TERRESTRIAL BIODIVERSITY COMPLIANCE STATEMENT:

FOR THE PROPOSED UPGRADE OF NATIONAL ROAD R30 SECTION 8 FROM KLERKSDORP (KM 0.0) TO BUFFELSVALLEI (KM 37.0) WITHIN DR KENNETH KAUNDA DISTRICT MUNICIPALITY IN THE NORTHWEST PROVINCE.

PRODUCED BY:

PRODUCED BY:	ENVIRONMENTAL ASSESSMENT PRACTITIONER	PRODUCED FOR:
 Physical Address: **5 13th Avenue, Fairlands, Randburg 2170** Mobile Number: **071 2082 364**Email: **info@ntumbulukoconsulting.co.za**	Earthlink Environmental Services	 South African National Roads Agency SOC Limited

JANUARY 2025

CONDITIONS RELATING TO THIS REPORT

DECLARATION OF INTEREST

Ntumbuluko Consulting Pty (Ltd) has no vested interest in the property studied nor is it affiliated with any other person/body involved with the property and/or proposed development. Ntumbuluko Consulting Pty (Ltd) is not a subsidiary, legally or financially of the proponent. The study was undertaken by Mr Tshuxekani Maluleke, he is a registered Natural Scientists with the following details:

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SACNASP

02 January 2025

INDEMNITY

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LIST OF ABBREVIATIONS

CARA	Conservation of Agricultural Resources Act
CBA	Critical Biodiversity Area
CBD	Convention on Biological Diversity
CR	Critically Endangered
ESA	Ecological Support Areas
EN	Endangered
GIS	Geographic Information System
IPPC	International Plant Protection Convention
IUCN	International Union for Conservation of Nature
LC	Least Concern
NEMA	National Environmental Management Act (Act 107 of 1998)
NFEPA	National Freshwater Ecosystem Priority Areas
NT	Near Threatened
PA	Protected Areas
SANBI	South African National Biodiversity Institute
SSC	Species of Special Concern
VU	Vulnerable

DEFINITIONS

Alien animal	(a) Any live vertebrate, including a bird and a reptile, but excluding a fish, belonging to a species or subspecies that is not a recognised domestic species and the natural habitat of which is not in the Republic; or (b) The egg of such vertebrate.
Biodiversity	Means the diversity of animals, plants or other organisms, including the diversity of animals, plants or other organisms found within and between— (a) Ecosystems; (b) Habitats; (c) The ecological complexes of which these systems and habitats are part; and (d) Species.
CITES	Means the Convention on International Trade in Endangered Species of Wild Fauna and Flora;

Endangered Species	Means a species is endangered when it is facing a very high risk of extinction in the wild in the near future and includes— (*a*) Any living or dead specimen of such a species; or (*b*) Any egg, skin, bone, feather, seed, flower or any other part or derivative of such a species.
Environment	Means the surroundings within which humans exist and that are made up of— (*a*) The land, water and atmosphere of the earth; (*b*) Microorganisms, plant and animal life; (*c*) Any part or combination of (*a*) and (*b*) and the interrelationships amongst and between them; and (*d*) The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing;
Indigenous plant	(*a*) Means any living or dead plant which is indigenous to the Republic, whether artificially propagated or in its wild state; and (*b*) Includes the flower, pollen, seed, cone, fruit, bulb, tuber, stem or root or any other part or derivative of such plant but does not include a plant declared a weed in terms of any legislation.
Protected area	Means— (*a*) A provincial nature reserves; (*b*) A site of ecological importance; (*c*) A protected environment; (*d*) A private nature reserves; or (*e*) A resource use area.
Protected environment	Means an area declared a Protected Environment or Private Nature Reserve in terms of section 21 (1) (*a*).

1 INTRODUCTION

Ntumbuluko Consulting (Pty) Ltd has been appointed by Earthlink Environmental Services (Pty) Ltd on behalf of the South African National Roads Agency SOC Ltd (hereafter referred to as SANRAL) to conduct a terrestrial biodiversity assessment(covering both Plant and Animal Species), and to compile a compliance statement for the proposed upgrade of the National Road R30 Section 8 (R30-S8) from Klerksdorp (Km 0.0)to Buffelsvallei (Km 37.0), within the Dr Kenneth Kaunda District Municipality In The North West Province.

To assess the baseline ecological state of the project area (R30 Section 8 Road servitude) and to present a detailed description of the receiving environment, both a desktop assessment as well as a field survey were conducted in November 2024. Furthermore, the assessment and survey both involved the detection, identification and description of any locally relevant sensitive receptors, and the manner in which these sensitive receptors may be affected by the proposed development was also investigated.

This assessment was conducted in accordance with the amendments to the Environmental Impact Assessment Regulations, 2014 (No. 326, 7 April 2017) of the National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998). The approach has taken cognisance of the recently published Government Notice 320 in terms of NEMA dated 20 March 2020 as well as the Government Notice 1150 in terms of NEMA dated 30 October 2020.''Procedures for the Assessment and Minimum Criteria for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorization''. The National Web based Environmental Screening Tool has characterized the terrestrial biodiversity theme for the project area as ''Very High'' sensitivity (National Environmental Screening Tool, 2022).

The purpose of the specialist study is to provide relevant input into the overall assessment and application process. This report, after taking into consideration the findings and recommendations provided by the specialist herein, should inform and guide the Environmental Assessment Practitioner (EAP) and regulatory authorities, enabling informed decision making as to the ecological viability of the project and the impacts that its implementation may have on the natural environment.

2 PROJECT DESCRIPTION AND BACKGROUND

Earthlink Environmental Service (Pty) Ltd has been appointed by ROMH Consulting, representing the applicant, the South African National Roads Agency SOC Limited, to oversee the environmental management process and ensure compliance during the construction phase of the Improvement of National Road R30 Section 8, which extends from Klerksdorp (km 0.0) to Buffelsvallei (km 37.0). This initiative is located in the North West province, within the district municipality of Dr Kenneth Kaunda. The anticipated duration for construction monitoring is approximately 30 months, beginning in June 2025.

3 STUDY AREA

The road is located within the City of Matlosana Local Municipality in the Dr Kenneth Kaunda District Municipality, Northwest Province, South Africa (**Figure 3-1**). Klerksdorp is located 165km southeast of Mahikeng, the provincial capital. The study site is dominated by cultivated lands (**Figure 3-2**).

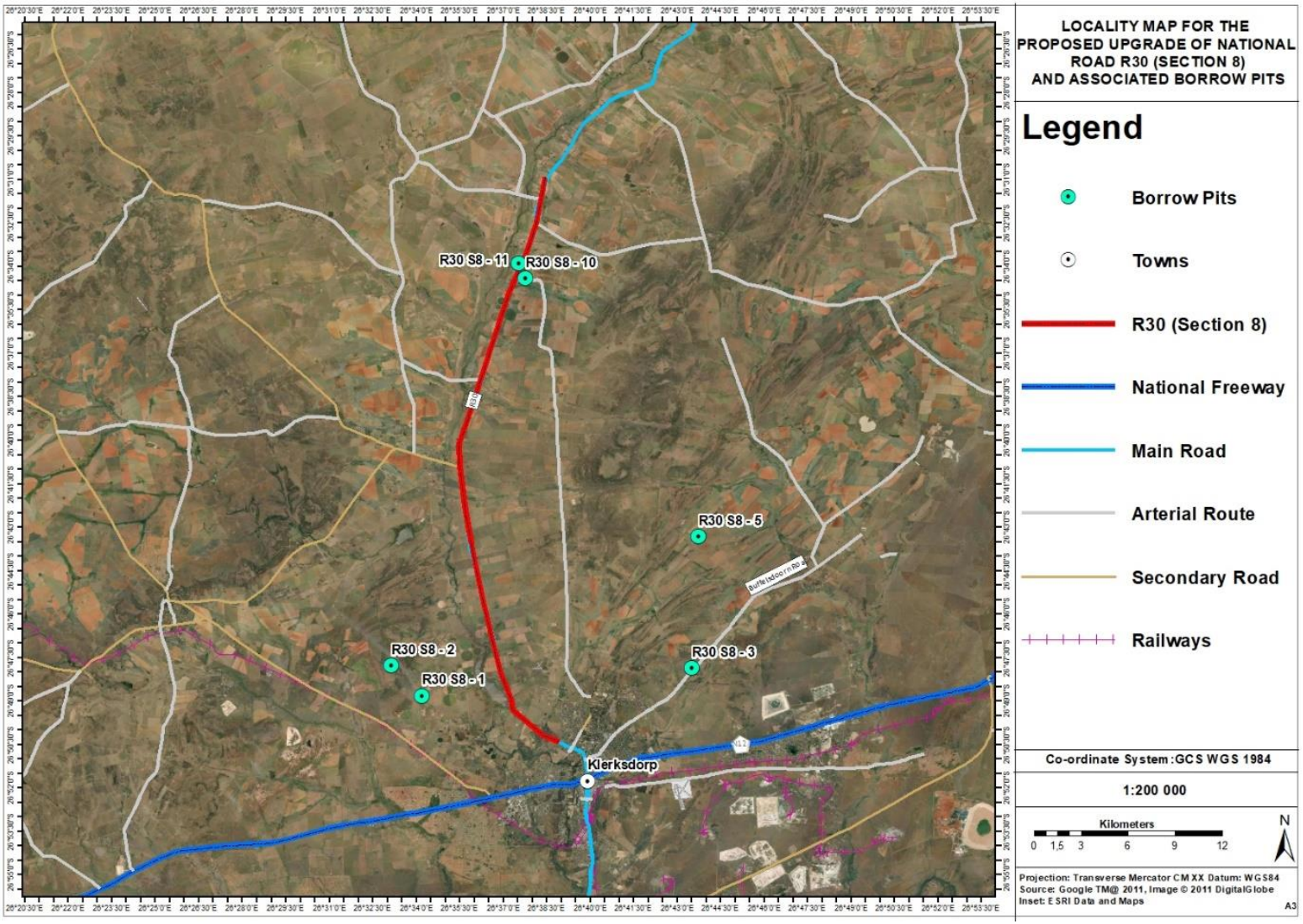

Figure 3-1:Locality Map (Indicated in red)

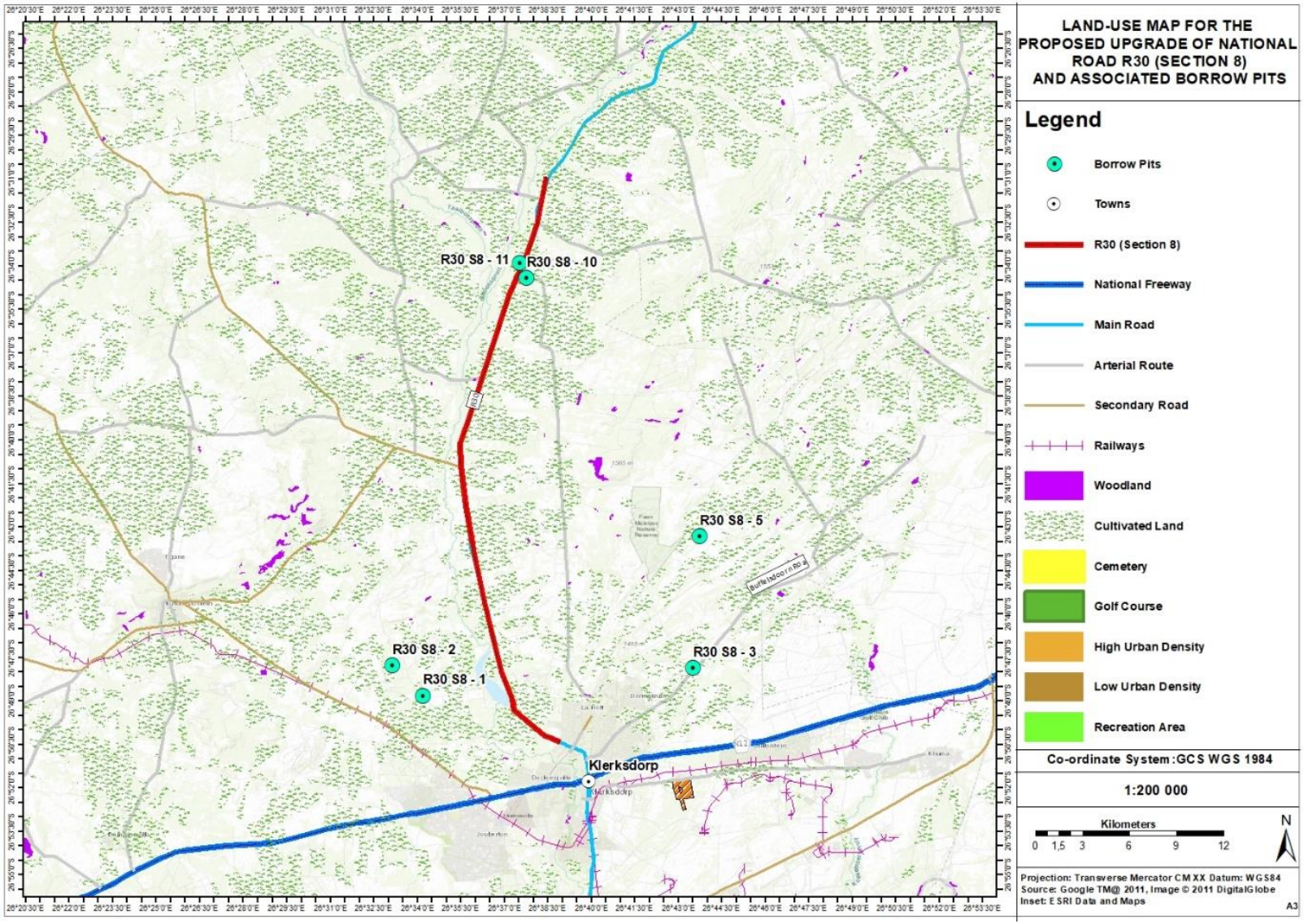

Figure 3-2: Landuse Map (Indicated in red)

4 TERMS OF REFERENCE

The principal aim of the assessment was to adequately assess the current state of the terrestrial biodiversity in order to identify any significant and/or sensitive ecological receptors that may be impacted upon by the proposed road upgrade. The following are the terms of reference are applicable to the project:

- Description of the baseline receiving environment specific to the field of expertise (including the general surrounding area as well as the site-specific environment);
- Identification and description of any sensitive receptors in terms of relevant specialist disciplines (i.e., terrestrial biodiversity) that occur in the project area, and the manner in which these sensitive receptors may be affected by the activity;
- Screening to identify any critical issues (potential fatal flaws) that may result in a rejection of the application; and
- Provide a map to identify sensitive receptors in the project area, based on available maps and database information;

4.1 SCOPE OF STUDY

4.1.1 Floral study:

- Conduct fieldwork to locate and identify the current state of vegetation on the study area, with emphasis on the footprint of the R30-S8.
- Determine the species that are present on each onsite.
- Identify sensitive vegetation types and critical biodiversity areas on each site.
- Identify Critical Biodiversity and Ecological Support Areas on each site.
- Determine whether the location of the R30-S8 is located within the distribution range of species listed as Vulnerable, Endangered or Critically Endangered and Protected.
- Provide photographic evidence of the current state of vegetation on each site (i.e. natural or transformed, disturbed etc.) identify and describe the conservation value and conservation planning that are relevant to the site.
- Determine alien species present onsite and the recommended management actions.

- Describe the potential direct, indirect and cumulative negative and positive impacts of the proposed activity on the vegetation species during construction, operation and decommissioning phases of the project.
- Identification of issues and potential direct, indirect and cumulative biodiversity impacts.
- Provide monitoring requirements, mitigation measures and recommendations.

4.1.2 Faunal study:

- Conduct fieldwork to describe and assess the current state of terrestrial fauna in the area.
- Describe the existing micro-habitats, and the species associated with those habitats.
- Provide a description of species composition and conservation status in terms of protected, endangered or vulnerable faunal species.
    - This description will include species which are likely to occur within, traverse across or forage within the proposed project area, as well as species which may not necessarily occur on site, but which are likely to be impacted upon as a result of the proposed development.

5 LEGAL FRAMEWORK

The following national and provincial legislative guidelines and requirements were followed as part of this study:

5.1 THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT (ACT NO 107 OF 1998) (NEMA) AS AMENDED

This Act embraces all three (3) fields of environmental concern namely: resource conservation and exploitation; pollution control and waste management; and land-use planning and development. The environmental management principles include the duty of care for wetlands and special attention is given to management and planning procedures. NEMA provides for co-operative, environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for coordinating environmental functions exercised by organs of state; and to provide for matters connected therewith.

5.2 NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT (ACT NO 10 OF 2004) (NEM: BA)

NEMBA was signed into law in mid-2004 and entered into effect on 1 September 2004. NEM: BA provides for the consolidation of biodiversity legislation through establishing national norms and standards for the management of biodiversity across all sectors and by different management authorities. Certain activities, known as Restricted Activities, are regulated on listed species using permits by a special set of regulations published under the Act. Restricted activities regulated under the act are keeping, moving, having in possession, importing and exporting, and selling.

5.3 THE NATIONAL BIODIVERSITY FRAMEWORK (2017-2022)

The National Biodiversity Framework (NBF) is a requirement under Section 38 of the National Environmental Management: Biodiversity Act (Act 10 of 2004, hereafter referred to as the 'Biodiversity Act'). The NBF is a short to medium-term coordination tool that shows the alignment between the strategic objectives and outcomes identified in the National Biodiversity Strategy and Action Plan (NBSAP v.2, 2015) and other key national strategies, frameworks and systems that currently guide the work of the biodiversity sector and identifies mechanisms through which this work is coordinated. It also identifies a set of interventions or "acceleration measures" that can unlock or fast-track implementation of the NBSAP and indicates the relative roles of the many agencies involved in implementing these activities. The purpose of the NBF is not to provide a comprehensive review of all work currently being undertaken in the biodiversity sector, nor to list all of the actions required to conserve and manage South Africa's biodiversity in support of sustainable development.

5.4 THE NORTH WEST BIODIVERSITY MANAGEMENT ACT, 2016 (ACT NO. 4 OF 2016) (NWBMA).

The objective of this act is to provide for the management and conservation of the North West Province's biophysical environment and protected areas within the framework of the National Environmental Management Act, 1998 (Act No 107 of 1998); to provide for the protection of species and ecological systems that warrant provincial protection; to provide for the sustainable use of indigenous biological resources; and to provide for matters connected therewith.

As per Chapter 4 Part 1 Section 13 (2), in addition to the species contemplated in schedule 2 and 3 of this Act, the responsible Member may, by notice in the Gazette, publish a further list of:

(a) Specially protected species, includes all indigenous species of animals and plants that are potentially threatened, exploited and economically important, and those that are listed under Section 56(1) of the Biodiversity Act, as well as under the National Forests Act of 1998 (Act No 84 of 1998), and those to receive additional protection beyond that of the ordinary species in the province;

(b) ordinary species, includes all common, widely distributed, indigenous species of vertebrates of the province that are not otherwise listed in any other categories, and that are to receive nominal protection.

Restricted activities involving listed specially protected species as per section 15 include:

(1) Any person who intends to carry out a restricted activity involving a specimen of listed specially protected species must do so by means of a permit issued in terms of Chapter 8;

(2) Permits contemplated in subsection (1) may differentiate between different categories of applicants and may impose different validity periods, and

(3) No person may import, introduce into the province from another country, export or re –export from the Province to another country a specimen of any listed species in the Appendices of the CITES without a permit issued in terms of Chapter 8.

5.5 CONSERVATION OF AGRICULTURAL RESOURCES ACT (ACT NO 43 OF 1983) (CARA):

This act regulates the utilization and protection of wetlands, soil conservation and all matters relating thereto; control and prevention of veld fires, control of weeds and invader plants, the prevention of water pollution resulting from farming practices and losses in biodiversity.

5.6 THE NATIONAL FOREST ACT (ACT NO 84 OF 1998) (NFA)

The main objective of the National Forests Act, 1998 is to promote the sustainable management and development of forests and to provide protection for certain forests and

trees. This said protection is provided through the protection of all natural forests (Section 7 (1), the protection of all trees declared to be protected in terms of section 12(1) of the Act, and the regulation of certain activities in a proclaimed State forest (Section 23(1)(a) – (k)). It should be noted that there are other environmental legislation administered by other State Departments that also regulate natural resources. The Act is responsible for:

- Promotes the sustainable management and development of forests for the benefit of all;
- Creates the conditions necessary to restructure forestry in South Africa;
- Provide special measures for the protection of certain forests and protected trees;
- Promotes the sustainable use of forests for environmental, economic, educational, recreational, cultural, health and spiritual purposes;
- Promotes community forestry; and
- Promotes greater participation in all aspects of forestry and the forest products industry by persons disadvantaged by unfair discrimination.

5.7 CONVENTION ON BIOLOGICAL DIVERSITY

The objectives of the CBD are the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising from commercial and other utilization of genetic resources. The agreement covers all ecosystems, species, and genetic resources.

5.8 CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES OF WILD FAUNA AND FLORA (CITES)

The CITES aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival. Through its three appendices, the Convention accords varying degrees of protection to more than 30,000 plant and animal species.

5.9 CONVENTION ON THE CONSERVATION OF MIGRATORY SPECIES OF WILD ANIMALS

The CMS, or the Bonn Convention aims to conserve terrestrial, marine and avian migratory species throughout their range. Parties to the CMS work together to conserve migratory

species and their habitats by providing strict protection for the most endangered migratory species, by concluding regional multilateral agreements for the conservation and management of specific species or categories of species, and by undertaking co-operative research and conservation activities.

5.10 THE INTERNATIONAL TREATY ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE

The objectives of the Treaty are the conservation and sustainable use of plant genetic resources for food and agriculture and the fair and equitable sharing of the benefits arising out of their use, in harmony with the Convention on Biological Diversity, for sustainable agriculture and food security. The Treaty covers all plant genetic resources for food and agriculture, while it's Multilateral System of Access and Benefit-sharing covers a specific list of 64 crops and forages. The Treaty also includes provisions on Farmers' Rights.

5.11 CONVENTION ON WETLANDS (POPULARLY KNOWN AS THE RAMSAR CONVENTION)

The Ramsar Convention provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. The convention covers all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities.

5.12 WORLD HERITAGE CONVENTION (WHC)

The primary mission of the WHC is to identify and conserve the world's cultural and natural heritage, by drawing up a list of sites whose outstanding values should be preserved for all humanity and to ensure their protection through a closer co-operation among nations.

5.13 RAMSAR CONVENTION

The Convention on Wetlands of International Importance, called the Ramsar Convention, is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. The Ramsar Convention is the only global environmental treaty that deals with

a particular ecosystem. The treaty was adopted in the Iranian city of Ramsar in 1971 and the Convention's member countries cover all geographic regions of the planet.

5.14 INTERNATIONAL PLANT PROTECTION CONVENTION (IPPC)

The IPPC aims to protect world plant resources, including cultivated and wild plants by preventing the introduction and spread of plant pests and promoting the appropriate measures for their control. The convention provides the mechanisms to develop the International Standards for Phytosanitary Measures (ISPMs), and to help countries to implement the ISPMs and the other obligations under the IPPC, by facilitating the national capacity development, national reporting and dispute settlement. The Secretariat of the IPPC is hosted by the Food and Agriculture Organization of the United Nations (FAO).

6 REPORT LEGISLATIVE FRAMEWORK

In line with the protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial biodiversity, as per Government Notice 320 published in terms of NEMA, dated 20 March 2020. "Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Act, 1998, when applying for Environmental Authorisation"-section 3, subsection 1:

- An applicant intending to undertake an activity identified in the scope of the protocol, on a site identified on the screening tool as being of 'Very High sensitivity for terrestrial biodiversity, must submit a Terrestrial Biodiversity Specialist Assessment; however
- Where the information gathered from the site sensitivity verification differs from the designation of Very High terrestrial biodiversity sensitivity on the screening tool and it is found to be of a Low sensitivity, then a Terrestrial Biodiversity Compliance Statement must be submitted.

The information obtained from a site sensitivity verification, which involved both a desktop assessment as well as a field survey, confirmed that the site the site (R30-S8 Road servitude) is mostly of a 'Low' sensitivity. Therefore, a Terrestrial Biodiversity Compliance Statement will be completed and submitted for this project.

As per sections 2 and 3 of the protocol discussed above, a Terrestrial Biodiversity Compliance Statement must contain the information as presented in **Table *6-1*** below.

Table 6-1: Terrestrial Biodiversity Compliance Statement information requirements as per the relevant protocol, including the location of the information within this report.

Information to be Included (as per GN 320, 20 March 2020)	**Report Section**
Methodology used to undertake the site assessment and survey, and prepare the compliance statement, including relevant equipment and modelling used	8
Description of the assumptions and any uncertainties or gaps in knowledge or data	8.3
A baseline profile description of biodiversity and ecosystems of the site	7 and11

Information to be Included (as per GN 320, 20 March 2020)	**Report Section**
Site sensitivity verification: Desktop Analysis using satellite imagery and available information	7.1
A statement on the duration, date and season of the site inspection	9
Site sensitivity verification: Onsite inspection, include a description of current land use and vegetation found on-site	10
Site sensitivity verification: Photographs/evidence of environmental sensitivity	10
Screening tool confirmation/dispute: The assessment must verify the "low" sensitivity of the site, in terms of plant, animal and terrestrial biodiversity themes	9
Indicate whether or not the proposed development will have any impact on the terrestrial environment, animals and/or plants	12
A signed statement of independence by the specialist	6
Specialist details, including a CV	

A signed copy of the compliance statement must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.

7 SITE CHARACTERISTICS

7.1 GEOLOGY & SOILS

The area consists of aeolian and colluvial sand overlying sandstone, mudstone and shale of the Karoo Supergroup (mostly the Ecca Group) as well as older Ventersdorp Supergroup andesite and basement gneiss in the north. Soil forms are mostly Avalon, Westleigh and Clovelly. Dominant land type Bd, closely followed by Bc, Ae and Ba.

7.2 CLIMATE

The study site is warm-temperate, with a summer-rainfall climate. The area has an overall Mean Annual Precipitation (MAP) of 530 mm, with high summer temperatures. The area experiences severe frost (37 days per year on average) occurs in winter. See also climate diagram below (**Figure 7-1**).

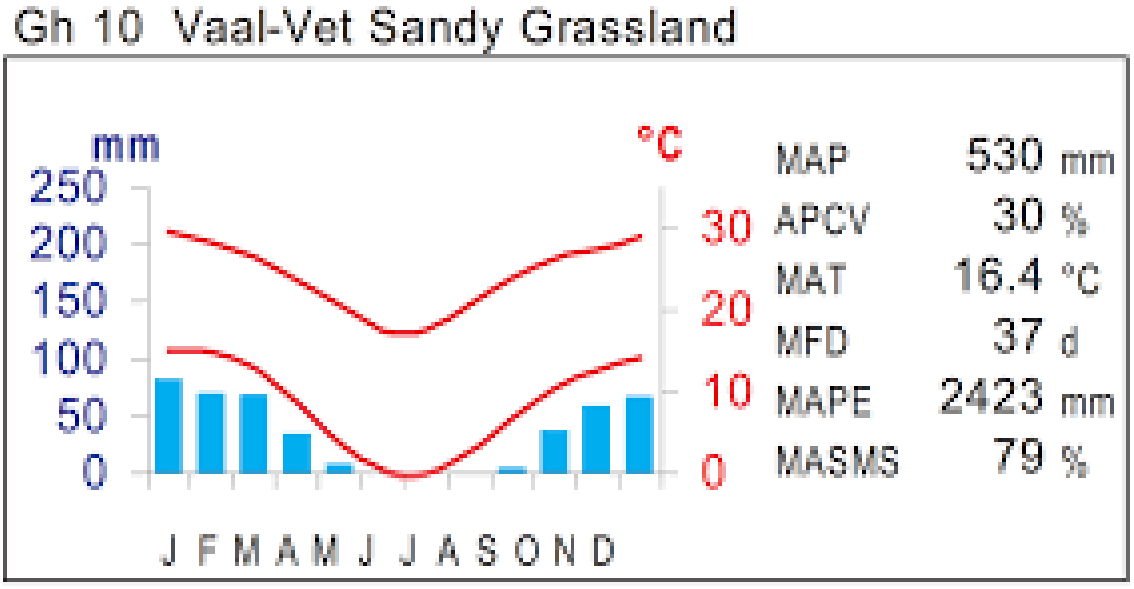

Figure 7-1: climate diagram for Gh 12 Vaal-Vet Sandy Grassland

7.3 VEGETATION TYPE ASSOCIATED WITH THE R30 S8 ROAD UPGRADE-VAAL-VET SANDY GRASSLAND (GH 10)

The road R30-S8 is located within the Vaal-Vet Sandy Grassland (Gh 10) vegetation unit (**Figure 7-2**). This vegetation unit is found in plains-dominated landscape with some scattered, slightly irregular undulating plains and hills. The vegetation unit consist of low-

tussock grasslands with an abundant karroid element. The vegetation unit is dominated by *Themeda triandra* which is an important feature of this vegetation unit. Locally low cover of *T. triandra* and the associated increase in *Elionurus muticus*, *Cymbopogon pospischilii* and *Aristida congesta* is attributed to heavy grazing and/or erratic rainfall.

The Vaal-Vet Sandy Grassland (Gh 10) is distributed in the North-West and Free State Provinces, South of Lichtenburg and Ventersdorp, stretching southwards to Klerksdorp, Leeudoringstad, Bothaville and to the Brandfort area north of Bloemfontein. This vegetation unit is found in altitudes ranging between 1 220 and 1 560 m, it is generally found in 1 260–1 360 m.

The taxa associated with the dominant vegetation units are summarized on **Table 7-1 below**.

Table 7-1: Important Taxa within the Vaal-Vet Sandy Grassland (Mucina and Rutherford 2006).

PLANT FORM	SPECIES
Gh 10 Vaal-Vet Sandy Grassland	
Graminoids:	*Anthephora pubescens (d), Aristida congesta (d), Chloris virgata (d), Cymbopogon caesius (d), Cynodon dactylon (d), Digitaria argyrograpta (d), Elionurus muticus (d), Eragrostis chloromelas (d), E. lehmanniana (d), E. plana (d), E. trichophora (d), Heteropogon contortus (d), Panicum gilvum (d), Setaria sphacelata (d), Themeda triandra (d), Tragus berteronianus (d), Brachiaria serrata, Cymbopogon pospischilii, Digitaria eriantha, Eragrostis curvula, E. obtusa, E. superba, Panicum coloratum, Pogonarthria squarrosa, Trichoneura grandiglumis, Triraphis andropogonoides.*
Herbs	*Stachys spathulata (d), Barleria macrostegia, Berkheya onopordifolia var. onopordifolia, Chamaesyce inaequilatera, Geigeria aspera var. aspera, Helichrysum caespititium, Hermannia depressa, Hibiscus pusillus, Monsonia burkeana, Rhynchosia adenodes, Selago densiflora, Vernonia oligocephala.*
Geophytic Herbs	*Bulbine narcissifolia, Ledebouria marginata*
Succulent Herb	*Tripteris aghillana var. integrifolia*
Low Shrubs	*Felicia muricata (d), Pentzia globosa (d), Anthospermum rigidum subsp. pumilum, Helichrysum dregeanum, H. paronychioides, Ziziphus zeyheriana.*

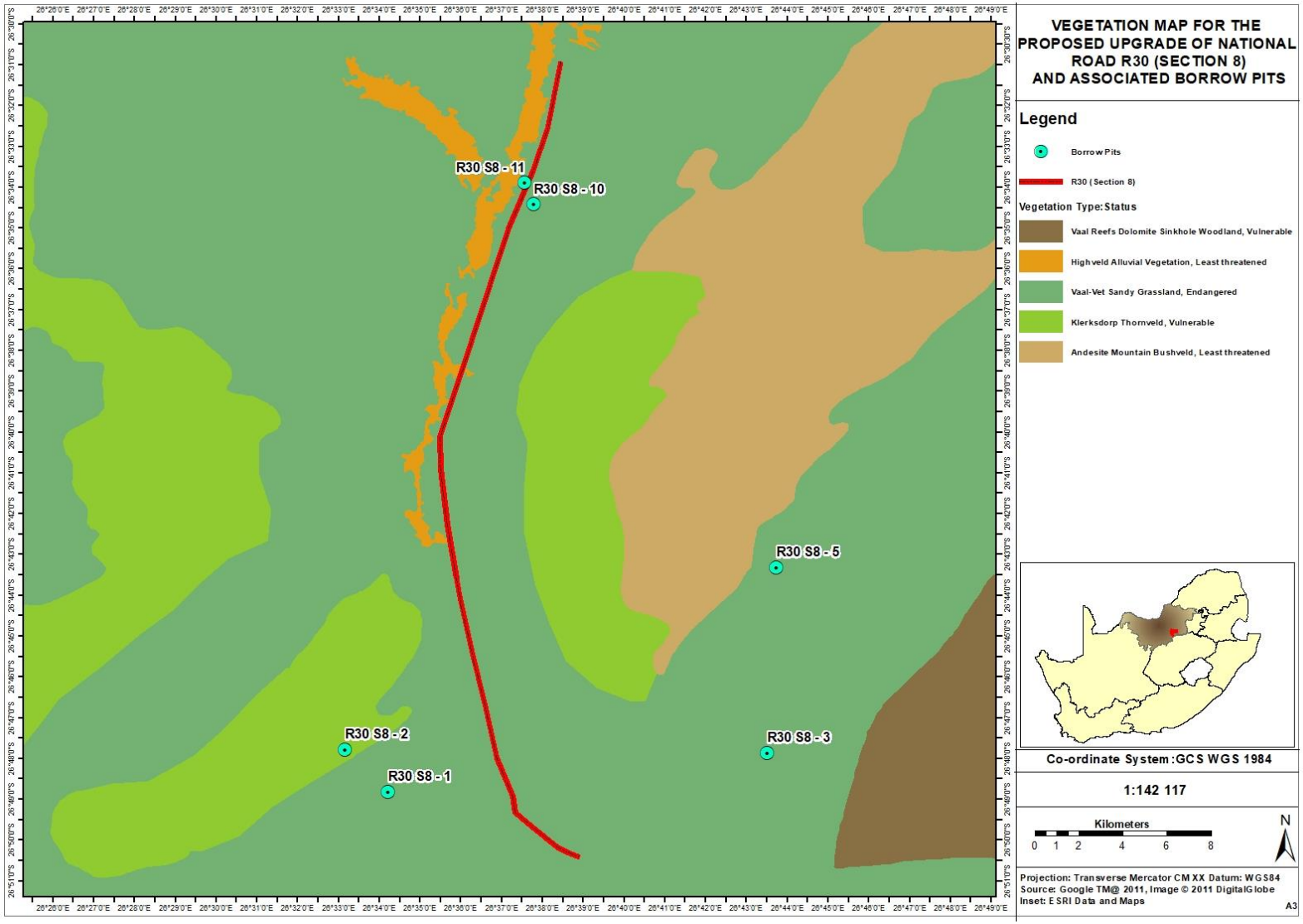

Figure 7-2: Vegetation Map-Road R30 Section 8

7.4 Gh 10 Vaal-Vet Sandy Grassland's Conservation Status

The Gh 10 Vaal-Vet Sandy Grassland is classified as **Endangered**. A conservation target of 24% has been set. Only 0.3% is statutorily conserved in the Bloemhof Dam, Schoonspruit, Sandveld, Faan Meintjies, Wolwespruit and Soetdoring Nature Reserves. More than 63% transformed for cultivation (ploughed for commercial crops) and the rest under strong grazing pressure from cattle and sheep. Erosion very low (85.3%) and low (11%).

7.5 2015 NORTH WEST BIODIVERSITY SECTOR PLAN

The Northwest Biodiversity Sector Plan identifies a network of Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) in the province based on a systematic biodiversity plan. Collectively, the CBAs and ESAs cover 57% of the province. These were first identified in the Northwest Biodiversity Conservation Assessment (DACERD, 2009), and are comprehensively re-assessed and updated for this plan. The provincial Biodiversity Sector Plan is intended to be the biodiversity sector's input into government sector planning and development processes.

The aim of the Biodiversity Sector Plan is to identify the minimum area necessary to conserve and maintain biodiversity and major ecological infrastructure in the province. Where possible, it is spatially aligned with other relevant spatial plans for the province, such as the Provincial Spatial Development Framework and gazetted Environmental Management Frameworks[1].

According to the 2015 North West Biodiversity Sector Plan, the proposed Upgrade of section 8 of the road R30 are located within the following:

- Critical Biodiversity Area 1 and 2[2]
- Ecological Support Area 1[3].

Refer to Figure 7-3 below for the Sensitivity map.

[1] 2008 North-West Province Biodiversity Conservation Assessment
[2] Critical Biodiversity Areas are areas required to meet biodiversity targets for ecosystems, species and ecological processes, as identified in a systematic biodiversity plan.
[3] Ecological Support Areas are not essential for meeting biodiversity targets but play an important role in supporting the ecological functioning of Critical Biodiversity Areas and/or in delivering ecosystem services.

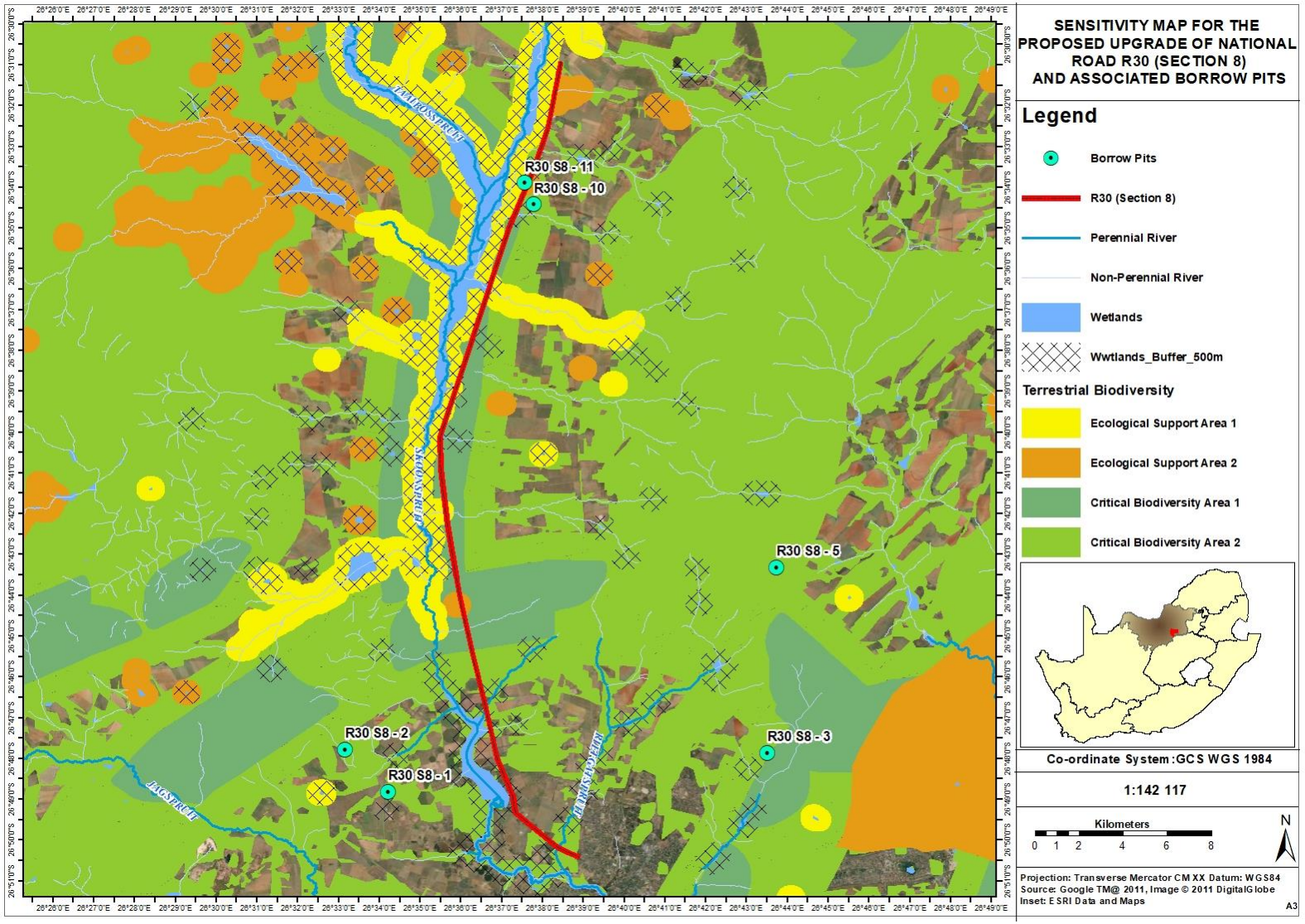

Figure 7-3: The R30 Section 8 in relation to the 2015 North West Biodiversity Sector Plan.

8 METHODOLOGY

The site inspection was done on the **25 November 2024**. The site visit entailed walking and driving along the road R30-S8 servitude while investigating both fauna and flora. The aim of the fieldwork component was to scan the study site to gain insight into the current faunal and floral assemblages, to detect any special species that might be present on site.

8.1 DESKTOP ASSESSMENT

The desktop assessment was principally undertaken using a Geographic Information System (GIS) to access the latest available spatial datasets to develop digital cartographs and species lists. These datasets and their date of publishing are provided below.

The potential impacts of the proposed expansion, existing operations and the alternatives were rated using a clearly defined rating scale. The significance rating formula is as follows:

8.1.1 Ecologically Important Landscape Features

- Existing ecologically relevant data layers were incorporated into a GIS to establish how the proposed development might interact with any ecologically important entities. Emphasis was placed around the following spatial datasets:
    - Ecosystem Threat Status – indicator of an ecosystem's wellbeing, based on the level of change in structure, function or composition. Ecosystem types are categorised as Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT) or Least Concern (LC), based on the proportion of the original extent of each ecosystem type that remains in good ecological condition.
    - Ecosystem Protection Level – indicator of the extent to which ecosystems are protected or under-protected. Ecosystem types are categorised as Well Protected (WP), Moderately Protected (MP), Poorly Protected (PP), or Not Protected (NP), based on the proportion of the biodiversity target for each ecosystem type that is included within one or more protected areas. Not Protected, Poorly Protected or Moderately Protected ecosystem types are collectively referred to as under-protected ecosystems.
- The North West Biodiversity Sector Plan (NWBSP) classified areas within the province based on their contribution to reaching the conservation targets within the province. These areas are classified as Critical Biodiversity Areas (CBAs) and

Ecological Support Areas (ESAs) to ensure sustainability in the long term. The CBAs are classified as either 'Irreplaceable' (must be conserved), or 'Important'.

- Important Bird and Biodiversity Areas (BirdLife South Africa, 2015) – Important Bird and Biodiversity Areas (IBAs) constitute a global network of over 13 500 sites, of which 112 sites are found in South Africa. IBAs are sites of global significance for bird conservation, identified through multi-stakeholder processes using globally standardised, quantitative, and scientifically agreed criteria;

8.1.2 Desktop Plant Species Assessment

The Vegetation of South Africa, Lesotho, and Swaziland (Mucina & Rutherford, 2006) was used in order to identify the vegetation type that would have occurred under natural or preanthropogenically altered conditions. Furthermore, the Plants of Southern Africa (POSA) database was accessed to compile a list of expected flora species within the proposed development area and surrounding landscape. The Red List of South African Plants (Raimondo et al., 2009; SANBI, 2020) was utilized to provide the most current national conservation status of flora species.

8.1.3 Desktop Animal Species Assessment

8.1.4 Mammals

- A list of mammal species that are known to occur in the region was compiled based on the historic distribution ranges presented in Stuart and Stuart (2007); and
- These data were cross-referenced with mammal species listed for the 2430CC Quarter Degree Square (QDS) on the MammalMAP database (Fitzpatrick Institute of African Ornithology, 2023).

8.1.5 Birds

- A list of bird species that are known to occur in the region was compiled based on the historic distribution ranges presented in Stuart and Stuart (2007); and

8.1.6 Herpetofauna (Reptiles and Amphibians)

Sampling for reptiles and amphibians was based on opportunistic observations made while driving/working in the study area were recorded.

8.2 BOTANICAL ASSESSMENT

The botanical assessment encompassed an assessment of all the vegetation units and habitat types within the project area. The focus was on an ecological assessment of habitat types as well as identification of any Red Data species within the known distribution of the project area. The South African National Biodiversity Institute (SANBI) provides an electronic database system, namely the Botanical Database of Southern Africa (BODATSA), to access distribution records on southern African plants. T

8.3 STUDY LIMITATIONS

- The site inspections were over a single day, during the wet season, and thus it is possible that some of the plant species may have missed due to time and budgetary constraints.
- It is assumed that plant species flowering only during specific times of the year could be confused with a very similar species of the same genus.
- Some plant species that emerge and bloom during another time of the year or under very specific circumstances may have been missed entirely.
- Data collection in this study relied heavily on data from representative, homogenous sections of vegetation units, as well as general observations, analysis of satellite imagery from the past until the present, generic data and a desktop analysis.
- No faunal trapping was conducted as part of this study. The faunal assessment relied heavily on desktop and literature studies, supported by on-site observations.
- The specialist responsible for this study reserves the right to amend this report, recommendations and/or conclusions at any stage should any additional or otherwise significant information come to light.

9 HABITAT SURVEY AND SITE ECOLOGICAL IMPORTANCE

The main habitat types identified across the project area were initially identified and pre delineated largely based on aerial imagery from 1985. These habitat types were then refined based on the field coverage and data collected during the survey. Four habitat units are delineated for the project area: transformed, degraded grassland, secondary grassland, and wetland.

Degraded grassland habitat as well as secondary grassland habitat were identified along the project area. Both these habitats have been impacted upon by historic mismanagement and land use activities, most notably to accommodate various agricultural practises such as planted pastures, maize and grazing. The difference between the secondary grassland habitat and the disturbed thornveld is the extent of the disturbance in the degraded grassland being more severe.

The for delineated habitat types have each been allocated a sensitivity category, or SEI, and this breakdown is presented in **Table 9-1** below. In order to identify and spatially present sensitive features in terms of the relevant specialist discipline, the sensitivities of each of the habitat types delineated within the project area are mapped in **Figure 9-1**.

It is important to note that this map does not replace any local, provincial, or national government legislation relating to these areas or the land use capabilities or sensitivities of these environments.

Table 9-1: Site Ecological Importance assessment summary of the habitat types delineated within the project area.

Habitat	Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor Resilience	Site Ecological Importance
Transformed	Medium	Low	Low	Low	Low
Degraded Grassland	Medium	Low	Low	Low	Low
Secondary Grassland	Medium	Low	Low	Low	Medium
Wetland	Medium	High	Medium	Medium	Medium

Consider the following guidelines when interpreting SEI in the context of any proposed development or disturbance activities:

- Very Low: Minimisation mitigation - Development activities of medium to high impact acceptable and restoration activities may not be required.
- Low: Minimisation and restoration mitigation - Development activities of medium to high impact acceptable followed by appropriate restoration activities.
- Medium: Minimisation and restoration mitigation - Development activities of medium impact acceptable followed by appropriate restoration activities.

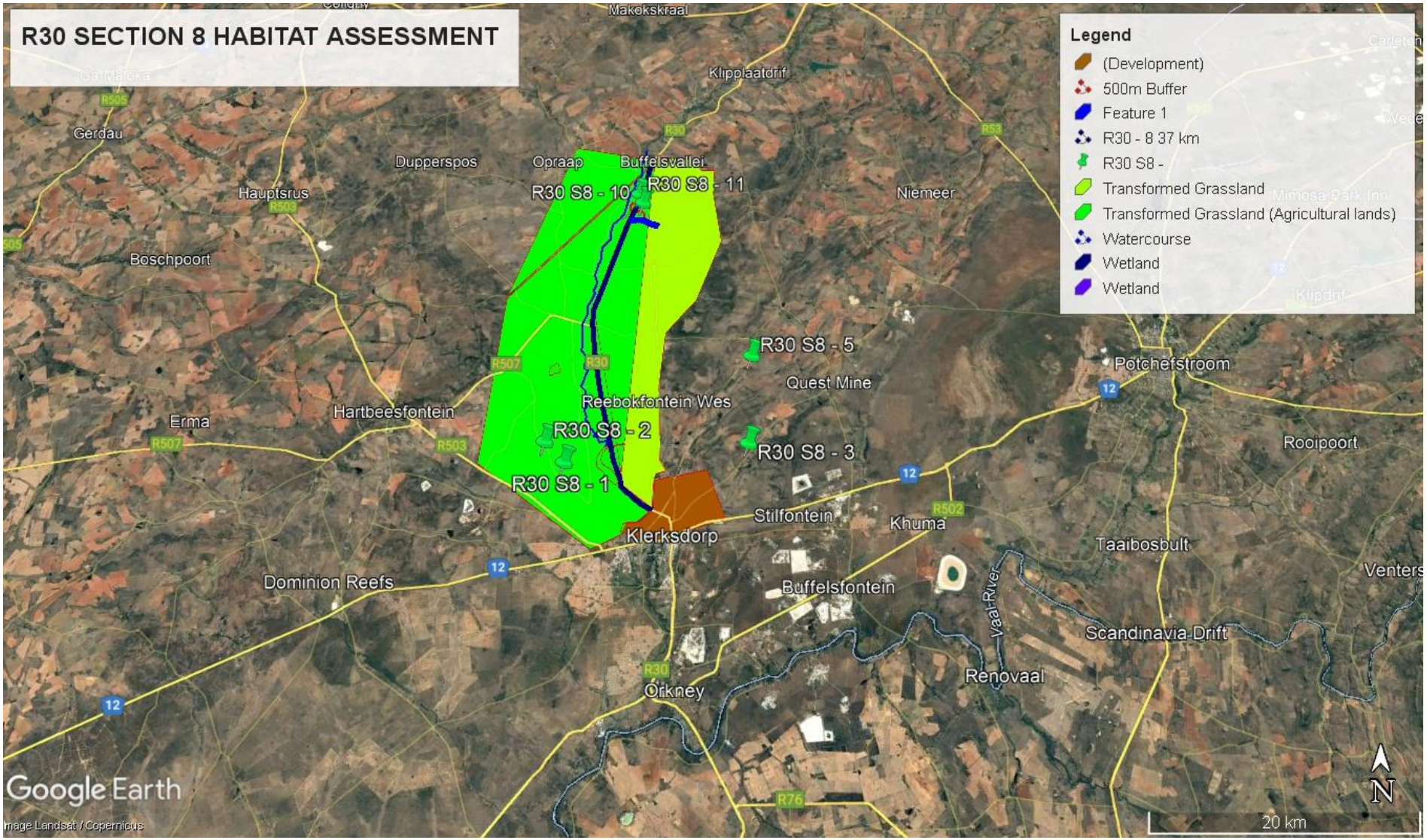

Figure 9-1: Biodiversity SEI delineation relevant to the R30 Road section 8.

10 RESULTS OF THE FLORA ASSESSMENT

The Road R30 Section 8 from Klerksdorp (Km 0.0) to Buffelsvallei (Km 37.0) is located on the Vaal-Vet Sandy Grassland (Gh 10), which consists of low-tussock grasslands with an abundant karroid element. However, the road servitude has been transformed as part of the maintenance of the existing road. The servitude is dominated by *Themeda triandra* (**Figure 10-1**). In certain areas, bear patches of soil can be observed along the road servitude (**Figure 10-1**).

Figure 10-1:Overview of the state of vegetation found along the road servitude.

In addition to the grass species the road servitude has indigenous trees which include Acacia (**Figure 10-2**), the other species that were observed along the road servitude are depicted on **Figure 10-3** to **Figure 10-5**.

Figure 10-2:Small shrubs observed next to the road servitude.

Figure 10-3: Watercourse located next to the road servitude with an abundance of Phragmites

Figure 10-4: Eucalyptus trees observed along the road servitude.

Figure 10-5: Phragmites species observed along the road servitudes.

10.1 FLORA SPECIES OF SPECIAL CONCERN

South Africa has become the first country to fully assess the status of its entire flora (Domitilla and Raimondo, 2011). Major threats to the South African flora are identified in terms of the number of plant taxa Red-Listed as threatened with extinction as a result of threats like, habitat loss (e.g. infrastructure development, urban expansion, crop cultivation and mines), invasive alien plant infestation (e.g. outcompeting indigenous plant species), habitat degradation (e.g. overgrazing, inappropriate fire management etc.), unsustainable harvesting, demographic factors, pollution, loss of pollinators or dispersers, climate change and natural disasters (e.g. such as droughts and floods)[4]. South Africa uses the internationally endorsed IUCN Red List Categories and Criteria in the Red List of South African plants. However, due to its strong focus on determining risk of extinction, the IUCN system does not highlight species that are at low risk of extinction but may nonetheless be of high conservation importance. As a result, a SANBI uses an amended system of categories in order to highlight species that may be of low risk of extinction but are still of conservation concern (SANBI, 2015).

In the Northwest, species of conservation concern are also protected in terms of national and provincial legislation, namely:

- The following species protected in terms of the North West Biodiversity Management Act, No.4 of 2016 are known to be found in the area (**Table 10-1**).

Table 10-1: NCNCA are known to be found in the area.

FAMILY	SPECIES	NATIONAL STATUS	HABITAT	POC
AIZOACEAE	*Delosperma leendertziae*	NT	**Range:** Magaliesberg, Roodepoort Ridge and Suikerbosrand. **Major habitats:** Gold Reef Mountain Bushveld, DwarsbergSwartruggens Mountain Bushveld, Loskop Mountain Bushveld, Andesite Mountain Bushveld,	Low

[4] RAIMONDO, Domitilla. The Red List of South African plants: a global first. S. Afr. j. sci., Pretoria , v. 107, n. 3-4, p. 01-02, Apr. 2011 . on 17 Aug. 2021. http://dx.doi.org/10.4102/sajs.v107i3/4.653.

			Gauteng Shale Mountain Bushveld. **Description:** Steep, south-facing slopes of quartzite in mountain grassland. **Population trend:** Decreasing	
APOCYNACEAE	*Stenostelma umbelluliferum*	NT	**Range:** Pretoria North and adjacent areas in North West Province. **Major habitats:** Savanna **Description:** Deep black turf in open woodland mainly in the vicinity of drainage lines. **Population trend:** Decreasing	Medium
ASPHODELACEAE	*Kniphofia typhoides*	NT	**Range:** Parys to Lydenburg to Paulpietersburg to Newcastle. **Major habitats:** Grassland **Description:** Low lying wetlands and seasonally wet areas in climax Themeda triandra grasslands on heavy black clay soils, tends to disappear from degraded grasslands. Population trend: Decreasing	Low
CRASSULACEAE	*Adromischus umbraticola*	NT	**Range:** Potchefstroom and Zeerust to Cullinan. **Major habitats:** Savanna **Description:** South-facing rock	Low

			crevices on ridges, restricted to Gold Reef Mountain Bushveld in the northern parts of its range, and Andesite Mountain Bushveld in the south. **Population trend:** Decreasing	
FABACEAE	*Melolobium subspicatum*	VU	**Range:** Krugersdorp to Pretoria. **Major habitats:** Soweto Highveld Grassland, Egoli Granite Grassland, Carletonville Dolomite Grassland **Description:** Grassland **Population trend:** Stable	Low
ORCHIDACEAE	*Habenaria mossii*	EN	**Range:** Johannesburg, Pretoria and Krugersdorp. **Major habitats:** Andesite Mountain Bushveld, Carletonville Dolomite **Grassland Description:** Open grassland on dolomite or in black, sandy soil. **Population trend:** Decreasing	Low

EN= Endangered; EW = Extinct in the Wild; NT = Near Threatened; VU= Vulnerable; P= Protected; POC = Probability of Occurrence

During the field investigation no floral SCCs were found and the chances that the species above re-establish themselves on the site is medium to low. Should any floral SCC be encountered during any phase of the proposed development, these species should be rescued and relocated by a suitably qualified specialist and either relocated to suitable

habitat within the study area outside of the development footprint, utilised within the landscaping plan of the project, or moved to registered nurseries such as the Agricultural Research Council (ARC) or the South African National Biodiversity Institute (SANBI).

10.1.1 Ethnobotanical plant species

Ethnobotany/ Ethnoecology is a branch of botany that focuses on the use of plants for medicines, cultural and recreational purposes. The overexploitation of indigenous plants for ethnobotanical purposes can be detrimental to populations of those particular plant species, and the other species that depend on its existence for their survival.

South Africa has a rich diversity of medicinal plants that not only have a global significance, but also have a cultural and historical role (van Wyk *et al.* 2009). There is a rapidly growing concern for conservation of medicinal plants that are dwindling in number due to illegal harvesting (Institute of Natural Resources 2003). This is particularly apparent in rural areas where medicinal plants are overexploited by traditional doctors.

During the site inspection, no medical plants were encountered along the road servitude.

10.2 ALIEN INVASIVE SPECIES PRESENT ON SITE

An "invasive species" is any species whose establishment and spread outside of its natural distribution range (i) threatens ecosystems, habitats or other species or has a demonstrable potential to threaten ecosystems, habitats or other species; and (ii) may result in economic or environmental harm or harm to human health. Invasive alien plant species are globally considered as one of the greatest threats to the environment, biodiversity, ecosystem integrity and the economy.

According to the Conservation of Agricultural Resources Act (No. 43 of 1983 - Regulation 15, 30 March 2001) (CARA), for agricultural land, and the National Environmental Management: Biodiversity Act (No. 10 of 2004) (NEMBA), for natural areas, invasive alien plant species should be controlled and eradicated with an emphasis on urgent action in biodiversity priority areas. NEMBA published a list of Alien and Invasive Species (No 599) in 2014 which regulates the management of alien and invasive plants in natural environments. The Invasive Species that were observed onsite are listed below

1. ***Eucalyptus camaldulensis*** **(Commonly known as Gumtree)**

The genus Eucalyptus, with about 800 species, belongs to the myrtle family, Myrtaceae, and is almost entirely native to Australia. The Eucalypts are best known for their commercial use as timber trees and windbreaks. They are also cultivated for ornament, shade, firewood and honey production.

Eucalyptus species are invasive and pose a threat to the natural resources of the country. Most invasion occurs along watercourses but also on forest margins, in gaps within native forest and plantations as well as into Fynbos and grassland. Eucalypts are well known for their ability to use large volumes of water and this increases with increasing availability of water such as along watercourses.

Figure 10-6:Eucalyptus tree observed onsite

11 RESULTS OF THE FAUNA ASSESSMENT

11.1 MAMMALS

According to the desktop study conducted, the species listed in **Table 11-1** were identified as being possible to occur within the study area or the immediate vicinity of the proposed construction area. It must be noted that some of these species are very sensitive to habitat and in some instances; the likeliness for them to occur is minimal. There are six (6) sensitive mammal species that have a HIGH chance of occurring in the study area.

Table 11-1: Sensitive mammals that are likely to occur onsite

#	Scientific name	Common name	Red list category

1	Macroscelidea indet.	Macroscelidea indet.	
2	Rodentia indet.	Rodentia indet.	
3	Aepyceros melampus	Impala	Least Concern
4	Alcelaphus buselaphus	Hartebeest	
5	Alcelaphus buselaphus caama	Red Hartebeest	Least Concern (2008)
6	Antidorcas marsupialis	Springbok	Least Concern (2016)
7	Connochaetes gnou	Black Wildebeest	Least Concern (2016)
8	Connochaetes taurinus	Blue Wildebeest	Least Concern (ver 3.1, 2017)
9	Connochaetes taurinus taurinus		Least Concern (2016)
10	Damaliscus pygargus phillipsi	Blesbok	Least Concern (2016)
11	Hippotragus equinus	Roan Antelope	Endangered (2016)
12	Hippotragus niger	Sable Antelope	Least Concern (ver 3.1, 2017)
13	Hippotragus niger niger		Vulnerable (2016)
14	Kobus ellipsiprymnus	Waterbuck	Least Concern (ver 3.1, 2016)
15	Oryx gazella	Gemsbok	Least Concern (2016)
16	Pelea capreolus	Vaal Rhebok	Near Threatened (2016)
17	Raphicerus campestris	Steenbok	Least Concern (2016)
18	Redunca arundinum	Southern Reedbuck	Least Concern (2016)
19	Redunca fulvorufula	Mountain Reedbuck	Least Concern
20	Sylvicapra grimmia	Bush Duiker	Least Concern (2016)

21	Taurotragus oryx	Common Eland	Least Concern (2016)
22	Tragelaphus angasii	Nyala	Least Concern (2016)
23	Tragelaphus scriptus	Bushbuck	Least Concern
24	Tragelaphus strepsiceros	Greater Kudu	Least Concern (2016)
25	Canidae indet.	Canidae indet.	
26	Canis mesomelas	Black-backed Jackal	Least Concern (2016)
27	Vulpes chama	Cape Fox	Least Concern (2016)
28	Chlorocebus pygerythrus	Vervet Monkey	Least Concern (2016)
29	Chlorocebus pygerythrus pygerythrus	Vervet Monkey (subspecies pygerythrus)	Least Concern (2008)
30	Papio ursinus	Chacma Baboon	LC (IUCN, 2016)
31	Dama dama	Fallow Deer	Introduced
32	Equus quagga	Plains Zebra	Near Threatened (IUCN, 2016)
33	Giraffa giraffa giraffa	South African Giraffe	Least Concern (2016)
34	Atilax paludinosus	Marsh Mongoose	Least Concern (2016)
35	Cynictis penicillata	Yellow Mongoose	Least Concern (2016)
36	Herpestes sanguineus	Slender Mongoose	Least Concern (2016)
37	Suricata suricatta	Meerkat	Least Concern (2016)
38	Hyaena brunnea	Brown Hyena	Near Threatened (2015)
39	Proteles cristata	Aardwolf	Least Concern (2016)
40	Hystrix africaeaustralis	Cape Porcupine	Least Concern
41	Lepus indet.	Lepus indet.	
42	Lepus capensis	Cape Hare	Least Concern

43	Lepus saxatilis	Scrub Hare	Least Concern
44	Pronolagus indet.	Pronolagus indet.	
45	Pronolagus randensis	Jameson's Red Rock Hare	Least Concern (2016)
46	Aethomys namaquensis	Namaqua Rock Mouse	Least Concern
47	Mastomys indet.	Mastomys indet.	
48	Rhabdomys pumilio	Four-striped Grass Mouse	Least Concern (2016)
49	Aonyx capensis	African Clawless Otter	Near Threatened (2016)
50	Orycteropus afer	Aardvark	Least Concern (2016)
51	Pedetes capensis	South African Spring Hare	Least Concern (2016)
52	Procavia capensis capensis	Cape Rock Hyrax	LC (IUCN 2015, global sp. level)
53	Xerus inauris	South African Ground Squirrel	Least Concern
54	Myosorex varius	Forest Shrew	Least Concern (2016)
55	Phacochoerus africanus	Common Warthog	Least Concern (2016)
56	Genetta maculata	Common Large-spotted Genet	Least Concern
57	Genetta genetta	Common Genet	Least Concern (2016)
58	Genetta tigrina	Cape Genet (Cape Large-spotted Genet)	Least Concern (2016)

11.1.1 Field Investigation Findings

None of the sensitive mammals which were expected were spotted on site.

11.2 REPTILES

Reptile lists require intensive surveys conducted for several years. Reptiles are extremely secretive and difficult to observe even during intensive field surveys conducted over several seasons. The majority reptile species are sensitive to severe habitat alteration and fragmentation. Large areas surrounding the site have resulted in increased habitat modification and transformation as well as increased human presence and associated disturbances (illegal reptile collecting, indiscriminate killing of all snake species, fires) surrounding the site coupled with increased habitat destruction and disturbances on the neighbouring properties are all causal factors in the alteration and disappearance of reptile diversity in the area. A list of the reptile species that can be expected onsite is listed below.

Table 11-2: ReptileMAP — Reptile Atlas of Africa Summary information for locus 2626DA

#	Scientific name	Common name	Red list category
1	*Agama aculeata distanti*	Distant's Ground Agama	Least Concern (SARCA 2014)
2	*Agama atra*	Southern Rock Agama	Least Concern (SARCA 2014)
3	*Chamaeleo dilepis*	Common Flap-neck Chameleon	Least Concern (SARCA 2014)
4	*Crotaphopeltis hotamboeia*	Red-lipped Snake	Least Concern (SARCA 2014)
5	*Hemachatus haemachatus*	Southern Rinkhals	Least Concern (IUCN 2022)
6	*Naja nivea*	Cape Cobra	Least Concern (SARCA 2014)
7	*Lygodactylus capensis*	Common Dwarf Gecko	Least Concern (SARCA 2014)
8	*Pachydactylus capensis*	Cape Gecko	Least Concern (SARCA 2014)
9	*Gerrhosaurus flavigularis*	Yellow-throated Plated Lizard	Least Concern (SARCA 2014)
10	*Boaedon capensis*	Brown House Snake	Least Concern (SARCA 2014)
11	*Lamprophis aurora*	Aurora House Snake	Least Concern (SARCA 2014)
12	*Psammophylax tritaeniatus*	Striped Grass Snake	Least Concern (SARCA 2014)
13	*Pseudaspis cana*	Mole Snake	Least Concern (SARCA 2014)
14	*Pelomedusa galeata*	South African Marsh Terrapin	Least Concern (IUCN 2018)
15	*Panaspis wahlbergii*	Wahlberg's Snake-eyed Skink	Least Concern (IUCN 2021)

16	*Trachylepis varia sensu lato*	Common Variable Skink Complex	Least Concern (SARCA 2014)
17	*Stigmochelys pardalis*	Leopard Tortoise	Least Concern (SARCA 2014)
18	*Varanus albigularis albigularis*	Rock Monitor	Least Concern (SARCA 2014)
19	*Bitis arietans arietans*	Puff Adder	Least Concern (IUCN 2014)

11.2.1 Field investigation findings

None of the expected reptiles were observed on site during the site visit.

11.3 AVIFAUNA

Birds are generally regarded as good ecological indicators, because their presence or absence tends to represent conditions pertaining to the proper functioning of an ecosystem. Bird communities and ecological conditions are directly linked to land cover. As the land cover of an area changes, so do the types of birds in that area (The Bird Community Index, 2007). Land cover is directly linked to habitats within the study area. The diversity of these habitats should give rise to many different species.

According to the South African Bird Atlas Project (SABAP2), almost 399 species of birds have been identified in the Klerksdorp area; 14 of the species are classified as threatened, while 5 species are classified as introduced. All birds that could be present within the vicinity of the study area are listed in **Appendix B**.

11.3.1 Field investigation findings

A few avifaunal species were spotted onsite during the site visit, most notably Ostriches were observed on borrow pit. R30 S8-10, which is located next to the road servitude (**Figure 11-1**). A few avifauna species were observed along the road servitudes especially near the watercourse (**Figure 11-2** to **Figure 11-3**).

Figure 11-1: Ostriches observed outside of the borrow pit R30 S8-10, which is located next to the road servitude.

Figure 11-2: Example of the Long-tailed widowbird.

Figure 11-3: Yellow tailed oriole observed on the watercourse along the road servitude.

11.4 INVERTEBRATES

Butterflies are a good indication of the habitats available in a specific region (Woodhall 2005). Although many species are eurytropes (able to use a wide range of habitats) and are widespread and common, South Africa has many stenotrope or endemic species (specific habitat requirements with populations concentrated in a small area) which may be very specialised (Woodhall 2005). Butterflies are useful indicators as they are relatively easy to locate and catch, and therefore identify. A list of butterflies that are likely to be observed on the study site and the surrounding areas are summarised in **Table 11-3**.

Table 11-3: Butterfly species expected to occur on site.

Scientific Name	Common Name
Melanitis leda Helena	Evening Brown
Acraea anemosa	Broad-bordered Acraea
Acreae neobule	Wandering Acraea
Danaus chrysippus	African Monarch butterfly
Junonia hierta cebrene	Yellow Pansy butterfly
Danays chrysippus	Southern Milkweed
Charaxes jasius	Koppie Emperor

Scientific Name	Common Name
Cyclyrius pirithous	Common Blue
Hyalites esebria	Dusky Acrea butterfly
Phalantha aethiopica	Poplar Leopard
Alaena amazoula	Yellow Zulu
Catacroptera cloanthe	Pirate butterfly
Charaxes achaemenses	Bushveld Emperor
Pinacopteryx eriphia	Zebra White butterfly
Eurema brigitta	Broad-bordered yellow
Vanessa cardui	Painted Lady
Papilio demodocus	Citrus Swallowtail butterfly

11.4.1 Field investigation findings

The borrow pit R30 S8-2 has termite mounds (**Figure 11-4**) and grasshopper species., No invertebrates were observed in the other sites.

Figure 11-4: Termite mound observed next to the road servitude.

12 CONCLUSION

The majority of the project area has historically been modified to accommodate agricultural practices and as such remain in a transformed state. The project area does, however, contain unique habitat features such as the wetland systems. The negative expected environmental impacts that will stem from the development activities, include:

- The loss and fragmentation of vegetation communities;
- he safe movement of faunal species; and
- The direct and indirect loss and disturbance of floral and faunal species and communities.

Completion of the terrestrial biodiversity assessment led to a disputing of classification for the terrestrial biodiversity theme sensitivity as allocated by the National Environmental Screening Tool. The majority of the project area has instead been assigned a Very Low to Low sensitivity, because of the high levels of environmental disturbance that have taken place along the road servitude and the fact that no SCC were observed - or are very unlikely to occur. It is noted that one areas have been assigned higher sensitivity, mainly the wetland system which have been allocated a 'Medium' sensitivity. The wetland areas remain in a moderately natural condition as it has been predominantly excluded from direct historic anthropogenic activities and as such still provides habitat to support indigenous vegetation and common faunal species.

13 Specialist Recommendations

The R30 S8 road servitude is classified as having a sensitivity rating of 'Very Low', is likely to face minimal further impacts from any development activities, and as such the proposed activities may proceed within these areas.

As mentioned, the development footprint occurs within the 500 m regulation area for a wetland as such development must follow the guidelines stipulated in the project wetland assessment.

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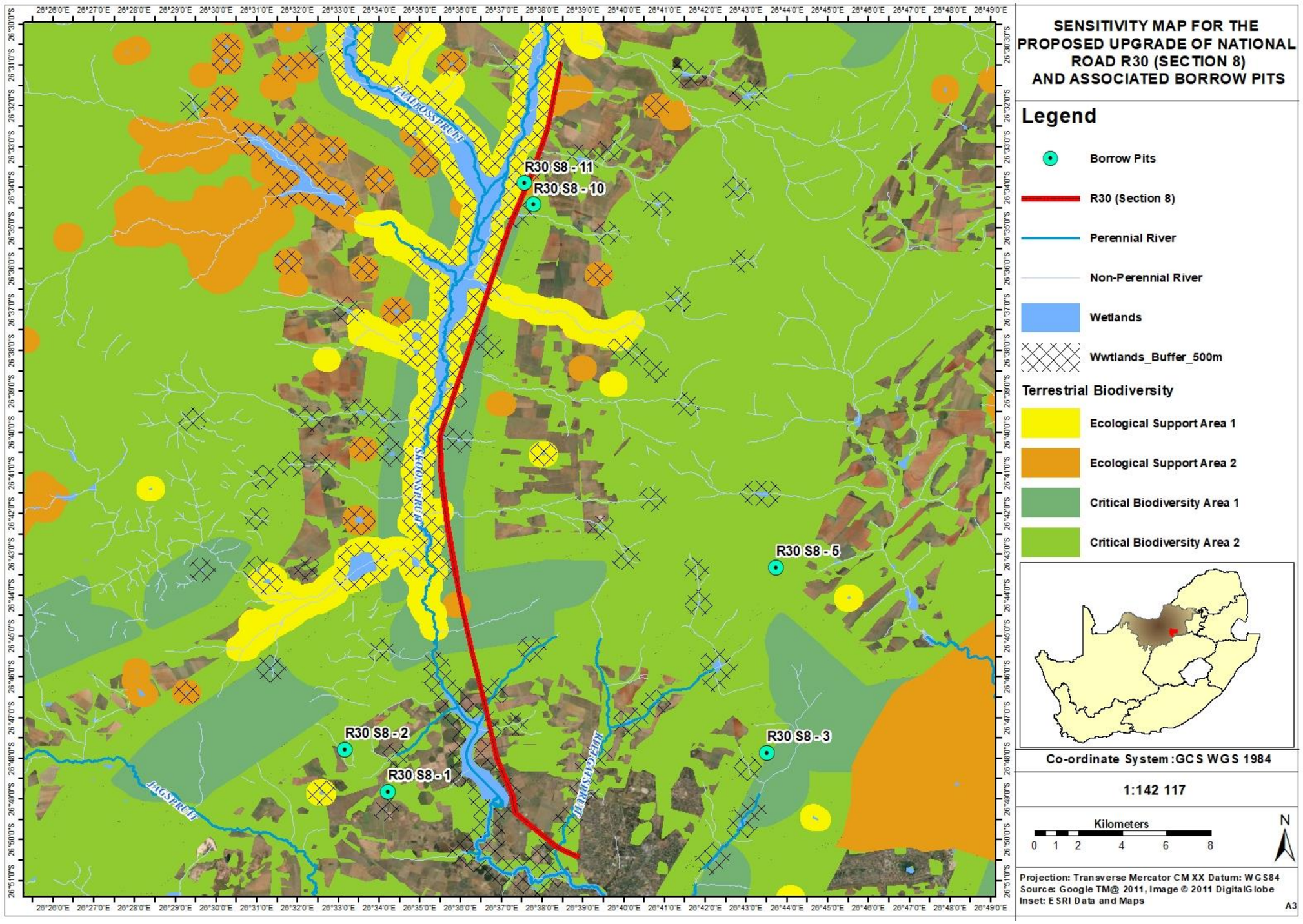
Appendix A: Sensitivity Map


SENSITIVITY MAP FOR THE PROPOSED UPGRADE OF NATIONAL ROAD R30 (SECTION 8) AND ASSOCIATED BORROW PITS
Legend
Borrow Pits
R30 (Section 8)
Perennial River
Non-Perennial River
Wetlands
Wwtlands_Buffer_500m
Terrestrial Biodiversity
Ecological Support Area 1
Ecological Support Area 2
Critical Biodiversity Area 1
Critical Biodiversity Area 2
R30 S8 - 11
R30 S8 - 10
R30 S8 - 5
R30 S8 - 2
R30 S8 - 1
R30 S8 - 3
LEEUWSPRUIT
SKOONSPRUIT
JAGSPRUIT
KLEINSPRUIT
Co-ordinate System:GCS WGS 1984
1:142 117
Kilometers
0 1 2 4 6 8
N
Projection: Transverse Mercator CM XX Datum: WGS84
Source: Google TM@ 2011, Image © 2011 DigitalGlobe
Inset: ESRI Data and Maps
A3

Appendix B Avifauna Species Expected onsite According to *Avibase* - The World Bird Database (https://avibase.bsc-eoc.org/checklist.jsp?region=ZAnw06)