodiversity



The receiving environment is not located in CBA 2 area it is surrounded by Ecological Support areas 1&2 Map 11 indicates the location of the new cropland locations relevant to this report and to the EIA application. The study site is mostly isolated from the important river ecosystem by the developments. There is no permanent aquatic connectivity between the project area and the Limpopo river and the area is terrestrial in its character and location in the landscape.



Map 11: Critical Biodiversity Area Zoning

4.1.6.4 Sensitive areas

The altered Kongoloop watercourse is the only existing connectivity with the Limpopo River. Map 12 provides a Google Image dated 12th January 2018 which indicates the line of flow of the Kongoloop watercourse and the buffers on each side. The Kongoloop has been altered over a distance of ±4.2 kilometers from where it exist from the breach in the sandstone ridge in the south up to where it drains into the natural floodplain to the north adjoining the Limpopo River.



Map 12: Kongoloop drainage line with buffers

5. PUBLIC PARTICIPATION PROCESS

Documentation provided in **Appendix F**.

5.1 Objectives of public involvement program

The objectives of the Public Involvement Program were to:

- Inform IAPs and authorities and obtain their concerns, attitudes and perceptions.
- Provide an opportunity for IAPs to identify alternatives.
- Ensure that the IAPs concerns, attitudes and perceptions are addressed in the study.

5.2 List of interested and affected parties

Documentation related to the Interested and Affected Parties process is attached to this report.

The interested parties can be categorized in the following groups e.g.:

- Musina Local Municipality – Environmental Management
- Vhembe District Municipality – Environmental section
- Department of Water Affairs and Sanitation;
- Department of Agriculture, Land Reform and Rural Development (Formerly DAFF);
- Farming neighbours;
- Limpopo Department Economic Development, Environment and Tourism;
- SAHRA/LIHRA.

5.3 Interested party's process

The broad aim of the public involvement process is to provide interested and affected parties (I&AP), authorities and specialist interest groups the opportunity to identify issues and concerns

regarding the project. The participation process also assists in the identification of ways in which concerns can be addressed and alternatives considered.

5.4 Approach to Public Involvement Program

The Public Involvement Programme was undertaken as illustrated in the following flow diagram In Table 3 below:

Table 3: Public Participation Process

ACTION	METHOD	DATE & TIME	RESULTS
Advertisements: News Paper (Appendix F1)	A notice was in the main body of the Zoutpansberger	25 June 2020	Original copies of advertisements is attached. No response was received
Advertisements: Notices (Appendix F2)	<ul style="list-style-type: none"> - Posters: - Corner/border of Project location property - At Musina Municipality Notice board 	Attached on the 25 June 2020	No response was received
Notifications to I&AP (Appendix F3)	Nine (9) Notifications, Registration form as well as the BiD document were sent by e-mail. Refer to Register	24 June 2020	One response were received by e-mail. L.Erasmus See Response register: Appendix F3
Invitation to Public Open meeting (Appendix F4)	Nine (9) Invitations as well as the Agenda were send by e-mail A reminder of the Public Participation meeting was send on by e-mail	24 June 2020 6 July 2020	One response was received by L.Erasmus See Response register: Appendix F4 No response received See Response register Appendix F4
Public Open Meeting (Appendix F5)	Open meeting was held at the facilities at the Weipe Boerevereniging Lapa – coordinates were supplied. Refer to Register	8 July 2020	Minutes was kept. Attendance register was kept. Minutes was distributed to I&Ap's, refer to attached Register.



			<p>Acknowledgement (one) of receipt of the Minutes were received</p> <p>No comments on the Minutes were received by – See Response Register F5</p>
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The correspondence for the Public Participation Process is included in this EIA Report.

5.5 Comments received

See attached Register of Report send – Appendix F

Responses on advertisement and open meeting

No issues or comments were received for the meeting.

No comments were received on minutes.

6. HISTORICAL BACKGROUND

An introduction to the historical incidents that occurred since 2000 is provided to provide a better understanding of the area in general and the climatic conditions in specific which played an important role in the farming enterprise.

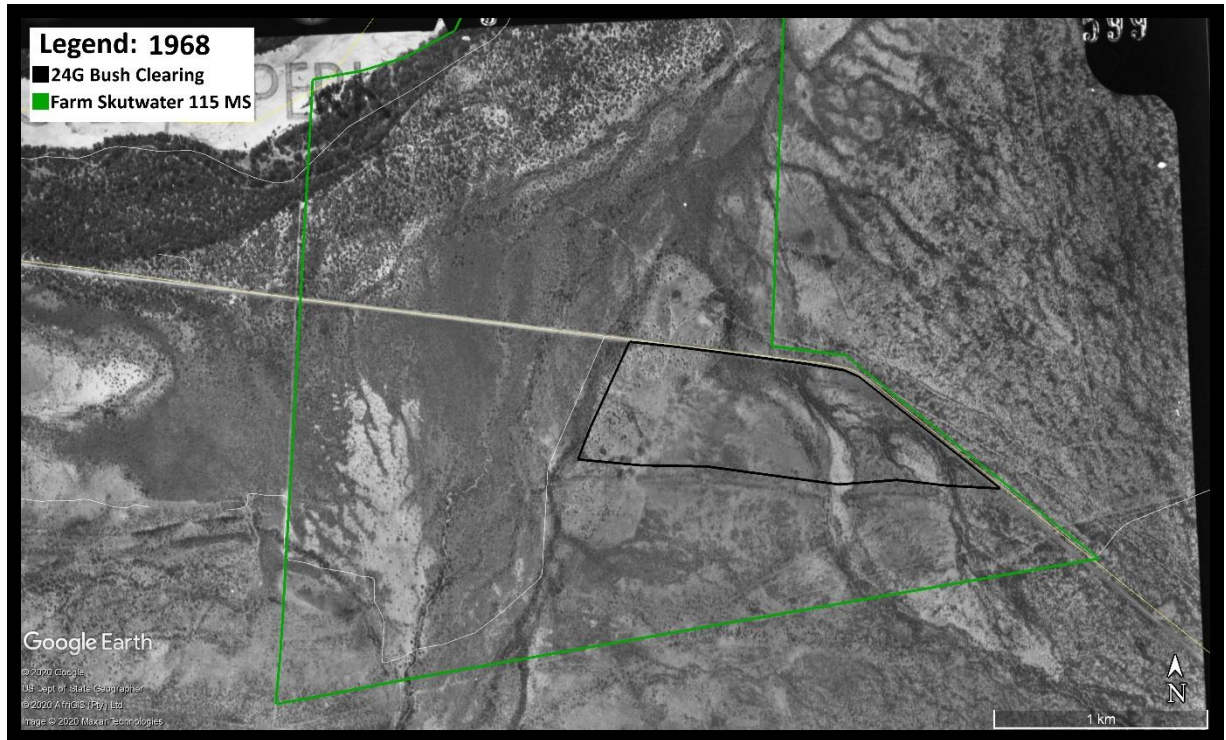
6.1 Farming activities historic development

Farming activities developed from the mid-1960’s when the Weipe Agricultural Node was established by the former government. A timeline is provided below using monochrome aerial photos how agricultural activities developed. The farm Skutwater is indicated in green- and the 24G area in black outline.

1960’s

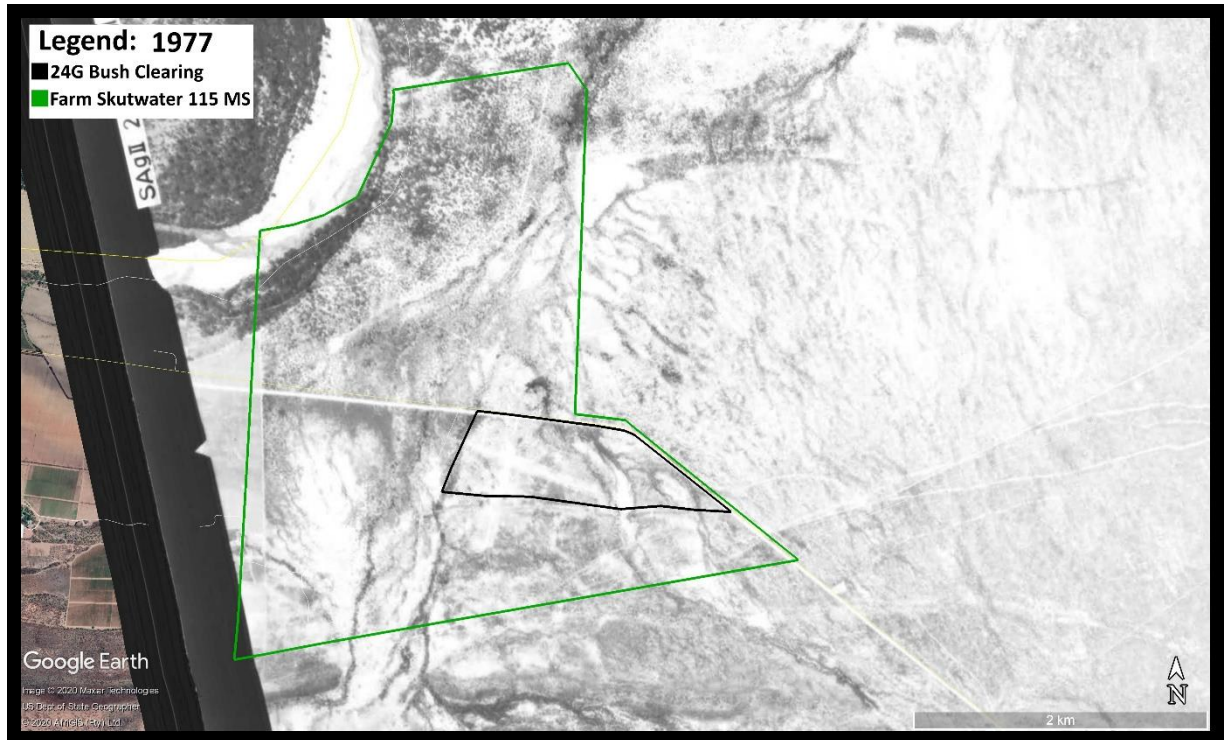
- Aerial photo dated 1968 indicates no cropland development.
- The Weipe district road is visible.
- The landing strip is visible on Skutwater 115 MS





1970's

- Mr P. Esterhuyse established in 1975 on the farm Weipe 47 MS
- In the 1977 photos development is visible to the west of Skutwater 115 MS on the farm Weipe 47 MS (where Mr Esterhuyse established), and no development to the north and east on the adjoining farms Katina 110 MS and Newmark 121 MS. Landing strip visible.



1980's

- In the 1987 photos Weipe 47 MS is developed directly onto Skutwater 115 MS.

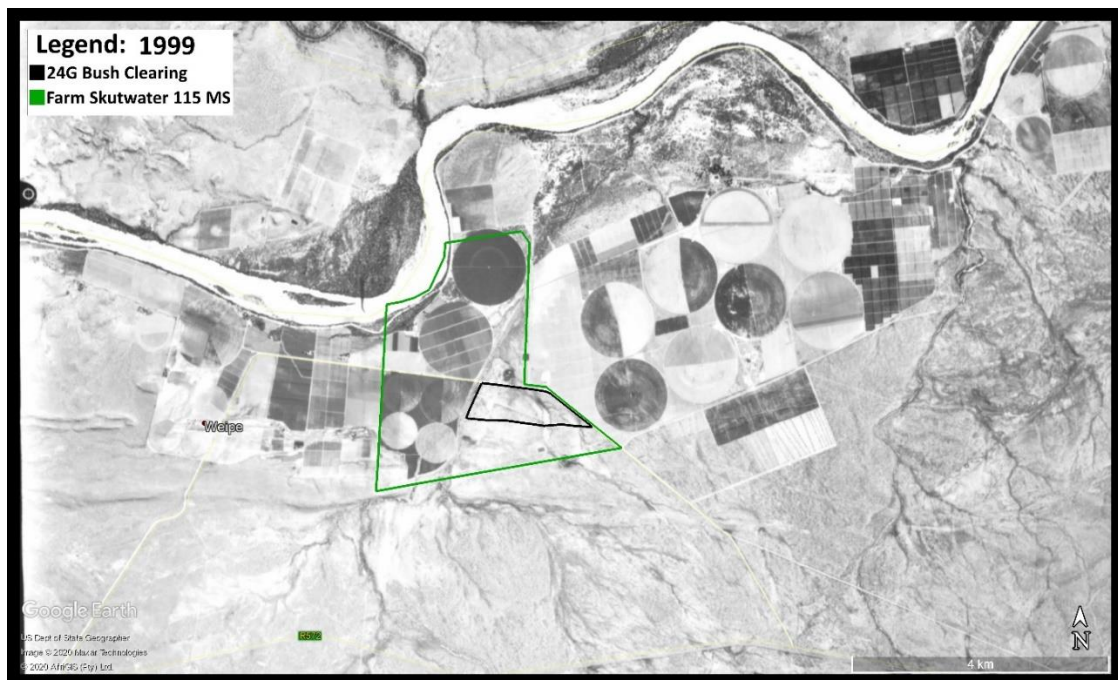


- Skutwater is developed west of the 24G Skutwater area.
- Katina 110 MS is not developed as well as Newmark 121 MS, Alyth 118 MS bordering onto Katina (to the east) is developed.
- Bund wall along Kongoloop watercourse is present and clearly visible as well as area cleared on eastern side of Kongoloop to allow free flow of water.



1990's

- In the 1999 development progressed onto northern portions of Skutwater as well as Katina 110 MS, Newmark 121 MS, Alyth 118 MS, Semple 119 MS and Overvlakte 112 MS; all of them to the east of Skutwater.



6.2 Influences by natural events

Crop (tomatoes)

Description of tomatoes:

- Market tomatoes: those found on shelves in outlet stores, mostly produced by ZZ2.
- Procession tomatoes: used in processing for canning and processed food.
- Susceptible to virus distributed by Whitefly. Recurrent on infected croplands. 10 virus strains found on farm, each with its own characteristics.
- Wet conditions stimulate and aggravate virus infection.

1960's-1999's

- Small floods occurred.

2000

- Tropical Cyclone caused massive damages; subsequent flooding from the Limpopo River.
- Damage to riverbank- and riparian vegetation still visible today,
- Flooding of inland crop farming areas.
- Damage to border protection system (road and fences).

2013

- Flooding from Limpopo River **and** from inland via the Kongoloop- and Bapedo watercourses.
- Bridge across Kongoloop on RAL road R572 washed away (replaced in 2019).
- Total destruction of farming infrastructure, housing, pumping stations, irrigation distribution and pivot's.
- Destruction of crops on lands.
- Destruction by erosion of topsoil and depositing of sand on croplands.
- Rest of year spend in repairing and establishing farming infrastructure.



Water level in bucket visible



Water level on bales



Weighbridge lifted out of housing



Water level mark on house



Drowned bushbuck and one kudu



Eroded and waterlogged land



Waterlogged lands



Damage on Weipe road and irrigation pipes



Extraction point damaged by flood waters



Pivot in cropland with debris



Topsoil on lands eroded



Deep sands washed in by floodwaters



Eroded and total crop washed away



Eroded lands



Driplines washed up into tree



Height of debris in trees

2014

- Reclaimed croplands (only portions) planted with Proccession tomato's.
- Total crop loss from Whitefly causing virus infection induced by flooding.

2015

- Due to financial "strain" an auction is held on moveable assets to raise capital to continue cashflow for farming.
- Marginal planting of tomatoes.

2016

- Kongoloop-and Bapedo watercourses flood from inland.
- Destruction of croplands downstream.
- Destruction of farming infrastructure, housing, pumping stations, bund walls, irrigation distribution lines and irrigation pivot's.
- Destruction of Proccession tomatoes on croplands.



Water path of destruction



Destruction of croplands with sand deposits



Bund wall collapsed by water force



View of bund-wall and path of destruction

2017

- Tornado cause damage to farming infrastructure:
 - (i) Large storage shed collapses onto equipment.
 - (ii) Eskom powerlines uprooted.
 - (iii) Trees uprooted and destroy fences and housing.
 - (iv) Farming housing destroyed and damaged (roofs ripped off).
- Hail from tornado destroy:
 - (i) 50 ha wheat
 - (ii) 50 ha Market tomatoes



Nyala tree destruction by tornado



Uprooted tree by tornado



Uprooted Eskom line and uprooted Fever Tree



Large shed collapsed by tornado



Staff housing roof ripped away



Equipment under collapsed shed (roofing ripped of)



Collapsed shed on equipment



Hail damage to procession tomatoes



Hail damage to wheat

2018 and 2019

- Rebuilding of infrastructure.
- Limited tomatoes planted due to Virus infection by new strains (10 strains identified).
- Financial bottleneck resulting in bush clearing on Skutwater to plant on virus free land.
- 24G: Portion of Skutwater 115 MS cleared to plant tomatoes.

7. SOCIO-, ECONOMIC-AND ENVIRONMENTAL CONSIDERATIONS

Figure 1 illustrate the three components that will be discussed and the influence it has. This chapter is placed before Need and Desirability and is descriptive of the strategic role this farm occupies in the “greater” picture that a farmer occupies in the development of strategic infrastructure projects in a deep-rural area.

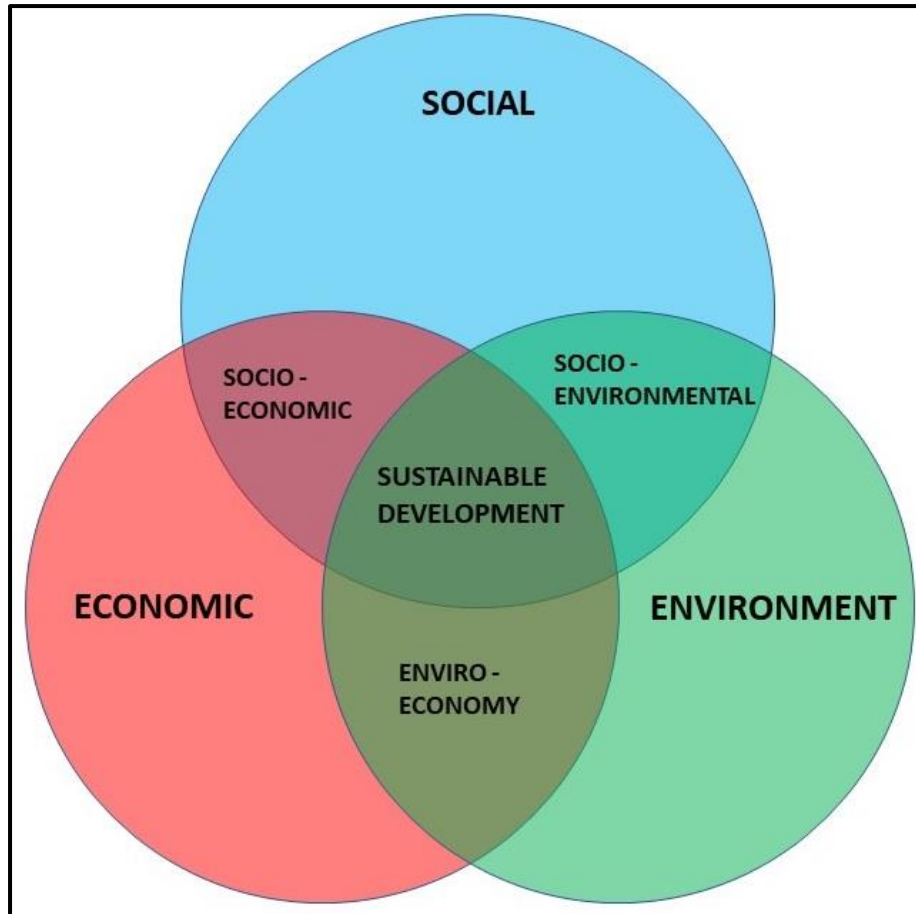


Figure 1: SUSTAINABLE DEVELOPMENT

7.1 Socio aspects

The social profile of the farming activity will be discussed to provide the scope and influence on the social context.

- (i) The location of the farming activity is deep rural, 59 kilometers west of Musina town.
- (ii) It is the biggest employer of labor on a permanent basis in the Weipe Farming Node.
 - Permanent: 500
 - Semi-permanent: 1000
 - Skilled: 200
 - Semi-skilled: 1300
 - Men: 600
 - Woman: 900
- (iii) It has a direct influence in supporting businesses and industries related to farming.
- (iv) It was the single biggest producer of Procession Tomatoes in South Africa; the product was delivered to the following brand industries:
 - Tiger Brands
 - Rhodes
 - Miami
 - All-Joy
 - Johannesburg cannery

- Bethlehem cannery
- (v) It provided tomatoes to the following countries: Botswana, Zimbabwe and Mozambique.

7.2 Economic aspects

The economic profile and resultant role it have in the area, region, provincial-, national and international level.

- (i) Major product (Procession Tomatoes) producer throughout South Africa.
- (ii) Supports integrated in-put and out-put supply chains in agricultural industry.
- (iii) SARS.

7.3 Environmental aspects

The environmental issues for the farming enterprise are discussed.

- (i) The farm(s) has produced successfully since 1975.
- (ii) The farm has one of the last remaining riparian canopy forests outside protected area.
- (iii) Has a viable population of Buschbuck (*Tragelaphus scriptus roualeyni*: Gray 1852) which is only found along the Limpopo River.
- (iv) Water use is via three methods from aquifers, which proofed to be sustainable.
- (v) Mr Esterhuyse has an active environmental authorisation for the construction for a storage dam. The dam has not been completed due to financial setbacks. This issue is a contributor to the sustainability of the ecological reserve and ecosystem of the Limpopo River.
- (vi) Corridors has been retained on the farm along watercourses.
- (vii) This application does not infringe on sensitive and/or critical biodiversity areas.

7.4 Sustainable development

From inception in 1975 of farming activities it has a steady growth which resulted in expansion of activities. The main product was tomatoes due to the climatic conditions which placed in a seasonal timeframe (winter) to deliver a product found on every table daily.

The reality of sustainable farming can thus be measured against the growth over time and the direct and in-direct role it had in the socio and economic aspects that is directly interlinked. Cumulative sustainable impacts are two-fold, firstly is the positive role it had and secondly the negative role that forces of nature played and subsequent negative impacts that results. In this case study the negative impacts occurred repeatedly over a short period of time. The development was sustainable, and can still be sustainable, but was drastically influenced by forces of nature which is uncontrollable, especially climate induced forces that played havoc on this farming enterprise. The 24G was a result of survival; although the right option it was wrongly executed.

8. NEED AND DESIRABILITY OF ACTIVITY

Need:

- To make optimal use of arable agriculture land for farming; this development can be considered as part of a larger Strategic Infrastructure Project (SIP 11: Agri-logistics and rural infrastructure) for the region.
- Provide job opportunities and financial security for families in deep rural areas.
- It supports the canning facilities in South Africa by the tomato crops.

Desirability of activity:

- The project will support an existing farming enterprise.



- The support is necessary due to previous years impacts by forces of nature destroying crops and damaging the lands by storm-and floodwaters. Forces of nature is unpredictable.
- The project supply permanent and semi-permanent job opportunities in a deep-rural setting.
- The proposed crop land will make use of the available land and the allocated water. This is a culmination of the strategic planning by the applicant by planning for sustainable farming by using the resources available.
- The area has been identified and is indicated as high priority agricultural area by the Screening Tool. Thus, the correct land use is applied for; it can be said that the idea was correct but the administrative (legal) approach was not followed.

9. CONSIDERATION OF ALTERNATIVES

PROCESS IMPLEMENTATION

Key criteria when identifying alternatives are that they should be “practicable”, “feasible”, “relevant”, “reasonable” and “valuable”.

The above was attained by and/or during:

- Initial site assessment stage
- Map evaluation for ascertaining the physical characteristics
- Site visits by professional specialists
- Consultation with interested and affected parties
- Environmental field surveys
- Design options
- Economic/cost implications
- Measuring against attaining primary objective(s)

The project location was identified by the applicant to be located on the rehabilitated croplands. This made practical sense as no virgin soil-and/or vegetation would be used. The existing infrastructure could be used. The preferred location was assessed with possible alternatives.

9.1 Activity alternative

ACTIVITY ALTERNATIVES	
KEY WORDS	Activity alternative is also known as project alternative
PROJECT TEAM INVOLVEMENT	
Professional	Role
Crops	Objectives of: <ul style="list-style-type: none"> • Which will be the best option for land use • Sustainability
Client	<ul style="list-style-type: none"> • Use of allocated water • Rotation of crops • Contribution to agriculture value chain
Environmental/Archaeology/Ecology and Biodiversity	<ul style="list-style-type: none"> • Compliance with biodiversity objectives • NEMA legislation • Assess location in relation to adjoining land uses and biodiversity • Provide a description and information on footprint before development



	<ul style="list-style-type: none"> Provide information on receiving environment for preferred location and surroundings
CONSIDERATIONS	
Specific considerations	Specific motivation
(i) Use groundwater	<ul style="list-style-type: none"> Design new crop lands on water availability from sources in late-winter and early summer without over utilising or putting stress on aquifer in times of drought. Water quality must be maintained
(ii) Farming options	<ul style="list-style-type: none"> Can crops be farmed on areas identified
<u>Findings and Recommendation</u> (i) Soil is suitable (ii) Climate suitable (iii) Sustainable farming is an existing activity and is desired and necessary. (iv) Impacts on biodiversity can be mitigated (v) Heritage sites can be mitigated <u>Motivation Collective</u> (i) Best sustainable option of landuse (ii) Game cannot be accommodated (iii) Sensitive area are excluded from development footprint (iv) Inclusive and collective input in planning can provide positive outcomes for I&AP's and the developer. (v) The area has a low terrestrial biodiversity and sensitivity rating due to past human interference	

9.2 Design alternative

DESIGN ALTERNATIVES	
KEY WORDS	Consideration are construction materials, aesthetics, and attempting to optimise on design to be included and accepted as part of the project description
PROJECT TEAM INVOLVEMENT	
Professional	Role
Developer	To provide footprint which comply with legislation and best options Environmental objective: Environmental acceptable and compliance
Client and EAP	Measure layout alternatives for best options as required for maximum effectiveness and attaining objectives and to mitigate impacts
Client	Objectives (i) Strategic objectives <ul style="list-style-type: none"> Comply with national legislation/standards Allow for compatible footprint layout Sustainable use of natural resources (ii) Operational objectives <ul style="list-style-type: none"> Maintenance of a soft footprint and system infrastructure Water according to quantity and quality needs. Best crops placing Excluding sensitive areas from footprint (if any) Implement mitigating environmental management program
EAP	Consider the design outlay of crop lands according to professional information for: <ul style="list-style-type: none"> Receiving environment Biodiversity Heritage sites



CONSIDERATIONS	
Specific considerations	Specific motivation
Design of facilities	<p><u>Environmental</u> Prevent negative impacts on receiving environment:</p> <ul style="list-style-type: none"> (i) Minimum removal of natural vegetation. (ii) Allow for preservation of remaining vegetation. (iii) Compliance with game animal health (carrying capacity) (iv) Preventing conflict with wildlife by appropriate fencing <p><u>Heritage</u> Mitigate impact on heritage issues</p>
Configuration of facilities	Can be implemented on a footprint without any environmental constraints or parameters by engineering design/farming activities/crop land layout/recommendations in specialist reports
Prevention of erosion	<p>Stormwater design in crop land layout</p> <p>Retention measures for channelled water and energy breakers at outlets</p> <p>Allow for natural water drainage patterns</p>
<p><u>Findings and Recommendations</u></p> <ul style="list-style-type: none"> (i) The location is adequate for new cropland. (ii) Supporting infrastructure can be used (iii) An integrated drainage plan can contribute to the existing drainage 	

9.3 Location alternative

LOCATION ALTERNATIVES	
KEY WORDS	Consideration are location in farming area, receiving environment, construction materials, aesthetics, and attempting to optimise on design to be included and accepted as part of the project description
PROJECT TEAM INVOLVEMENT	
Professional	Role
Developer	<ul style="list-style-type: none"> • Compliance with legislation and standards • Productive use of agriculture land
Professional team	Assess receiving environment for considering placement of location in receiving environment and the effect thereof
EAP	Consider impacts of placing on receiving environment
CONSIDERATIONS	
Specific considerations	Specific motivation: Environmental
Location (soil)	Existing placing in environment for prevention of fragmentation/biodiversity/heritage/existing infrastructure
Location (rehabilitated)	The planned locations for the proposed new crop land locations and related development must be considered for placing at previously rehabilitated crop land areas.
Landuse	<p>Considering correct landuse</p> <p>Consider sustainable use of natural resources</p> <p>Consider adjoining land users</p> <p>Consider Screening Tool confirms high potential agriculture land.</p>
Management	Layout according to existing infrastructure
Execution of proposal	<p>Compliance with legislation for LEDET/DWS/DLRRD (former DAFF) consideration</p> <p>Accommodate environmental parameters of receiving environment</p>



<u>Findings and Recommendations</u>	
(i)	Placing adjacent to existing croplands prevent sterilisation and fragmentation of habitat
(ii)	Less disturbance and transformation will take place by using existing, and already in place, infrastructure

9.4 Process alternative

PROCESS ALTERNATIVES	
KEY WORDS	Best Practicable Environmental Option (BPEO) in considering alternatives for: <ul style="list-style-type: none"> • Technology • Equipment
PROJECT TEAM INVOLVEMENT	
Professional	Role
Client	Obtaining objectives
Environmental & Heritage	<u>Environmental objective:</u> <ul style="list-style-type: none"> • Environmental compliance: correction 24G application • Conservation and biodiversity compliance • Best practices during development phase • Best practices during operational phase (maintenance) • Ensuring environmental compliance by maintenance programme by implementing an environmental monitoring end compliance plan. <u>Heritage objectives:</u> Professional recommendations
CONSIDERATIONS	
Specific considerations	Specific motivation
Specialist reports	Use reports as guidance and planning purposes. Implement and/or consider recommendations
Using technology	<ul style="list-style-type: none"> • Implement an Environmental Management Plan with Monitoring program. • Neutron Moisture Probes can be used in monitoring the: <ul style="list-style-type: none"> (i) Soil moisture content at various depth levels (ii) Soil temperature (iii) Salinity (water quality) Using probes will serve as early warning signal for change in water quality on-site.
<u>Findings and Recommendations</u>	
(i) The professional studies did not find any circumstances that required additional planning or required further studies.	

9.5 No-Go alternative

NO-GO ALTERNATIVES	
KEY WORDS	Also known as the “no-action” alternative. It assumes that the activity does not go ahead, implying starting a rehabilitation program.
PROJECT TEAM INVOLVEMENT	
Professional	Role
Client	This is not an option as the objectives of crops farming will not be attained. Crop land expansion cannot be obtained: Strategic Planning
Environmental	Objectives of applicant and I&AP’s will not be attained Mitigation is possible



CONSIDERATIONS	
Specific considerations	Specific motivation
Objectives	Compliance with legislation: 24 G rectification application Attaining farming objectives Sustainable use of natural resources for sustainable farming Complied with PPP and I&AP's Use of productive agriculture land
Socio-economic	Provide security in socio-economic stability in rural setting Provide security for jobs in rural areas
Findings and Recommendations	
(i)	This option is not considered based on need for food production-, socio-economic-, utilisation of productive agricultural land and practising of sustainable farming practices.
(ii)	No conclusive evidence was found or presented that indicate for the project not to be approved.

9.6 Discussion

9.6.1 Activity discussion

The alternatives discussed indicate that the non-compliance clearing of indigenous vegetation of new croplands (although wrongly done) will be a positive contributor to the farming economy, sustainable landuse-, natural resources and rural job security on farm(s). The project site is zoned for agriculture, also does it not fragment or have and negative effect on existing farming activities. The assessment process used the processes to evaluate and integrate the expectations of role-players into a development plan using the planning elements and relevant input and data to integrate ideas and expectations for a positive outcome. The question that had to be answered was whether the application resulted in negative impacts that could not be mitigated; the outcome was that in normal circumstances, e.g. legal process followed, the application would have been approved. After-all farmers are not against conservation and conservationists are not against farmers. It is a matter of logical co-existence working towards sustainable development.

9.6.2 Design alternative

Design was considered in the context whether lay-out can be accommodated onto the receiving environment. This was done by identifying the various aspects of the terrain and considering footprint taking into consideration various aspects. Consideration was given to previous agriculture development, the receiving environments sensitivity and archaeological sites. The actual size that can be considered being impacted on by the bush clearing is also explained below to provide a more definite size of the actual bush clearing. The size measured is 81.5 hectares. This surface area includes the following exiting vegetation clearance that should be negated from the 81.5 hectares, e.g.

- | | | |
|-------|-----------------------|-------------|
| (i) | Landing strip: | 4.7 ha |
| (ii) | Road servitude: | 1.13 ha |
| (iii) | Eskom line servitude: | <u>1 ha</u> |
| | Total: | 6.83 ha |



9.6.3 Location alternatives

The proposed location is the only option which could be considered for placing of the footprint which would have the minimum impact on the receiving environment. The footprint is placed only on soils suitable and were the layout adapted to the receiving environment.

9.6.4 Process alternatives

Collectively the footprint can be economically viable, and the developer can attain his strategic objectives. The various professional inputs (and knowledge of past farming activities on the identified areas) could not find any circumstances not to support the process. Mitigation was possible where concerns were identified.

Continuous monitoring of the receiving environment in respect of the water sources and its potential influences will be the benchmark's used for early detection of change and can be implemented after environmental assessment process has been completed.

9.6.5 No-go alternative

This option can only be considered if the assessment and/or the other professional studies revealed a fatal flaw in the proposal and process and or where no other planning guidelines could correct or mitigate identified issues and/or flaws. The single most important issue is that each of each role-player in the value-chain (and rural people) could benefit from the project.

10. SPECIALIST REPORTS

Below is a list of specialist Reports with abbreviated findings.

Details of Specialists and Declaration of Interests are attached as Appendix E.

10.1 Ecological-, Red Data and Biodiversity Report

Attached as **Appendix C1**

This report was compiled by Tua Conserva Environmental & Conservation Services cc.

The objective is to assess the receiving environment and to consider the impacts of the footprints. The survey findings will indicate the impacts that occurred and the consequences resulting with mitigation recommendations.

Below is a summary of the findings and recommendations:

- (i) No Red Data species was identified.
- (ii) The footprint area is placed on arable agricultural land and is indicated as such in Screening Tool.
- (iii) The location does not create fragmentation or sterilisation of land.
- (iv) Terrestrial habitat and vegetation (already partly transformed) will be lost, the adjoining remaining habitats will keep functioning as corridors and as supporting ecological areas.
- (v) Biodiversity loss will be minimal and will not influence any fauna and flora community's survival.



10.2 Archaeological

The project area has archaeological sites, the study was conducted by Heritage Contracts and Archaeological Consulting (HCAC). A Management and Monitoring Plan will be compiled for administrative record and management purposes.

Below is a summary of the findings and recommendations.

Archaeology: Appendix C2

- (i) Sites were found which can be mitigated and it is recommended that the project can commence with compliance on recommendations made.
- (ii) Recommendation for implementation is made on page 64 under paragraph 10.

10.3 Palaeontology

Although the study area is identified as sensitive area for palaeontology the geology structure does not allow for possible damage to the strata where palaeontology finds occur.

Attached as **Appendix C3**

10.4 Environmental Management Program (EMPr)

Attached as **Appendix G**

Provides guidelines and parameters for correction of actions by the illegal clearing of indigenous vegetation and to guide the establishing- and operational phases. The environmental compliance auditing will use the EMPr for compliance inspections.

11. ADVANTAGES AND DISADVANTAGES

11.1 Advantages of the proposed activity and alternatives

- i. The products (crops) produced and supplied to the agriculture industry value chain will ensure agriculture produce and related socio-economic benefits for related businesses. It is in line with National Strategic Infrastructure Projects 11: Agri-logistics and rural infrastructure
- ii. The above contribute to the socio-economic aspects of the community.
- iii. The remaining areas of the farm will still be used for game farming and tourism activities.
- iv. With the lay-out of the crop's consideration was placed on the natural environment such as large marula, a baobab and remaining vegetation.
- v. No Archaeological sites not previously known were identified.
- vi. The advantages for outweigh the disadvantages (below).

11.2 Disadvantages of the proposed activity and alternatives

- i. Natural terrestrial (naturally rehabilitated) vegetation and habitat for species will be lost. It is insignificant in the larger scope of the area and region.
- ii. Connectivity between terrestrial areas will be partly disrupted initially during further development but will be restored, due to the resilience of nature.
- iii. Protected tree species will be destroyed and/or relocated from the footprint area.



12. ENVIRONMENTAL IMPACT DETERMINATION AND EVALUATION

12.1 Assessment method

The assessment of impacts will largely be based on DEA's (1998) Guideline Document: EIA Regulations. The assessment will consider impacts arising from the planning, construction and operation phases of the proposed project both before and after the implementation of appropriate mitigation measures. Due to the inherent difficulties involved in attaching significance ratings to impacts, it is proposed that the evaluation of the significance of impacts be done according to the rating system described below.

In any process of identifying and recognizing impacts, one must recognize that the determination of impact significance is inherently an anthropocentric concept. Duinker and Beanlands, (1986) in DEAT 2002. Thompson (1988), (1990) in DEAT 2002 stated that the significance of an impact is an expression of the cost or value of an impact to society.

However, the tendency is always towards a system of quantifying the significance of the impacts so that it is a true representation of the existing situation on site. This will be done by using where ever possible, legal and scientific standards which are applicable. The significance of the aspects/impacts of the process will be rated by using a matrix derived from Plomp (2004) and adapted to some extent to fit this process. These matrixes use the consequence and the likelihood of the different aspects and associated impacts to determine the significance of the impacts.

The *consequence matrix* use parameters like *severity*, *duration* and *extent* of impact as well as *compliance* to standards. Values of 1-5 are assigned to the parameters that are added and averaged to determine the overall consequence. The same process is followed with the *likelihood* that consists of two parameters namely *frequency* and *probability*. These values as shown in the following table are then used to rank the significance. It must be said however that in the end, a subjective judging of an impact can still be done, but the reasons for doing so must be qualified.

12.2 Aspects, related impacts, significance, and proposed mitigation measures

The assessment ordained the issues into main grouping characteristics where after they were assessed. Below is a chronological list of the groupings with the number of issues under each listed which was assessed.

- A. Biophysical Characteristics
- B. Ecological Characteristics
- C. Current and Potential Land-use Characteristics
- D. Archaeological-and Heritage Characteristics
- E. Socio-economic Characteristics
- F. Infrastructure Services
- G. Social and Community Services and Facilities
- H. Nature and level of present and future environmental pollution
- I. Risk and Hazard Characteristics
- J. Health and Safety Characteristics
- K. Cumulative and Synergistic Characteristics



Description	Definition	Ranking
Duration (D)	In order to accurately describe the impact, it is necessary to understand the duration and persistence of an impact in the receiving environment	5- Permanent 4- Long-term 3- Medium-term (5-15 years) 2- Short-term (0-5 years) 1-Immediate
Magnitude (M)	A description must be given as to whether an impact is destructive, or benign. It determines whatever the intensity of the impact on the natural environment or society is permanently, significantly changes its functionality or slightly alters it.	5- Very high 4- High 3- Moderate 2- Low 1-Minor
Extent (E)	The extent of the impact refers to the spatial dimension to which an impact will be felt (i.e. site, study area, local, regional, or national scale).	5- International 4- National 3- Regional 2- Local 1-Site only
Probability (P)	The criteria used for rating the likelihood of impact occurrence	5- Definite 4- High probability 3- Medium probability 2- Low probability 1-Imprable

FORMULA

Environmental Significance of each potential impact was assessed using the following formula:

$$Significance\ Points\ (SP) = (Duration + Magnitude + Extent) \times Probability$$

Maximum value is 75 Significance points (SP)

SP > 50	Indicates high environmental significance	The impact could influence the decision regardless of any possible mitigation An impact which could influence the decision about whether or not to proceed with the project
SP 25-49	Indicate Moderate environmental significance	The impact could have an influence on the decision unless it is mitigated. An impact or benefit which is sufficiently important to require management. Of moderate significance-could influence the decisions about the project if left unmanaged



SP < 24	Indicates Low environmental significance	The impact will not have an influence on the decision. Impacts will have little real effect and which should not have an influence on or require modification of the project design or alternative mitigation.
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A BIOPHYSICAL CHARACTERISTICS

A 1 LAND

NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without Mitigation	With Mitigation	
A1.1	Soil	Nature of soils suitable for crops	4	2	1	2	14	Low (+)	Low (+)	<ul style="list-style-type: none"> No-go areas will be marked before construction commences. The EMP must be implemented.
A1.2	Erosion	Erosion will degrade the receiving environment and cause secondary-and tertiary impacts. Water channelled from the crops land can cause erosion. Roads and surface flow from crops land can cause erosion	2	2	1	2	10	Low (-)	Low (+)	(i) Roads <ol style="list-style-type: none"> The management roads related to the crop land area must be designed to prevent erosion. Any altered water flow influencing the management roads should be designed to allow for water flow connectivity. During construction roads must be kept to the footprint. Any deviations on this instruction by the contractor will be penalised; refer to EMP for design. (ii) Land Water will drain via the land layout into drainage channels. The channelled outlets have to be designed to prevent scouring and erosion.
A1.3	Existing physical degradation of the local environment	Previous human activities did leave a distinct footprints and degraded areas	5	2	1	1	8	Low (-)	Low (+)	Develop only on the cleared footprint Put in buffer zone between cropland and Kongoloop watercourse.

2 FRESHWATER SYSTEMS

NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without Mitigation	With Mitigation	



A2.1	Natural drainage patterns	Altering natural drainage patterns can alter connectivity of hydrological systems	2	3	1	2	12	Low (+)	Low (+)	<ul style="list-style-type: none"> The natural drainage patterns must be incorporated, by specific site design and Zoning Plan. Erosion structures should be placed where necessary.
A2.2	Engineered drainage patterns	Increased run-off due to altered surface flow by roads with resultant stormwater outlets can result in erosion	1	2	1	2	8	Low (-)	Low (+)	<ul style="list-style-type: none"> The stormwater planning for the project will be done according to incorporate drainage from the surface drainage catchment areas that has been altered and will incorporate the cropland area drainage. The final design should include stormwater planning and will be controlled by the ECO and as soon as the designs has been received it will be included as part of the environmental management plan and Zoning Plan.

3 CLIMATE

NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without Mitigation	With Mitigation	
A3.1	Rainfall patterns	Effects on the development and receiving environment in which the sites are located	3	2	1	3	18	Low (+)	Low (+)	The design and layout make provision for surface drainage. The Kongolooop watercourse's natural flow is left intact with a buffer area with vegetation.

4 SENSE OF PLACE IN RECEIVING ENVIRONMENT

NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without Mitigation	With Mitigation	
A4.1	Wrong landuse Wrong placing	Effects of the development on the receiving environment	3	2	1	3	18	Low (+)	Low (+)	The location is good agricultural land, thus right landuse. The crop areas must be enclosed by fencing. Lay-out is such as to use only arable land and not isolate and/or fragmentise the remaining veld. No development or incidental supporting development in sensitive areas of the Kongolooop watercourse

Rational :
Background information:

- The cleared crop area and subsequent associated farming infrastructure must be planned and designed and integrated in a development plan.



- The 24G area have been subjected to human interference as found during site visits and surveys.

Status before new development:

The vegetation cannot be considered as pristine due to the above as was confirmed with field surveys.

The vegetation is described as in moderate condition.

What was found:

- (i) The environmental landscape has already been moderately transformed.
- (ii) The footprint area was subjected to human influence over time.
- (iii) Pollution built-up and/or signs of pollutions of significance were not found.
- (iv) Exotic plant species is present and must be eradicated.
- (v) The activity is in line with the landuse.

B ECOLOGICAL CHARACTERISTICS OF THE SITE AND ITS SURROUNDINGS

B 1 VEGETATION

NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without Mitigation	With Mitigation	
B1.1	Survival of rare/endangered plant species	The development can result in the destruction of rare/endangered plant species.	4	3	1	2	16	Low (+)	Low (+)	<ul style="list-style-type: none"> • Destruction permits for trees and permit for <i>Cultivation of Virgin Soil</i> from DLRRD (former DAFF) has to be applied for. • Plants with any conservation and or aesthetical value will not be removed outside footprint. • Above measures will be controlled by the ECO. • Said measures have been discussed in the environmental management plan for the project. • The impact can be described as minimal due to the past human influence (read negative impact) on the natural vegetation communities since 1970's by farming activities, uncontrolled fires, road construction etc.
B1.2	The introduction/spread of invasive alien seeds and plants	The exotic species can benefit by new development activities and result in further spread of species	3	2	1	2	12	Low (-)	Low (+)	<ul style="list-style-type: none"> • Any exotic species identified must be removed before construction commences. • This must be executed by the environmental control officer. • This issue must be incorporated in the environmental management plan.



B1.3	Frequency of veldt fires	Uncontrolled fires that can impact on ground cover and/or cause financial losses.	4	4	1	4	36	Moderate (-)	Low (+)	<ul style="list-style-type: none"> No open fires must be allowed on construction site. Above must form part of the environmental management plan and enforced by the environmental control officer. The possibility of fires are currently present with stockpiled vegetation. This must be removed away from powerlines to prevent heat and carbon to disrupt electricity.
B1.4	Overgrazing	Erosion due poor basal cover and die-off of vegetation	5	5	2	5	60	High (-)	Low (+)	Adapt game numbers downwards, if necessary. Use “Berry Method for Condition Evaluation”.

B 2 FAUNA

NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without Mitigation	With Mitigation	
B2.1	Survival of rare/endangered animals	Species can be destroyed by construction/farming activities.	2	2	1	3	15	Low (+)	Low (+)	<ul style="list-style-type: none"> Before construction commences the environmental control officer should survey the area again to remove possible species that moved in since the debussing and surveys.
B2.2	Natural migration of species	Severing of natural existing migration routes can negatively impact on population survival rates.	5	4	3	5	60	High (-)	Low (+)	<ul style="list-style-type: none"> The remaining species will not be restricted. The crop can be fenced “out” of the remaining farm areas which will be used by game. No fences should be erected in the Kongolooop watercourse.

B 3 NATURAL AND SEMI-NATURAL COMMUNITIES

NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without Mitigation	With Mitigation	
B3.1	Local, regional or national importance	The project is situated in CBA2	5	4	3	4	48	Moderate (+)	Low (+)	<ul style="list-style-type: none"> The footprint area is not conforming to the criteria for CBA2 due to past and current human influences. The footprint does not



	of the natural communities as CBA's (e.g. scientific, conservation)										<ul style="list-style-type: none"> contribute to aquatic connectivity. On site verification indicated it as Ecological Support Area 2. The Kongolooop watercourse should be zoned and fenced in such a manner to allow waterflow and movement of wildlife. The development will result in minimum impact on both fauna and flora natural communities by proper zoning of sensitive areas.
B3.2	Compatibility of development and the natural communities	Impact on stability of natural communities by past development and lack of maintenance.	5	4	1	4	40	Moderate (-)	Low (+)	<ul style="list-style-type: none"> To prevent impacts during construction phase <ol style="list-style-type: none"> Appointment of environmental practitioner who has experienced (working knowledge of the terrestrial environment). Implement specific design measures as recommended in specialist reports as well as in this document. Zone no-go areas. 	
B3.3	Appropriateness of the conservation methods to be employed	No specialist guidelines available to manage and control impacts	4	6	1	3	33	Moderate (-)	Low (+)	<ul style="list-style-type: none"> The specialist reports made recommendations for drainage and for Kongolooop watercourse which should be implemented. The environmental management programme will help to manage the areas that could be influenced during development phase. The EMP must be implemented on a monthly schedule during the further construction-and operational phases. 	
B3.4	Ecological functioning of natural communities due to:										
	<ul style="list-style-type: none"> Physical destruction of the habitat 	Habitat, or elements thereof, will result in species loss.	5	4	2	4	44	Moderate (-)	Low (+)	<ul style="list-style-type: none"> Destruction already occurred. No further enlargement will be allowed. By keeping to the existing footprint the minimum destruction of habitat will take place. Game number can be adapted according to new carrying capacity 	
	<ul style="list-style-type: none"> Levels of dust pollution and deposition 	Dust pollution will be present during construction phase and especially in the dryer winter months.	1	2	1	4	16	Low (-)	Low (+)	<ul style="list-style-type: none"> Dust suppression measures must be conducted during any further construction and/or development. During winter this action must be stepped up. Speed limits must be implemented. Stockpile vegetation can be used as energy by cooking fires. This action should form part of the EMP. It must be controlled by the ECO. 	
	<ul style="list-style-type: none"> Rehabilitation potential 	Rehabilitation is a proactive and continuous action before-and during	3	2	1	3	18	Low (+)	Low (+)	<ul style="list-style-type: none"> Preventative action is to zone the construction area in no-go areas on site by the ECO. 	



		construction to prevent degrading of the aesthetic quality of the area.								<ul style="list-style-type: none"> • These no-go areas should form part of the adapted EMP for construction phase. • The rehabilitation plan should be implemented commences immediately for erosion and water monitoring
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C CURRENT AND POTENTIAL LAND USE AND LANDSCAPE CHARACTER										
C 1 GENERAL AND POTENTIAL LAND USE AND LANDSCAPE CHARACTER										
NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without Mitigation	With Mitigation	
C1.1	Compatibility of land uses within the area	Incompatible land-uses will lead to fractured development.	5	2	1	3	24	Low (+)	Low (+)	<ul style="list-style-type: none"> • The proposed development is compatible with the land use • No fragmentation of land will take place
C1.2	Aesthetic quality the landscape: Visual Intrusion	The development can alter the landscape.	5	3	2	3	30	Moderate (-)	Low (+)	<ul style="list-style-type: none"> • The landscape has already been altered. By keeping to the footprint the minimum alteration will be attained.
C1.3	Sense of place within the area	Is the development correctly placed in line with land-use planning: agriculture versus protected areas	4	4	1	4	36	Moderate (+)	Moderate (+)	<ul style="list-style-type: none"> • Mitigating measures is a zoned layout plan for the Kongolooop watercourse. • A Management Plan can provide guidance in protecting the remaining undeveloped part of the farm. This Management Plan should be compiled by a specialist.
C1.4	Compatibility with the scale of development in the area	Is there need for such a development: agriculture versus protected areas	5	2	1	3	24	Low (+)	Low (+)	<ul style="list-style-type: none"> • The main landuse for the Weipe Agriculture Development Node area is agriculture • Agriculture is a sustainable use of natural resources
C1.5	Landscaping plans and/or site		5	6	1	3	48	Moderate (+)	Moderate (+)	<ul style="list-style-type: none"> • Tree species left in-situ will contribute to the landscape



	restoration proposals	Can landscaping play a constructive role to lessen negative impacts.									
C1.6	Need for buffer zones to allow for natural processes such as erosion, vegetation and changes in river channels	Previous development	5	6	1	3	36	Moderate (-)	Low (+)	<ul style="list-style-type: none"> Exclusion no-go zones for the Kongolooop watercourse 	

C 2 URBAN OPEN SPACE, PROTECTION AND RECREATION AREAS

NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without Mitigation	With Mitigation	
C2.1	Potential to harbouring vagrants and criminals	Movement of illegal immigrants through farm and area	4	1	1	1	6	Low (+)	Low (+)	<ul style="list-style-type: none"> The farm must be fully fenced with access control. The client has his own security and area patrol system.

C 3 RESIDENTIAL AREAS

NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without Mitigation	With Mitigation	
C3.1	None									

C 4 COMMERCIAL AREAS

NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without Mitigation	With Mitigation	



									Mitigation	Mitigation	
C4.1	None										

C 5 AGRICULTURE AND SYLVICULTURAL AREAS

NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without Mitigation	With Mitigation	
C5.1	Use of high potential farmland	Sterilise and-or transforming farmland can have production-and financial implications	4	5	1	4	40	Moderate (+)	Low (+)	<ul style="list-style-type: none"> No un-productive farming land will be affected. The remaining land for Skutwater will still be used for game.
C5.2	Damaged land to overgrazing or bad farming methods	Farm have little grass cover	3	3	2	4	32	Moderate (-)	Low (+)	<ul style="list-style-type: none"> Supplementary feeding is a consideration in periods of drought Game numbers should be reduced.
C5.3	Chemical pollution of water, sensitive vegetation and farmland	Surface –and/or groundwater quality deterioration	4	2	2	2	16	Low (-)	Low (+)	<ul style="list-style-type: none"> A water quality monitoring program must be implemented.

D CULTURAL RESOURCES

NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without Mitigation	With Mitigation	
D1.1	Sites of archaeological importance	Disturbance and/or destruction of identified sites should only be considered where the necessary	5	0	1	1	6	Low (+)	Low (+)	<ul style="list-style-type: none"> Sites as identified and discussed in the Archaeological Report must be: <ul style="list-style-type: none"> (i) Applied for destruction permits (ii) Subjected to Phase 2



		information has been assessed.									(iii) Left in-situ with buffersone demarcations.
											<ul style="list-style-type: none"> Management and Monitoring Plan must be compiled and form part of the EMPr.

E SOCIO-ECONOMIC CHARACTERISTICS OF THE AFFECTED PUBLIC											
E 1 DEMOGRAPHIC ASPECTS											
NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES	
								Without Mitigation	With Mitigation		
E1.1	Location and distribution of population	The area is populated exclusively by crop/citrus farmers in an area considered as deep-rural.	4	6	4	4	56	High (-)	High (+)	<ul style="list-style-type: none"> The project will benefit the working expectations of local people. The project has a lifetime expectancy of three decades and more. 	
E2 ECONOMIC AND EMPLOYMENT STATUS OF THE AFFECTED SOCIAL GROUPS											
NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES	
								Without Mitigation	With Mitigation		
E2.1	Economic base of the area	Farming worker stability	5	4	2	4	44	Moderate (-)	High (+)	<ul style="list-style-type: none"> The project supplies working opportunities; as it did for the previous decades (since 1960's) and it can extent the opportunities for the future. 	
E 3 WELFARE PROFILE											
NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES	



									Without Mitigation	With Mitigation	
E3.1	Creating working opportunities	Is there an effect that will be triggered by the project that can be positive or negative	5	6	3	4	56	High -	High +	<ul style="list-style-type: none"> The project will provide both permanent and semi-permanent working opportunities. It will also be an incentive for the value chain and support industry. 	

E 4 ECONOMIC IMPLICATIONS

NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without Mitigation	With Mitigation	
4.1	Influence on local economics	Contribution to agriculture: <ul style="list-style-type: none"> Non-authorisation authorisation 	4	6	1	4	44	Moderate (-) Non-authorisation	High (+) authorisation	<ul style="list-style-type: none"> Practicing sustainable farming practices Support in-and-out flow of the Value Chain Supplier of crops to Canning Factory in Musina.
4.2	Influence on regional-and national economics	Contribution to agriculture and value chain of both the in-put and out-put supporting agriculture activities	4	8	5	4	68	High (-) Non-authorisation	High (+) authorisation	<ul style="list-style-type: none"> Practicing sustainable farming practices. Use regional-and regional suppliers/businesses.

E 5 CULTURAL IMPLICATIONS



NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without Mitigation	With Mitigation	
E5.1	None									

F INFRASTRUCTURE SERVICES										
F 1 ENERGY-, WATER SUPPLY & ELECTRICITY										
NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without Mitigation	With Mitigation	
F1.1	New Eskom lines	Destruction of vegetation, also sterilising land, has visual impact	1	2	1	1	4	Low (-)	Low (+)	<ul style="list-style-type: none"> The existing Eskom line will be used that supplies power to the farm.
F 2 a WASTE MANAGEMENT										
NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without Mitigation	With Mitigation	
F2a	None									



F 2 B SEWAGE WASTE MANAGEMENT										
F2b	Suitable facilities during construction phase	Sewage pollution	1	2	1	2	8	Low (-)	Low (+)	<ul style="list-style-type: none"> Chemical toilets made available on development site. Permanent ablution sites for operation phase according to the Global-GAP Specifications and environmental guidelines for farming.
F 3 TRANSPORT NETWORK										
NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without Mitigation	With Mitigation	
F3.1	Access road to sites	Sufficient access is needed to farm	4	3	1	2	16	Low (-)	Low (+)	<ul style="list-style-type: none"> One existing access road can be used. The internal farm roads will be used.
F 4 FINANCIAL IMPLICATIONS										
NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without Mitigation	With Mitigation	
F4.1	Enhancement of applicant self-sufficiency	The proposed development is part of strategic farming strategy ensuring financial security.	5	4	3	4	48	Moderate (+)	High (+)	<ul style="list-style-type: none"> Farming can produce income by using appropriate practices.



G SOCIAL AND COMMUNITY SERVICES AND FACILITIES										
G 1 EMERGENCY SERVICES										
NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without Mitigation	With Mitigation	
G1.1	None									

H NATURE AND LEVEL OF PRESENT AND FUTURE ENVIRONMENTAL POLLUTION										
H 1 WATER POLLUTION										
NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without Mitigation	With Mitigation	
H1.1	Chemical applications in land	Pollution of surface-and groundwater	4	2	1	2	14	Low (-)	Low (+)	<ul style="list-style-type: none"> A Water Management Plan that monitors the water quality has been approved and will be implemented.
H 2 NOISE, VIBRATION AND LIGHTING										
NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without Mitigation	With Mitigation	
H2.1	Increase on ambient noise	During further development phase noise will be present	2	2	2	3	18	Low (-)	Low (+)	<ul style="list-style-type: none"> Keep to working hours Effective exhaust baffles on construction machinery This is a transient issue and will be cease after construction



I RISK AND HAZARD										
NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without Mitigation	With Mitigation	
I1.1	Flooding	The possibility of flood damage	5	6	2	3	33	Moderate (+)	Moderate (+)	<ul style="list-style-type: none"> • Outside 1:100year floodline • The bundwall on the western side of the Kongoloop will direct water and together with a large drainage channel can prevent flooding
J HEALTH AND SAFETY										
NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without Mitigation	With Mitigation	
J1.1	Risk during further development	Human safety	1	4	1	3	18	Low (-+)	Low (+)	<ul style="list-style-type: none"> • Developer will apply safety measures • Implement EMP
J1.2	Effect of dust on surrounding areas	Health issues for workers Dust on crops	1	2	1	5	20	Low (-)	Low (+)	<ul style="list-style-type: none"> • Dampening of working areas
J1.3	Effect of noise on surrounding areas	Disturbance on ambience noise levels	1	2	1	5	20	Low (-)	Low (+)	<ul style="list-style-type: none"> • Construction machines has low noise mufflers • Working only during day-light hours • Noise will be transient intrusion



K1 CUMULATIVE AND SYNERGISTIC EFFECTS										
NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without	With	
								Mitigation	Mitigation	
K1.1	Ability of the natural environment to assimilate cumulative stresses placed on	The receiving environment after the initial impact of bushclearing will influence the natural environment leading to an ecological “implosion”	5	6	2	2	26	Moderate (-)	Low (+)	<u>Collective measures</u> <ul style="list-style-type: none"> The sensitive areas associated with project area are excluded and zoned. The remaining areas of the farm can still be used for game. Game numbers must be adapted downwards. The exiting internal farm roads can be incorporated in master lay-out plan to prevent further impacts.
K1.2	Threat analysis and negative synergistic effects	The receiving environment which must accommodate the development is currently under severe strain by (i) nature and natural events, and (ii) mankind collectively	3	6	4	5	65	High (+)	High (+)	<u>Collective measures</u> <ul style="list-style-type: none"> The remaining areas not developed will be managed b as a game farm with vegetation communities also preserved and managed accordingly. A lower-and higher carrying capacity model for game must be developed. Management and Monitoring for pollution of water from irrigation can identify problems that can be rectified. A drainage plan must be developed.

K2 GENERAL ENVIRONMENTAL & WATER QUALITY CUMULATIVE MANAGEMENT CONSIDERATIONS										
NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without	With	
								Mitigation	Mitigation	
K2.1.	Implementation of the mitigation and management measures	To comply with legal considerations and conditions and all relevant legislation.	5	4	3	3	36	Moderate (+)	Low (+)	<ul style="list-style-type: none"> Apply for necessary permits from DLRRD (former DAFF) Farmer and staff should undergo environmental awareness training before setting up the construction sites and before construction commences.



										<ul style="list-style-type: none"> An environmental control officer (ECO) must be appointed before the construction commences to ensure that the environmental management plan is adhered to. Necessary compliance record keeping and inspections must be conducted and provided to LEDET, DLRRD and DWS.
K2.2	Water quality monitoring and control	A water monitoring plan can identify issues for correction. Independence and unbiased control have to be conducted by independent environmental-and water specialists	5	3	3	2	22	Moderate (-)	Moderate (+)	<ul style="list-style-type: none"> Compile and implement water monitoring plan.

K3 GENERAL DESIGN CUMULATIVE CONSIDERATIONS										
NO	ISSUES	NATURE OF IMPACTS	Duration	Magnitude	Extent	Probability	Points	Significance		MITIGATION MEASURES
								Without Mitigation	With Mitigation	
								K3.1	Specific design measures for crops land and farm in general	



										<ul style="list-style-type: none"> To be able to practise conservation farming in rotating cropland production.
K4.4	Sustainable development	Can an environmental approval support the farming enterprise								<p>Environmental approval will result in:</p> <ul style="list-style-type: none"> Keeping a business entity that provides jobs, food and supports agro-industrial in value chains as well being a SARS contributor in a deep rural location. Supporting entities and people directly dependant on the financial survival of such entity to function after it has been subjected to repeated climatic catastrophes. It is the right thing to do!



12.3 Potential significant impacts

Total of impacts assessed=40

In this impact assessment out of a total of 40 impacts assessed 8 impacts were regarded as high with positive outcome; 6 as Moderate potentially significant impacts with positive outcome; 36 impacts are assessed as Low potential significant impacts with positive outcome. Impacts could mostly be mitigated with positive outcomes.

The risk associated with the proposed implementation of the project is insignificant.

13. DESCRIPTION OF ASSUMPTIONS

In this report it is assumed that:

- i) That the recommendations made in this report and other specialist reports are implemented and followed.
- ii) That the developer will abide by the ethical standards of development and will stay within the parameters and design specifications of the development and follow a best practise approach.

14. OPINION ON FACTS

- 14.1 The proposed project that has its origin in the planning of the applicant for sustainable farming resulted in the 24G due to ignorance of the EIA application process.
- 14.2 The applicant has no objection for compliance and rectification process for EIA application.
- 14.3 The applicant experienced a number of setbacks since 2000. The climatic risk factor is not predictable and not selective. Its effects however had a negative cumulative ripple effect.
- 14.4 The location of the project was surveyed for biodiversity and ecological sensitivity. None were identified.
- 14.5 Archaeological site(s) was found on the footprint which can be mitigated.
- 14.6 The current landuse for agriculture activities can proceed and contribute to the local-and regional socio-economic communities. It is identified in the Screening Tool as high sensitivity for agricultural use.
- 14.7 In this EIR no issues were of such a nature that it could not be mitigated, an indication of the long-term sustainability of the project for the socio-economic sphere and receiving environment in which this project will function.

15. ENVIRONMENTAL STATEMENT

15.1 Summary of key findings

- 15.1.1 No specific evidence was found of any biota at individual or community level that will be threatened to such an extent that it will have a negative impact on the survival of species and/or communities.
- 15.1.2 Archaeological sites were found. Reports have been submitted to SAHRA.
- 15.1.3 The risk associated with the proposed implementation of the project is insignificant.
- 15.1.4 Most impacts can be mitigated with positive outcomes.
- 15.1.5 The EAP declare that an EIA application following the correct process would have resulted in a positive outcome.



15.2 Positive and negative implications

15.2.1 Positive

- (i) The area cleared for the proposed footprint site did not have significant negative effect on the environment or for specific species or communities.
- (ii) The remaining terrestrial area can still be used for game farming.
- (iii) The remaining plant communities will be actively preserved.
- (iv) Habitat outside the footprint is still suitable for various wildlife and ecological processes.
- (v) The surrounding area can still serve as support for ESA2.
- (vi) The landing strip will be used.
- (vii) The Eskom line will be used.
- (viii) Water drainage plan can be implemented along the road reserve.

15.2.2 Negative

- (i) Vegetation has been removed mostly terrestrial species associated with terrestrial landscapes.

15.3 Comparative assessment of advantages and disadvantages

The **advantages** can be summarized as follows:

- The development will address a critical issue of sustainable farming.
- The development will help for the financially struggling farmer to recuperate the natural disasters that occurred since 2000, with a peak from 2013-2017.
- It will use identified high potential agricultural land.
- It will positively contribute to the socio-economic profile of the district community(s) in specific and South Africa in general.
- Mitigation measures are possible for all identified issues.
- The developer has accreditation by *Sustainable Agriculture in South Africa (SIZA)* and also by *Global G. A. P.*, both attached under as Appendix I.

The **disadvantages** can be summarized as follows:

- Natural vegetation and habitat for terrestrial species has been removed and/or altered on a portion of Skutwater 115 MS.

15.4 Final statement

No evidence was found or presented indicating that the development could not continue. Issues could be sufficiently mitigated. The strategic gain collectively is for the good of firstly sustainable and strategic food production, secondly for socio-economic reasons, thirdly for practising sustainable agriculture activities which recognises conservation and cultural resource areas. Compliance with Chapter 1: National Environmental Management Principles, Section 2(1), Section 2 (2), Section 2(3), Section 2(4) of NEMA (Act 107 of 1998) was addressed in the assessment.

16. AUTHORISATION OF ACTIVITY AND CONDITIONS

The purpose of this report is to provide information for the 24G application in a compiled format regards the potential impacts of bush clearing development so that the authority can make an



informed decision regarding the approval/not approved of the Environmental Impact Assessment Report.

16.1 Recommendations

- 16.1.1 That the mitigation measures mentioned for each discussed issue must be implemented.
- 16.1.2 That recommendation listed in specialist reports is implemented.
- 16.1.3 The appointment of an environmental control officer (ECO) for the project. That the ECO appointed has sufficient experience. That the appointment is for the full duration of the project, starting with the pre-construction phase and ending with the completion of the development phase, inclusive of the planting of the first crop.
- 16.1.4 That the EMPr is updated with new information as the project progresses.
- 16.1.5 That audit reports are submitted monthly to LEDET for compliance of authorisation conditions.



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Tua Conserva Environmental & Conservation Services cc



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