Proposed construction of the Malalane Ring Road, Nkomazi Local Municipality, Mpumalanga Province

Draft EIA Report

DFFE Ref: 14/12/16/3/3/2/2179

18 October 2022

CORE Environmental Services

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EXECUTIVE SUMMARY

The South African National Roads Agency Limited (SANRAL) is proposing to construct the Malalane Ring Road of approximately 6km in length, within the Mpumalanga Province. The N4 highway is the main route between Maputo in Mozambique and Gauteng and at present, the only town which is still affected by the N4-highway, is Malalane. The proposed Malalane Ring Road aims to bypass Malalane Town by means of constructing a new highway to the south of the town. The proposed project also entails the provision of access roads to Malalane for all farms located to the south of Malalane.

A construction camp will be erected on site for the duration of the construction. Designated areas will be established during the construction phase for construction equipment, vehicles and stockpiling. This area will be outside all sensitive areas. As far as possible these will be located within already disturbed areas or areas that will be directly impacted by the road construction footprint. Existing roads will be used as far as possible for access during construction, however where necessary haul roads will temporarily be put into place

In accordance with the National Environmental Management Act 107 of 1998 (NEMA 107, 1998), an Environmental Authorisation (EA) is required prior to the commencement of the proposed construction activities. In accordance with General Notice R982, 2014 (as amended in 2017), a Scoping and Environmental Impact Assessment process must be followed to apply for EA. The proposed project also entails the construction of a bridge crossing the Buffalo River and in accordance with Section 21 of the National Water Act 36, 1998, a Water Use License (WUL) is also required when any activity takes place within a watercourse.

Specialist assessments undertaken includes:

- Biodiversity Assessment;
- Aquatic Assessment; and
- Heritage Impact Assessment.

The Biodiversity and Aquatic Impact Assessments undertaken concluded that the terrestrial and aquatic environment has been severely altered and is therefore of low significance. Due to the low sensitivity of the proposed site, the Ring Road will therefore have minimal impact on these environments. The Heritage Impact Assessment also found no artefacts of cultural or historical significance within the proposed alignment of the N4 Ring Road, nor was any grave site identified during the site investigation.

Section 6 of the Draft Environmental Impact Assessment Report assessed the construction and operational impacts of the proposed project on the biophysical and socio-economic environment and it was determined that the project is likely to result in the following environmental and social impacts:

<u>During construction:</u>

- *Impact on biodiversity;*
- *Generation of dust;*
- *Noise Impact;*
- *Impact on traffic;*
- *Impact on soil;*
- *Impact on water resources;*
- *Impact on heritage resources;*
- *Impact on safety; and*

- *Socio-economic impact.*

During operation:

- *Traffic Impact*
- *Loss of agricultural land;*
- *Socio-economic*

The table below summarises the impacts identified and assessed for the establishment and operational phases of the project:

IMPACT	SIGNIFICANCE BEFORE MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION MEASURES
Construction Phase		
Impact on terrestrial biodiversity	Low	Very Low
Impact on aquatic biodiversity	Medium	Low
Dust generation	Low	Very Low
Noise generation	Low	Very Low
Generation of dust	Low	Very Low
Traffic	Medium	Low
Impact on water resources	Medium	Low
Impact on soil	Low	Very Low
Impact on heritage	Very Low	Very Low
Job opportunities	Medium (+)	High (+)
Health and Safety	Medium	Low
Operational Phase		
Traffic	High (+)	High (+)
Loss of agricultural land	Medium (-)	Medium (-)
Loss of business	High (-)	Medium (-)
Loss of yield	Medium (-)	Low (-)

The table below summarises the cumulative impacts identified and assessed for the proposed project:

TABLE 22: ENVIRONMENTAL IMPACT STATEMENT

IMPACT	SIGNIFICANCE BEFORE MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION MEASURES
Construction Phase		
Impact on terrestrial biodiversity	Low	Very Low
Impact on aquatic biodiversity	Medium	Low

Dust generation	Low	Very Low
Noise generation	Low	Very Low
Generation of dust	Low	Very Low
Traffic	Medium	Low
Impact on water resources	Low	Very Low
Impact on soil	Low	Very Low
Impact on heritage	Very Low	Very Low
Job opportunities	Medium (+)	High (+)
Health and Safety	Medium	Low
Operational Phase		
Traffic	High (+)	High (+)
Loss of agricultural land	Medium (-)	Medium (-)
Loss of business	Medium (-)	Low (-)
Loss of yield	Medium (-)	Medium (-)

The assessment of the possible impacts associated with the construction phase of the proposed project, concluded that most of the impacts on the surrounding environment is of **low significance** and can be further reduced to be of very low significance if mitigation measures are implemented.

During operation, loss of business and loss of agricultural land was found to be of **medium significance** and unfortunately no mitigation measures can be implemented to reduce this impact. However, the operational impact on traffic flow will be highly positive as the N4-Highway will no longer have any traffic stops or traffic lights which would have to be adhered to. Indirectly, this will also have a positive impact on the safety of motorists as most of the heavy motor vehicles will be making use of the Ring Road, relieving congestion along the current N4 Highway going through the town of Malalane. The positive traffic impact of regional extent, outweighs the negative medium impact of loss of business and agricultural land which is of local extent. Motorists are still given the option to continue straight, passing through the town of Malalane to undertake any required business activities. Recommendations have however been made to address the impacts which could affect the biophysical and socio-economic environment. Recommendations for the mitigation of impacts are included within Section 7 and also the Draft Environmental Management Plan attached.

Taking the future development of the Nkomazi SEZ into account, it is the opinion of the EAP that the EA for this project should be granted, as the positive impacts associated with the proposed Ring Road outweighs the negative impacts. It is proposed that the mitigation measures be included as the conditions of the authorisation.

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ABBREVIATIONS

BAR	Basic Assessment Report
CBA	Critical Biodiversity Area
CR	Critically Endangered
DFFE	Department of Forestry, Fisheries and Environment
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EAPASA	Environmental Assessment Practitioner Association South Africa
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EN	Endangered
ESA	Ecological Support Area
GNR	General Notice Regulation
I&AP	Interested and Affected Party
IBA	Important Bird Area
IDP	Integrated Development Plan
LC	Least Concern
MDC	Maputo Development Corridor
MDARDLEA	Mpumalanga Department of Agriculture, Rural Development, Land and Administration
NFEPA	National Freshwater Ecosystem Priority Areas
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEMBA	National Environmental Management Biodiversity Act
NWA	National Water Act
PPP	Public Participation Process
ROMPCO	Republic of Mozambique Pipeline Company
SAHRA	South African Heritage Resources Agency
SACNASP	South African Council for National Scientific Professions
SANRAL	South African National Roads Agency Limited
SDF	Spatial Development Framework
SDI	Spatial Development Initiative
VU	Vulnerable
WP	Well Protected
WUL	Water Use License

1. OVERVIEW OF THE PROJECT

1.1 Introduction

The South African National Roads Agency Limited (SANRAL) is proposing to construct the Malalane Ring Road of approximately 6km in length, within the Mpumalanga Province. The N4 highway is the main route between Maputo in Mozambique and Gauteng and at present, the only town which is still affected by the N4-highway, is Malalane. The proposed Malalane Ring Road aims to bypass Malalane Town by means of constructing a new highway to the south of the town. The proposed project also entails the provision of access roads to Malalane for all farms located to the south of Malalane.

In accordance with the National Environmental Management Act 107 of 1998 (NEMA 107, 1998), an Environmental Authorisation (EA) is required prior to the commencement of the proposed construction activities. In accordance with General Notice R982, 2014 (as amended in 2017), a Scoping and Environmental Impact Assessment process must be followed to apply for EA. The proposed project also entails the construction of a bridge crossing the Buffalo River and in accordance with Section 21 of the National Water Act 36, 1998, a Water Use License (WUL) is also required when any activity takes place within a watercourse.

Core Environmental Services was subsequently appointed to apply for the EA by means of conducting a Scoping and Environmental Impact Assessment process as regulated within General Notice Regulation 982, 2014 (as amended in 2017). The applicant is also applying in terms of Section 21 of the National Water Act 36 of 1998 (NWA 36, 1998), for Impeding or diverting the flow of water in a watercourse and altering the bed, banks, course or characteristics of a watercourse.

1.2 Location

The proposed starting point for the Malalane ring road is approximately 400 meters west of Riverview Preparatory School, bypassing the town of Malalane to the south and ending approximately 1km east of the Eskom sub-station. The alignment of the Malalane Ring Road is proposed between the coordinates provided below:

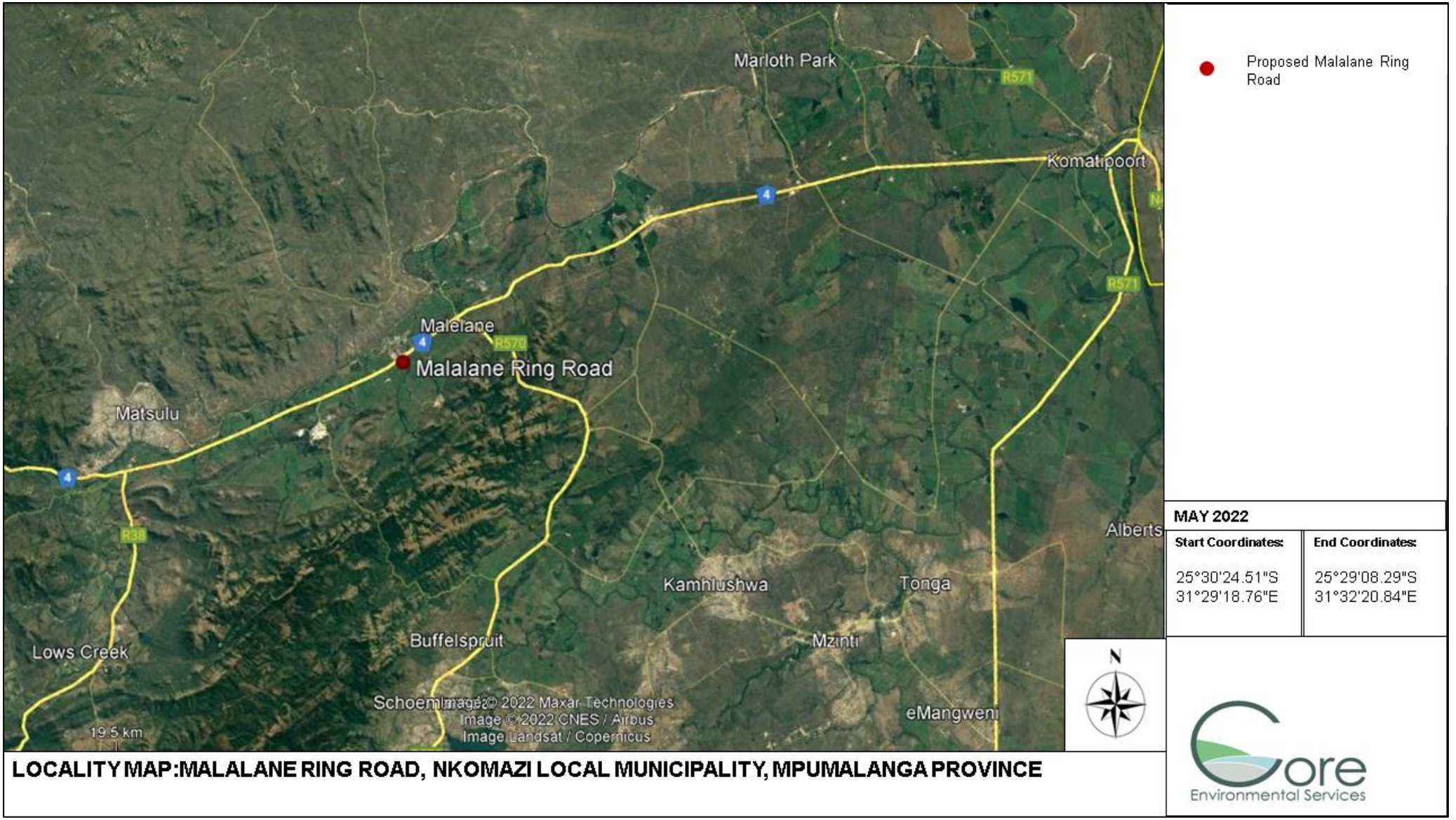
Start Coordinates:	End Coordinates:
25° 30'24.51"S	25° 29'08.29"S
31° 29'18.76"E	31° 32'20.84"E

The proposed alignment of the Malelane Ring Road, inclusive of its servitude being investigated, as well as the proposed access roads to Malelane, will affect the following properties:

TABLE 1: AFFECTED PROPERTIES

Farm Name	Portion Number	21-digit Surveyor General codes:
Malelane 389-JU	1	T0JU00000000038900001
Malelane 389-JU	4	T0JU00000000038900004
Malelane 389-JU	7	T0JU00000000038900007
Malelane 389-JU	9	T0JU00000000038900009
Malelane 389-JU	12	T0JU00000000038900012
Malelane 389-JU	16	T0JU00000000038900016
Malelane 389-JU	18	T0JU00000000038900018
Malelane 389-JU	39	T0JU00000000038900039
Malelane 389-JU	46	T0JU00000000038900046
Malelane 389-JU	53	T0JU00000000038900053
Malelane 389-JU	79	T0JU00000000038900079
Malelane 389-JU	88	T0JU00000000038900088
Malelane 389-JU	94	T0JU00000000038900094
Malelane 389-JU	95	T0JU00000000038900095
Malelane 389-JU	99	T0JU00000000038900099
Malelane 389-JU	116	T0JU00000000038900116
Malelane 389-JU	157	T0JU00000000038900157
Malelane 389-JU	176	T0JU00000000038900176
Malelane 389-JU	177	T0JU00000000038900177

Please refer to the locality map below, Figure 1 and 2.



LOCALITY MAP:MALALANE RING ROAD, NKOMAZI LOCAL MUNICIPALITY, MPUMALANGA PROVINCE

FIGURE 1: LOCALITY MAP – SITE LOCATION

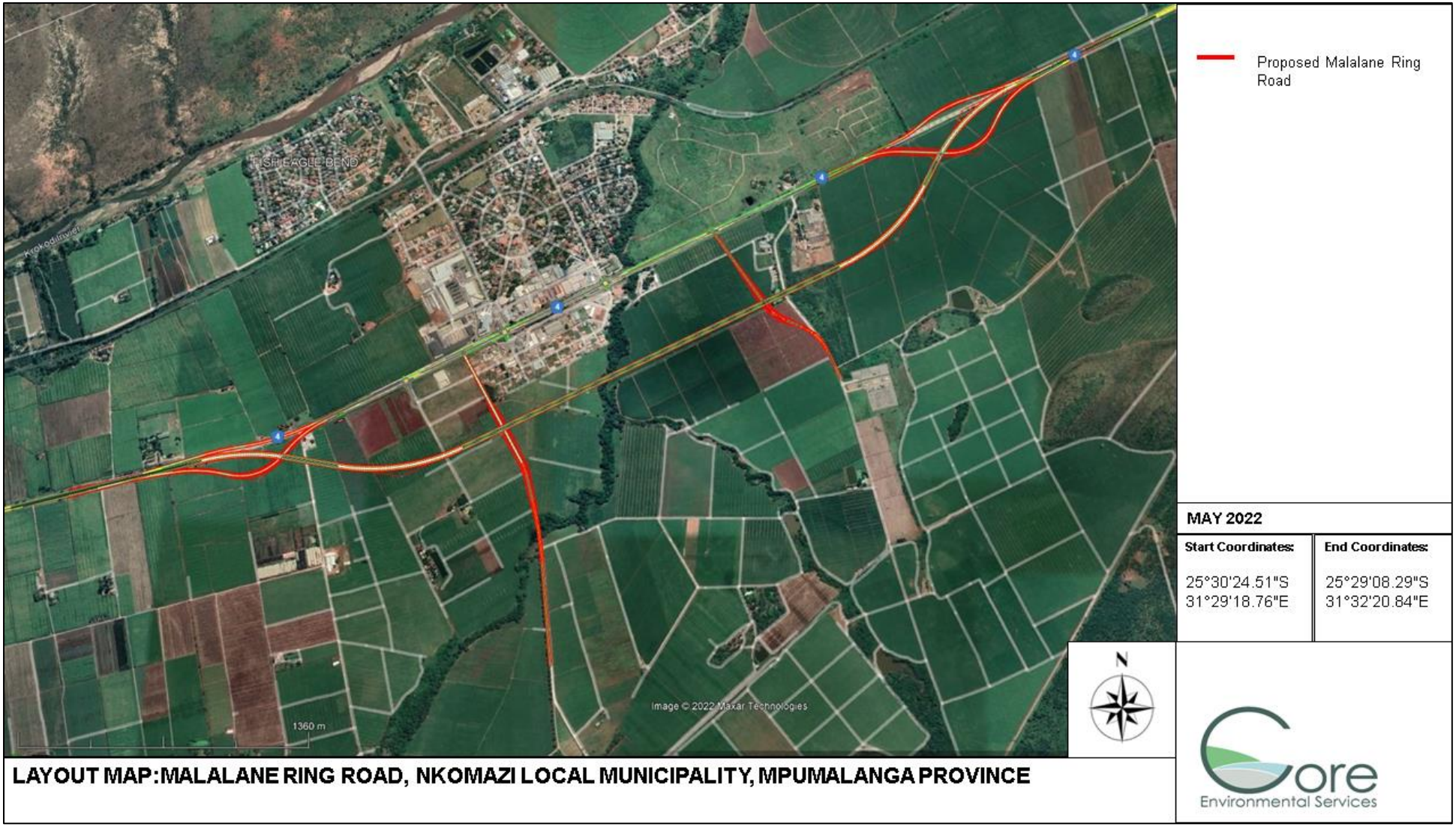


FIGURE 2: LOCALITY MAP – PROPOSED PROJECT AREAS

1.3 Details of the EAP

Core Environmental Services has been appointed by The South African National Roads Agency Limited (SANRAL) as the independent Environmental Assessment Practitioner (EAP) for the proposed project and meets the general requirements as stipulated in regulations 13(3) of the NEMA 2014 EIA Regulations as amended. Core Environmental Services therefore:

- Is independent and objective;
- Has expertise in conducting EIAs;
- Takes into account all relevant factors relating to the application; and
- Provides full disclosure to the applicant and the relevant environmental authority.

Table 1 below, presents the details of the EAP's involved. A detailed Curriculum Vitae and Qualifications are attached as **Appendix E**

TABLE 2: DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

Core Environmental Services	
Person Responsible	Anne-Mari White
Professional Registration	• Environmental Assessment Practitioners Association of South Africa (EAPASA Reg No: 2020/602) • South African Council for Natural Scientific Professionals as a Certificated Natural Scientist (Reg. No 300067/15)
Address	10 Nartjie street Mbombela 1200
Telephone Number	060 878 1591
Email	Anne-mari@coreenviro.co.za
Qualifications & Experience	**BSc. Environmental Management** 14 years of experience

1.4 Policy, Legal and Administrative Framework

TABLE 3: LEGISLATION APPLICABLE TO THE PROJECT

Applicable legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments considered	Project application and type (permit / licence / authorisation / comment)
The Constitution of South Africa, Act No. 108 of 1996	**SANRAL** will be required to adhere to the Environmental Management Programme (EMPr) requirements to ensure that social and environmental management considerations are considered and implemented. As per Section 25 the Constitution, a public participation process (PPP) was and will continue to be undertaken, as this is considered to be an essential mechanism for informing stakeholders of their rights and obligations in terms of the project.
National Environmental Management Act, 1998 (Act No. 107 of 1998)	Environmental Authorisation will subsequently be applied for by means of conducting a Scoping and Environmental Impact Assessment process as regulated within GNR982 of 2014 (as amended in 2017).
National Biodiversity Act, 2004 (Act No. 10 of 2004)	The act provides for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998; the protection of species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources, the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resource; the establishment and functions of a South African National Biodiversity Institute; and for matters connected therewith. The National Biodiversity Act, 2004, must therefore be considered prior to the clearance of vegetation to minimise the impact on the terrestrial biodiversity.

National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)	The purpose of this Act is to provide for the protection, conservation and management of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes.
National Heritage Resources Act, 1999 (Act No. 25 of 1999)	The National Heritage Resources Act, 1999 (Act No. 25 of 1999) legislates the necessity for cultural and heritage impact assessment in areas earmarked for development, which exceed 0.5 ha. The Act makes provision for the potential destruction to existing sites, pending the archaeologist's recommendations through permitting procedures. Permits for this specific project would be administered by the Mpumalanga Heritage Agency or South African Heritage Resources Agency (SAHRA).
Noise Control Regulations in terms of the Environmental Conservation, 1989 (Act 73 of 1989)	The assessment of impacts relating to noise pollution management and control, where appropriate, must form part of the EMPr. Applicable laws regarding noise management and control refer to the National Noise Control Regulations issued in terms of the Environment Conservation, 1989 (Act 73 of 1989).
National Water Act, 1998 (Act 36 of 1998)	This Act provides for fundamental reform of law relating to water resources and use. The preamble to the Act recognises that the ultimate aim of water resource management is to achieve sustainable use of water for the benefit of all users and that the protection of the quality of water resources is necessary to ensure sustainability of the nation's water resources in the interests of all water users. The proposed activities will entail the construction of a bridge, crossing the Buffalo River therefore, an application for a Water Use License will be submitted to the Inkomati-Usuthu Catchment Management Agency (IUCMA).

Occupational Health and Safety Act, 1998 (Act No. 85 of 1998)	The Act provides for the health and safety of people at work and for the health and safety of people using plant and machinery. During establishment, work must be conducted with strict adherence to the Occupational Health and Safety Act 85 of 1998.
National Heritage Resources Act, 1999 (Act No 25 of 1999)	This legislation aims to promote good management of the national estate, and to enable and encourage communities to nurture and conserve their legacy so that it may be bequeathed to future generations. Due to the length of the road, a Heritage Specialist will investigate the areas proposed for the road alignment. The Heritage Impact Assessment Report will be submitted to SAHRA as well as the Department of Agriculture, Forestry and Fisheries for comment.
Nkomazi Local Municipality Integrated Development Plan (IDP) (2017 - 2022)	The primary objectives of the IDP is to foster economic growth that creates jobs and improve infrastructure within the Province. Job opportunities will be created by the proposed agricultural activities which supports economic growth within the area.

1.5 National Environmental Management Act 107 of 1998

The Scoping and Environmental Impact assessment process has been undertaken in accordance with the requirements of the National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998), EIA Regulations, 2014 (as amended in 2017). Activities identified in terms of the Environmental Regulations 2014 (as amended in 2017), may not commence without obtaining Environmental Authorization from the competent authority, **DFFE**, and in respect of which the investigation, assessment and communication of activities must follow the EIA procedure as regulated. As per the National Environmental Management Act 107 of 1998 (NEMA 107, 1998), GNR 983, GNR 984 and GN 985 of 2014 (as amended in 2017), the following listed activities are being applied for:

TABLE 4: LISTED ACTIVITIES APPLICABLE TO THE PROJECT

Government Notice R983 (as amended) Activity No.	Describe the relevant Activity in writing as per Listing Notice 1 (GN No. R983, as amended)	Describe the portion of the development as per the project description that relates to the applicable listed activity
12	*The development of (ii) infrastructure or structures with a physical footprint of 100 square metres or more where such development occurs within (a) a watercourse*	The proposed project entails the construction of a bridge crossing the Buffalo River The bridge is proposed to be 100m in length and 40m in width
19	*The infilling or depositing of any material or more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from (i) a watercourse*	The proposed project also entails the construction of a bridge crossing the Buffalo River The bridge is proposed to be 100m in length and 40m in width
27	*The clearance of an area of 1 hectare or more but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for-* *(i) The undertaking of a linear activity; or* *Maintenance purposes undertaken in accordance with a maintenance management plan*	An area of indigenous vegetation will be cleared for the proposed Malalane Ring Road. The area of indigenous vegetation to be cleared, totals approximately 1.5 Ha in extent.
Government Notice R984 (as amended) Activity No.	**Describe the relevant Activity in writing as per Listing Notice 2 (GN No. R984, as amended)**	**Describe the portion of the development as per the project description that relates to the applicable listed activity**
27	*The development of a road* *(i) A national road as defined in section 40 of the South African National Roads Agency Limited and National Roads Act, 1998 (Act No. 7 of 1998);* *(ii) A road administered by a provincial authority;* *(iii) A road with a reserve wider than 30 metres;* *(iv) A road catering for more than one lane of traffic in both lanes*	The proposed Malalane Ring Road aims to bypass Malalane Town by means of constructing a new highway to the south of the town. The new Ring Road is proposed to be approximately 6km in length, 80m in width (40m to each side with a grass median). The 80m does however not include the road reserve.

Government Notice R985 (as amended) Activity No:	Describe the relevant Activity in writing as per Listing Notice 3 (GN No. R985, as amended)	Describe the portion of the development as per the project description that relates to the applicable listed activity
14 (f)	*(xii) The infilling or depositing of any material or more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres or more; where such development occurs- (a)within a watercourse;* *(f) Areas within 10 kilometers from national parks or world heritage sites or 5 kilometers from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve, where such areas comprise indigenous vegetation*	The proposed project site is located within the 10km buffer from a national park. The proposed site is located approximately 2km south from the Kruger National Park and infilling activities within the Buffalo River will take place within the 10km buffer from a National Park.

According to the triggered activities, the Applicant is required to conduct a Scoping and Environmental Impact Assessment (Scoping and EIA) for the activities proposed.

1.6 EIA Phase:

The objective of the environmental impact assessment process is to, through a consultative process –

(a) Determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context;
(b) Describe the need and desirability of the proposed activity, including the need and desirability of the proposed activity in the context of the preferred location;
(c) Identify the location of the development footprint within the preferred site based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic and cultural aspects of the environment;
(d) Determine the –
    i. Nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives;
    ii. Degree to which these impacts –
        1. can be reversed;
        2. may cause irreplaceable loss of resources, and
        3. can be avoided, managed or mitigated;
(e) identify the most ideal location for the activity within the preferred site based on the lowest level of environmental sensitivity identified during the assessment;

(f) identify, assess and rank the impact the activity will impose on the preferred location through the life of the activity;
(g) identify suitable measures to avoid, manage or mitigate identified impact; and
(h) identify residual risks that need to be managed and monitored.

1.7 Description of the project

The South African National Roads Agency Limited (SANRAL) is proposing to construct the Malalane Ring Road of approximately 6km in length, within the Mpumalanga Province. The N4 highway is the main route between Maputo in Mozambique and Gauteng and at present, the only town which is still affected by the N4-highway, is Malalane. The proposed Malalane Ring Road aims to bypass Malalane Town by means of constructing a new highway to the south of the town. The proposed alignment also entails the construction of a bridge to cross the Buffalo River (Coordinates: 25°30'5.63"S 31°30'51.40"E).

There is an existing gravel road which provides access to and from Malalane from all the farms located to the south of Malalane. This existing access road traverse a Tributary of the Buffalo River and as part of the construction activities, the existing road will be compacted in order to improve the condition of the road. (Coordinates: 25°30'30.87"S 31°30'40.21"E). As this is an existing road which will not be widened or tarred, this water crossing is not being applied for in terms of the National Environmental Management Act 107, of 1998.

A construction camp will be erected on site for the duration of the construction. Designated areas will be established during the construction phase for construction equipment, vehicles and stockpiling. This area will be outside all sensitive areas. As far as possible, these areas will be located within already disturbed areas or areas that will be directly impacted by the road construction footprint. Existing roads will be used as far as possible for access during construction, however where necessary haul roads will temporarily be put into place

In accordance with the National Environmental Management Act 107 of 1998 (NEMA 107, 1998), an Environmental Authorisation (EA) is required prior to the commencement of some of the proposed construction activities. In accordance with General Notice R982, 2014 (as amended in 2017), a Scoping and Environmental Impact Assessment process must be followed to apply for EA.

As mentioned, the proposed project also entails the construction of a bridge crossing the Buffalo River and in accordance with Section 21 of the National Water Act 36, 1998, a Water Use License (WUL) is also required when any activity takes place within a watercourse.

1.8 Need and Desirability

The N4 highway is the main route between Maputo in Mozambique and Gauteng and at present, the only town which is still affected by the N4-highway, is Malalane. The proposed Malalane Ring Road aims to bypass Malalane Town by means of constructing a new highway to the south of the town.

Currently, there is a high volume of traffic flowing through Malalane, as this is the main route to Mozambique and The Kruger National Park. All these vehicles travelling through the town is

causing unsafe conditions for the residents of Malalane Town. For this reason, the proposed development aims to firstly improve the traffic flow along the N4 Highway and improve the safety of motorists.

South Africa is a signatory to several international treaties, agreements, and programmes. Some of the policies and directives, emanating from the country's treaties and programmes, impact the development of the Provincial Spatial Development Framework. One of the said programmes is the Maputo Development Corridor (MDC) as part of the Coast 2 Coast Corridor (Walvis Bay to Maputo) which is supported by a transportation corridor connecting Gauteng to the port of Maputo on the east coast. The MDC was launched as a Spatial Development Initiative (SDI) in 1996. The MDC is based on the objectives to:

- Rehabilitate the primary infrastructure network - road, rail, port and dredging, and border posts.
- Maximise investment in both the inherent potential of the corridor area and in the added opportunities.
- Boost social development, employment opportunities of historically disadvantaged communities.

The proposed development will ensure safe and efficient transport along the MDC between South Africa and Mozambique and thus has direct benefits on a national level. The development is necessary to improve the current status of the MDC. This will likely have a positive impact in terms of employment in the region.

2. PUBLIC PARTICIPATION PROCESS

The purpose of this chapter is to provide an outline of the public participation process (PPP) to date and the way forward with respect to the Scoping and Environmental Impact Assessment process.

Consultation with the public forms an integral component of the EA process. This process enables Interested and Affected Parties (I&APs) (e.g. directly affected landowners, national-, provincial- and local authorities, and local communities etc.) to raise their issues and concerns regarding the proposed activities, which they feel should be addressed in the BA process. The PPP has thus been structured such as to provide I&APs with an opportunity to gain more knowledge about the proposed project, to provide input through the review of documents/reports, and to voice any issues or concerns at various stages throughout the BA process.

2.1 Approach and Methodology

The public participation approach adopted in this plan is in line with the process contemplated in Regulation 39 through 44 of the EIA Regulations as amended in terms of NEMA and Annexures 2 and 3 of Government Notice No 43412 of 5th of June 2020.

2.1.1 Identification of Interested and Affected Parties

The identified parties include pre-identified government and land owners. Further, an opportunity has been given to I&APs to register. The stakeholders identified include the following:

- Mpumalanga Department of Agriculture and Rural Development and Land Administration
- Mpumalanga Department of Human Settlements, Water and Sanitation;
- Mpumalanga Department of Transport and Public Works;
- Department of Water and Sanitation
- Inkomati-Usuthu Catchment Management Agency (IUCMA)
- N4 Trans African Concessions (TRAC)
- The Mpumalanga Provincial Heritage Resource Authority (MPHRA)
- South African Heritage Resource Agency;
- Ehlanzeni District municipality;
- Nkomazi Local Municipality

2.1.2 Public Participation Database

In accordance with the requirements of the EIA Regulations under Section 24 (5) of NEMA, Regulation 42 of GN R. 982, a register of I&APs must be kept by the public participation practitioner. I&APs were identified during the public participation phase of the project. All the parties identified as an I&AP (surrounding landowners, relevant departments, stakeholders, local and district authorities) have automatically been registered in the I&APs database for the project. The registered I&AP list is attached as **Annexure C.1.**

2.1.3 Site Notices

A2 size notices have been placed at different conspicuous locations within and around the proposed project area. Locations where site notices have been placed include the following:

- The western boundary of the proposed alignment along the N4 higway;
- The eastern boundary of the proposed alignment along the N4 Highway at the Eskom Khanyazwe substation;
- The notice board at the Pick ‘n Pay shopping Centre in Malalane.

The placing of site notices took place on 18 May 2022. See **Annexure C.4** for photographic evidence.

2.1.4 Placement of an Advertisement in the Local Newspaper

An advertisement has been placed in the Lowvelder Newspaper on 26 May 2022 to inform I&APs of the proposed project, and their opportunity to register as an I&AP and to submit comments and/or concerns. See **Annexure C.3** for evidence.

2.1.5 Background Information Document

An English Background Information Document was sent to pre-identified government departments, landowners, adjacent and neighbouring landowners, stakeholders, as well as local and district authorities on 23 May 2022. Please see proof of distribution attached as **Annexure C.2**.

2.1.6 Distribution of the Draft Scoping Report

The Draft Scoping Report was made available to all registered interested and affected parties and stakeholders from 13 July – 12 August 2022. All comments received has been included within the Comments and Response Report attached as Appendix C.6.

Proof of distribution of the Draft Scoping Report is attached as **Appendix C5.**

3. CONSIDERATION OF ALTERNATIVES

The EIA process requires the developer to identify and investigate/assess feasible and reasonable alternatives. The project alternatives range from the location where the activity is proposed, type of activity to be undertaken, design the of activity, technology to be used in the activity to the option of not implementing the activity (No-Go Alternative).

The assessment of the alternatives is a complicated and multi-faceted issue, which is essential to the success of this application and ultimately to the proper, responsible and sustainable operation of the proposed project.

3.1 Alternative Selection

3.1.1 Location alternatives

The N4 Malalane Bypass has been in planning for a number of years whereby the appointed engineers discussed and weighed various alternatives. Taking the surrounding area of Malalane into consideration, there are only three alternatives for the proposed Ring Road. Ring Road to the north of Malalane, Ring Road to the south of Malalane or upgrading the existing N4 highway travelling through the town of Malalane. These alternatives are described below.

Location Alternative 1:

Bypassing Malalane along the northern side of the town:

Malalane Town is bordered by the Kruger National Park and the Crocodile River therefore the option of bypassing Malalane to the North of the town, could not be considered as the Ring Road would affect the Crocodile River and boundaries of the National Protected Area. On desktop level, the ecological and aquatic impact of this proposed alignment is significant and is therefore not further assessed and considered.

Location Alternative 2:

Upgrading the existing N4 Highway:

The other alternative would be to upgrade the current N4 highway at its existing location going through Malalane. In order for this to be an option, sufficient space is required for the expansion of the highway as well as the road reserve. The current highway divides the town of Malalane into two sections and seemingly, residents would need to access both sections located to either side of the highway without any safety hazard. It is not preferred for any highway to include stop signs and/or traffic lights and therefore overhead bridges would have to be provided. Sufficient space for such development is however a limiting factor.

Due to existing buildings and infrastructure already established within Malalane Town, this alternative could not be considered.

Location Alternative 3:

Bypassing Malalane along the southern side of the town:

The only feasible location alternative for the N4 Malalane Ringroad, was therefore to the south of the town of Malalane. Various factors for the proposed location had to be considered, such as:

- Shortest location to reduce the cost of the alignment; as well as
- Future and current developments;

A residential and commercial development was recently applied for and approved on portion 5 and 6 of the farm Malelane 389-JU. Provision for the alignment of the proposed N4 Malalane Ringroad had to be incorporated into the township design which has been approved and therefore considering any other location alternatives which would be suitable for the affected farm and land owners would be problematic and have a huge financial impact on the owner of the approved development.

The impact of this proposed alignment is further assessed in Section 6 of the Report.

3.1.2 Layout alternatives

An Ecological, Aquatic and Heritage Impact Assessment was undertaken as part of the Environmental Impact Assessment process, to identify any sensitivities within the project area to be of ecological, aquatic or heritage significance. A corridor of 300m was investigated as part of the EIA process which would have informed the proposed layout of the alignment. No sensitivities of ecological, aquatic or heritage significance were found during the specialist investigations.

3.1.3 No-Go alternative

The no-go alternative would be to not authorise the proposed N4 Malalane Ringroad which would imply that the situation would remain as it currently is with the N4 highway going through the town of Malalane. With the increase in traffic flow towards Mozambique, it has become imperative to look at alternatives to accommodate the increase in traffic and ensure the road safety of residents within Malalane. It is believed that the traffic flow along the Maputo Corridor will continue to increase, and therefore the option of not constructing the N4 Malalane Ring Road, would have a negative impact on the flow of traffic and safety of residents.

4. DESCRIPTION OF THE AFFECTED ENVIRONMENT

The description of the affected environment below draws on existing knowledge from published data, previous studies, specialist investigations, site visits to the area and is used to understand the possible effects of the proposed project on the environment.

4.1 Topography

The topography of Mpumalanga region is a varied one, comprising of the Highveld (high lying) and the Lowveld (low lying) regions. Mpumalanga is mainly situated on the high plateau grassland known as Highveld. The Highveld stretches for hundreds of kilometres eastwards, until it rises towards mountain peaks and deep valleys of the Escarpment in the north-east. From the escarpment, it plunges hundreds of meters down to the low-lying area known as the Lowveld. The Lowveld region is mostly flat with some rocky outcrops.

The alignment of the proposed Malalane Bypass is however relatively flat and approximately 330 meter above mean sea level.

4.2 Climate

Mpumalanga has a sub-tropical climate characterised by hot summers and mild to cool winters shifting to cold and frosty conditions in the Highveld regions. World Climate Data presented in the province's Vulnerability Assessment Report shows that the current mean annual temperatures are highest in the north-west and northeast regions of the province, while mean annual precipitation tends to increase towards the eastern regions of the province. The province is characterised by summer rainfall and thunderstorms, except the escarpment area which receives fair levels of precipitation throughout the year (MCCVA, 2015). Mpumalanga has an average temperature of 20˚C. Middelburg, in the heart of the Highveld, experiences summer rain and has a summer (October to February) to winter (April to August) range of around 19ºC with average temperatures in the contrasting seasons, of 26ºC and 8ºC. Figure 3 below shows that the average temperature for the Nkomazi Local Municipality is between 22.1 ºC and 23.7 ºC.

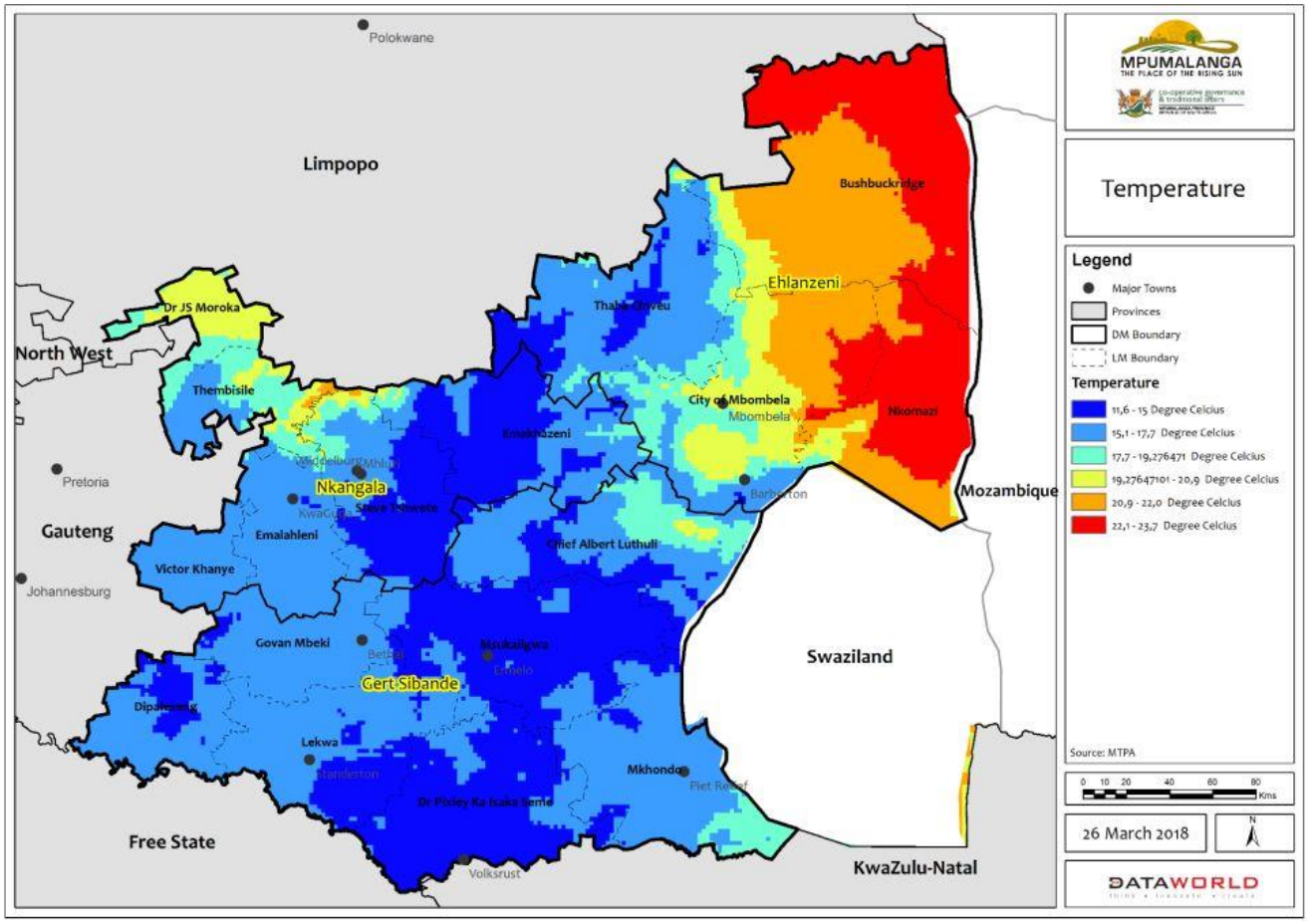


FIGURE 3: TEMPERATURE IN MPUMALANGA (MPUMALANGA DEVELOPMENT SPATIAL FRAMEWORK, 2018)

The region experiences a summer-rainfall area separated by the escarpment into two, namely, (a) the Highveld, which is characterised by cold frosty winters and moderate summers, and the (b) Lowveld which is characterised by mild winters and subtropical climate. During winter the Highveld and Escarpment sometimes experience snow. The annual rainfall occurs mainly during summer in the form of heavy thunderstorms. Given its location between the Drakensberg Escarpment and Vaal River traversing through Mpumalanga, the diverse climate in the region makes the production of a wide variety of crops possible. The Lowveld is subtropical and due to its latitude and proximity to the warm Indian Ocean, it is also renowned for citrus and subtropical fruits. The Highveld is comparatively much cooler, due to its altitude, produces much of the summer grains, such as maize and grain sorghum. Exotic trees, plantations such as gum and wattles cover most of the hills on the Escarpment as it receives the most precipitation, with all other areas being moderately hydrated by mostly thunderstorms. Figure 5 below shows that the mean annual rainfall in Malelane is between 593.1mm and 748mm.

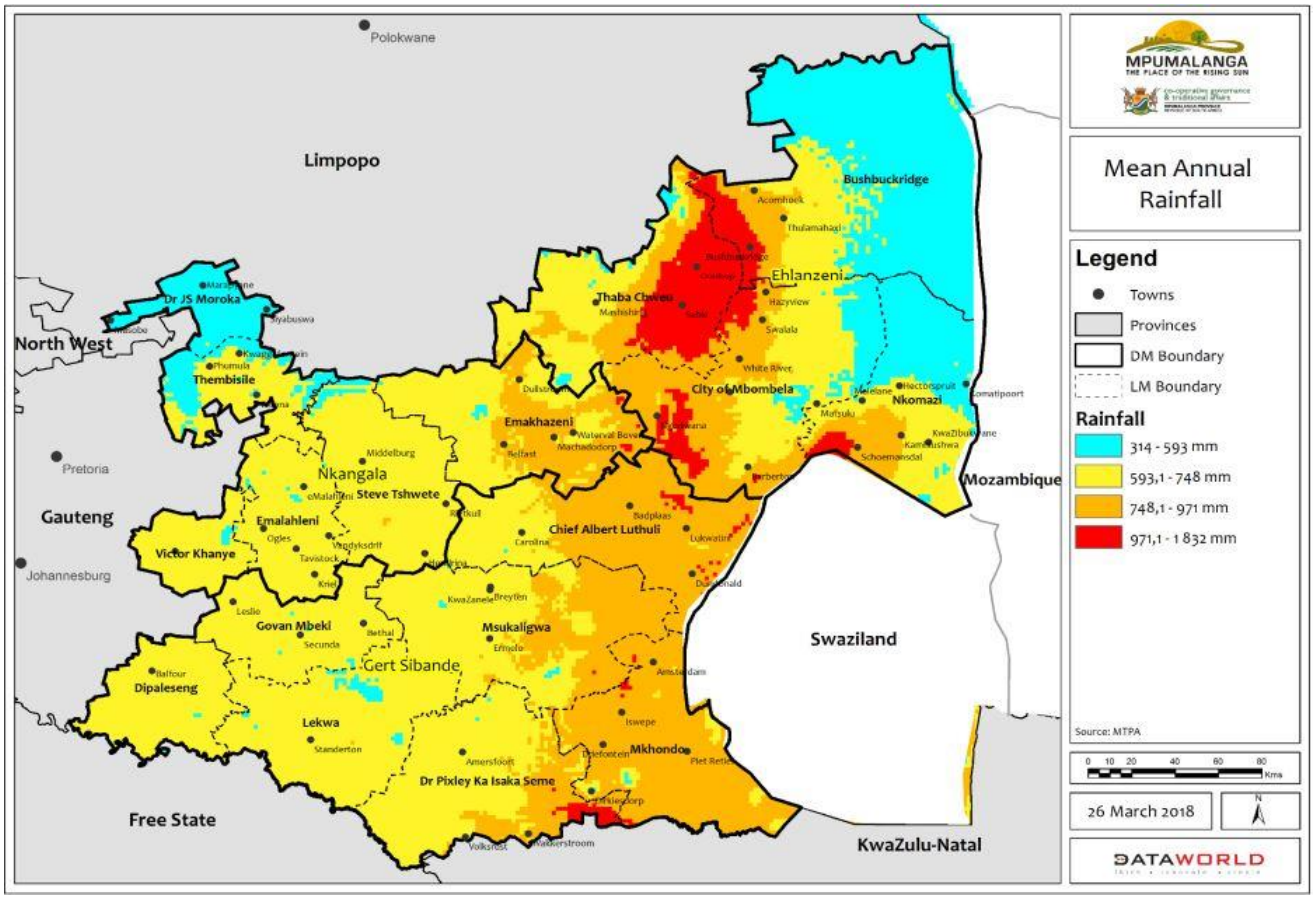


FIGURE 4: MEAN ANNUAL RAINFALL IN MPUMALANGA (MPUMALANGA SPATIAL DEVELOPMENT FRAMEWORK, 2018)

4.3 Terrestrial Ecology

4.3.1 Vegetation Type

On a national level, the larger study area can be classified as Lowveld (A10), according to Acocks (1988). The site is located within the Savannah Biome. The Savanna Biome is the largest Biome in southern Africa, occupying 46% of its area, and over one-third the area of South Africa. It is well developed over the lowveld and Kalahari region of South Africa. It is characterized by a grassy ground layer and a distinct upper layer of woody plants. The vegetation type is classified as Granite Lowveld.

<u>Granite Lowveld</u>

This vegetation type occurs at altitudes of 250 - 700 m above mean sea level and is characterised by tall shrubland with few trees to moderately dense low woodland on deep sandy uplands (Mucina and Rutherford, 2006). Dominant species in this vegetation type are: *Acacia nigrescens, Sclerocarya birrea subsp. caffra, Acacia nilotica, Albizia harveyi, Combretum apiculatum, C. imberbe, C. zeyheri, Ficus stuhlmannii, Peltophorum africanum, Pterocarpus rotundifolius, Terminalia sericea, Combretum hereroense, Dichrostachys cinerea, Euclea divinorum, Strychnos madagascariensis, Brachiaria nigropedata, Digitaria eriantha subsp. eriantha, Eragrostis rigidior, Melinis repens, Panicum maximum* and *Pogonarthria squarrosa* (Mucina and Rutherford, 2006).

4.3.2 National Threatened Ecosystems

Based on the biodiversity desktop study undertaken, the study area is within an ecosystem of Least Concern (LC). The NEMBA provides for listing threatened or protected ecosystems, in one of four categories: critically endangered (CR), endangered (EN), and vulnerable (VU) or protected. The purpose of listing threatened ecosystems is primarily to reduce the rate of ecosystem and species extinction. This includes preventing further degradation and loss of structure, function, and composition of threatened ecosystems. The study area falls within a least concerned vegetation type (Granite Lowveld) that is currently well protected (WP).

4.3.3 Protected Areas

Protected areas are areas of land that are, according to the National Environmental Management: Protected Areas Act, 2003, protected by law and as a result these areas are managed for the conservation of biodiversity.

There are two protected areas within a 10-kilometer radius from the proposed development namely, Dumaneni Reserve and The Kruger National Park. Dumaneni Reserve is an Informal land based protected area (NSBA 2010) approximately 2 kilometers south of the proposed alignment of the Malalane Bypass. The Kruger National Park is a formal land based protected area (NBA 2011), approximately 2 kilometers north of the proposed development.

No other protected areas are located within 10 km of the study area. Refer to Figure 5 below for the formal and informally protected areas associated with the study area.

4.3.4 Important Bird Area (2015)

The Kruger National Park is identified as an Important Bird Area (IBA) as well. It harbours globally threatened species, regionally threatened species and restricted range and biome-restricted species.

The Biodiversity Specialist will investigate the important bird species within the proposed alignment and the findings will be included within the EIAR.

4.3.5 Mpumalanga Biodiversity Sector Plan

According to the Mpumalanga Biodiversity Sector Plan, 2014, the project area falls within an Ecological Support Area (ESA): Protected Area Buffers. ESA's are "areas that are not essential for meeting (conservation) targets, but play an important role in supporting the functioning of CBA's and that deliver important ecosystem services" (Lötter et al., 2014). Protected Area Buffers are areas that surround proclaimed protected areas that moderate the negative impacts of land-uses that may affect the ecological functioning of those protected areas.

The entire study area is situated within an ESA Protected Area Buffer, associated with the Kruger National Park. These are areas surrounding protected areas that moderate the impacts of undesirable land-uses that may affect the ecological functioning or tourism potential of PAs. Buffer distance varies according to reserve status: National Parks - 10 km; Nature Reserves - 5 km buffer; and Protected Environments — 1 km buffer.

Most of the study area is classified as *heavily modified*. Heavily modified areas are those preferred for intensive land-uses such as the construction of settlements, industrial development and other land-uses that have a high impact such as agriculture. These land-uses should still be located and managed

in ways that maintain any residual ecological functionality, and that does not impact negatively on species for which these modified sites may be important. In some cases, restoration may be advisable.

The remaining portions of the study area are classified as *"Other Natural Areas"*. Other Natural Areas refer to areas that have not been identified as a priority in the current systematic biodiversity plan but retain most of their natural character, while performing a range of biodiversity and ecological functions. Other Natural Areas offer much more flexibility in terms of permissible land uses, but the desired management objective should be to minimise habitat and species loss and ensure ecosystem functionality through strategic landscape planning.

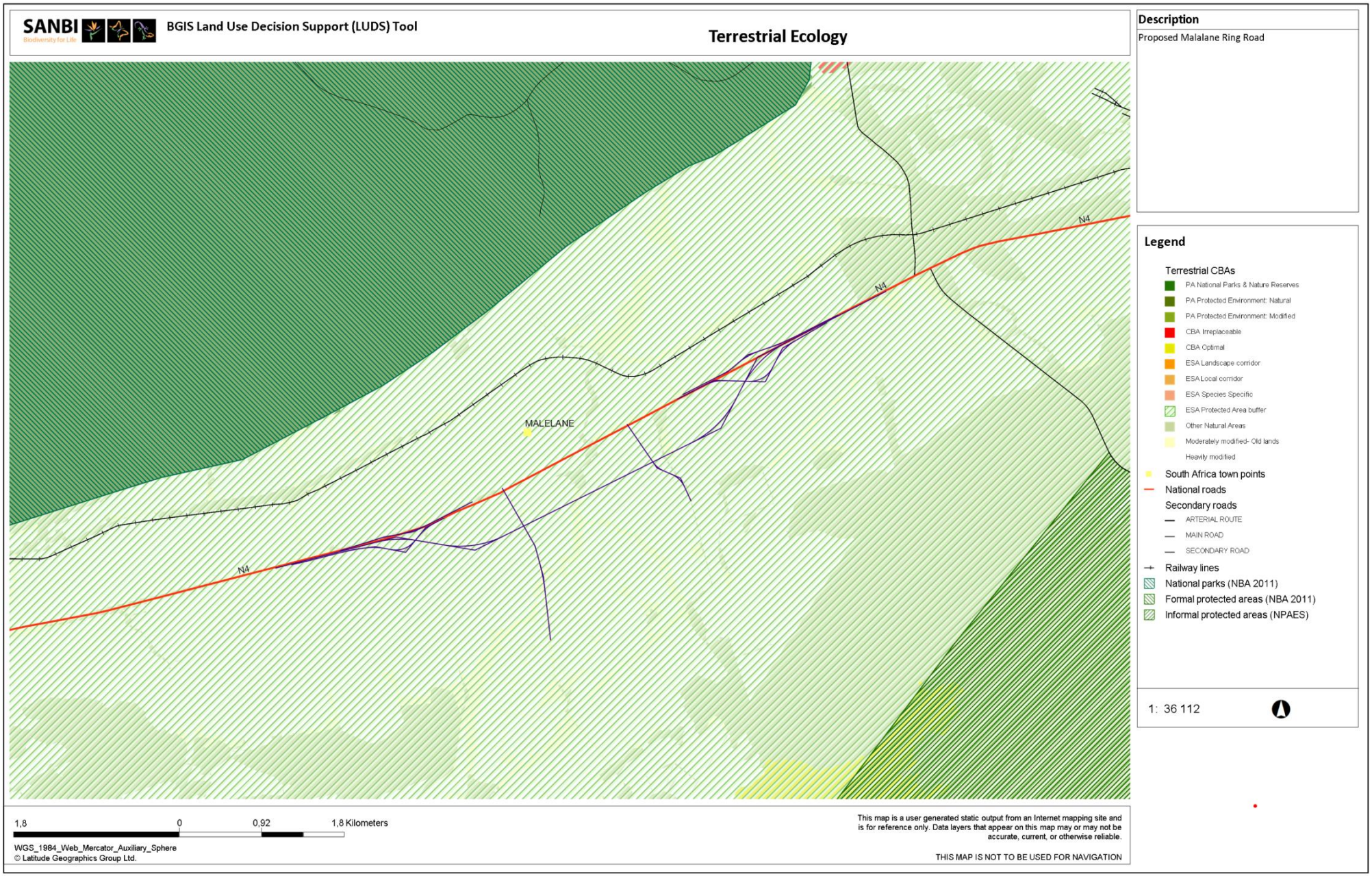


FIGURE 5: TERRESTRIAL ECOLOGY ACCORDING TO THE MPUMALANGA BIODIVERSITY SECTOR PLAN, 2014

4.4 Surface and Groundwater

The proposed study area falls under the Komati Catchment Area and quaternary catchment X24D. The quaternary Catchment receives 816.11 mm/annum. There are no NFEPA wetlands that have been noted around the site, however, one artificial wetland is present within the proposed site, classified as Lowveld Group 3 channeled valley bottom wetlands in accordance with the National Freshwater Ecosystem Priority Areas (NFEPA).

The proposed project entails the construction of a bridge crossing the Buffalo River and also compacting an existing roadway crossing a tributary of a watercourse. This existing roadway will serve as an access road for all farmers to and from the town of Malalane. There is also a small man-made irrigation dam which will be affected by the proposed alignment (Coordinates: 25°29'52.09"S 31°31'22.11"E)

The Crocodile River is located approximately 2 kilometers north of the proposed development area; however, the Crocodile River will not be impacted by the proposed road construction.

According to the Mpumalanga Biodiversity Sector Plan, 2014 the proposed site is classified as an Ecological Support Area (Important Sub catchment) and Heavily Modified. The MTPA requirements for an Ecological Support Area (important sub catchment) are quoted as follows: This sub-category includes National Freshwater Ecosystems Priority Areas (FEPA) sub-catchments and Fish Support Areas (Tiger Fish). A river FEPA is the river reach that is required for meeting biodiversity targets for river ecosystems and threatened fish species. In managing the condition of a river FEPA, it is important to manage not only the river itself, but also the network of streams and wetlands as well as land-based activities in the sub-catchment that supports the river FEPA. A proportion of tributaries and wetlands need to remain healthy and functional in order for the river FEPA to be kept in a good ecological condition. This requires that management activities are focused on maintaining water quantity and quality and the integrity of natural habitat in the sub-catchment. Refer to figure 6 for the freshwater ecology according to MBSP.

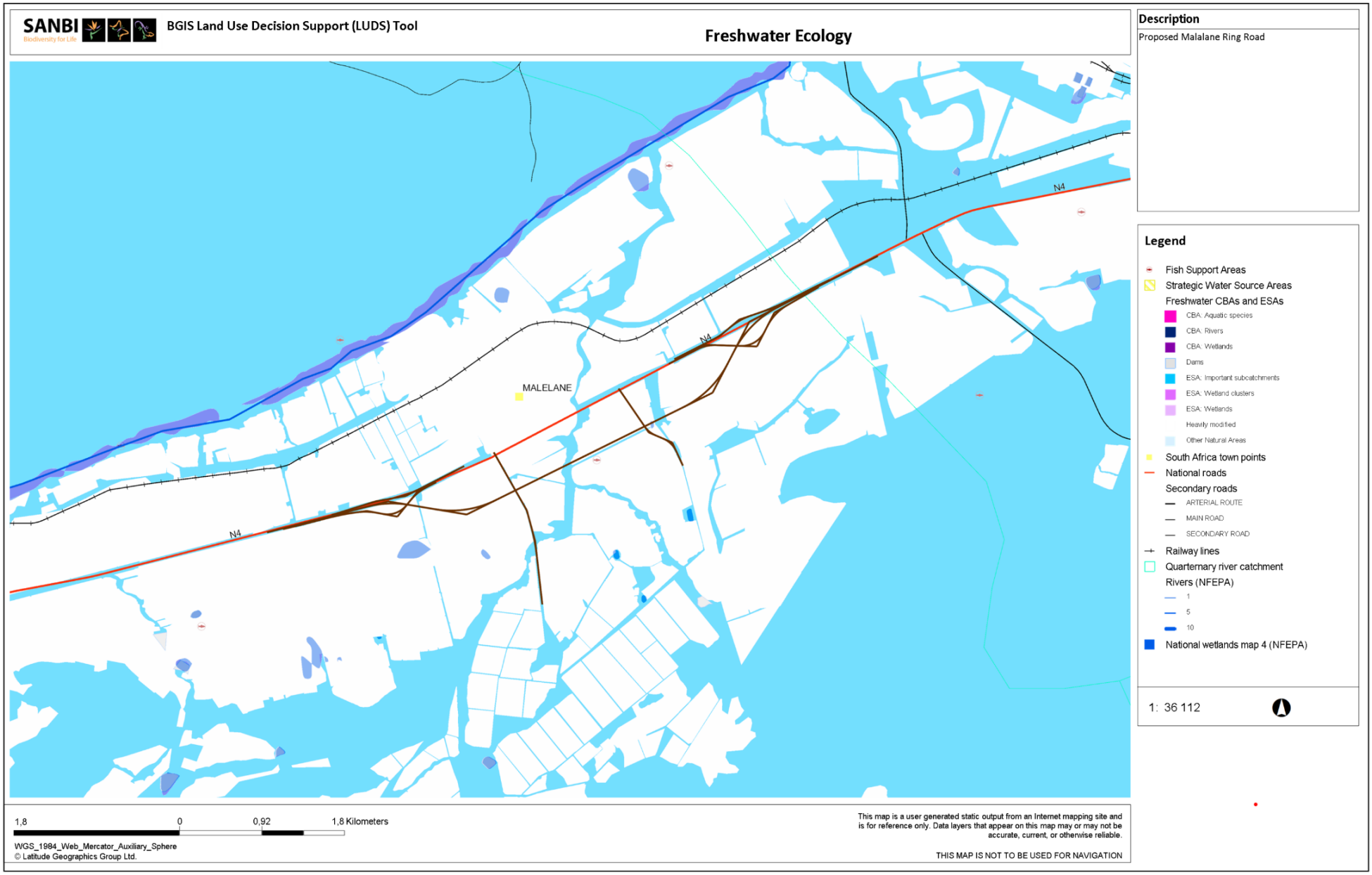


FIGURE 6: FRESHWATER ECOLOGY ACCORDING TO THE MPUMALANGA BIODIVERSITY SECTOR PLAN, 2014

4.5 Land use and Infrastructure

The proposed site is under the administration of Nkomazi Local Municipality, Ehlanzeni District Municipality, in Mpumalanga province. The immediate surroundings to the proposed development site comprise mainly of agricultural lands. The residential communities located adjacent to the proposed alignment include informal, semi-suburban (township) as well as suburban households. The main economic activities and source of employment within the Nkomazi Local Municipality is farming, manufacturing and tourism. The Kruger National Park is located approximately 2 kilometres north of the proposed development.

According to the Environmental Screening Report, the project area lies within the Strategic Gas Pipeline Corridor. The pipeline corridor affects a large area which includes the town of Mbombela as well as the Malalane, through towards Mozambique. The existing ROMPCO gas pipeline is located approximately 1.5km to the south of the proposed Ring Road. A gas and electricity plant were recently applied for on portion 39 of the farm Malalane 389-JU as well as a new gas pipeline to connect the existing ROMPCO gas pipeline with the proposed power station site. This application was approved by the DFFE in 2021. Cognisance will have to be taken of the underground gas pipeline during construction, however during operation, none of the infrastructures approved for the gas and electricity plant and gas pipeline will be affected as all structures and infrastructures approved, have been accommodated.

An existing overhead transmission line is also possibly affecting the most eastern section of the proposed alignment of the Ring Road. The minimum ground clearance of and electrical line of such voltage over a national highway, is approximately 10m. It is possible that some of the overhead transmission lines would have to be realigned to comply with the minimum ground clearance, however, as all information regarding the possible realignment is not available during this stage of the project, the realignment of the transmission line will be applied for in terms of NEMA 107, of 1998 separately, should this be required.

4.6 Geology and Soils

Mpumalanga contains within its boundaries evidence of the earliest phases of the history of the world. The province is characterised by the presence of most the geological formations in the country such as the Witwatersrand Supergroup (gold ore resources), Bushveld Complex (platinum group of minerals), and the Basement Complex geological formations. The Basement Complex is found in the Lowveld as scattered patches in the Southern Highveld (McCarthy and Rubidge, 2005). The stratum consists of various rocks such as dolerite, granite gabbro, gneiss, norite, tuff, and shale. The Barberton Supergroup represents the greenstone belts in Mpumalanga. The greenstone is economically important and made up of valuable deposits such as many golds, antimony, copper-zinc, iron, asbestos, talc, mercury, magnesite, and gemstone. The Lowveld region of the province is underlaid by African Cratonic Basement rocks which date more than 2 billion years, with the Highveld region made up of Karoo Sequence sedimentary rocks of a younger, Carboniferous to Permian age.
A large proportion of Nkomazi Local Municipality is underlain with quartz monzonite (30.7%) to the south and central region. Basalt is the second most dominant (16.5%) geology type, located to the east. The north western part is predominantly underlain with arenite and lava. The least occurring geology types are ultramafic rocks, granophyre, gabbro and dolorite.

4.8 Heritage

A Heritage Impact Assessment was undertaken to determine whether the transformation of the proposed land will have any impact on heritage resources or artefacts.

The assessment found that the entire area has already been transformed and no artefacts, buildings or structures of any historical or cultural significance were found within the proposed alignment.

4.9 Socio-Economic Environment

Mpumalanga Province is located in the north-eastern part of South Africa. The province borders two of South Africa's neighbouring countries viz. Mozambique and Swaziland; and other South African provinces namely; Gauteng, Limpopo, KwaZulu-Natal and Free State Provinces. Mpumalanga is characterised by the high plateau grasslands of the Middleveld, which rolls eastwards for hundreds of kilometres. In the north-east, it rises towards mountain peaks and terminates in an immense escarpment.

The Mpumalanga Province covers an area of 76 495km² and has a population of approximately 4 335 965 (IDP, 2017). The capital city of Mpumalanga is Mbombela (previously known as Nelspruit) and other major cities and towns include Emalahleni (previously known as Witbank), Standerton, eMkhondo (previously known as Piet Retief), Malelane, Ermelo, Barberton and Sabie. The province is divided into three district municipalities namely, Gert Sibande, Ehlanzeni and Nkangala Districts. The three districts are further subdivided into 17 Local Municipalities of which the proposed development falls within the Nkomazi Local Municipality of the Ehlanzeni District Municipality

The proposed development is located within the Nkomazi Local Municipality. The Nkomazi Local Municipality is located in the eastern part of the Ehlanzeni District Municipality of the Mpumalanga Province. The municipality is strategically placed between Swaziland (North of Swaziland) and Mozambique (east of Mozambique). It is linked with Swaziland by two provincial roads the R570 and R571 and with Mozambique by a railway line and the main national road (N4), which forms the Maputo Corridor.

The larger portion of the 410 907 individuals within the Nkomazi Local Municipality, lives in peri-urban and rural areas. Nkomazi Local Municipality currently has a high level of unemployment and a high household dependency. The levels of skill and qualifications of the population is fairly low which is problematic for future economic development. The socio-economic context of the surrounding environment can therefore be described as a community with a low percentage of education and high unemployment rate.

5. SPECIALIST ASSESMENTS IDENTIFIED WITHIN THE DFFE SCREENING TOOL AND SITE VERIFICATION

The following specialist assessments were identified within the Department of Environmental Affairs Screening Report to be conducted as part of the Scoping and Environmental Impact Assessment:

TABLE 5: SPECIALIST ASSESSMENT IDENTIFIED WITHIN THE DFFE SCREENING TOOL

SPECIALIST ASSESSMENT	ASSESSMENT UNDERTAKEN Yes/No	Statement
Agricultural Impact Assessment	No	The total agricultural area to be affected by the approximately 6km Ring Road, equates to approximately 45Ha of the approximately 1380Ha, over the nine properties to be affected by the proposed Ring Road. Thus, of all the properties affected, approximately 3% of the agricultural potential would be lost. Each landowner will be affected differently, depending on the size of their properties, however, taking into consideration that only 3% of the farm properties to be affected will be used for the proposed Ring Road, the impact is minimal and for this reason, no Agricultural Impact Assessment was undertaken.
Visual Impact Assessment	No	Most of the proposed area is currently zoned for agricultural purposes, however, the urban edge of Malalane Town is located only approximately 100m to the north of the proposed alignment. The surrounding areas have therefore already been transformed and therefore the visual impact on the surrounding receptors would be minimal. Due to the minimal visual impact, no visual impact assessment was undertaken.
Heritage Impact Assessment	Yes	A Heritage Impact Assessment was conducted for the approximately 6km proposed alignment of the N4-Highway. The findings of the investigation are discussed in Section 4.8 above and the Heritage Impact Assessment is attached as Appendix D.

Paleontological Assessment	No	Following the submission of the Draft Scoping Report to the South African Heritage Resources Agency (SAHRA), comment was received that the proposed development is located within an area of low Palaeontological Sensitivity as per the SAHRIS PalaeoSensitivity map. As a result of this, no further assessment of the impact to palaeontological resources were required.
Terrestrial Biodiversity Assessment / Plant and Animal Species Assessment	Yes	A Biodiversity Impact Assessment was conducted on the approximately 1Ha area which have not yet been transformed, however, it was found that this is of low ecological significance. Please refer to Appendix D for more detail on the findings made by the Biodiversity Specialist.
Aquatic Impact Assessment	Yes	An Aquatic Biodiversity Assessment was undertaken for the Buffalo River; however, it was found that agricultural activities and the clearance of the riparian area for agricultural activities, have impacted the watercourse severely and for this reason, the aquatic eco system is of low sensitivity. The Aquatic Biodiversity Assessment is attached as Appendix D.
Noise Impact Assessment	No	As indicated, the proposed N4 alignment is located only approximately 100m from the urban edge of the town of Malalane and other areas are surrounded by agricultural activities. The area proposed for the alignment is therefore already within an area affected by other activities and there are no sensitive noise receptors within the immediate area of the proposed alignment. For this reason, no Noise Impact Assessment was undertaken.
Traffic Impact Assessment	No	No Traffic Impact Assessment was undertaken as the Ring Road is proposed to relieve the current traffic flow and congestion is causes through the town of Malalane. It is known that three is a high volume of heavy moving vehicles travelling to and from Mozambique on a daily basis. All these vehicles are currently travelling through the town of Malalane, causing delays, and increasing the safety risk of motorists making use of this road. As the project is proposed to alleviate the current congestion and improve the safety of motorist, no Traffic Impact Assessment was found to be required.

Geotechnical Assessment	No	The proposed alignment is proposed to be located along the urban edge of the existing Malalane town. In general, the geological area is suitable for development, however, upon commencement of construction, soil tests will be undertaken to ensure that suitable soils are used during construction. As the larger area is suitable for development from a geotechnical perspective, no Geotechnical Assessment was undertaken.
Socio-Economic Assessment	No	The businesses within Malalane along the current N4 highway, such as filling stations, quick shops and grocery stores, receive a lot of clientele and business from motorists and trucks travelling through Malalane. If motorists and trucks have an alternative route, bypassing Malalane, the possibility of loss of income and business is increased. However, no businesses such as filling stations and places of refreshment is proposed along the new Ring Road and therefore all motorists who needs to undertake any business within Malalane, will still be able to do so freely by continuing to make use of the existing N4 Highway. Motorists will therefore be given an option to make use of the Ring Road or to continue straight through the town of Malalane. As there will be no other businesses, filling stations or places of refreshments along the proposed Ring Road, and the existing highway travelling through Malalane will remain as is, it is unlikely that businesses within Malalane will be affected as motorists who wishes to stop in Malalane for any business such as refueling or refreshments, will still be able to do so. For this reason, no Socio-Economic Assessment was undertaken.

The following themes within the development site environmental sensitivities were identified to be of Very High and High sensitivity:

TABLE 6: ENVIRONMENTAL SENSITIVITIES IDENTIFIED OF VERY HIGH AND HIGH SIGNIFICANCE

THEME	CONFIRMATION
Agricultural Theme	The agricultural theme is of high sensitivity as most of the project area and surrounding area is utilized for agricultural purposes. As mentioned in Table 5 above, only approximately 3% of the total properties to be affected will be impacted by the proposed Malalane Ring Road and therefore the impact on agricultural land is low and no Agricultural Impact Assessment was undertaken.
 **FIGURE 7: EVIDENCE OF AREA BEING USED FOR AGRICULTURAL PURPOSES**	Please also refer to Figure 2 within the Draft EIA Report for an aerial view of the proposed project area.
Animal Species Theme	Upon site assessment it was found that almost 95% of the entire project area has already been transformed. An Ecological Assessment was however undertaken for the small untransformed area and as explained in Section 7.1.1, the area was found to be of low ecological significance.

FIGURE 8: THE NATURAL HABITAT UNIT HAVE BEEN SEVERELY ENCROACHED BY AGRICULTURAL ACTIVITIES.

Archaeological and Heritage Theme	An Archaeological and Heritage Impact Assessment was undertaken, however, as mentioned approximately 95% of the entire project area have been transformed by agricultural activities and for this reason, no archaeological or heritage sensitivities were found within the project site.

Most of the project area have been distuberd by agricultural activities

FIGURE 9: EVIDENCE OF AREA COMPLETELY TRANSFORMED

Civil Aviation Theme	The RCL Foods Air strip is located approximately 2.5km to the east of the proposed project site and for this reason the DFFE Screening Tool identified the civil aviation theme to be of high significance. However, the proposed project will not entail the construction of any tall structures which could have an impact on civil aviation and therefore no further assessment of this aspect was required.

FIGURE 10: AERIAL IMAGE OF LOCATION OF THE RCL AIR STRIP, NEAR MALALANE

6. METHODOLOGY OF ASSESSING THE SIGNIFICANCE OF IMPACTS

This section outlines the method used for assessing the significance of the potential environmental impacts during the construction/establishment, operational and decommissioning phases.

For each impact, the EXTENT (spatial scale), MAGNITUDE and DURATION (time scale) would be described, as shown in **Table 2**. These criteria are then used to determine the SIGNIFICANCE of the impact, firstly in the case of no mitigation and then with the most effective mitigation measure(s) in place. The mitigation described in the Report represents the full range of plausible and pragmatic measures but does not necessarily imply that they would be implemented.

The following tables show the scale used to assess these variables and defines each of the rating categories.

TABLE 7: ASSESSMENT CRITERIA FOR THE EVALUATION OF IMPACTS

Criteria	Category	Description
Extent or spatial influence of impact	**Regional**	Beyond a 30km radius of the candidate site.
	Local	Within a 30km radius of the candidate site.
	Site-specific	On site or within 100 m of the candidate site.
Magnitude of impact (at the indicated spatial scale)	**High**	Natural and/ or social functions and/ or processes are *severely* altered
	Medium	Natural and/ or social functions and/ or processes are *notably* altered
	Low	Natural and/ or social functions and/ or processes are *slightly* altered
	Very low	Natural and/ or social functions and/ or processes are *negligibly* altered
	Zero	Natural and/ or social functions and/ or processes remain *unaltered*
Duration of impact	**Long-term**	More than 10 years after construction
	Medium-term	Up to 5 years after construction
	Short-term	Up to 3 years

The SIGNIFICANCE of an impact is derived by taking into account magnitude, duration and extent of each impact. The criteria employed in arriving at the different significance ratings is shown in Table 3.

TABLE 8: DEFINITION OF SIGNIFICANCE RATINGS

Significance ratings	Level of criteria required
High	• High magnitude with a regional extent and long-term duration • High magnitude with either a regional extent and medium-term duration or a local extent and long-term duration • Medium magnitude with a regional extent and long-term duration
Medium	• High magnitude with a local extent and medium-term duration • High magnitude with a regional extent and construction period or a site-specific extent and long-term duration • High magnitude with either a local extent and construction period duration or a site-specific extent and medium-term duration • Medium magnitude with any combination of extent and duration except site specific and construction period or regional and long term • Low magnitude with a regional extent and long-term duration
Low	• High magnitude with a site-specific extent and construction period duration • Medium magnitude with a site-specific extent and construction period duration • Low magnitude with any combination of extent and duration except site specific and construction period or regional and long term • Very low magnitude with a regional extent and long-term duration
Very low	• Low magnitude with a site-specific extent and construction period duration • Very low magnitude with any combination of extent and duration except regional and long term
Neutral	• Zero magnitude with any combination of extent and duration

Once the significance of an impact has been determined, the **PROBABILITY** and **CONFIDENCE** of this impact are determined using the rating systems outlined in **Table 7** and **Table 8.** The significance of an impact should always be considered in concert with the probability of that impact occurring. Lastly, the **REVERSIBILITY** of the impact is estimated using the rating system outlined in **Table 9.**

TABLE 9: DEFINITION OF PROBABILITY RATINGS

Probability ratings	Criteria
Definite	Estimated greater than 95 % chance of the impact occurring.
Probable	Estimated 5 to 95 % chance of the impact occurring.
Unlikely	Estimated less than 5 % chance of the impact occurring.

TABLE 10: DEFINITION OF CONFIDENCE RATINGS

Confidence ratings	Criteria
Certain	Wealth of information on and sound understanding of the environmental factors potentially influencing the impact.
Sure	Reasonable amount of useful information on and relatively sound understanding of the environmental factors potentially influencing the impact.
Unsure	Limited useful information on and understanding of the environmental factors potentially influencing this impact.

TABLE 11: DEFINITION OF REVERSIBILITY RATINGS

Reversibility ratings	Criteria
Irreversible	The activity will lead to an impact that is in all practical terms permanent.
Reversible	The impact is reversible within 2 years after the cause of the impact is removed.

7. ENVIRONMENTAL IMPACT ASSESSMENT

The biophysical and social environment will be impacted during the construction and operational phases of the proposed ring road. For this reason, the impacts below are assessed for both phases.

7.1 Impacts during the construction phase

The construction of the Malalane Bypass is likely to result in environmental and socio-economic impacts. The identified impacts are listed below and discussed thereafter:

- *Impact on biodiversity;*
- *Generation of dust;*
- *Noise Impact;*
- *Impact on traffic;*
- *Impact on soil;*
- *Impact on water resources;*
- *Impact on heritage resources;*
- *Impact on safety; and*
- *Socio-economic impact.*

7.1.1. Impact on biodiversity

Description of the potential impact
Four habitat units were observed at the time of investigation, namely, urban, agricultural, natural and freshwater habitat. The project area is heavily transformed due to the extensive clearing of marginal vegetation for agricultural activities. The small natural habitat has been severely encroached by agricultural activities and subsequently also disturbed which is evident from the species of vegetation present at the site. Several individuals of *Sclerocarya birrea subsp caffra* (Marula) was observed along the extend of the established N4 although this species is rated Least Concern, it is still listed as a protected species.

During the site assessment, no reptiles, mammals or avifaunal species, were found within the project area and this is attributed to the agricultural and urban activities which were found to be dominant within the project site.

The Buffalo River is deemed to be of low significance to amphibian species due to the extensive clearing of riparian vegetation resulting from existing agricultural practises.

Due to the heavily transformed nature of the proposed project area, it is unlikely that the species of conservation concern would habituate the area on a permanent basis. Occasional bypasses of avifaunal species of conservation concern are likely due to the close proximity of the Kruger National Park. Due to the proximity of the park the proposed project area is deemed of high importance.

During construction, vegetation will be cleared and aquatic biodiversity would be impacted during the construction of the bridge crossing the Buffalo River.

Significance of the impact

Following the Biodiversity Assessment, it was determined that the impact to the transformed and agricultural units are of low significance due to the highly transformed nature of these habitats.

The impact significance to the natural and freshwater habitat units were rated as medium pre-mitigation due to the potential of these units to support species diversity, although no floral species of conservation concern is expected to occur within these areas due to the surrounding anthropogenic activities.

Cumulative Impact: Almost all of the areas surrounding Malalane have been transformed by agricultural activities. Although this proposed alignment will affect approximately 1Ha of the untransformed area and will add to the fragmentation of habitat, the sensitivity is of low significance and therefore the cumulative impact is also insignificant.

TABLE 12: SIGNIFICANCE OF BIODIVERSITY IMPACT

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Impact on terrestrial biodiversity [NEGATIVE]	**Low**	**Site Specific**	**Long term**	**Definite**	**Low**	**Very Low**
Impact on aquatic biodiversity [NEGATIVE]	**Medium**	**Site Specific**	**Long term**	**Definite**	**Medium**	**Low**

Mitigation measures

- Implement an alien invader vegetation control program;
- Do not alienate or hinder the movement of fauna in the area or harm any animal life found within the property boundaries;
- Access roads should be planned in areas which have been transformed to limited additional fragmentation within the landscape and additional loss of vegetative cover.
- Stipulations of the Environmental Management Program (EMPr) should be adhered to during the establishment and operational phases of the project.

7.1.2. Generation of dust

Description of the potential impact

Areas affected include mostly agricultural fields (sugar cane) which will be removed during the construction process. Removal of the crops will disturb the soil and increase the generation of dust during the construction phase. In addition to this, heavy moving vehicles will be used during construction which will add to dust generation affected nearby land owners or residents.

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Significance of the impact

The impacts associated with the generation of dust is of short duration during the construction phase and with the implementation of mitigation measures, the impact can be reduced to be of low significance.

Cumulative Impact: Other dust generating activities within a close proximity to the proposed alignment include the concrete batch plant of PPC located along the eastern section of the proposed alignment. The facility is currently managing its dust generation and there are no surrounding receptors which could be impacted by the cumulative impact, except for road users. With the management of dust generation, the cumulative impact can be considered to be of low significance.

TABLE 13: DUST GENERATION

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Dust generation [NEGATIVE]	**Medium**	**Site Specific**	**Short term**	**Probable**	**Low**	**Very Low**

Mitigation measures

- Vegetation cover must be removed in phases as construction continues. Areas may not be disturbed and left for unattended for long periods of time.
- Heavy moving vehicles and other vehicles must adhere to a speed limit of 30km/h.
- Water spraying must be used when required;
- Cover stockpiles to prevent windblown dust from these stockpiles.

7.1.3 Impact resulting from noise

Description of the potential impact

Some of the areas proposed for the alignment is located near residences/farm steads and construction activities, personnel and heavy machinery could have an impact on surrounding neighbours.

Significance of the impact

The residence closest to the proposed alignment is approximately 50m while most other neighbouring residences are approximately 150m from the proposed alignment. During construction, heavy machinery could negatively impact surrounding land users, however, taking the distance of most surrounding landowners into consideration as well as the fact that construction activities would be limited to daytime, the impact is of low significance.

Cumulative impact: There are no other noise generating activities along the proposed alignment and therefore the cumulative impact is considered to be of low significance.

TABLE 14: IMPACT ON NOISE

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Noise generation [NEGATIVE]	**Medium**	**Site Specific**	**Short term**	**Probable**	**Low**	**Very Low**

Mitigation measures

- Ensure that all construction equipment is well serviced as per the manufacture's manual throughout the construction phase;
- The requirements of the Noise Control Regulations (2013) must be adhered to;
- No loud music is allowed on site.

7.1.4 Impact on traffic

Description of the potential impact

During the construction phase, heavy moving vehicles will travel to and from the construction site and work along the proposed alignment on a daily basis. Traffic could mostly be disturbed along four points within the proposed alignment, namely, where the proposed alignment splits from the current N4 highway, where the proposed alignment traverses the two roads which currently provide access to the farms situated to the south of Malalane, and where the proposed alignment joins the existing N4 highway again approximately 1,5km to the west of Malalane Town.

Significance of the impact

The existing N4 highway currently has high volumes of traffic and especially trucks travelling along this section of the road towards and from Mozambique. During construction, vehicles will still make use of the existing N4 highway and therefore, the most interruption during the construction phase would be at the two points where the proposed alignment splits from and joins the existing N4 highway. Some delays could possibly be expected with Stop and Go's being implemented and taking

the volume of traffic along this route into consideration, the impact is rated to be of medium significance during the construction phase.

Cumulative impact: Future developments which have been approved along the N4 highway between Mbombela and the Lebombo Border Post of Mozambique include the Nkomazi Special Economic Zone (SEZ) which is proposed adjacent to Komatipoort. Should this development be constructed, traffic volumes will further increase along the N4 highway, which will have a cumulative impact on the flow of traffic during the construction phase when high volumes of traffic will affect the flow during the construction phase. Should this development be constructed, the cumulative impact on traffic will be medium during the construction phase, prior to the implementation of mitigation measures.

TABLE 15: IMPACT ON TRAFFIC

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Traffic [NEGATIVE]	**Medium**	**Local**	**Short term**	**Definite**	**Medium**	**Low**

Mitigation measures

- The delivery of construction material and equipment should be limited to hours outside peak traffic times (including weekends) prevailing on the surrounding roads where possible;
- Existing access roads must be used;
- Delivery vehicles must comply with all traffic laws and bylaws;
- Inform communities of planned construction activities that would affect vehicle/ pedestrian traffic

7.1.5 Impact on water resources

Description of the potential impact

The project area falls within the X24D Quaternary Catchment of which the freshwater ecosystem can be described as being largely modified with a high ecological importance and sensitivity.

The proposed project entails the construction of a bridge crossing the Buffalo River as well as a small man-made irrigation dam. When assessing the Buffalo River reach to be affected by the proposed alignment, it was clear that anthropogenic activities (formal and informal farming activities) had a significant impact on the riparian area along the reach. The sensitivity of the reach was severely affected and is therefore of low significance.

During the construction phase, water resources could be impacted by the following activities:

- Removal of riparian vegetation;
- Construction of the bridge within the Buffalo River;

- Sedimentation; and
- Pollution of water resources by means of spillage of hazardous substances within or within a close proximity to the surface water resource.

Significance of the impact

As per the Aquatic Assessment undertaken, it was assessed that the transformed habitat and river characteristics resulted in the study area being of low aquatic sensitivity and the construction of the bridge would not have any impact on the aquatic species of conservation concern if mitigation measures are adhered to.

Construction activities will however still take place within the Buffalo River when the bridge is being constructed and any pollution of the watercourse would affect the Crocodile River which is located 2km to the north of the project site. As water is a scarce commodity within South Africa, the impact is of medium significance prior to the implementation of mitigation measures.

Cumulative impact: Agricultural activities currently affects the Buffalo River as riparian vegetation upstream from the project area have been affected and alien invasive species have vegetated these areas. The sensitivity of the aquatic habitat is therefore of low significance. Construction activities will impact the watercourse negatively; however, these impacts are of short duration and can be mitigated to be of low significance. There are no other surrounding activities which could have a cumulative impact on the water resource.

TABLE 16: IMPACT ON WATER RESOURCES

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Water pollution [NEGATIVE]	**Medium**	**Local**	**Short term**	**Probable**	**Medium**	**Low**

Mitigation measures

- Employees must be trained and be made aware of the sensitivity of the watercourse.
- Conserve all the watercourses, riparian habitat and natural habitats with high sensitivity.
- Spillages of any potentially hazardous materials should be cleaned immediately to avoid contamination of runoff.
- No hazardous materials may be stored within 100m from the edge of any watercourse;
- Care should be taken that potential sedimentation downstream should be limited as far as possible;
- It is recommended that construction of the proposed crossing should be undertaken during the dry season.

7.1.6 Impact on soil

Description of the potential impact

Removal of vegetation will disturb the soil surface and increase the possibility of soil erosion. The topography of the site is however relatively flat and therefore the possibility of erosion occurring during the establishment phase is relatively low. Mitigation measures to minimise the possibility of erosion is however imperative.

Other activities which could have an impact on soil, include the uncontrolled use of hazardous substances and/or heavy machinery. Hazardous substances such as oil, diesel etc., could be spilled while refuelling or using machinery, leading to the pollution of soil which can alter microbial processes and be toxic to soil organisms.

Significance of the impact

During establishment, soil could be impacted by the following:

- Erosion; and
- Contamination with the use and possible spillage of hazardous substances.

The slope of the proposed project area is relatively flat and for this reason the possibility of erosion occurring is low. The impact is subsequently classified to be of low significance prior to the implementation of mitigation measures.

Another factor impacting soil would be the possible spillage of hazardous substances. This impact is site specific and short duration and for this reason the impact is also of low significance prior to the implementation of mitigation measures.

Cumulative impact: The surrounding areas are currently utilised for agricultural purposes with a low possibility of soil erosion and pollution occurring due to the current activities and the slope of the affected area. The cumulative impact of soil pollution and erosion is therefore of low significance.

TABLE 17: IMPACT ON SOIL

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Soil pollution and erosion [NEGATIVE]	Low	Site Specific	Short term	Probable	Low	Very Low

Mitigation measures

- To minimise the possibility of erosion, it is recommended that no disturbed areas be left unattended. Disturbance and clearance of vegetative cover must be restricted to the proposed footprint.
- Measures to reduce the velocity of water, must be taken on areas prone to erosion.

- Should there be any spillage of hazardous substances during the establishment phase, soil must be removed up to a depth of 300mm and be disposed of at a registered hazardous waste disposal facility. Proof of such disposal must be kept on file.
- Eroded areas should be rehabilitated in order to prevent siltation and erosion

7.1.7 Impact on heritage resources

Description of the potential impact

A Heritage Impact Assessment was conducted and it was concluded that the entire project site is situated on disturbed commercial cultivated land. Previous disturbances are evident as the entire section is infested with pioneer vegetation (Sickle bush and lantana). Some dirt irrigation canals were found within the project area; however, these were of no heritage or cultural significance and some of these canals were upgraded with concrete and not found to not be older than 60 years. The survey revealed no archaeological or historical features of significance and no graves were observed within the proposed study area.

Significance of the impact

As no archaeological or historical features were observed during the survey undertaken, the impact on heritage resources is unlikely and therefore of very low significance.

Cumulative impact: Are all surrounding areas have been transformed and the survey observed no archaeological or heritage features, the cumulative impact is also regarded to be of low significance.

TABLE 18: HERITAGE RESOURCES

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Heritage Resources **[NEGATIVE]**	**Very Low**	**Site Specific**	**Short term**	**Unlikely**	**Very Low**	**Very Low**

Mitigation Measures

No mitigation is required.

7.1.8 Socio-economic Impact

Description of the potential impact

During construction, various temporary job opportunities will be created for the construction of the Ring Road which will have a positive impact on the livelihoods of a number of people.

In terms of safety and security, there is always risk associated when working with machinery and therefore it is essential that all workers comply with the Health and Safety Act 85 of 1993.

Significance of the impacts

Based on the methodology detailed in **Section 5**, the following ratings have been assigned to the 'employment opportunities' and impact associated with health and safety of employees respectively.

The job opportunities during the establishment are short-lived and therefore the impact is only of medium (+) significance. In terms of the health and safety aspects of workforce, the significance of the impact has been rated to be of low significance due to the short construction timeframe. Mitigation measures must however be adhered to.

Cumulative impact: As temporary job opportunities will be created; the livelihoods of families would be impacted positively during the construction phase. Local suppliers would also be impacted positively as services from such suppliers could be sourced during the construction process having a positive impact on such local businesses. the cumulative impact is however for s short timeframe during construction and is therefore of medium (+) significance.

TABLE 19: SOCIO-ECONOMIC IMPACT

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Job Opportunities **[POSITIVE]**	**High**	**Regional**	**Short term**	**Definite**	**Medium (+)**	**High (+)**
Safety of employees **(NEGATIVE)**	**High**	**Site Specific**	**Short term**	**Probable**	**Medium**	**Low**

Mitigation measures

The contractor must ensure that local residents receive preference for job opportunities where local labour might be required.

It is imperative that all personnel adhere to the Occupational Health and Safety Act 85 of 1998 and that no personnel enter any other surrounding properties.

7.2 Operational Phase Impacts

During operation, the proposed Malalane Ring Road are likely to result in the following environmental and socio-economic impacts:

- *Traffic Impact;*
- *Loss of agricultural land;*
- *Socio-economic*

7.2.1. Traffic Impact

Description of the potential impact

During operation, all vehicles travelling along the N4 Highway towards and from Mozambique, will no longer have to drive through Malalane town. The flow of traffic will therefore ease along this route as an alternative road can be used by motorists and trucks on route to Mozambique.

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Significance of the impacts

At present, the N4 Highway traverse through the town of Malalane and is the only connection between Gauteng Province and Mozambique. High volumes of traffic are noticed along this section of the N4 highway between Mbombela and Mozambique. Currently, it is not ideal for any national highway to traverse through a town where vehicles will be required to slow down, and stop at traffic lights or stop signs. This could cause vehicles along this route to back-up, causing traffic congestions and increasing the possibility of accidents when vehicles are not adhering to the traffic regulations.

The proposed Malalane Ring Road will therefore have a positive impact on the flow of traffic, whereby the flow of traffic through the town of Malalane will be reduced and the safety of motorists will improve. As the magnitude of this impact is of high, of local extent and long-term duration, the impact is rated to be of high positive significance if vehicles adhere to traffic regulations.

Cumulative impact: As mentioned, the Nkomazi SEZ was recently approved to be constructed within the vicinity of Komatipoort. This will entail even higher volumes of traffic traversing between Gauteng and the Lebombo Border Post which will make the provision of the Malalane Ring Road a necessity to accommodate the additional vehicles. The cumulative impact on traffic is therefore highly positive.

TABLE 20: IMPACT ON TRAFFIC

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Traffic Impact **[POSITIVE]**	**High**	**Local**	**Long term**	**Definite**	**High (+)**	**High (+)**

Mitigation measures

- Motorists must adhere to traffic regulations.

7.2.2 Loss of agricultural land

Description of the potential impact

The largest part of the proposed alignment affects existing and established agricultural areas (sugar cane). Should the alignment be approved, an 80m road reserve will be established as is recommended by SANRAL for an urban free-way. This will entail a loss of approximately 48 hectares of agricultural land.

Significance of the impacts

As discussed above, approximately 48ha of agricultural land will be permanently lost. Although some agricultural areas could be expanded to compensate for the loss of yield, the area proposed for the Malalane Ring Road will be permanently affected. The Screening Report indicated that the area is of high agricultural sensitivity and therefore the magnitude of the impact is rated as high. The impact is however of site-specific extent which resulted the impact to be of medium significance prior to the implementation of mitigation measures.

Cumulative impact: The area surrounding the affected area is of high agricultural sensitivity and the footprint proposed for the alignment will entail a loss of 48Ha which is very small when considering the surrounding agricultural land. It is not proposed that the Ring Road will lead to other developments to the south of Malalane, however, should this be a possibility, the cumulative impact on the loss of agricultural land will be of medium significance.

TABLE 21: LOSS OF AGRICULTURAL LAND

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Loss of agricultural land [NEGATIVE]	**High**	**Site specific**	**Long term**	**Definite**	**Medium**	**Medium**

Mitigation measures

Unfortunately, there is no mitigation measure to reduce this impact as agricultural area affected by the alignment will be permanently lost.

7.2.3 Socio-Economic Impact

Description of the potential impact

Loss of business:
The businesses within Malalane along the current N4 highway, such as filling stations, quick shops and grocery stores, receive a lot of clientele and business from motorists and trucks travelling through Malalane. If motorists and trucks have an alternative route, bypassing Malalane, the possibility of loss of income and business is increased.

Loss of yield:
Although all farm owners will be compensated for the areas affected by the proposed alignment, some farm owners will not be able to expand their operation to adjacent properties to compensate for the loss in turnover, as these areas are already cultivated and owned by other individuals and/or companies. The farm owner's yearly turnover could be affected if the farm owner is unable to expand their agricultural area.

Significance of the impacts

Loss of business:

The amount of business currently created by motorists and trucks travelling through Malalane is unknown, however, it can be assumed that a portion of businesses are benefitting from the N4 Highway passing through the town.

As the Malalane Ring Road will be an alternative route towards and from Mozambique, motorists and trucks still have the option of passing through Malalane if and when required. Thus, if any fuel or diesel, refreshments or a quick stop is required, businesses would still benefit as no place of refreshment or filling station is proposed along the proposed Ring Road. Businesses do however benefit at present as they are visible to all motorists and trucks along the N4 highway and for this reason the impact is of high significance.

Cumulative impact: Although no development is planned along the proposed alignment, over a number of years, the proposed Ring Road could result in development within Malalane expanding toward the south, towards the proposed alignment. This could possibly have an impact on the business centre of Malalane town and affect businesses negatively. The cumulative impact on the loss of business if therefore of medium significance, however, businesses could relocate mitigating the possibility of the impact occuring.

Loss of yield:

Although farmers and landowners will be compensated for the area affected by the proposed alignment, some farm owners would not able to expand their operation if all surrounding areas are already being cultivated and owned by other individuals/companies. This will result in a loss of yield which ultimately affects the yearly turnover of the farm owner or company. The magnitude of the impact is of high significance, however, due to the site-specific extent and long terms duration, the impact is rated to be of medium significance prior to the implementation of mitigation measures. This impact can be mitigated if another property or properties are purchased and cultivated.

Cumulative impact: The loss of yield over a number of years could be significant if permanently lost and therefore remains to be of medium significance.

TABLE 22: SOCIO-ECONOMIC IMPACT

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Magnitude	Extent	Duration	Probability	Impact Rating	Impact Rating
Loss of business (NEGATIVE)	High	Local	Long term	Probable	High	Medium
Loss of yield (NEGATIVE)	High	Site-Specific	Long term	Definite	Medium	Low

Mitigation measures

Unfortunately, there is no mitigation measure to reduce this impact as these businesses will no longer receive the benefit of visibility with all motorists travelling through Malalane. Motorists who require refreshments or any other commodity, will however travel through Malalane as no other place of refreshment will be provided along the Ring Road.

The only measure to be implemented for the loss of yield, is purchasing and cultivating additional areas to compensate for the area used for the alignment of the Ring Road.

7.3 Environmental Impact Statement

The table below summarises the impacts identified and assessed for the construction and operational phases of the project:

TABLE 23: ENVIRONMENTAL IMPACT STATEMENT

IMPACT	SIGNIFICANCE BEFORE MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION MEASURES
Construction Phase		
Impact on terrestrial biodiversity	Low	Very Low
Impact on aquatic biodiversity	Medium	Low
Dust generation	Low	Very Low
Noise generation	Low	Very Low
Generation of dust	Low	Very Low
Traffic	Medium	Low
Impact on water resources	Medium	Low
Impact on soil	Low	Very Low
Impact on heritage	Very Low	Very Low
Job opportunities	Medium (+)	High (+)
Health and Safety	Medium	Low
Operational Phase		
Traffic	High (+)	High (+)
Loss of agricultural land	Medium (-)	Medium (-)
Loss of business	High (-)	Medium (-)
Loss of yield	Medium (-)	Low (-)

The table below summarises the cumulative impacts identified and assessed for the proposed project:

TABLE 24: ENVIRONMENTAL IMPACT STATEMENT (CUMULATIVE IMPACTS)

IMPACT	SIGNIFICANCE BEFORE MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION MEASURES
Construction Phase		
Impact on terrestrial biodiversity	Low	Very Low
Impact on aquatic biodiversity	Medium	Low
Dust generation	Low	Very Low
Noise generation	Low	Very Low
Generation of dust	Low	Very Low
Traffic	Medium	Low
Impact on water resources	Low	Very Low
Impact on soil	Low	Very Low
Impact on heritage	Very Low	Very Low
Job opportunities	Medium (+)	High (+)
Health and Safety	Medium	Low
Operational Phase		
Traffic	High (+)	High (+)
Loss of agricultural land	Medium (-)	Medium (-)
Loss of business	Medium (-)	Low (-)
Loss of yield	Medium (-)	Medium (-)

8. CONCLUSION AND WAY FORWARD

8.1 Assumptions and Limitations

In undertaking this investigation and compiling the Draft Environmental Impact Assessment Report, the following has been assumed:

- The information provided by the proponent is accurate and unbiased, and no information that could change the outcome of the Environmental Authorisation process has been withheld.
- The scope of this investigation is limited to assessing the environmental impacts associated with the construction and operation of the proposed N4 Ring Road.
- The conclusion and recommendations proposed are based solely on the information, scope of works as agreed with the proponent.

8.2 Conclusion

The essence of all environmental assessment processes is aimed at ensuring informed decision-making and environmental accountability. Furthermore, it assists in achieving environmentally sound and sustainable development. The impact assessment for this project has been undertaken in line with the requirements prescribed in the NEMA regulations.

An ecological, aquatic and heritage impact assessment was undertaken and all assessments concluded that the proposed N4 Ring Road would have minimal impact on the aquatic and terrestrial biodiversity and historical nature of the site, as the largest part of the proposed development area have already been transformed by agricultural and urban activities.

The assessment of the possible impacts associated with the construction phase of the proposed project, concluded that most of the impacts on the surrounding environment is of **low significance** and can be further reduced to be of very low significance if mitigation measures are implemented.

During operation, loss of business and loss of agricultural land was found to be of **medium significance** and unfortunately no mitigation measures can be implemented to reduce this impact. However, the operational impact on traffic flow will be highly positive as the N4-Highway will no longer have any traffic stops or traffic lights which would have to be adhered to.

The positive traffic impact of regional extent, outweighs the negative medium impact of loss of business and agricultural land which is of local extent. Motorists are still given the option to continue straight, passing through the town of Malalane to undertake any required business activities. Recommendations have however been made to address the impacts which could affect the biophysical and socio-economic environment.

It is the opinion of the EAP that the EA for this project should be granted, and the proposed mitigation included as the conditions of the authorisation.

8.2 Way Forward

The next steps for the Environmental Impact Assessment process will be to distribute the Draft Environmental Impact Assessment Report and make it available to the public (including the registered I&APs) and Organs of State for a period of 30 days, during which the Competent Authority (DFFE) will also be given the

opportunity to provide comments on the report. After the 30-day comment period, all comments will be addressed by the EAP and incorporated within the Final Environmental Impact Assessment Report to be submitted to the DFFE for decision making. All registered I&APs will be notified of the decision and will be given an opportunity to appeal as per the NEMA requirements.

10. REFERENCES

Baseline Aquatic Assessment for the proposed construction and upgrade of the Malalane Road, Mpumalanga Province, March 2022 GCS (Pty) Ltd

Baseline Biodiversity Assessment for the proposed construction and upgrade of the Malalane Road, September 2022, GCS (Pty) Ltd

General Notice Regulation 982, 983, 984 and 985 of 2014 (as amended in 2017)

Mpumalanga Biodiversity Conservation Plan, 2014

National Environmental Management Act 107 of 1998 (NEMA 107, 1998)

National Water Act 36, 1998

Draft Scoping Report for the proposed development of DNG Energy (Pty) Ltd Tlou Gas to Power Facility and associated infrastructure in Malalane, Nkomazi Local Municipality, October 2020

Phase 1 Archaeological / Heritage Impact Assessment for the proposed construction of the Malalane Ring-Road, Malalane, July 2022, C van Wyk Rowe

Mpumalanga Spatial Development Framework, 2018