JN VENTER BELEGGINGS AGRICULTURAL DEVELOPMENT

Free State Province

Scoping Report

June 2022

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PROJECT DETAILS

Title	:	Environmental Impact Assessment Process: Scoping Report for JN Venter Beleggings Trust Agricultural Development, Free State Province
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Client	:	JN Venter Beleggings Trust
Report Revision	:	Revision 0 – Draft for Public Review
Date	:	June 2022

When used as a reference this report should be cited as: Savannah Environmental (2022) Scoping Report for the JN Venter Beleggings Trust Agricultural Development, Free State Province.

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PURPOSE OF THE SCOPING REPORT AND INVITATION TO COMMENT

JN Vneter Beleggings Trust has appointed Savannah Environmental as the independent environmental consultant to undertake the Scoping and Environmental Impact Assessment (S&EIA) process for the JN Venter Beleggings Agricultural Development, Free State Province. The EIA process is being undertaken in accordance with the requirements of the 2014 EIA Regulations promulgated in terms of the National Environmental Management Act (No. 107 of 1998) (NEMA).

This Scoping Report represents the findings of the Scoping Phase of the EIA process and contains the following chapters:

- **Chapter 1** provides background to the JN Venter Beleggings Trust agricultural development and the EIA process.
- **Chapter 2** provides a description of the JN Venter Beleggings Trust Agricultural Development and associated infrastructure.
- **Chapter 3** provides the site selection information, identified project alternatives and describes the need and desirability of the agricultural development and the associated infrastructure within the project area.
- **Chapter 4** outlines the relevant applicable regulations for agricultural development and the associated infrastructure in South Africa, and specifically for the proposed site.
- **Chapter 5** outlines the process which was followed during the Scoping Phase of the EIA process.
- **Chapter 6** describes the existing biophysical and socio-economic environment affected by the proposed development.
- **Chapter 7** provides an identification and evaluation of the potential issues associated with the proposed JN Venter Beleggings Trust Agricultural Development and associated infrastructure.
- **Chapter 8**presents the conclusions of the Scoping Report.
- **Chapter 9** describes the Plan of Study for EIA Phase.
- **Chapter 10** provides references used in the compilation of the Scoping Report.

The Scoping Report is available for review from **03 June 2022 – 04 July 2022**on the Savannah Environmental website (https://savannahsa.com/public-documents/other/).

Please submit your comments by **13 December 2021** to:
Nondumiso Bulunga of **Savannah Environmental** PO Box 148, Sunninghill, 2157 Tel: 011-656-3237 Mobile: 079 458 0862 Fax: 086-684-0547 Email: publicprocess@savannahsa.com

Comments can be made as written submission via fax, post or email.

EXECUTIVE SUMMARY

JN Veneter Beleggings Trusts is proposing agricultural development and associated infrastructure located on a site approximately 7km south-west of Luckhof within the Letsemeng Local Municipality of Xhariep District Municipality in the Free State Province. The full extent of the project site is ~3887 and the proposed development area is proposed to be ~2690ha extent across 3 properties owned by the Applicant. The project area is proposed to accommodate agricultural development (cultivation), as well as the associated infrastructure, which is required for such development, and this will include:

- Development of centre pivot areas (cultivation and irrigation) which is planned to take approximately 2154ha or more within the project site.
- Construction of two bulk water pipelines following the same pipeline route of approximately 5.93km from the canal to the proposed two irrigation dams.
- Two irrigation water storage dams, each with a surface area ranging from 7ha to 46ha.
- Establishment of an irrigation pipeline network from the irrigation dams to the centre pivot areas.
- A new pump station taking a total surface area of 549m^2.
- A 5MW solar PV facility occupying an area of 9ha, and an associated overhead power line of ~6.9km in length.
- A Battery Energy Storage System covering a surface area of 0.36ha.

The development area will affect the following properties:

- Farm Diepdraai 754
- Farm Weltevreden 755
- Farm Lemoen- spruit 667

The proposed pipeline will pass through the following property:

- Farm Scheiding 1252

The site is accessible via the R48 road which pass directly through the centre of the proposed site. The R369 links to R48 south-west of the proposed site

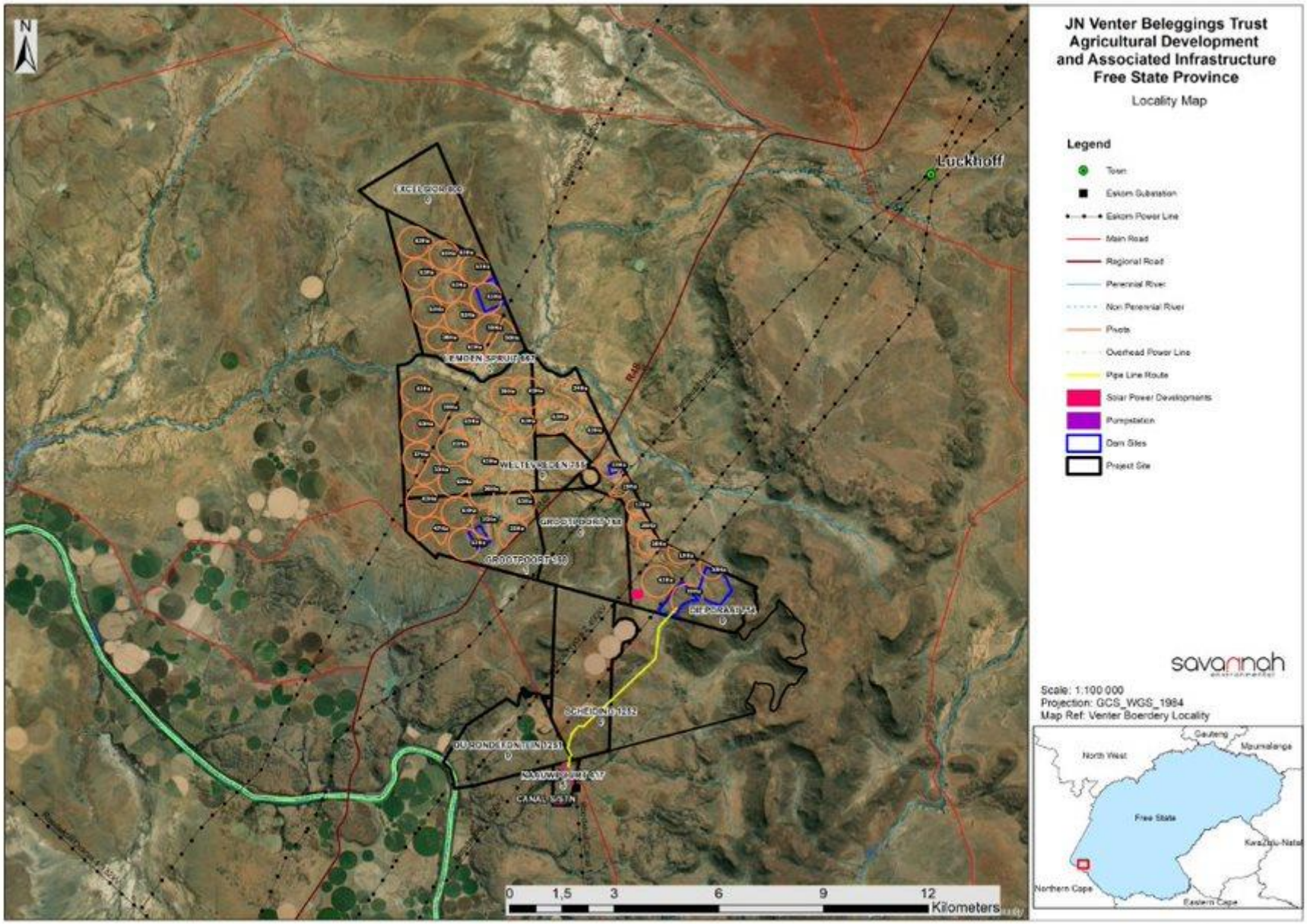

Figure 1: Locality map of the project site within which the JN Venter Beleggings Trust Agricultural Development is proposed to be developed

1. Environmental Permitting Requirements

The JN Venter Beleggings Trust Agricultural Development and its associated infrastructure trigger the need for following environmental permit:

- **An Environmental Authorisation (EA)** from the Free State Department of Small Business Development, Tourism and Environmental Affairs (DESTEA) in accordance with the requirements of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and Environmental Impact Assessment (EIA) Regulations (GNR 326), 2014, as amended.

Savannah Environmental has been appointed as the Independent Environmental Assessment Practitioner (EAP) in accordance with NEMA and Regulations 21 to 24 of the 2014 EIA Regulations (GNR 326) to undertake the required S&EIA in support of the application for Environmental Authorisation (EA) and the public participation process for the project, in order to identify and assess all potential environmental impacts associated with the proposed agricultural development and associated infrastructure recommend appropriate mitigation measures in an Environmental Management Programme (EMPr).

An EIA is an effective planning and decision-making tool for the project developer as it allows for the identification and management of potential environmental impacts. It provides the opportunity for the developer to be fore warned of potential environmental issues and allows for the resolution of issues reported on in the Scoping and EIA Reports as well as a dialogue with Interested and Affected Parties (I&APs). Comprehensive, independent environmental specialist studies are required in accordance with the EIA Regulations to provide the competent authority with sufficient information in order to make an informed decision. The EIA process being undertaken for the proposed agricultural development comprises of two phases – i.e., Scoping and Impact Assessment - and involves the identification and assessment of environmental impacts through specialist studies, as well as public participation. The process followed in these two phases is as follows:

- The **Scoping Phase** includes the identification and description of potential impacts associated with the proposed project through a desktop study and consultation with interested and affected parties and key stakeholders. This phase considers the broader project area in order to identify and delineate any environmental fatal flaws, no-go or sensitive areas, as well as project alternatives in order to determine which should be assessed in more detail in the EIA Phase. Following the public review period of the Scoping Report, this phase culminates in the submission of a final Scoping Report and Plan of Study for the EIA Phase to the competent authority for acceptance and approval to continue with the EIA Phase of the process.
- The **EIA Phase** involves a detailed assessment of potentially significant positive and negative impacts (direct, indirect, and cumulative) identified in the Scoping Phase. This phase considers a proposed development footprint and includes detailed specialist investigations (including field surveys), consideration of feasible alternatives and public consultation. Recommendations of practical and achievable mitigation and management measures are included in an Environmental Management Programme (EMPr) considering all phases of the project. Following the public review period of the EIA Report and EMPr, this phase culminates in the submission of a Final EIA Report and EMPr to the competent authority for review and decision-making.

2. Potential Impacts Identified

Potential impacts associated with the development of the JN Venter Beleggings Trust are expected to occur during both the construction and operation phases. The conclusion of the findings of the Scoping Study is that the potential impacts identified to be associated with the construction and operation of the JN Venter Beleggings Trust are anticipated to be at a site or localised level, with few impacts extending from a local to regional extent which includes both positive and negative impacts. The following provides a summary of the findings of the specialist studies undertaken:

» *Ecology:* the extent of the impacts on the ecology is regional and significance of the impact resulting from this is considered to be low (at the scoping stage). The impacts identified include Destruction, fragmentation and degradation of habitats and ecosystems / Spread and/or establishment of alien and/or invasive species/ Direct mortality of fauna/ Reduced dispersal/migration of fauna/ Environmental pollution due to water runoff, spills from vehicles and erosion/ Disruption/alteration of ecological life cycles (breeding, migration, feeding) due to noise, dust, heat radiation and light pollution.

» *Freshwater Features:* The extent of the impacts on the freshwater features is regional and the significance of the impacts (at the scoping stage) is considered to be low. The proposed project is likely to result in the loss of some wetland areas due to the placement of cultivation pivots in these areas. Infrastructure will also traverse watercourses (center pivot pipelines) but the significance of the impact resulting from this is considered to be negligible.

» *Agricultural Potential:* The extent of the soils and agricultural potential impacts identified during the Scoping Phase is regional and the significance of the impacts (at the scoping stage) will be low post-mitigation due to the lack of sensivity (high and very high) and the subject to the implentation of appropriate mitigation measures. The impacts include loss of soil and land capability.

» *Heritage (palaeontological and archaeology):* Based on the known archaeological sensitivity of the broader area, as well as known heritage resources located within the development area, it is likely that significant archaeological heritage will be impacted by the proposed development. However, based on desktop information it is recommended that no palaeontological site visit is required unless fossils are found when excavations for pole foundations commence." This recommendation is also applicable to this proposed development. It is further recommended that this be confirmed in an updated desktop palaeontological assessment.

» *Socio-Economic:* The extent of the impacts identified at the Scoping Phase is local to national and the significance of the impacts varies from low to high. Both positive and negative impacts were also identified to be associated with the construction and operation phases of the project. The positive impacts include creation of employment and business opportunities, skills development and training, reduction in reliance on coal, improvement in energy secutiy , and improvement in basic services. The negative impacts include loss of grazing and/or crops, impact on employment opportunities on the affacted farms, damage to local farm roads, security concerns, noise impacts and impact on qualiyu of life.

3. Overall Conclusion and Fatal Flaw Analysis

The findings of the Scoping Study indicate that no environmental fatal flaws are associated with the proposed project. While some impacts of potential significance do exist, it is anticipated that the implementation of appropriate mitigation measures would assist in reducing the significance of such impacts to acceptable levels. It is however recommended, that the development area for the development of the facility be considered outside of the areas identified as no-go areas as far as possible in order to ensure that the development does not have a detrimental impact on the environment.

Figure 3 provides an environmental sensitivity map of the scoping phase no-go areas. This conclusion must be confirmed through a detailed investigation of the development footprint within the EIA Phase of the process.

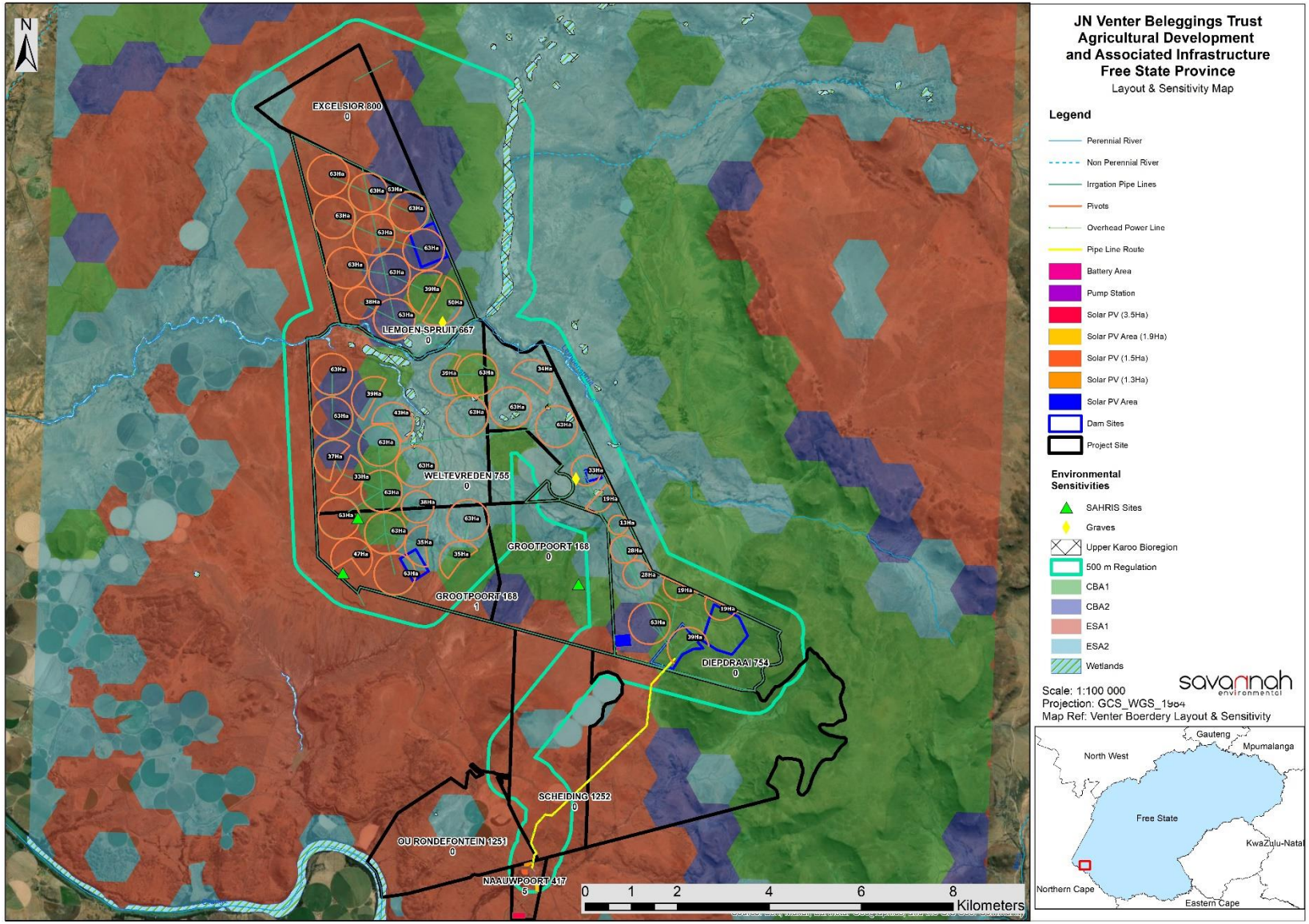

Figure 3: Environmental Sensitivity Map from the results of the scoping evaluation for the JN Venter Beleggings Trust Agricultural Development and associated infrastructure

DEFINITIONS AND TERMINOLOGY

Alternatives: Alternatives are different means of meeting the general purpose and need of a proposed activity. Alternatives may include location or site alternatives, activity alternatives, process or technology alternatives, temporal alternatives or the 'do nothing' alternative.

Centre Pivot Irrigation: A method of irrigation, in which water is dispersed through a long, segmented arm that revolves about a deep well and covers a circular area from a quarter of a mile to a mile in diameter.

Commence: The start of any physical activity, including site preparation and any other activity on site furtherance of a listed activity or specified activity, but does not include any activity required for the purposes of an investigation or feasibility study as long as such investigation or feasibility study does not constitute a listed activity or specified activity.

Commercial Operation date: The date after which all testing and commissioning has been completed and is the initiation date to which the seller can start producing electricity for sale (i.e. when the project has been substantially completed).

Commissioning: Commissioning commences once construction is completed. Commissioning covers all activities including testing after all components of the wind turbine are installed.

Construction: Construction means the building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity. Construction begins with any activity which requires Environmental Authorisation.

Cumulative impacts: Impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities (e.g. discharges of nutrients and heated water to a river that combine to cause algal bloom and subsequent loss of dissolved oxygen that is greater than the additive impacts of each pollutant). Cumulative impacts can occur from the collective impacts of individual minor actions over a period and can include both direct and indirect impacts.

Crops: A cultivated plant that is grown on a large scale commercially, especially a cereal, fruit, or vegetable.

Decommissioning: To take out of active service permanently or dismantle partly or wholly, or closure of a facility to the extent that it cannot be readily re-commissioned. This usually occurs at the end of the life of a facility.

Direct impacts: Impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity (e.g. noise generated by blasting operations on the site of the activity). These impacts are usually associated with the construction, operation, or maintenance of an activity and are generally obvious and quantifiable.

Disturbing noise: A noise level that exceeds the ambient sound level measured continuously at the same measuring point by 7 dB or more.

'Do nothing' alternative: The 'do nothing' alternative is the option of not undertaking the proposed activity or any of its alternatives. The 'do nothing' alternative also provides the baseline against which the impacts of other alternatives should be compared.

Endangered species: Taxa in danger of extinction and whose survival is unlikely if the causal factors continue operating. Included here are taxa whose numbers of individuals have been reduced to a critical level or whose habitats have been so drastically reduced that they are deemed to be in immediate danger of extinction.

Emergency: An undesired/ unplanned event that results in a significant environmental impact and requires the notification of the relevant statutory body, such as a local authority.

Endemic: An "endemic" is a species that grows in a particular area (is endemic to that region) and has a restricted distribution. It is only found in a particular place. Whether something is endemic or not depends on the geographical boundaries of the area in question and the area can be defined at different scales.

Environment: the surroundings within which humans exist and that are made up of:

i. The land, water and atmosphere of the earth;
ii. Micro-organisms, plant and animal life;
iii. Any part or combination of (i) and (ii) and the interrelationships among and between them; and
iv. The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

Environmental impact: An action or series of actions that have an effect on the environment.

Environmental impact assessment: Environmental Impact Assessment, as defined in the NEMA EIA Regulations and in relation to an application to which scoping must be applied, means the process of collecting, organising, analysing, interpreting and communicating information that is relevant to the consideration of that application.

Environmental management: Ensuring that environmental concerns are included in all stages of development, so that development is sustainable and does not exceed the carrying capacity of the environment.

Environmental management programme: An operational plan that organises and co-ordinates mitigation, rehabilitation and monitoring measures in order to guide the implementation of a proposal and its ongoing maintenance after implementation.

Heritage: That which is inherited and forms part of the National Estate (Historical places, objects, fossils as defined by the National Heritage Resources Act of 2000).

Indigenous: All biological organisms that occurred naturally within the study area prior to 1800.

Indirect impacts: Indirect or induced changes that may occur because of the activity (e.g. the reduction of water in a stream that supply water to a reservoir that supply water to the activity). These types of

impacts include all the potential impacts that do not manifest immediately when the activity is undertaken or which occur at a different place because of the activity.

Interested and affected party: Individuals or groups concerned with or affected by an activity and its consequences. These include the authorities, local communities, investors, work force, consumers, environmental interest groups, and the public.

Method statement: A written submission to the ECO and the site manager (or engineer) by the EPC Contractor in collaboration with his/her EO.

Mitigation hierarchy: The mitigation hierarchy is a framework for managing risks and potential impacts related to biodiversity and ecosystem services. The mitigation hierarchy is used when planning and implementing development projects, to provide a logical and effective approach to protecting and conserving biodiversity and maintaining important ecosystem services. It is a tool to aid in the sustainable management of living, natural resources, which provides a mechanism for making explicit decisions that balance conservation needs with development priorities

No-go areas: Areas of environmental sensitivity that should not be impacted on or utilised during the development of a project as identified in any environmental reports.

Pollution: A change in the environment caused by substances (radio-active or other waves, noise, odours, dust or heat emitted from any activity, including the storage or treatment or waste or substances.

Pre-construction: The period prior to the commencement of construction, this may include activities which do not require Environmental Authorisation (e.g. geotechnical surveys).

Rare species: Taxa with small world populations that are not at present Endangered or Vulnerable but are at risk as some unexpected threat could easily cause a critical decline. These taxa are usually localised within restricted geographical areas or habitats or are thinly scattered over a more extensive range. This category was termed Critically Rare by Hall and Veldhuis (1985) to distinguish it from the more generally used word "rare."

Red data species: Species listed in terms of the International Union for Conservation of Nature and Natural Resources (IUCN) Red List of Threatened Species, and/or in terms of the South African Red Data list. In terms of the South African Red Data list, species are classified as being extinct, endangered, vulnerable, rare, indeterminate, insufficiently known or not threatened (see other definitions within this glossary).

Significant impact: An impact that by its magnitude, duration, intensity, or probability of occurrence may have a notable effect on one or more aspects of the environment.

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APPENDICES LIST

CHAPTER 1: INTRODUCTION

Savannah Environmental has been appointed by JN Venter Beleggings Trust to conduct an Environmental Impact Assessment (EIA) for the proposed agricultural development and associated infrastructure on a site located Southwest of Luckhof and Koffiesfontein in the Free State Province. The development will take place on a project area of approximately 2690ha in extent across 3 interlinked properties within the Letsemeng Local Municipality of the Xhariep District Municipality (refer to **Figure 1.1**).

This Scoping Report (SR) was compiled following the scoping-phase investigations, and is currently available for public review and comment, from 03 June 2022 to 04 July 2022. Following the comment period, all comments will be incorporated into the final SR, which will then be submitted to the Free State Department of Economic, Small Enterprise, Tourism and Environmental Affairs (DESTEA).

The potential for agricultural development (crop cultivation) on the proposed site is apparent as several commercial agricultural developments are already occupying the neighbouring properties. The soil and climate are suited to crops cultivation, and it is anticipated that the crops yield, and quality will be fit for export and domestic distribution.

1.1. Requirement for an Environmental Impact Assessment Process

Section 24 of South Africa's National Environmental Management Act (No. 107 of 1998) (NEMA) pertains to Environmental Authorisations (EA), and requires that the potential consequences for, or impacts of, listed or specified activities on the environment be considered, investigated, assessed, and reported on to the Competent Authority (CA). The 2014 Environmental Impact Assessment (EIA) Regulations, as amended (GNR 326) published under NEMA prescribe the process to be followed when applying for Environmental Authorisation (EA), while the Listing Notices (Listing Notice 1 (GNR 327), Listing Notice 2 (GNR 325), and Listing Notice 3 (GNR 324)) contain those activities which may not commence without EA from the CA.

As the project has the potential to impact on the environment, an Environmental Authorisation (EA) is required from the DESTEA subject to the completion of a full Scoping and Environmental Impact Assessment (S&EIA) process, as prescribed in Regulations 21 and 24 of the 2014 EIA Regulations (GNR 326), as amended. The requirement for EA subject to the completion of a full S&EIA process is triggered by the inclusion of, amongst others, Activity 15 of Listing Notice 2 (GNR 325), namely:

"*The clearance of an area of 20 hectares or more of indigenous vegetation.*"

1.2. Legal Requirements as per the EIA Regulations, 2014 (as amended) for the undertaking of a Scoping Report

This Scoping Report has been prepared in accordance with the requirements of the EIA Regulations published on 08 December 2014 (and amended on 07 April 2017) promulgated in terms of Chapter 5 of the National Environmental Management Act (Act No 107 of 1998). This chapter of the Scoping Report includes the following information required in terms of Appendix 2: Content of the Scoping Report:

Requirement	Relevant Section
(a)(i) the details of the EAP who prepared the report and (ii) the expertise of the EAP to carry out scoping procedures;	The details of the EAP and the expertise of the EAP have been included in **section 1.5**. The Curriculum

including a curriculum vitae	vitae of the Savannah Environmental team have been included as **Appendix A**.
(b) the location of the activity, including (i) the 21-digit Surveyor General code of each cadastral land parcel; (ii) where available, the physical address and farm name and (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties	The location of the project site proposed for the development of the JN Venter Beleggings Trust Agricultural Development is included as **Figure 1.1**. The details of the affected properties, including the property names and numbers, as well as the SG-codes are included in **Table 1.1**.
(c) a plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is (i) a linear activity, a description, and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or (ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken	The locality of the project site is illustrated on a locality map included as **Figure 1.1**. The centre point co-ordinates of the project site are included in **Table 1.1**.

This Scoping Report consists of twelve chapters, as follows:

- **Chapter 1** provides background to the JN Venter Beleggings Trust agricultural development and the EIA process.
- **Chapter 2** provides a description of the JN Venter Beleggings Trust Agricultural Development and associated infrastructure.
- **Chapter 3** provides the site selection information, identified project alternatives and describes the need and desirability of the agricultural development and the associated infrastructure within the project area.
- **Chapter 4** outlines the relevant applicable regulations for agricultural development and the associated infrastructure in South Africa, and specifically for the proposed site.
- **Chapter 5** outlines the process which was followed during the Scoping Phase of the EIA process.
- **Chapter 6** describes the existing biophysical and socio-economic environment affected by the proposed development.
- **Chapter 7** provides an identification and evaluation of the potential issues associated with the proposed JN Venter Beleggings Trust Agricultural Development and associated infrastructure.
- **Chapter 8**presents the conclusions of the Scoping Report.
- **Chapter 9** describes the Plan of Study for EIA Phase.
- **Chapter 10** provides references used in the compilation of the Scoping Report.

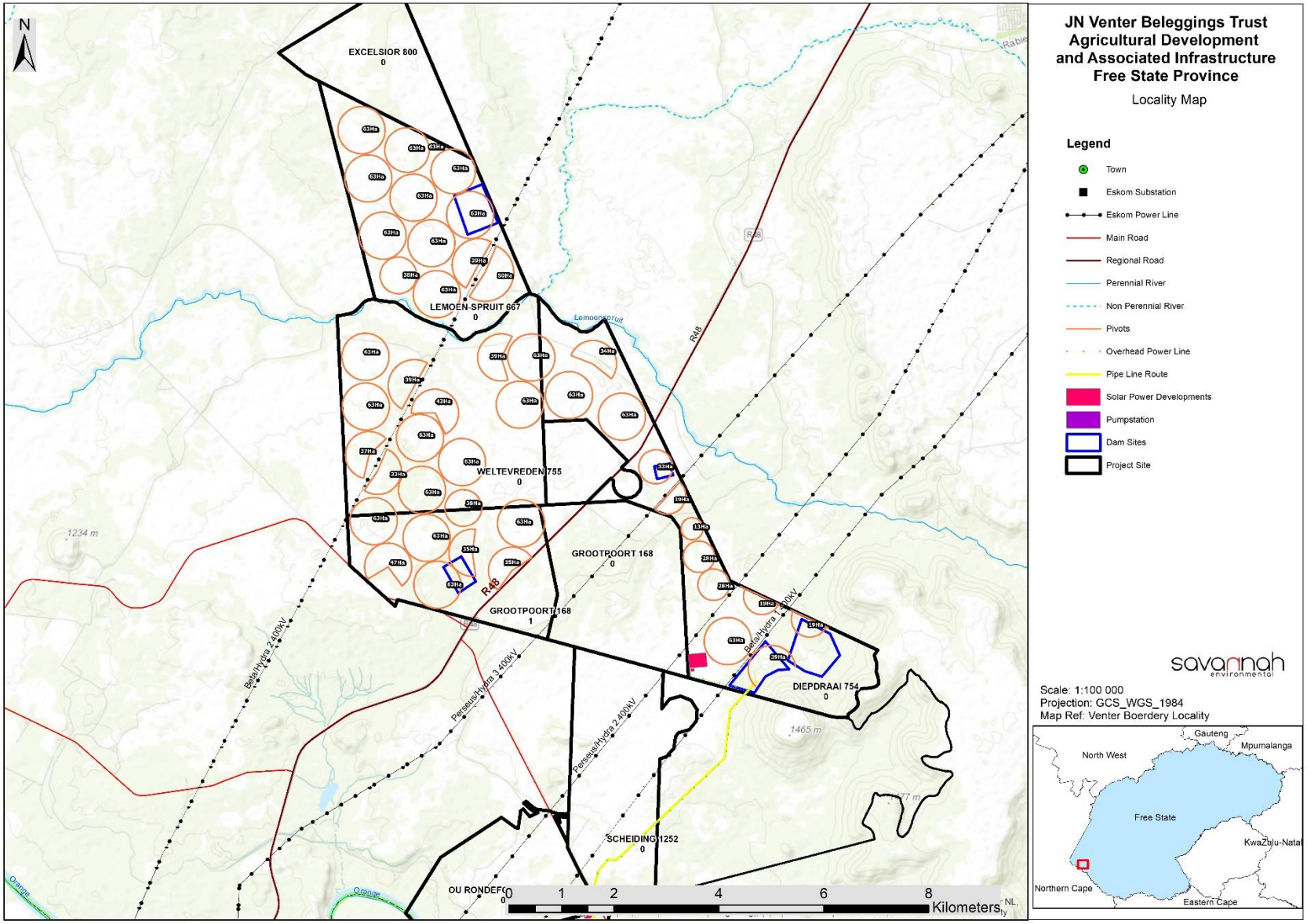

Figure 1.1: Locality map of the project site within which the JN Venter Beleggings Trust Agricultural Development and associated infrastructure is proposed to be developed (refer to **Appendix N** for A3 Map).

1.3. Project Overview

JN Venter Beleggings Trust has identified a developable project area with an extent of ~ 2690ha as a suitable area for the proposed agricultural development and the associated infrastructure. The proposed agricultural development will entail the following:

- Development of centre pivot areas (cultivation and irrigation);
- Construction of two bulk water pipes running on same pipeline route;
- Two irrigation water storage dams, with three alternative dam sites being considered;
- A new pump station;
- A 5MW solar PV facility of 9ha in extent and 3 proposed alternatives sites, and an overhead power line to the pump station;
- A Battery Energy Storage System.

The development area will affect the following properties:
- Farm Diepdraai 754
- Farm Weltevreden 755
- Farm Lemoen- spruit 667

The proposed pipeline will pass through the following property:
- Farm Scheiding 1252

A developable area (2690ha) has been considered within this Scoping Report with the aim of determining the suitability from an environmental and social perspective and identifying areas that should be avoided in development planning. Within this identified development area, a development footprint[1] or development layout will be defined for assessment in the EIA Phase. The proposed site size is larger than what will be used by the proposed development, and this gives optimal placement of infrastructure, ensuring avoidance of major identified environmental sensitivities or constraints identified through this Scoping and EIA process.

Table 1.1: Detailed description of the JN Venter Beleggings Trust project area

Province	**Free State Province**
District Municipality	Xhariep District Municipality
Local Municipality	Letsemeng Local Municipality
Ward Number (s)	Ward 1
Nearest town(s)	Luckhof (~9km north- east) and Petrus Ville (~15km south- west)
Affected Properties: Farm name(s), number(s) and portion numbers	(i) Farm Diepdraai 754 (ii) Farm Weltevreden 755 (iii) Farm Lemoen- spruit 667 (iv) Farm Scheiding 1252

1 The development footprint is the defined area (located within the development area) where the proposed infrastructure is planned to be developed. This is the actual footprint of the development, and the area which would be disturbed.

SG 21 Digit Code (s)	» F01100000000066700000 - Farm Lemoen- spruit 667 » F01100000000075500000 - Farm Weltevreden 755 » F01100000000075400000 - Portion 3 of Farm Diepdraai 754 » F01100000000125200000 - Farm Scheiding 1252
Current zoning	Agriculture
Site Coordinates (centre of project area)	29°50'26.38"S; 24°41'59.10"E

The key infrastructure components proposed as part of the JN Venter Beleggings agricultural development are described in greater detail in Chapter 2 of this Scoping Report.

1.4. Overview of the Environmental Impact Assessment (EIA) Process

An EIA is an effective planning and decision-making tool for the project developer as it allows for the identification and management of potential environmental impacts. It provides the opportunity for the developer to be forewarned of potential environmental issues and allows for the resolution of the issues reported on in the Scoping and EIA reports as well as dialogue with interested and affected parties (I&APs).

The EIA process comprises of two (2) phases (i.e., Scoping and Impact Assessment) and involves the identification and assessment of potential environmental impacts through the undertaking of independent specialist studies, as well as public participation. The processes followed in these two phases are as follows:

2. The **Scoping Phase** includes the identification of potential issues associated with the project through a desktop study (considering existing information), limited field work and consultation with interested and affected parties and key stakeholders. This phase considers the broader project site in order to identify and delineate any environmental fatal flaws, no-go and / or sensitive areas. Following a public review period of the Scoping report, this phase culminates in the submission of a final Scoping Report and Plan of Study for the EIA to the Competent Authority for consideration and acceptance.

3. The **EIA Phase** involves a detailed assessment of the potentially significant positive and negative impacts (direct, indirect, and cumulative) identified in the Scoping Phase. This phase considers a proposed development footprint within the project area and includes detailed specialist investigations as well as public consultation. Following a public review period of the EIA Report, this phase culminates in the submission of a final EIA Report and an Environmental Management Programme (EMPr), including recommendations of practical and achievable mitigation and management measures, to the Competent Authority for final review and decision-making.

1.5. Details of Environmental Assessment Practitioner and Expertise to conduct the S&EIA Process

In accordance with Regulation 12 of the 2014 EIA Regulations (GNR 326), JN Venter Beleggings Trust has appointed Savannah Environmental (Pty) Ltd as the independent Environmental Assessment consultant responsible for managing the Application for EA and supporting Scoping and Environmental Impact Assessment (S&EIA) process; inclusive of comprehensive, independent specialist studies. The application for EA and S&EIA process will be managed in accordance with the requirements of NEMA, the 2014 EIA Regulations (GNR 326), and all other relevant applicable legislation.

Neither Savannah Environmental nor any of its specialists are subsidiaries or are affiliated to the applicant. Furthermore, Savannah Environmental does not have any interests in secondary developments that may arise out of the authorisation of the proposed development.

Savannah Environmental is a specialist environmental consulting company providing a holistic environmental management service, including environmental assessment, and planning to ensure compliance and evaluate the risk of development, and the development and implementation of environmental management tools. Savannah Environmental benefits from the pooled resources, diverse skills and experience in the environmental field held by its team.

The Savannah Environmental team have considerable experience in environmental management and have been actively involved in undertaking environmental studies for a wide variety of projects throughout South Africa over the past 16 years. The Savannah Environmental project team includes:

» **Lehlogonolo Chuene**, the principal author of this Scoping Report and registered EAP for the project, holds a BSc Honours in Environmental Management and Geography. Lehlogonolo has 6 years of experience in the environmental management field. Her key focus is on undertaking environmental impact assessments, environmental permitting and authorisations, compliance auditing, water use licensing, public participation, environmental education, and environmental management programmes. Lehlogonolo is registered as a registered Environmental Assessment Practitioner with Environmental Assessment Practitioners Association of South Africa (EAPASA- 2019/1567).

» **Jo-Anne Thomas**, the Project Manager on this project, is a registered EAP with the Environmental Assessment Practitioners Association of South Africa (EAPASA - 2019/726). She provides technical input for projects in the environmental management field, specialising in Strategic Environmental Advice, Environmental Impact Assessment studies, environmental auditing and monitoring, environmental permitting, public participation, Environmental Management Plans and Programmes, environmental policy, strategy and guideline formulation, and integrated environmental management. Her key focus is on integration of the specialist environmental studies and findings into larger engineering-based projects, strategic assessment, and providing practical and achievable environmental management solutions and mitigation measures. Responsibilities for environmental studies include project management (including client and authority liaison and management of specialist teams); review and manipulation of data; identification and assessment of potential negative environmental impacts and benefits; review of specialist studies; and the identification of mitigation measures.

» **Nondumiso Bulunga** is a Social, GIS and Stakeholder Engagement Specialist at Savannah Environmental. Nondumiso has eight (8) years working experience in project management and facilitation in various industries such as environmental services field including but not limited to recycling, industrial, energy, mining, and agriculture. Working for small and large organisations, Nondumiso has gained exposure in research, collection of data, critical analysis, GIS, and environmental solutions. Nondumiso has worked on projects in South Africa and Malawi. Nondumiso is very well versed in the IFC Environmental and Social Performance Standards (including IFC PS 2012) and the associated Equator Principles, which have informed the approach and standard for projects regarding ESIA. Nondumiso is skilled at organising and driving effective project teams at a scale relevant to the project's requirements. She has technical experience and can quickly identify the most pertinent issues of a particular project whilst focussing on driving project success by rigorously implementing project management tools.

To adequately identify and assess potential environmental impacts associated with the proposed JN Venter Beleggings Agricultural Development, the following specialist sub-consultants have provided input into this Scoping Report:

Specialist	Area of Expertise
Andrew Husted and Jan Jacobs of The Biodiversity Company	Terrestrial Ecology, Freshwater Ecology and Agricultural Potential Assessment
Jenna Lavin of CTS Heritage	Heritage (including Archaeology and Palaeontology
Nondumiso Bulunga of Savannah Environmental and peer-reviewed by Dr Neville Bews	Social Assessment

Appendix A includes the curriculum vitae for the environmental assessment practitioners from Savannah Environmental and the specialist consultants.

CHAPTER 2: PROJECT DESCRIPTION

This chapter provides an overview of the JN Venter Beleggings Trust Agricultural Development and details the project scope which includes the planning/design, construction, operation, and decommissioning activities required for the development. It must be noted that the project description presented in this Chapter may change to some extent based on the outcomes and recommendations of detailed engineering and other technical studies, the findings and recommendations of the EIA and supporting specialist studies, and any licencing, permitting, and legislative requirements.

2.1 Legal Requirements as per the EIA Regulations, 2014 (as amended), for the undertaking of a Scoping Report

This chapter of the Scoping Report includes the following information required in terms of the EIA Regulations, 2014, as amended - Appendix 2: Content of the Scoping Report:

Requirement	Relevant Section
3(b) the location of the activity including (i) the 21-digit Surveyor General code of each cadastral land parcel, (ii) where available the physical address and farm name and (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties.	The location of the proposed project is detailed in Chapter 1, **Table 1.1**, as well as **section 2.2.1** below.
3(d)(ii) a description of the scope of the proposed activity, including a description of the activities to be undertaken including associated structures and infrastructure	A description of the activities to be undertaken with the development of project is included in **Table 2.1** and **Table 2.2**.

2.2. Nature and Extent of the JN Venter Beleggings Trust Agricultural Development

The Applicant, JN Venter Beleggings Trust, is proposing agricultural development and associated infrastructure on a site located south-west of Luckhoff and Koffiesfontein in the Free State Province. The development will take place on a site of ~2690ha in extent across 3 interlinked properties within the Letsemeng Local Municipality of the Xhariep District Municipality. The proposed project keeps in line with the surrounding land-use in the area. The potential for the proposed crop cultivation (i.e. maize, wheat, soya and possibly peanuts) is apparent as many commercial cultivation developments already occupy the general location. The soil and climate are suited to the proposed crop cultivation, and as a result the proposed development is anticipated to yield high volumes of quality crops for export and domestic distribution.

The JN Venter Beleggings Trust have an existing water use allocation for abstraction from the Oranje Riet Water User Association's canal which allows them to be able to irrigate the proposed cultivation crops, which will be planted in rotation within the broader properties. Two 315mm PVC fiberglass water pipes with a diameter of 1.4m each are proposed to run parallel to each other along an approximately 5.3km pipeline route. The pipes will discharge water into the two proposed irrigation dams. To ensure sufficient and efficient irrigation is practiced, a centre pivot irrigation system is proposed for the irrigation of the

cultivated areas and a pipeline network is proposed to take water from the proposed dams to the various centre pivot areas.

In order to provide a sustainable power supply for the development, JN Venter Beleggings Trust proposes a 5MW solar PV area and associated overhead power line as the main energy source for the proposed development. A battery system will be used to store any additional power generated by the PV facility for use as and when required when the PV facility is not operational.

2.2.1. Overview of the Project Site

The project is to be developed across 3interlinked properties (farm portions) located approximately 7km south-west of Luckhof in the Free State Province. The area falls within Ward 01 of the Letsemeng Local Municipality within Xhariep District Municipality of the Free State Province. The full extent of the project area (i.e., ~2690ha), located within the various properties has been considered within this Scoping Phase of the EIA process, within which the JN Venter Beleggings Trust Agricultural Development will be appropriately located from a technical and environmental sensitivity perspective. The development area includes the following ten (10) affected properties:

- Portion 3 of Farm Dieodraai 754
- Farm Excelsior 800
- Farm Weltevreden 755
- Farm OU Ronderfontein 1251
- Farm Lemoen- spruit 667
- Farm Scheiding 1252
- Portion 5 of Farm Naauwpoort 417
- Farm Vinger Kraal 368
- Portion 1 and RE of Farm Grootpoorte 168

The site is accessible via the R48 road which pass directly through the centre of the proposed site. The R369 links to R48 south-west of the proposed site (refer to **Figure 2.1**).

Once environmental constraining factors have been identified through the EIA process, the layout of the agricultural development will be determined, taking into consideration any environmental sensitivity identified through the EIA process. A more accurate understanding of the final development footprint will be determined during the EIA Phase with the availability of a finalised development plan.

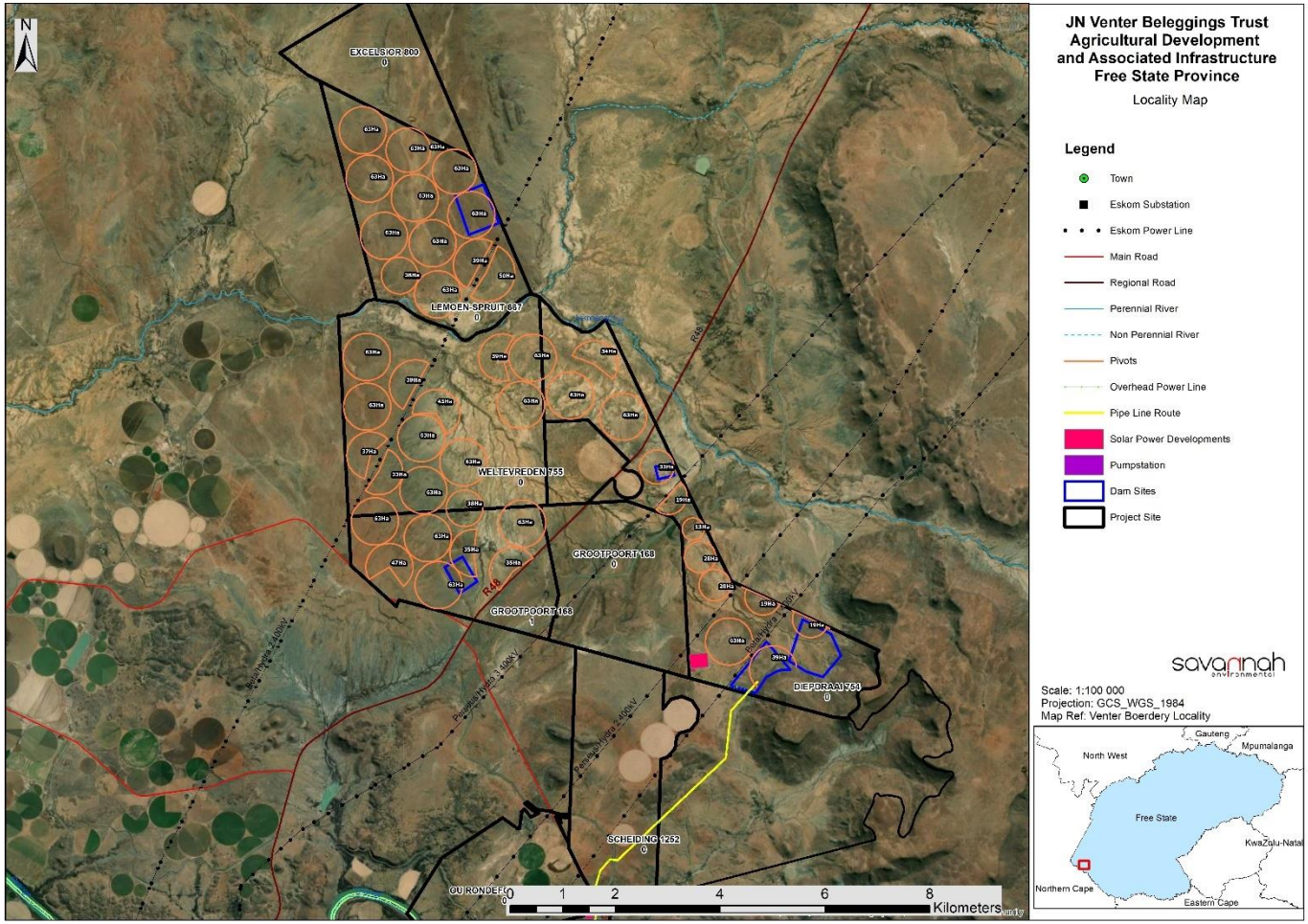

Figure 2.1: Location of the R48 and R369 in relation to the JN Venter Beleggings Trust Agricultural Development

2.2.2. Components of the JN Venter Beleggings Agricultural Development

The project area is proposed to accommodate the agricultural development (cultivation), as well as most of the associated infrastructure, which is required for such development, and this will include:

- Development of centre pivot areas (cultivation and irrigation) which is planned to take approximately 2154ha or more within the project site.
- Construction of two bulk water pipelines following the same pipeline route of approximately 5.93km from the canal to the proposed two irrigation dams.
- Two irrigation water storage dams, each with a surface area ranging from 7ha to 46ha.
- Establishment of an irrigation pipeline network from the irrigation dams to the centre pivot areas.
- A new pump station taking a total surface area of 549m^2.
- A 5MW solar PV facility occupying an area of 9ha, and an associated overhead power line of ~6.9km in length.
- A Battery Energy Storage System covering a surface area of 0.36ha.

A summary of the details and dimensions of the planned infrastructure associated with the project is provided in **Table 2.1.**

Table 2.1: Details or dimensions of typical infrastructure required for the agricultural development

Infrastructure	Footprint and dimensions
Centre pivot (Cultivation and irrigation system)	2154ha
Water pipe	Two Underground 315mm PVC fiberglass pipes with 1.4m diameter along a 5.3km pipeline route
Irrigation pipeline network	Irrigation pipeline network to take water from the dams to the various centre pivot areas for irrigation
Dams for irrigation water	Two dams with capacity of 2 million cubic meters each, with three alternative sites being considered (capacity for the alternatives and characteristics not yet confirmed)
A pump station	One pump station covering a total surface area of 549m^2
5MW Solar PV facility	» 9ha surface area with three alternative sites being considered » Overhead powerline of approximately 6.9km in extent
Battery	A battery energy storage system to store additional power generated by the PV Facility covering an area of 0.36ha

Table 2.2 below provides details regarding the requirements and the activities to be undertaken during the JN Venter agriculture development phases (i.e., construction phase, operation phase and decommissioning phase).

2.2.3 Project Development Phases Associated with the JN Venter Beleggings Agricultural Project

Table 2.2: Details of the JN Venter agricultural project development phases (i.e., construction, operation, and decommissioning)

Construction Phase	
Requirements	1. Environmental Authorisation from the DESTEA 2. Construction period is expected to be 24 months 3. No on-site labour camps. Employees to be accommodated in the nearby towns such as Luckhof and Koffiefontein, to be transported to and from site on a daily basis. 4. Overnight on-site worker presence (if any) would be limited to security staff. 5. Waste removal and sanitation will be undertaken by a sub-contractor, where possible. Waste containers, including containers for hazardous waste, will be located at easily accessible location on site when construction activities are undertaken. 6. Electricity required for construction activities will be generated by a generator. 7. Create construction employment opportunities. 8. Services required during the development process, such as rental of chemical toilets, plant hire, etc. to be sourced from the local area, i.e. from within approximately 50km (where possible) of the site, in order to support the local economy. 9. Water required during the construction phase (for dust control during the ploughing phase) will be sourced from the canal and water for consumption by the workers will be municipality water.
Activities to be undertaken	
Conduct surveys prior to construction	» Including, but not limited to, site survey and confirmation of the development footprint, and survey to determine and confirm the locations of all associated infrastructure.
Establishment of internal farm roads around the site	» Internal farm roads within the site will be established at the commencement of construction. » Existing access roads will be utilised, where possible, to minimise impact.
Undertake site preparation	» Clearance of vegetation at the footprint of each proposed development activity. » Soil preparation for ploughing, earthworks for the dams and pipeline trench digging. » Stripping of topsoil to be stockpiled, backfilled, removed from site and/or spread on site. » To be undertaken in a systematic manner to reduce the risk of exposed ground being subjected erosion.
Establishment of laydown areas on site	» A laydown area for the storage of water pipes, pivot components, PV components, battery system components, construction equipment and construction/ farm machinery. » The laydown will also accommodate equipment and materials associated with the construction of the dams, pipeline, BESS, cementing of centre pivot areas, pump station and Solar PV facility.
Construct foundation	» Excavations of the dam basins and pipeline route to be undertaken mechanically. » Concrete foundation and slabs will be constructed to support a pivot irrigation system, pump house, support the PV panels structures, and the battery energy storage system.
Transport of components and equipment to and within the site	» Civil engineering construction equipment to be brought to the site for the civil works (e.g., excavators, trucks, ploughing tractors, graders, compaction equipment, cement trucks, etc.). » Specialised construction and lifting equipment to be transported to site to erect the centre pivot irrigation system, solar panels and the battery storage system. » Components for the establishment of the agriculture associated infrastructures to be

	transported to site. » Transportation will take place via the R48 road that give access to the site and the dedicated access/haul road to the laydown areas.
Undertake site rehabilitation	1 Commence with rehabilitation efforts in areas outside of the areas required for operation once construction completed in an area, and all construction equipment is removed. 2 On commissioning, access points to the site not required during the operation phase will be closed and prepared for rehabilitation.
Operation Phase	
Requirements	» Duration for the agricultural development and associated infrastructure will be 20-25 years. » Requirements for security and maintenance of the project. » Employment opportunities relating mainly to ploughing and harvesting activities.
Activities to be undertaken	
Operation and Maintenance	» Soil erosion from the bare areas (fallow lands) and within the crop areas may lead to siltation and sedimentation of watercourses, implement erosion control measures. » Application of pesticides / herbicides must be limited to the cultivated areas, and measures must be taken to limit drift of chemicals into surrounding natural areas and surface water. » Disposal of waste products (e.g., fertilizer, oils) in accordance with relevant waste management legislation.
Decommissioning Phase	
Requirements	» Decommissioning of the JN Beleggings Trust agricultural development or any infrastructure at the end of its economic life. » Apply security measures and ensure that the specifications of the Occupational Health and Safety Act (1993) are adhered to. » Decommissioning activities to comply with the EMPr and legislation relevant at the time.
Activities to be undertaken	
Site preparation	» Confirming the integrity of site access to accommodate the required equipment to be used (if any required) » Preparation of the site (e.g., laydown areas and construction platform). » Mobilisation of construction equipment and machinery.
Disassemble and infrastructure	» Relevant machinery required for disassembling of the centre pivots, solar panels, battery storage system or emptying of the dams. » Components to be reused, recycled, or disposed of in accordance with regulatory requirements. » Cables and water pipes will be excavated and removed, as may be required » General rubble resulting from demolition of structures (e.g., cement slaps) be used as fill at nearby development sites (if any), or otherwise disposed of at a licensed landfill site.
Components to be disposed of or recycled	» Centre pivot components » Regarding the foundation body and sub-base of the structures the concrete will undergo crushing and be used as combined base/wearing course » Solar panels

CHAPTER 3: CONSIDERATION OF ALTERNATIVES

This Chapter provides an overview of the various alternatives considered for the JN Venter Beleggings Trust agricultural development and associated infrastructure as required in terms of the EIA Regulations.

3.1 Legal Requirements as per the EIA Regulations, 2014 (as amended) for the undertaking of an Impact Assessment Report

This chapter of the Scoping Report includes the following information required in terms of Appendix 2: Content of the Scoping Report:

Requirement	Relevant Section
3(g) a motivation for the preferred site, activity, and technology alternative	The identification and motivation for the preferred project site, the development area within the project site, the proposed activity and the proposed technology is included in **sections 3.3.1, 3.3.3 and 3.3.4**.
3(h)(i) details of the alternative considered	The details of all alternatives considered as part of the JN Venter Agricultural Development and associated infrastructures are included in **sections 3.3.1 – 3.3.5**.
3(h)(ix) the outcome of the site selection matrix	The site selection process followed by the developer in order to identify the preferred project site and development area is described in **section 3.3.1**.
3(h)(x) if no alternatives, including alternative locations for the activity were investigation, the motivation for not considering such	Where no alternatives have been considered, motivation has been included. This is included in **section 3.3**.

3.2 Alternatives Considered during the Scoping Phase

In accordance with the requirements of Appendix 2 of the 2014 Environmental Impact Assessment (EIA) Regulations (GNR 326), reasonable and feasible alternatives including but not limited to site and technology alternatives, as well as the "do-nothing" alternative should be considered.

3.2.1 Consideration of Fundamentally Different Alternatives

Fundamentally different alternatives are usually assessed at a strategic level and, as a result, project specific EIAs are therefore limited in scope and ability to address fundamentally different alternatives. For this agricultural development, it is recommended that the development take place within a similar land usage whereby there are other similar activities going on in the area. Other land uses were not chosen for the proposed project because it is not going to be best fit and the anticipated success of the project was not deemed visible in any other area/land uses.

3.2.2 Consideration of Incrementally Different Alternatives

Incrementally different alternatives relate specifically to the project under investigation. "Alternatives", in relation to the proposed activities, means different ways of meeting the general purposes and requirements of the activities, which may include alternatives for:

- The property on which, or location where the activity is proposed to be undertaken.
- The type of activity to be undertaken.
- The design or layout of the activity.
- The technology to be used in the activity.
- The operational aspects of the activity.

In addition, the option of not implementing the activity (i.e., the "do-nothing" alternative) must also be considered.

The sections below describe the incrementally different alternatives being considered as part of the JN Venter Beleggings Trust Agricultural Development. Where no alternative is being considered, a motivation has been provided as required by the EIA Regulations, 2014.

3.3 Project Alternatives under Consideration for the JN Venter Beleggings Trust Agricultural Development and Associated Infrastructure

3.3.1. Property or Location Alternatives

One preferred project site of 3887ha in extent (extending through across 3properties) has been identified for the development of the JN Venter Beleggings Trust Agricultural Development considering criteria such as, water availability, land availability, topographical consideration, and environmental features. The developable project area of ~2690 in extent has been identified within the broader project site and will run across the 3 affected properties as one project to accommodate all the proposed associated infrastructures. A project layout within this development area will be provided by the Applicant for assessment in the EIA Phase of the process.

The selection of the affected properties was based on the following:

- **Land Availability:** To develop the proposed agricultural development with the associated infrastructure to support the development, sufficient space is required. The proposed development is proposed to take place across 3 interlinked properties owned by the Applicant. The combination of the affected properties has an extent of ~3887ha, which was considered by the developer as sufficient for the development of the agricultural development. Much of the proposed development area has already been transformed by grazing. A preferred development site of ~2690ha within this larger project area has been identified for the location of the agricultural development and the associated infrastructures. A development footprint within the development area for the placement of each of the proposed development activities will be identified and assessed as part of the EIA Phase considering environmental constraints and sensitivities.

- **Land Use, Geographical and Topographical Considerations**: The character of the greater area surrounding the project site can be described as a rural, Northern Upper Karoo landscape characterised by livestock and crop farming. There are a number of farms located in the vicinity of the site in the south-west of the proposed site. Most of the farming activities are taking place along the Orange River. The land use identified within the greater area surrounding the project site (i.e. cultivation) is in line with the proposed agricultural development.

The topography of the affected properties is characterised by a moderately flat to undulating landscape interspaced with areas of high elevation in the form of hills, koppies, ridges and/or mountains. A range of located hilly/mountainous topography with high elevations can be found to the south-east and north- east of the site respectively. This serves as physical constraints to cultivate certain parts of the affected properties. Thus, the proposed developable site is located on a topography which permits the proposed development and establishment of the supporting infrastructure.

» **Site access**: Access to the project site is via the R48 road which passes through the centre point of the project site.

» **Water availability:** The site is located adjacent to the existing Orange Riet Water User Association's canal where irrigation water is to be sourced, thereby limiting the length of pipeline required. The JN Venter Beleggings Trust already has an existing water allocation to support the proposed agricultural development. It is not anticipated that more water abstraction allocation will be required, the existing water allocation by the Orange Riet User Association is considered sufficient.

3.3.2. Design and Layout Alternatives

The larger area identified by the Applicant has been considered in this Scoping Report. Alternative locations of the irrigation dams and PV facility have been considered. An overall environmental scoping sensitivity map has been provided to illustrate the sensitive environmental features located within the project site which needs to be considered and, in some instances completely avoided by the development footprint (refer to Chapter 8). Through the process of determining constraining factors and environmentally sensitive areas, the layout of the cultivation areas footprint and the supporting infrastructure will be planned and adjusted if necessary to ensure the avoidance of no-go areas and mitigation of sensitive environmental features. A detailed development layout will be made available for assessment and ground-truthing by the independent specialists in the EIA phase. Where further conflicts are predicted, a mitigation strategy will be developed to meet the objectives of the mitigation hierarchy (avoid, minimise, mitigate).

3.3.3. Activity Alternatives

The JN Venter Beleggings Trust is considering agricultural development consisting of cultivation of various crops (maize, wheat, soya, and nuts), centre pivot irrigation system, dams for storage irrigation water, solar PV and battery storage to supply energy on the farm, and a pump house and related network of pipelines to supply water to the centre pivot. Only the proposed agricultural development and all the supporting infrastructures are considered in the ambit of this EIA. The project proposal is furthermore in line with surrounding land use, which comprises of existing cultivated land and associated infrastructure.

No activity alternatives were investigated within the ambit of this EIA, as the applicant's purpose with the project is to expand the agricultural pivot areas and establish the supporting infrastructure for the success of the agricultural development. The project proposal is furthermore in line with surrounding land use, which consists of various agriculture and associated infrastructure. Therefore, no activity alternatives are considered within this Scoping Report.

3.3.4. Technology Alternatives

Only the use of a centre pivot irrigation system is considered due to how such a system efficiently spreads water onto growing crops. Centre pivots deliver water as close to the ground as possible and minimises the amount of water lost due to the wind and runoff. The centre pivot irrigation system is considered the most efficient technology given the magnitude of the proposed agricultural development proposed by the Applicant.

With the challenges associated with power supply in South Africa, the use of solar energy generated on site is considered to be the most suitable renewable energy technology for this proposed development, based on the site location, ambient conditions and renewable energy resource availability. The operating hours of the PV facility can be effectively extended through the inclusion of a Battery Energy Storage System (BESS).

Inclusion of the storage irrigation dams is very important for the agricultural development as it will enable availability of irrigation water on the times whereby the canal is closed for maintenance. The standard methodology for an off-stream balancing dam of the proposed sizes, is an earthfill structure established through cut and fill. Also, a fiberglass pipe is considered best bulk water pipe to take water from the canal to the irrigation dams because of its corrosion resistant and that it has longer lifespan as compared to other pipe alternatives such as steel and concrete.

No further technology alternatives are investigated.

3.3.5. The 'Do-Nothing' Alternative

The 'do-nothing' alternative is the option of not constructing and operating the JN Venter Beleggings Trust agricultural development and supporting infrastructure. Should this alternative be selected, there would be no environmental impacts or benefits as a result of construction and operation activities associated with the agricultural development facility. The 'do-nothing' alternative will therefore likely result in minimising the cumulative impact on the land, although it is expected that pressure to develop the site for agricultural purposes will be actively pursued due to the potential of the land for such activities and the surrounding land uses. This alternative will be assessed in the EIA Phase of the process.

3.4 Project Need and Desirability

Appendix 2 of the 2014 EIA Regulations (GNR 326) requires that a Scoping Report includes a motivation for the need and desirability of the proposed development, including the need and desirability of the activity in the context of the preferred location. The need and desirability of the development needs to consider whether it is the right time and the right place for locating the type of land-use/activity being proposed. The need and desirability of a proposed development is, therefore, associated with the wise use of land, and should be able to respond to the question such as, but not limited to, what the most sustainable use of the land may be.

This Chapter provides an overview of the need and desirability, and perceived benefits of the project specifically.

3.4.1. Legal Requirements as per the EIA Regulations, 2014 (as amended), for the undertaking of an Impact Assessment Report

This chapter includes the following information required in terms of Appendix 2: Content of a Scoping report:

Requirement	Relevant Section
(f) a motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location;	The need and desirability for the development of the JN Venter Beleggings Trust Agricultural Development and associated infrastructure is included and discussed within this chapter. The need and desirability for the development of the agricultural development has been considered from regional and site-specific perspective.

3.4.2. Motivation, Need and Desirability of the project

The agricultural sector is dominating the Free State province landscape and the Xhariep District Municipality in which the proposed site is located is characterized by extensive agricultural activities of cultivation of various crops. About 40% of the total national white maize production is mainly used for human consumption, and 38% of yellow maize, mainly used for animal feed, is produced in the Free State. In addition, soybean, sorghum, sunflower, and wheat are cultivated in the Free State, where farmers also specialise in seed production (Agmip Impacts Explorer information access: https://agmip-ie.wenr.wur.nl/web/guest/free-state-s.-africa). The mission of the Free State Department of Agriculture and Rural Development is, to leverage available resources and technologies to optimise productivity and accelerate economic growth in the agriculture sector, and which is what the proposed project aims to achieve and play role in job creation and food security within the Province and South Africa as a whole.

The proposed agricultural development is in line with the surrounding land use and that of the province. The potential for the proposed crops (maize, wheat, soy, and peanuts) to be cultivated on the site by the Applicant is apparent as many large-scale commercial agricultural developments exist within the province and the local region. The soil and climate in the area are suited for crop cultivation and are anticipated to yield a high volume of quality crops for export and domestic distribution.

The Xhariep District Municipality remains one of the poorest municipalities in the province and having this agricultural development in the area is likely to contribute to job opportunities and growth in the local economy of the municipality by increasing the disposable income of community members working on the farm. Growth is expected to occur and is likely to contribute to local economic development, as the workers are likely to spend most of their disposable income at local businesses. The associated infrastructures will also ensure that the agricultural development succeeds by ensuring that irrigation water is always available in the dams and that electricity is always available for use when it is required from the proposed solar PV facility and associated BESS.

3.4.3. Motivation for selected preferred alternatives for the infrastructure

In general, the placement of each proposed aspect of agricultural infrastructure as detailed in Chapter 2 is strongly dependent on several factors including climatic conditions (solar irradiation levels for the proposed solar PV and proposed crop cultivation), land capability, topography (irrigation dams and cultivation sites), and the accessibility to the site.

The properties affected by the proposed development are all owned by the Applicant, who wishes to expand their existing cultivation in the area. The land is therefore available for the proposed activity. In

addition, the Applicant has an available water allocation for use on the properties from the Oranje Riet Water User Association canal, which traverses the south-west side of the project site. This will enable the irrigation of the proposed crop cultivation.

The preferred positions for the placement of the proposed irrigation dams including the 3 proposed alternative sites, was selected due to their ability to accommodate the desired storage capacity of these dams and their proximity to the abstraction point (i.e. the canal), and the centre pivot sites where the water will be required for the irrigation. Also, the natural topography favours the construction of dam embankment here as suitable dam foundation conditions are found in the preferred sites as identified by the Applicant.

3.4.4. Conclusion

Based on these considerations, it is considered that it is the right time and the right place for locating the type of land-use/activity being proposed on the identified sites. Confirmation that the proposed land-use/activity is the most sustainable use of the land will be confirmed following the detailed assessment in the EAI Phase of the process.

CHAPTER 4: POLICY AND LEGISLATIVE CONTEXT

In terms of the EIA Regulations of December 2014 (as amended) published in terms of the NEMA (Act No. 107 of 1998) as amended, the construction and operation of JN Venter Beleggings Agricultural Development is a listed activity requiring Environmental Authorisation (EA). The application for EA is required to be supported by a Scoping & Environmental Impact Assessment (EIA) process based on the extent of the development site and the amount of vegetation clearance required for the establishment of this development and associated infrastructure, activities in Listing Notice 2 (GNR 325) are being triggered.

4.1 Legal Requirements as per the EIA Regulations, 2014 (as amended), for the undertaking of an Impact Assessment Report

This chapter includes the following information required in terms of Appendix 2: Content of a Scoping report:

Requirement	Relevant Section
(d)(i) a description of the scope of the proposed activity, including all listed and specified activities triggered and being applied for and (ii) a description of the activities to be undertaken, including associated structures and infrastructure.	All listed activities triggered and applied for are included in **Section 4.2**.
(e) a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process.	Chapter 4, as a whole, provides an overview of the policy and legislative context which is considered to be associated with the agricultural development.

4.2 Relevant legislative permitting requirements

The legislative permitting requirements applicable to JN Venter Beleggings Agricultural Development, as identified at this stage in the process and considered within this EIA process, are described in more detail under the respective sub-headings. Additional permitting requirements applicable to the project are detailed within **Section 4.4**.

4.2.1 National Environmental Management Act (No. 107 of 1998) (NEMA)

NEMA (No. 107 of 1998) is South Africa's key piece of national environmental legislation that provides for the authorisation of certain controlled activities known as "listed activities". In terms of Section 24(1) of NEMA, the potential impact on the environment associated with listed activities must be considered, investigated, assessed and reported on to the Competent Authority (the decision-maker) charged by NEMA with granting of the relevant Environmental Authorisation (EA). For this agricultural development the Free State Department of Small Business Development, Tourism and Environmental Affairs (DESTEA) has been determined to be the Competent Authority.

The need to comply with the requirements of the EIA Regulations published under NEMA ensures that developers are provided the opportunity to consider the potential environmental impacts of their activities early in the project development process, and also allows for an assessment to be made as to whether environmental impacts can be avoided, minimised or mitigated to acceptable levels. Comprehensive, independent environmental studies are required to be undertaken in accordance with the EIA Regulations to provide the Competent Authority with sufficient information in order for an informed decision to be taken regarding the Application for EA.

The EIA process being conducted for the JN Venter Beleggings Trust agricultural development is being undertaken in accordance with Section 24(5) of the NEMA, which defines the procedure to be followed in applying for the EA, and requires that the potential consequences for, or impacts of, listed or specified activities on the environment to be considered, investigated, assessed, and reported on to the competent authority. Listed Activities are activities identified in terms of Section 24 of the NEMA which are likely to have a detrimental subject to the completion of an environmental assessment process (either a Basic Assessment (BA) or a full Scoping and EIA).

Table 4.1 below, details the listed activities in terms of the EIA Regulations, 2014 (as amended) that apply to the JN Venter Beleggings Trust Agricultural Development, and for which an application for Environmental Authorisation has been submitted to the DESTEA. The table also includes a description of the specific project activities that relate to the applicable listed activities.

Table 4.1: Listed activities identified in terms of the Listing Notices (GNR 327, 325 and 324)

Relevant Regulation	Activity number	Description of the activity as set out in the EIA Regulations, 2014 as amended	*Relevance to the JV Venter Agricultural Development and Associated infrastructure*
Listing Notice 1- GN R327	**1**	**The construction of –** **(ii) The output is 1 0 megawatts or less, but the total extent of the facility covers an area in excess of I 1ha;**	**It is proposed that a 9ha solar PV with output of 5MW will be established.**
	9	The development of infrastructure exceeding 1000 metres in length for the bulk transportation of water or storm water- (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more; excluding where- (a) such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve; or (b) where such development will occur within an urban area.	The proposed bulk water pipeline to take water from the canal to the irrigation dams is proposed to be 5.3km in extent, with internal diameter of 1.4m.
	19	The infilling or depositing of any material of more than 10m^3 into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10m^3 from a watercourse [with certain exclusions that are not applicable to this project].	Material (mainly soil, sand and rock) will be excavated, moved and deposited within the watercourse for the proposed instream dam with 46ha surface area.

Relevant Regulation	Activity number	Description of the activity as set out in the EIA Regulations, 2014 as amended	*Relevance to the JV Venter Agricultural Development and Associated infrastructure*
Listing Notice 1- GN R327	**1**	**The construction of –** **(ii) The output is 1 0 megawatts or less, but the total extent of the facility covers an area in excess of I 1ha;**	**It is proposed that a 9ha solar PV with output of 5MW will be established.**
Listing Notice 2 – GN R325	12	The development of – (iv) dams, where the dam, including infrastructure and water surface area, exceeds 100 square metres in size.	The Applicant proposes the establishment of two (2) main irrigation dams which will cover more than 10ha surface area each.
	13	The physical alteration of virgin soil to agriculture, or afforestation for the commercial tree, timber or wood production of 100 hectares or more.	Approximately 2154ha or more within the 2690ha project area is proposed for cultivation of commercial crops such as Maize, wheat, soy and possibly peanuts.
	15	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for- (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan	It is expected that vegetation clearance of up to 2690ha in extent will take place for the cultivation sites and establishment of the proposed supporting infrastructures for the agricultural development.
	16	The development of a dam where the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, is 5 metres or higher or where the high- water mark of the dam covers an area of 10 hectares or more.	The surface area for the two proposed dams including the alternative dam sites covers more than 10ha surface area respectively.

4.2.2 National Water Act (No. 36 of 1998) (NWA)

In accordance with the provisions of the National Water Act (No. 36 of 1998) (NWA), all water uses must be licensed with the Competent Authority (i.e. the Department of Water and Sanitation (DWS) or the relevant Catchment Management Agency (CMA)). Water use is defined broadly, and includes taking and storing water, activities which reduce stream flow, waste discharges and disposals, controlled activities (activities which impact detrimentally on a water resource), altering a watercourse, removing water found underground for certain purposes, and recreation.

For the JN Venter Beleggings Trust Agricultural Development, the Applicant already has water allocations in place for use in the proposed development from the Oranje Riet Water User Association for water abstraction from the canal. The authorised volume is sufficient for the proposed agricultural development. In addition, the Applicant has water use authorisation for the section 21 (b) for storage of 49 000m^3 water in two dams.

A Water Use Licence Application (WULA) will be submitted to DWS in terms of the National Water Act (NWA, Act No. 36 of 1998) for the Section 21(b) (because the proposed capacity exceed what they are currently authorised for), Section 21 (c) and (i) water uses will be triggered by the proposed instream dam, as well as by the irrigation pipeline network proposed to take water to the centre pivot areas and the proposed instream dam. In terms of the NFEPA (2011) and the 2019 National Wetlands Map 5, several wetlands are

located within the extent of the project area. Also, areas classified as rivers are present on the project area. Section 21 (c) and (i) water uses are also applicable in this regard.

Table 4.2 contains Water Uses associated with the proposed project and identified in terms of the NWA which require either in the form of a General Authorisation (GA), or in the form of a Water Use License (WUL). The table also includes a description of those project activities which relate to the applicable Water Uses.

Table 4.2: List of Water Uses published under Section 21 of NWA, as amended.

Section	Description of the Water Use	Relevance to the JV Venter Agricultural Development and Associated infrastructure
21 (b)	Storage of water	The storage of water in the proposed dams, one off stream dam and one instream dam. The Applicant already has section 21(b) water use, however the capacity is very low to what is being proposed for in the new dams.
21 (c)	Impeding or diverting the flow of water in a watercourse.	Construction of the instream dam and the establishment of irrigation pipeline network which cross over the non-perennial watercourses from the dam to various centre pivot areas
21(i)	Altering the beds, banks, course, or characteristics of a watercourse.	Construction of the instream dam and the establishment of irrigation pipeline network which cross over the non-perennial watercourses from the dam to various centre pivot areas

4.2.3. Conservation of Agricultural Resources Act (1983)

This Act provides for control over the utilization of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants; and for matters connected therewith. A soil cultivation permit application required in terms of Conservation of Agricultural Resources Act, 1983 (Act 43 Of 1983) will be submitted to the Department of Agriculture, Land Reform and Rural Development, Agriculture directorate for the proposed cultivation of virgin land, viz. land that has not been cultivated in the past 10 years.

4.2.4 *National Forests Act (1998)*

According to this Act, the Minister may declare a tree, group of trees, woodland or a species of trees as protected. Notice of the List of Protected Tree Species under the National Forests Act (No. 84 of 1998) was published in GNR 734.

The prohibitions provide that "no person may cut, damage, disturb, destroy or remove any protected tree, or collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a licence granted by the Minister".

A licence is required for the removal of protected trees. It is therefore necessary to conduct a survey that will determine the number and relevant details pertaining to protected tree species present in the

development footprint for the submission of relevant permits to authorities prior to the disturbance of these individuals.

4.2.5 Other Legislation

This section gives and overview of other legislation which may not require authorisation or permits, however needs to be taken into consideration to ensure a sustainable development and preservation of resources during the construction and operation of the JN Venter Beleggings Trust Agricultural Development and associated infrastructures. Any specific permitting requirements relating to these, or other relevant legislation will be confirmed in the EIA Phase of the process.

Table 4.3.: Other Relevant Legislation

Legislation	Relevant Sections	Pertains to
The Constitution Act (No 108 of 1996)	Chapter 2, Section 24	Bill of Rights: Environmental right
Fertilizers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (No 36 of 1947)	Section 3- 10	The control of the use of pesticides, herbicides and fertilizers, and precautions to protect workers in this regard
Free state Environmental Management Act (2005)	Schedule 1	Noise Control
National Environmental Management: Air Quality Act (No 39 of 2004	Section 32	Control of dust
	Section 34	Control of noise
	Section 35	Control of offensive odours
National Environmental Management: Biodiversity Act (No 10 of 2004)	Section 57	Restricted activities involving listed threatened or protected species
	Section 65- 69	Regulation of activities involving alien species
	Section 71, 73, 75	Regulation of activities involving invasive species
National Environmental Management: Waste Amendment Act (No 26 of 2014)	Chapter 4	Waste Management Activities
	Chapter 5	Licensing of waste management activities
	Chapter 7	Compliance and enforcement
National Heritage Resources Act (No 25 of 1999)	Section 34	Protection of structures older than 60 years
	Section 35	Protection of archaeological and palaeontological sites and material as well as meteorites
	Section 36	Conservation of burial grounds and graves

4.3 Relevant Planning and Policy Considerations

4.3.1. Agricultural Policy

The development of agriculture in South Africa is often viewed solely as the technical advance, in this century particularly, of large-scale commercial farming specialising in crop and animal production according to the prevailing natural resources and climatic conditions and taking advantage of both abundant low-cost labour and opportunities for mechanisation. The proponents of this view believe that agriculture can only contribute to the economy through a concentrated production structure such as the one currently existing. Accordingly, they believe that smaller and medium-scale agriculture, based upon diversified production, family labour and lower technologies, has little to offer in terms of aggregate production and incomes from farming.

The current dominance of the modern large-scale and technically successful farming model must be seen in the context of a century of policy measures which seriously distorted agricultural development in South Africa. This dominant model has some undeniable advantages, but in a country with high unemployment

and food insecurity, it has serious limitations. In future, both efficiency and equity will call for a much greater diversity of farm sizes and technology in the sector, with large-scale commercial farming coexisting with small and medium-scale production.

4.3.2. The Strategic Plan for South African Agriculture, 2001

The pivot of agriculture in sustainable development in South Africa is Strategic Plan for South African Agriculture, which was adopted by government, and organized agriculture. The strategic goal of the sector plan is: "to generate equitable access and participation in a globally competitive, profitable and sustainable agricultural sector contributing to a better life for all." The Strategic Plan for South African Agriculture is aimed at addressing key problems and challenges facing the sector through three core strategies: Enhance equitable access and participation in the agricultural sector; Improve global competitiveness and profitability; and ensure sustainable resource management. With reference to the strategic plan for agriculture, the Applicant proposes the development of pivot agriculture.

CHAPTER 5 APPROACH TO UNDERTAKING THE SCOPING PHASE

An EIA process refers to the process undertaken in accordance with the requirements of the relevant EIA Regulations (the 2014 EIA Regulations (GNR 326), as amended), which involves the identification and assessment of direct, indirect, and cumulative environmental impacts associated with a proposed project or activity. The EIA process comprises two main phases: i.e. **Scoping** and **EIA Phase,** and is illustrated in Figure 5.1. Public Participation forms an important component of the process and is undertaken throughout both phases.

Figure 5.1: The Phases of an Environmental Impact Assessment (EIA) Proce

5.1. Legal Requirements as per the EIA Regulations, 2014 (as amended), for the undertaking of an Impact Assessment Report

This chapter includes the following information required in terms of Appendix 2: Content of a Scoping report:

Requirement	Relevant Section
(g)(ii) details of the public participation process undertaken in terms of Regulation 41 of the Regulations, including copies of the supporting documents and inputs.	The public participation process to be followed throughout the EIA process of JN Venter Beleggings Trust Agricultural Development is included in **Section 5.5.2** and copies of the supporting documents and inputs will be submitted with the final scoping report.
(g)(iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them.	The main issues raised through the undertaking of the public participation process including consultation with I&APs will be included in the Comments and Responses Report which will be submitted with the final scoping report.
(g)(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	The methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives are included in **Section 5.5.3**.

5.2. Overview of the Scoping and EIA (S&EIA) Process

In terms of NEMA, the 2014 EIA Regulations (GNR 326), and Listing Notices (Listing Notice 1 (GNR 327) and Listing Notice 2 (GNR 325) the development of JN Venter Beleggings Trust Agricultural Development requires EA from DESTEA subject to the completion of a full Scoping and Environmental Impact Assessment (S&EIA), as prescribed in Regulations 21 to 24 of the 2014 EIA Regulations (GNR 326). The need for a full S&EIA process to be conducted in support of the application for EA is based on listed activities triggered which are contained within Listing Notice 2 (GNR 325).

5.3. Objectives of the Scoping Phase

This Scoping Report documents the evaluation of potential environmental impacts of the proposed project and forms part of the EIA process being conducted in support of an Application for EA for the project. The Scoping Phase has been conducted in accordance with the requirements of the 2014 EIA Regulations (GNR 326), and therefore aims to:

- Identify and evaluate potential environmental (biophysical and social) impacts and benefits of all phases of the proposed development (including design, construction, operation and decommissioning) within the broader project site and development area through a review of existing baseline data, including specialist studies which were undertaken within the project area.
- Identify potentially sensitive environmental features and areas within the broader project site and development area to inform the preliminary design process of the agricultural development and the associated infrastructure.
- Define the scope of studies to be undertaken during the EIA process.
- Provide the authorities with sufficient information in order to make a decision regarding the scope of issues to be addressed in the EIA Phase, as well as regarding the scope and extent of specialist studies that will be required to be undertaken.

The following objectives of the Scoping Phase (in accordance with Appendix 2 of the 2014 EIA Regulations (GNR 326)) have been met, through the undertaking of a consultative process.

- The identification of relevant policies and legislation regarding the activities to be undertaken have been identified and considered.
- Activities to be undertaken for the development of JN Venter Beleggings Trust Agricultural Development have been identified and motivated in terms of the need and desirability for the activities to take place.
- Potential impacts associated with the undertaking of the identified activities have been identified and described.
- Identification of areas of high sensitivity to be avoided by the preferred development footprint have been defined.
- Preferred areas for the development in areas associated with low to medium environmental sensitivity have been identified within the development area through a desktop level impact assessment process and on-going consultative process.
- Key issues associated with the project to be addressed during the EIA Phase for further detailed study and ground-truthing have been identified.

» The level of assessment, expertise and the extent of further consultation to be undertaken in the EIA Phase of the process, with the aim of determining the extent of impacts associated with the activities through the life cycle of the project (i.e. construction, operation and decommissioning), have been identified.

5.4. Overview of the Scoping Phase

Key tasks undertaken within the Scoping Phase include:

» Consultation with relevant decision-making and regulating authorities (Provincial and Local levels).
» Submission of the completed Application for EA to the competent authority (DESTEA) in terms of Regulations 5 and 16 of the 2014 EIA Regulations (GNR 326).
» Undertaking a public participation in accordance with Chapter 6 of GNR326, and the Department of Environmental Affairs (2017), Public Participation guidelines in terms of NEMA EIA Regulations, Department of Environmental Affairs, Pretoria, South Africa (hereinafter referred to as "the Guidelines") in order to identify issues and concerns associated with the proposed project.
» Undertaking of independent specialist studies in accordance with Appendix 6 of the EIA Regulations, 2014 (GNR326), as amended, and the requirements of the Specialist Protocols published in Regulation GNR 320, issued 20 March 2020 and GNR 1150 of 30 October 2020, where relevant, as well as other relevant guidelines.
» Preparation of a Scoping Report and Plan of Study for EIA in accordance with the requirements of Appendix 2 of the 2014 EIA Regulations (GNR 326).
» Preparation of a Comments and Response (C&R) Report detailing all comments raised by I&APs and responses provided as part of the Scoping Phase.
» Submission of a Final Scoping Report, including a Plan of Study for the EIA, to DESTEA for review and approval.

5.4.1. Authority Consultation and Application for Authorisation in terms of the 2014 EIA Regulations (as amended)

Based on the nature of the development, the DESTEA has been determined as the competent authority for the agricultural development. As the project is an agricultural development, the Department of Agriculture and Rural Development (DARD, Free State office) is the commenting authority for the project and through their office, a recommendation letter will be written to the National Department of Agriculture, Land Reform and Rural Development (DALRRD) in Pretoria where a Delegate to the National Minister will give formal consent if the Department supports the application.

Consultation with these authorities is being undertaken throughout the Scoping Phase. To date, this consultation has included the following:

» Undertaking of a pre- application meeting on 26 **April 2022** (Refer to **Appendix B for the notes of the meeting**).
» Submission of the Application for Environmental Authorisation to the DESTEA via courier.
» Submission of the Scoping Report for review and comment by:
» The competent and commenting authorities.
» State departments that administer laws relating to a matter affecting the environment relevant to an Application for EA.

» Organs of State which have jurisdiction in respect of the activity to which the application relates.

The submissions, as listed above, were undertaken as required by the DESTEA. A record of all authority correspondence undertaken during the Scoping Phase will be submitted with the final scoping report.

5.4.2. Public Participation Process

Public participation is an essential and regulatory requirement for an environmental authorisation process and is guided by Regulations 41 to 44 of the EIA Regulations 2014 (GN R326) (as amended). The purpose of public participation is clearly outlined in Regulation 40 of the EIA Regulations 2014 (GN R326) (as amended) and is being followed for this proposed project.

The sharing of information forms the basis of the public participation process and offers the opportunity for I&APs to become actively involved in the EIA process from the outset. The public participation process is designed to provide sufficient and accessible information to I&APs in an objective manner. The public participation process affords I&APs opportunities to provide input into and receive information regarding the EIA process in the following ways:

» During the **Scoping Phase**:
» provide an opportunity to submit comments regarding the project;
» assist in identifying reasonable and feasible alternatives, where required;
» identify issues of concern and suggestions for enhanced
» contribute relevant local information and knowledge to the environmental assessment;
» allow registered I&APs to verify that their comments have been recorded, considered and addressed, where applicable, in the environmental investigations;
» foster trust and co-operation;
» generate a sense of joint responsibility and ownership of the environment;
» comment on the findings of the Scoping Phase results; and
» Identify issues of concern and suggestions for enhanced benefits.

» During the **EIA Phase**:
» contribute relevant local information and knowledge to the environmental assessment;
» verify that issues have been considered in the environmental investigations as far as possible as identified within the Scoping Phase; and
» comment on the findings of the environmental assessments.

» During the **decision-making phase**:
» to advise I&APs of the outcome of the competent authority's decision, and how and by when the decision can be appealed.

The Public Participation process aims to ensure that:
» Information containing all relevant facts in respect of the application is made available to potential stakeholders and I&APs for their review;
» The information presented during the public participation process is presented in such a manner, i.e. local language and technical issues, that it avoids the possible alienation of the public and prevents them from participating;

- Public participation is facilitated in such a manner that I&APs are provided with a reasonable opportunity to comment on the project;
- A variety of mechanisms are provided to I&APs to correspond and submit their comments i.e. fax, post, email, telephone, text message (SMS and WhatsApp); and
- An adequate review period is provided for I&APs to comment on the findings of the Scoping and EIA Reports.

In terms of the requirement of Chapter 6 of the EIA Regulations of December 2014, as amended, the following key public participation tasks are required to be undertaken:

- Fix a notice board at a place conspicuous to the public at the boundary or on the fence of—
  - the site where the activity to which the application relates is or is to be undertaken; and
  - any alternative site mentioned in the application.
- Give written notice to:
  - i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
  - ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  - iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  - iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
  - v) the municipality which has jurisdiction in the area;
  - vi) any organ of state having jurisdiction in respect of any aspect of the activity; and
  - vii) any other party as required by the competent authority.
- Place an advertisement in one local newspaper.
- Open and maintain a register of I&APs and Organs of State.
- Release of a Scoping Report for a 30-day review and comment period.
- Prepare a Comments and Responses (C&R) report which documents the comments received on the EIA process and during the 30-day review and comment period of the Scoping Report and the responses provided by the project team.

- **<u>Stakeholder identification and Register of Interested and Affected Parties</u>**

In compliance with the requirements of Chapter 6: Public Participation of the EIA Regulations, 2014 (as amended), and the following summarises the key public participation activities implemented.

42. A proponent or applicant must ensure the opening and maintenance of a register of I&APs and submit such a register to the competent authority, which register must contain the names, contact details and addresses of –
    (a) All persons who, as a consequence of the public participation process conducted in respect of that application, have submitted written comments or attended meetings with the proponent, applicant or EAP;
    (b) All persons who have requested the proponent or applicant, in writing, for their names to be placed on the register; and
    (c) All organs of state which have jurisdiction in respect of the activity to which the application relates.

I&APs have been identified through a process of networking and referral, obtaining information from Savannah Environmental's existing stakeholder database, liaison with potentially affected parties in the greater surrounding area and a registration process involving the completion of a reply form. Key stakeholders and affected and surrounding landowners have been identified and registered on the

project database. Other stakeholders are required to formally register their interest in the project through either directly contacting the Savannah Environmental Public Participation team via phone, text message (SMS and WhatsApp), email or fax, or registering their interest via the online stakeholder engagement platform. An initial list of key stakeholders identified and registered is listed in **Table 5.2**.

Table 5.2: Initial list of Stakeholders identified for the inclusion in the project database during the public participation process for JN Venter Beleggings Trust Agricultural Development

Organs of State
National Government Departments
Department of Forestry and Fisheries (Biodiversity Directorate)
Department of Mineral Resources and Energy (DMRE)
Department of Agriculture, Land Reform, and Rural Development (DALRRD)
Department of Water and (DWS)
Provincial Government Departments
Free State Department of Agriculture and Rural Development
Free State Heritage Resource Authority
Oranje Riet Water User Association
Local Government Departments
Xhariep District Municipality
Letsemeng Local Municipality – including the Ward Councillor, ward committee members, community representative or local community forum members
Commenting Stakeholders
Wildlife and Environmental Society of South Africa
Endangered Wildlife Trust
Landowners
Affected landowners, tenants and occupiers
Neighbouring landowners, tenants and occupiers

As per Regulation 42 of the EIA Regulations, 2014 (as amended), all relevant stakeholder and I&AP information has been recorded within a register of I&APs (refer to **Appendix C1** for a listing of the recorded parties). In addition to the above-mentioned EIA Regulations, point 4.1 of the Public Participation Guidelines has also been followed. The register of I&APs contains the names[2] of:

» all persons who requested to be registered on the database through the use of the online stakeholder engagement platform or in writing and disclosed their interest in the project.
» all Organs of State which hold jurisdiction in respect of the activity to which the application relates; and

[2] Contact details and addresses have not been included in the I&AP database as this information is protected by the Protection of Personal Information Act (No 4 of 2013).

» all persons who submitted written comments or attended virtual meetings (or in-person consultation where sanitary conditions can be maintained) and viewed the narrated presentations on the Savannah Environmental online platform during the public participation process.

I&APs have been encouraged to register their interest in the EIA process from the onset of the project, and the identification and registration of I&APs will be on-going for the duration of the EIA process. The database of I&APs will be updated throughout the EIA process and will act as a record of all I&APs involved in the public participation process.

» **Advertisements and Notifications**

40.(2)(a) Fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of –
- (i) The site where the activity to which the application or proposed application relates is or is to be undertaken; and
- (ii) Any alternative site.

40.(2)(b) Giving written notice, in any of the manners provided for in section 47Dof the Act, to –
- (i) The occupiers of the site and, if the proponent or applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken;
- (ii) Owners, persons in control of, and occupiers of land adjacent to the site where the activity is or is to be undertaken and to any alternative site where the activity is to be undertaken;
- (iii) The municipal councillor of the ward in which the site and alternative site is situated and any organisation of ratepayers that represent the community in the area;
- (iv) The municipality which has jurisdiction in the area;
- (v) Any organ of state having jurisdiction in respect of any aspect of the activity; and
- (vi) Any other party as required by the competent authority.

40.(2)(c) Placing an advertisement in –
- (i) One local newspaper; or
- (ii) Any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;

40.(2)(d) Placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official Gazette referred to in paragraph (c)(ii); and

40.(2)(e) Using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desirous of but unable to participate in the process due to –
- (i) Illiteracy;
- (ii) Disability; or
- (iii) Any other disadvantage.

The EIA process was announced with an invitation to the Organs of State, potentially affected and neighbouring landowners and general public to register as I&APs and to actively participate in the process. This was achieved via the following:

* Placement of site notices announcing the availability of the consultative scoping report and the EIA process at visible points along the boundary of the development area (i.e. the boundaries of the affected property), in accordance with the requirements of the EIA Regulations on **26 May 2022** Photographs and the GPS co-ordinates of the site notices will be submitted with the Scoping Report.

- Placement of the advert announcing the availability of the consultative Scoping Report in the Volksblad online Newspaoer on **03 June 2022** for the proposed development. This advert:
  - Announced the project and the associated EIA process.
  - Provided details of how I&APs can become involved in the EIA process, including details of the public participation consultant.
  - Provided all relevant details regarding the availability of the Scoping Report for review, including details on how to access the Savannah Environmental online stakeholder engagement platform.
- The Scoping Report has been made available for review by I&APs for a 30-day review and comment period from **03 June 2022 to 04 July 2022**. The full Scoping Report is available on the Savannah Environmental website (https://savannahsa.com/public-documents/other/ . The evidence of distribution of the Scoping Report for public and authority review and comment will be included in the Final Scoping Report, which will be submitted to the DESTEA.

» **Public Involvement and Consultation**

In order to accommodate the varying needs of stakeholders and I&APs within the surrounding area, as well as capture their views, comments, issues and concerns regarding the project, various opportunities have been and will continue to be provided to I&APs to note their comments and issues. I&APs are being consulted through the following means:

Table 5.4: Public involvement for JN Venter Beleggings Trust Agricultural Development

Activity	Date
Distribution and Announcement of the availability of the Scoping Report for a 30-day review and comment period of the Scoping Report including details on how to access the Scoping Report via the online stakeholder engagement platform, in one provincial newspaper: Volksblad Online Newspaper	**03 June 2022**
Distribution of the project information and announcement of the availability of the Scoping Report for a 30-day review letter and inviting I&APs to register on the project database. The BID was also made available on the online stakeholder engagement platform.	**03 June 2022**
Availability of Scoping Report for public and authority review and comment.	
On-going consultation (i.e. telephone liaison; e-mail communication, meetings) with all I&APs.	Throughout the EIA process

» **Registered I&APs entitled to Comment on the Scoping Report**

43.(1) A registered I&AP is entitled to comment, in writing, on all reports or plans submitted to such party during the public participation process contemplated in these Regulations and to bring to the attention of the proponent or applicant any issues which that party believes may be of significance to the consideration of the application, provided that the interested and affected party discloses any direct business, financial, personal or other interest which that party may have in the approval or refusal of the application.

(2) In order to give effect to section 24O of the Act, any State department that administers a law relating to a matter affecting the environment must be requested, subject to regulation 7(2), to comment within 30 days.

44.(1) The applicant must ensure that the comments of interested and affected parties are recorded in reports and plans and that such written comments, including responses to such comments and records of meetings, are attached to the reports and plans that are submitted to the competent authority in terms of these Regulations.

(2) Where a person desires but is unable to access written comments as contemplated in subregulation (1) due to –
(a) A lack of skills to read or write;
(b) Disability; or
(c) Any other disadvantage;
Reasonable alternative methods of recording comments must be provided for.

I&APs registered on the database have been notified by means of a notification letter of the release of the Scoping Report for a 30-day review and comment period, invited to provide comment on the Scoping Report, and informed of the manner in which, and timeframe within which such comment must be made. The report has been made available in soft copies to I&APs on the Savannah Environmental website (i.e. online stakeholder engagement platform) (https://savannahsa.com/public-documents/other/). Hard copy reports and/or CD copies can be made available on request.

Where I&APs are not able to provide written comments (including SMS and WhatsApp), other means of consultation, such as telephonic discussions will be used to provide the I&APs with a platform to verbally raise their concerns and comments on the proposed development.

» **Identification and Recording of Comments**

Comments raised by I&APs over the duration of the Scoping Phase will be synthesised into a Comments and Responses (C&R) Report which will be included in **Appendix C** of the Final Scoping Report. The C&R Report will include detailed responses from members of the EIA project team and/or the project proponent to the issues and comments raised during the public participation process.

Meeting notes of all the telephonic discussions and meetings conducted during the 30-day review and comment period of the Scoping Report will be included in **Appendix C**.

5.4.3. Evaluation of Issues Identified through the Scoping Process

Direct, indirect, and cumulative environmental impacts associated with the project identified during the Scoping Phase have been evaluated through consideration of existing information available for the JN Venter Beleggings Trust agricultural development area.

In order to evaluate issues and assign an order of priority, the following methodology was used to identify the characteristics of each potential issue/impact:

» The ***nature***, which includes a description of what causes the impact, what will be affected and how it will be affected.
» The ***extent***, wherein it is indicated whether the impact will be local (limited to the immediate area or site of development), regional or national.
» Identify ***sensitive receptors*** that may be impacted on by the proposed development and the types of impacts that are most likely to occur.
» The ***significance*** of potential impacts in terms of the requirements of the 2014 EIA Regulations (including (nature, significance, consequence, extent, duration and probability of the impacts, the degree to which these impacts:
» Can be reversed.

- May cause irreplaceable loss of resources; and
- Can be avoided, managed, or mitigated.
- Identify the potential impacts that will be considered further in the EIA Phase through detailed investigations.

The evaluation of the proposed project resulted in a description of the nature, significance, consequence, extent, duration and probability of the identified issues, as well as recommendations regarding further studies required within the EIA Phase.

5.4.4. Finalisation of the Scoping Report

The final stage of the Scoping Phase entails the recording and capturing of comments received from stakeholders and I&APs on the Scoping Report in order to finalise the Scoping Report for submission to DESTEA for decision-making. All written comments received will be addressed within the C&R Report to be submitted with the final scoping report.

5.5. Assumptions and Limitations of the EIA Process

The following assumptions and limitations are applicable to the EIA process of JN Venter Beleggings Trust Agriculture Development:

- All information provided by the developer and I&APs to the environmental team was correct and valid at the time it was provided.
- It is assumed that the development area for the project by the developer represents a technically suitable site for the establishment of agriculture development and associated infrastructure.
- The development footprint (the area that will be affected by the project) will include the footprint for the agricultural development and associated infrastructure (i.e., centre pivot irrigation system, water pipelines, solar PV facility, overhead power line, dams, and the BESS).
- The Scoping Phase evaluation of impacts has been largely based on desktop studies. This information has been used to inform this Scoping report and will be verified by specialists in the EIA phase to assess the project agricultural development.

CHAPTER 6: DESCRIPTION OF THE RECEIVING ENVIRONMENT

This chapter provides a description of the local environment within which the project is proposed. This information is provided in order to assist the reader in understanding the possible effects of the project on the environment within which it is proposed to be developed. Aspects of the biophysical, social and economic environment that could be directly or indirectly affected by, or could affect, JN Venter Beleggings Trust Agricultural Development have been described.

6.1 Legal Requirements as per the EIA Regulations, 2014 (as amended), for the undertaking of an Impact Assessment Report

This chapter includes the following information required in terms of Appendix 2: Content of a Scoping report:

Requirement	Relevant Section
(g)(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.	The environmental attributes associated with the development of JN Venter Beleggings Trust Agricultural Development is included as a whole within this chapter. The environmental attributes that are assessed within this chapter includes the following:
	» The regional setting of the broader study area indicates the geographical aspects associated with JN Venter Beleggings Trust Agricultural Development. This is included in **Section 7.2**.
	» The climatic conditions for the proposed project area has been included in **Section 7.3**.
	» The biophysical characteristics of the project site and the surrounding areas are included in **Section 7.4**. The characteristics considered are topography and terrain, geology, soils and agricultural potential and the ecological profile which includes the vegetation patterns, listed plant species, critical biodiversity areas and broad-scale processes, freshwater resources, terrestrial fauna, and avifauna.
	» The heritage and cultural aspects (including archaeology, cultural landscape and palaeontology) has been included in **Section 7.5**.
	» The social and socio-economic characteristics associated with the broader study area and the project site has been included in **Section 7.6**
	» The visual quality, land-use and settlement patterns of the affected environment has been included in **Section 7.7**
	» The current traffic conditions for the area surrounding the project have been included in **Section 7.8**

A more detailed description of each aspect of the affected environment is included within the specialist Scoping Reports contained within **Appendices D - G**

6.2. Regional Setting

JN Venter Beleggings Trust is proposing the development of an expansion of a centre pivot irrigation farm on a site located Southwest of Luckhof and Koffiesfontein in the Free State Province. The proposed area of development is accessible via the R48 within the Letsemeng Local Municipality of Xhariep District Municipality in the Free State Province.

The Free State is located in the geographical centre of South Africa, bordered by the Northern Cape, Eastern Cape, North West, Mpumalanga, KwaZulu-Natal and Gauteng provinces, as well as Lesotho. The

Free State is a rural province of farmland, mountains, goldfields and widely dispersed towns. Although the Free State is the third-largest province in South Africa, it has the second-smallest population and the second-lowest population density. It covers an area of 129 825km² and has a population of 2 834 714 – 5.1% of the national population. Its capital is Bloemfontein, which is South Africa's judicial capital. Other important towns include Welkom, Kroonstad, Sasolburg and Bethlehem.

The economy is dominated by agriculture, mining and manufacturing. Known as the 'breadbasket' of South Africa, about 90% of the province is under cultivation for crop production. It produces approximately 34% of the total maize production of South Africa, 37% of wheat, 53% of sorghum, 33% of potatoes, 18% of red meat, 30% of groundnuts and 15% of wool. The province is the world's fifth-largest gold producer, with mining the major employer. It is a leader in the chemicals industry, being home to the giant synthetic-fuels company, Sasol.

The Free State agricultural sector, just like the national agricultural sector, comprises of crop production, animal production, horticulture, dairy farming, game farming, aquaculture, fruit production and agro processing. Approximately 14.5% of South Africa's commercial farming takes place in the province. This sector is critical to the well-being of the province, both as the provider of food and a major employer. Major crops are maize, soybeans, wheat, sorghum, sunflowers, potatoes, groundnuts and wool. The province also accounts for 90% of cherry production in South Africa.

About 40% of the country's potato yield comes from the high-lying areas of the Free State. The province produces about 100,000 tons of vegetables and 40,000 tons of fruit each year. The main vegetable is asparagus, both green and white varieties. Counter seasonality to Europe, the primary SA export market for horticultural and floricultural products, is a competitive advantage. The temperate climate in the Eastern Free State lends itself to production of deciduous fruits such as apples, berries, cherries, peaches, plums and apricots.

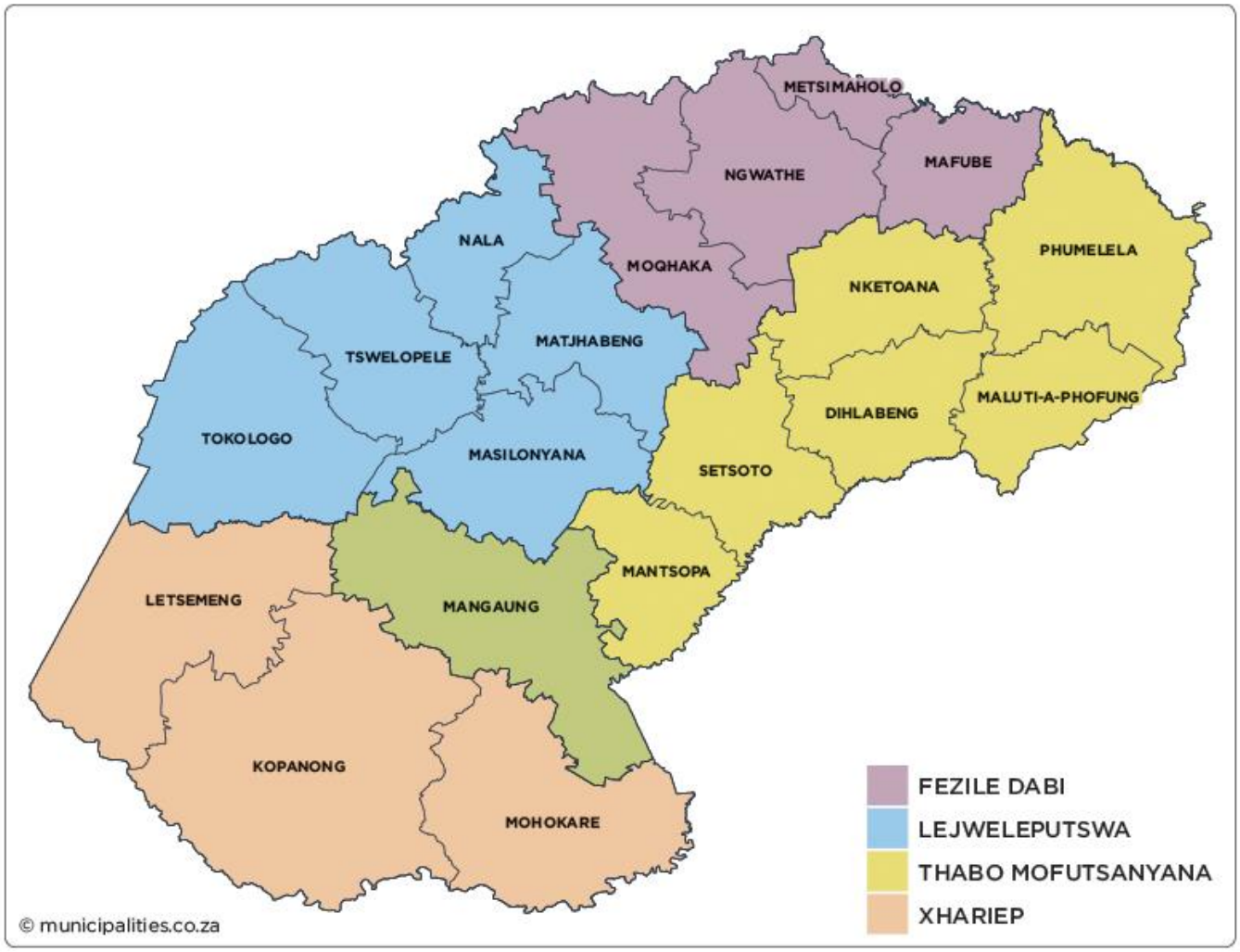

Figure 6.1: District municipalities and local Municipality of Free State Province (Source: Municipalities of South Africa)

The Xhariep District Municipality is a Category C municipality situated in the southern part of the Free State. It is bordered by the Mangaung Metro to the north, Eastern Cape to the south, Lesotho to the east, and Northern Cape to the west. It is the largest district in the province, making up just more than a third of its geographical area. It is comprised of three local municipalities: Letsemeng, Kopanong and Mohokare, which include 21 towns (refer to Figure 6.2). Its administrative headquarters are in Trompsburg, which lies 125km south of Bloemfontein. The towns in this district boast abundant natural resources such as water and agricultural land. The largest dam in South Africa is situated at the southern tip of the district. Three national roads (N1 – Gauteng to Cape Town, N6 – Eastern Cape to Bloemfontein and N8 – Bloemfontein to Kimberley) pass through this area.

Agriculture contributed 15.1% in 2019. The agricultural sector's share of the District dropped from 18.1% in 2008 to 16.4% in 2017. The District comprises of extensive agriculture at 74 %, that is used for livestock farming, especially sheep and cattle to produce wool and meat. Intensive agriculture in the Xhariep District makes up 21% of the main land uses

Figure 6.2: Local Municipalities of the Xhariep DM (Source: Municipalities of South Africa)

The project site for the establishment of the JN Veneter Beleggings Trust Agricultural Development and the Associated Infrastructure is located within the Letsemeng Local Municipality. The Letsemeng Local Municipality is a Category B municipality situated in the south-western Free State Province within the Xhariep District. It is bordered in the north by the Lejweleputswa District, in the south by Kopanong, in the east by the Mangaung Metro, and in the west by the Northern Cape Province. It is one of three municipalities in the district and measures 10 192 kilometers in surface area and comprises of five towns; Koffiefontein (which is the head office), Petrusburg, Jacobsdal, Oppermansgronde and Luckhof. The socio-economic growth of the municipality is centred on agriculture. The municipal area also has mining activities, with diamond minerals being the major natural resource that helps with employment creation.

Areas surrounding the project site are generally natural with most of the farms (cultivations) taking place along the orange river. The site is located approximately 7km southwest of the LuckhofLuckhof which is indicated as a town that serves as a general agricultural service Centre in the Letsemeng Local Municipality Draft IDP (2021/2022).

6.3. Climatic Conditions

This region's climate is characterised by rainfall peaks in autumn (March). Mean Annual Precipitation (MAP) ranges from about 190 mm in the west to 400 mm in the northeast. Mean maximum and minimum monthly temperatures for Britstown are 37.9°C and -3.6°C for January and July, respectively.

Corresponding values are 37.1°C and -4.8°C for De Aar and 39.0°C and -2.3°C for Kareekloof (northwest of Strydenburg) (Mucina and Rutherford, 2006).

6.4. Biophysical Characteristics of the Study Area and Development Area

The following section provides an overview and description of the biophysical characteristics of the study area and has been informed by specialist studies (**Appendix D-K**) undertaken for this Scoping Report.

6.4.1. Topographical Profile

Topographical profile

he slope percentage of the project area has been calculated and is illustrated in **Figure 6.3**. Most of the project area is characterised by a slope percentage between 0 and 20%, with some smaller patches within the project area characterised by a slope percentage up to 120%. This illustration indicates a uniform topography within the project area, with alternating hills and steep cliffs surrounding flatter areas at high elevation. The DEM of the project area (Figure 7.3) indicates an elevation of 1 069 to 1 497 Metres Above Sea Level (MASL).

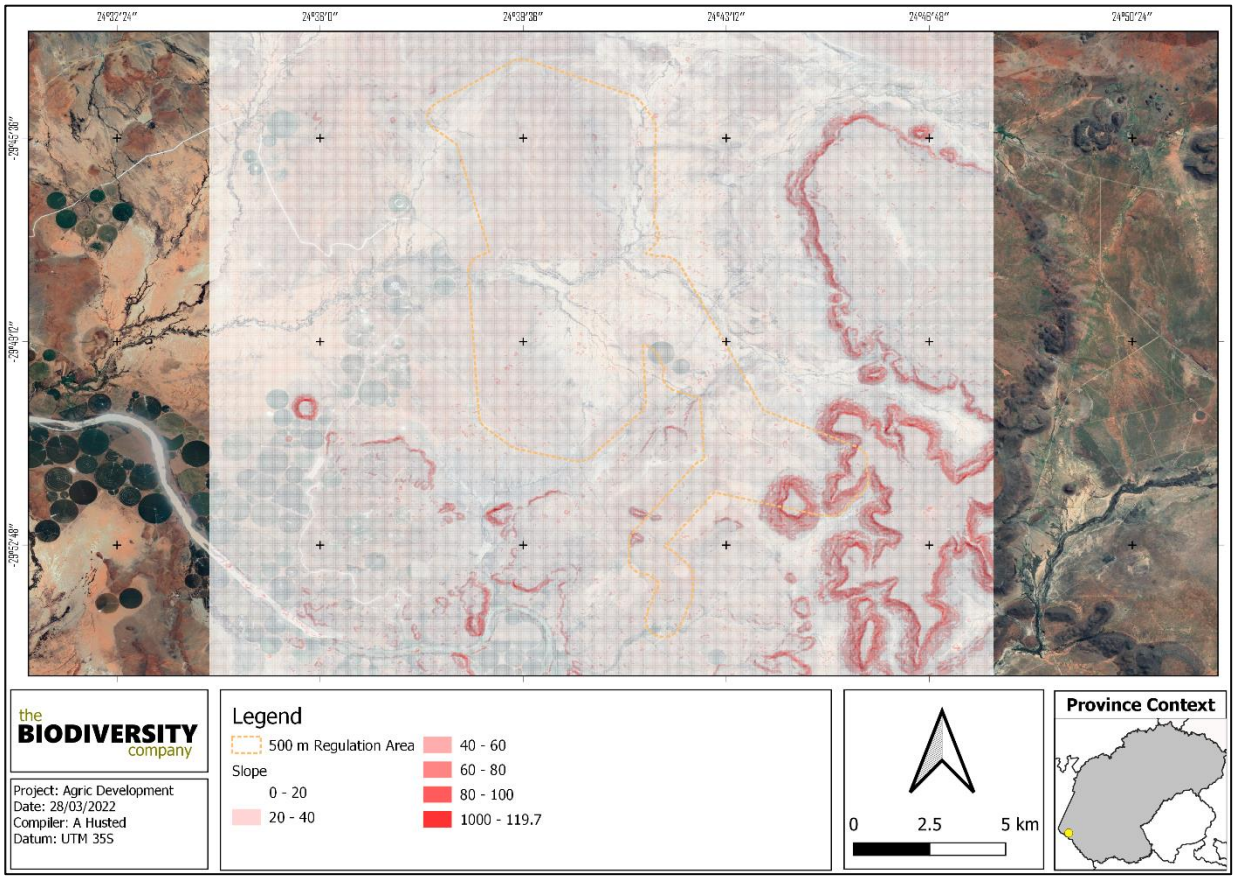

Figure 6.3: The slope percentage calculated for the project area

6.4.2. Geology and soils

The geology of the project area is characterised by shales of the Volksrust Formation and to a lesser extent the Prince Albert Formation (both of the Ecca Group) as well as Dwyka Group diamictites form the

underlying geology. Jurassic Karoo Dolerite sills and sheets support this vegetation complex in places. Wide stretches of land are covered by superficial deposits including calcretes of the Kalahari Group. Soils are variable from shallow to deep, red, yellow, apedal, freely drained soils to very shallow Glenrosa and Mispah forms. Mainly Ae, Ag and Fc land types. (Mucina and Rutherford, 2006).

According to the land type database (Land Type Survey Staff, 1972 - 2006), the project area is characterised by the Ae 278, Ag 150, Ag 151, Da 103 and Fb 85 land types (see **Figure 6.4).** The Da land type is characterised by prismacutanic and/or pedocutanic horizons with the possibility of red apedal B-horizons occurring. The Ae land type consists of red, yellow apedal soils which are freely drained. The soils tend to have a high base status and is deeper than 300 mm.

The Ag land type is characterised by freely drained Red or Yellow-Brown Apedal soils with red soils being dominant. These soils are characterised by a high base status and is likely to be less than 300 mm deep. The Fb land type consists of Glenrosa and/or Mispah soil forms with the possibility of other soils occurring throughout. Lime is generally present within the entire landscape.

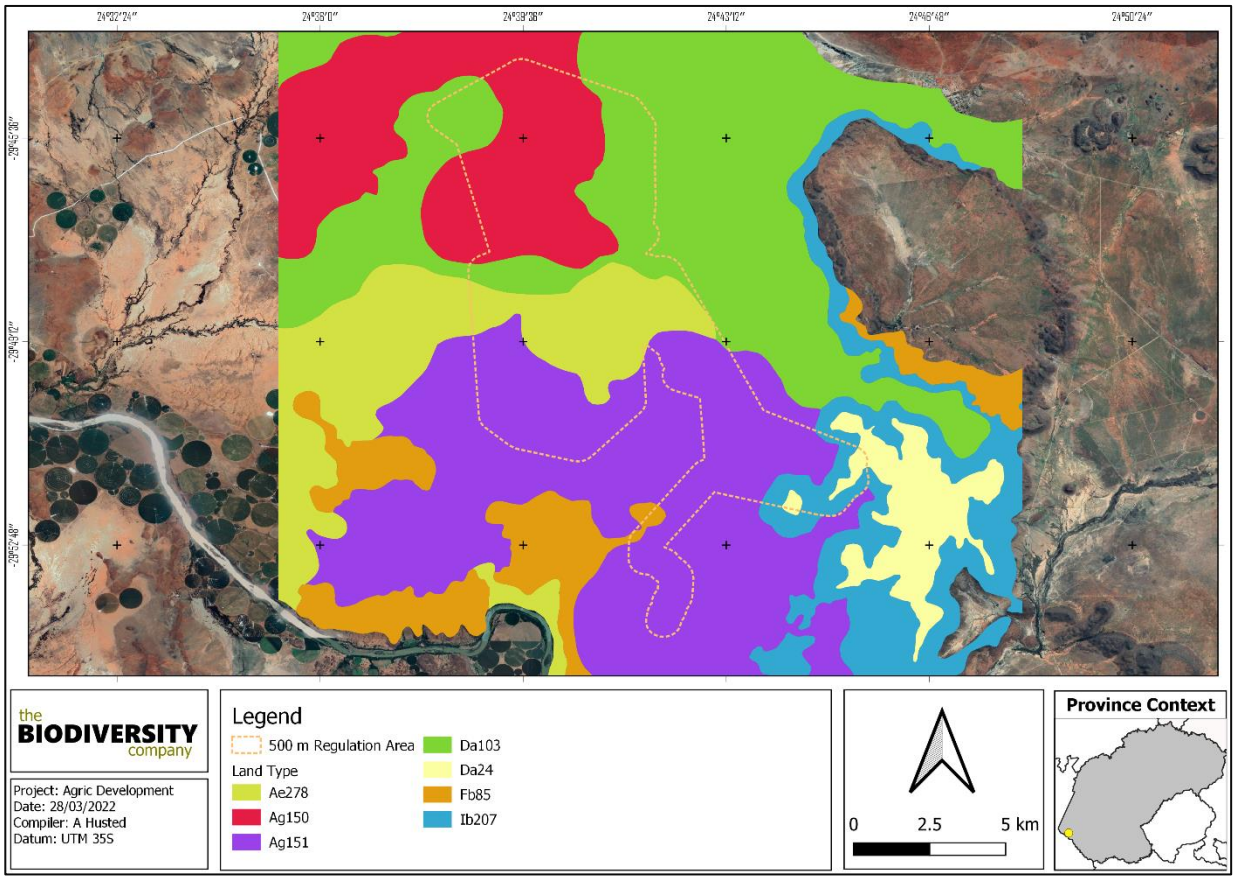

Figure 6.4: Land Types present within the project area

6.4.3. Land Capability and Agricultural Potential

As part of the desktop assessment, soil information was obtained using published South African Land Type Data. Land type data for the site was obtained from the Institute for Soil Climate and Water (ISCW) of the Agricultural Research Council (ARC) (Land Type Survey Staff, 1972 - 2006). The land type data is presented at a scale of 1:250 000 and comprises the division of land into land types. In addition, a Digital Elevation Model (DEM) as well as the slope percentage of the area was calculated by means of the National

Aeronautics and Space Administration (NASA) Shuttle Radar Topography Mission Global 1 arc second digital elevation data by means of Quantum geographic information system (QGIS) and System for Automated Geoscientific Analyses (SAGA) software.

Various soil forms are expected throughout the project area, of which some are commonly associated with high land capabilities. Even though the soil depth, texture and permeability of these soils ensure high land capability, the climatic capability of the area often reduces the land potential considerably. Therefore, very few areas characterised by "High" land potential are expected (without irrigation/in natural condition).
Considering the lack of sensitivity, together with holistic mitigation measures, it has been determined that none of the aspects scored during the impact assessment (post-mitigation) are associated with any scores higher than "Moderate". It is recommended that the site assessment to be conducted for focus areas that potentially are characterised by greater micro-climates (i.e. aspect) and low laying areas characterised by deep soils.

6.4.4. *Land* Use

The area surrounding the proposed project site consists of predominantly natural vegetation (bushveld) on the right bank, and extensive agricultural activities of the left bank of the Orange River. At a desktop level, the Orange River is considered largely modified, predominantly due to serious instream habitat modifications, modified flows, and physicochemical modifications.

According to the protected area spatial datasets from SAPAD (2021) and SACAD (2021), the project area does not overlap with any protected areas or conservation areas. However, the project area is located approximately 2 km northwest from Tuinhoek Reserve and Grasberg Reserve (the two reserves overlap almost identically) (**Figure 6.5**). Thus, the project area is located within the 5 km Protected Area Buffer Zones of two protected areas.

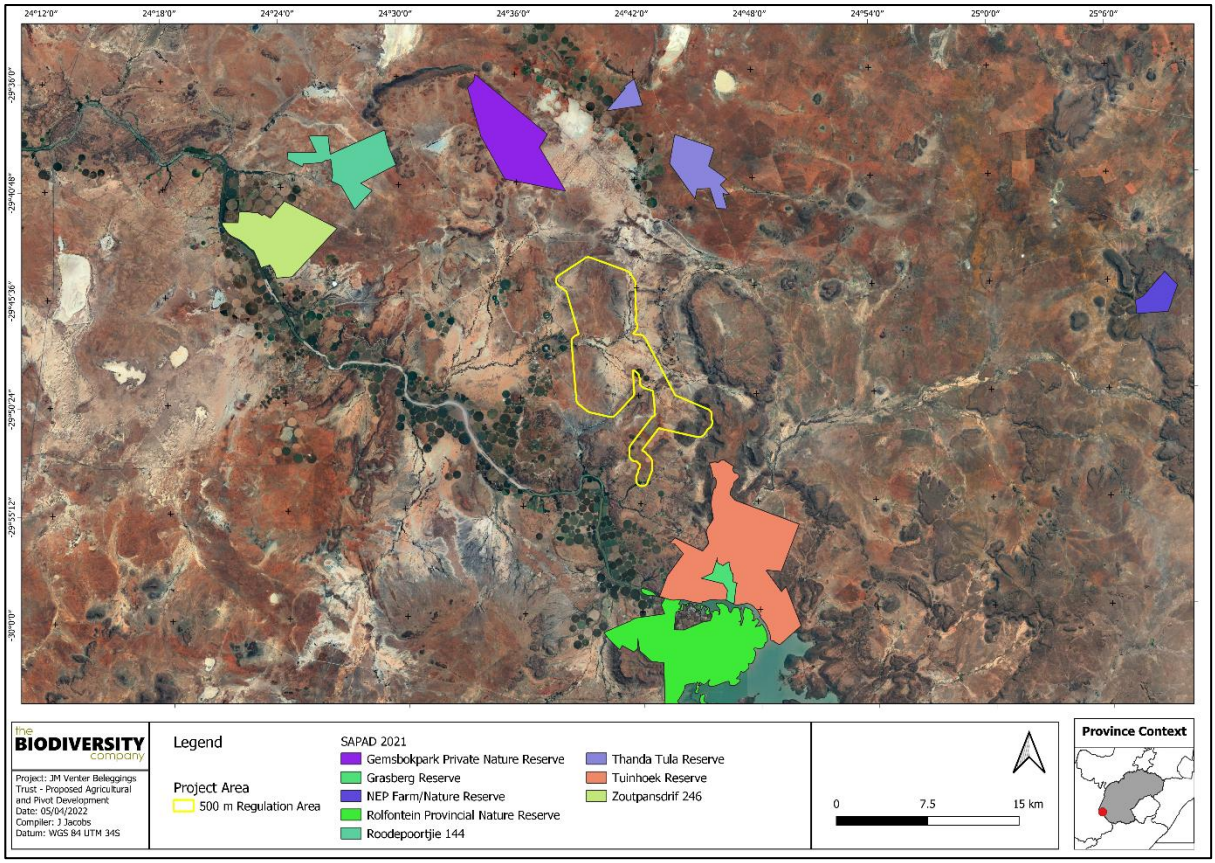

Figure 6.5: The project area in relation to the nearest protected areas

6.4.5. Ecological Profile of the Study Area and the Development Area

i. Desktop Flora Assessment

The Vegetation of South Africa, Lesotho and Swaziland (Mucina & Rutherford, 2006) and SANBI (2019) was used to identify the vegetation type that would have occurred under natural or pre-anthropogenically altered conditions. Furthermore, the Plants of Southern Africa (POSA) database was accessed to compile a list of expected flora species within the project area (**Figure 6.6**). 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.

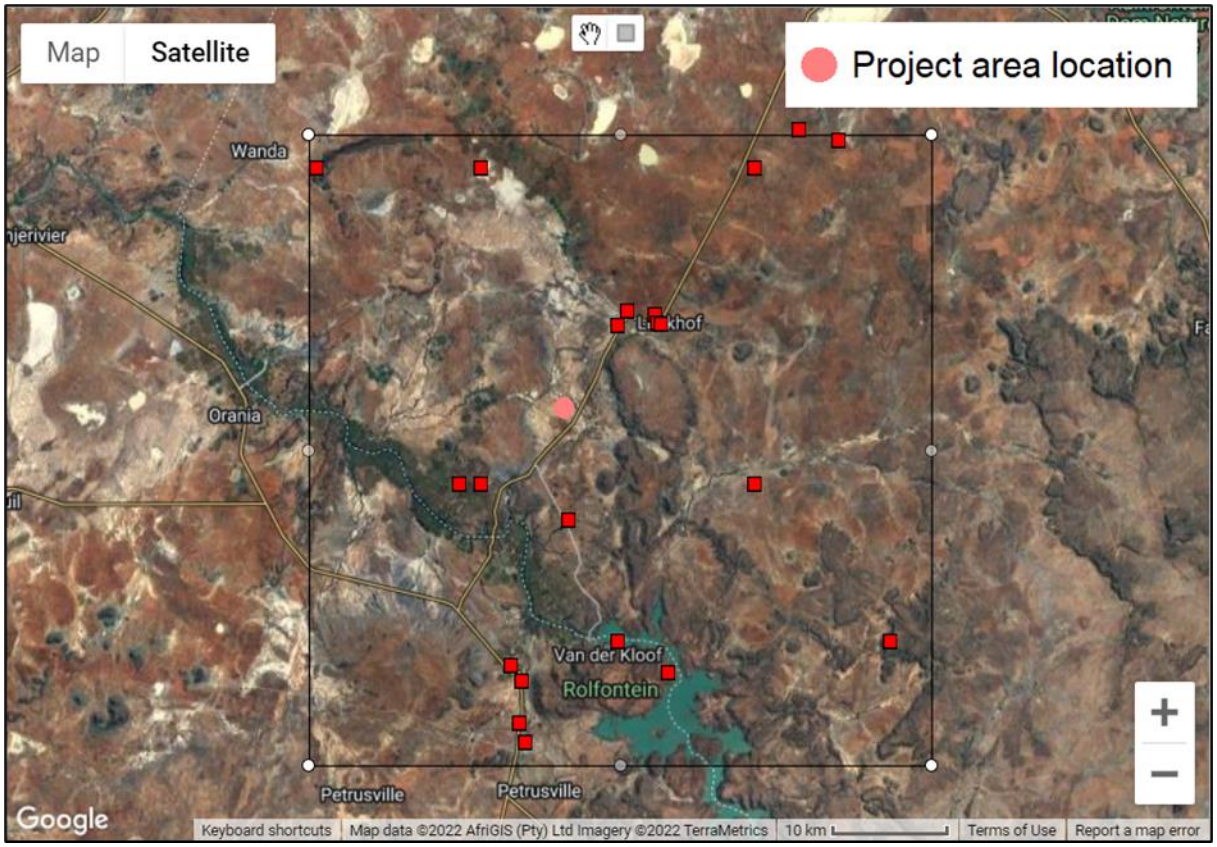

Figure 6.6: Map illustrating extent of area used to obtain the expected flora species list from the Plants of South Africa (POSA) database. Light-red dot indicates approximate location of the project area. The red squares are cluster markers of botanical records as per POSA data.

a) Vegetation Type

The project area is situated in the Nama-Karoo Biome. It is a large, landlocked region that lies on the central plateau of the western half of South Africa and extends into southeastern Namibia. In terms of climate, the Nama-Karoo Biome is arid and characterised by the presence of mostly nonperennial rivers, highly variable and unreliable low rainfall, and unpredictable and sometimes prolonged droughts (Booysen & Rowswell 1983; Mucina & Rutherford, 2006). On the plains to the northeast, there are gradual transitions between the Nama-Karoo and Grassland Biomes, making the border between the two biomes difficult to map (Mucina & Rutherford, 2006).

Generally, the vegetation of the Nama-Karoo Biome are a filtered subset of the vegetation of surrounding biomes, including Savanna, Grassland, Fynbos, Succulent Karoo and Albany Thicket Biomes (Hilton-Taylor, 1987). The three most dominant floral families are Asteraceae, Fabaceae and Poaceae, similar to the vegetation structure of other arid and semi-arid areas (Mucina & Rutherford).

On a fine-scale vegetation type, the project area overlaps with three vegetation types, mainly the Northern Upper Karoo, followed by the Besemkaree Koppies Shrubland and Upper Gariep Alluvial Vegetation (**Figure 6.7**).

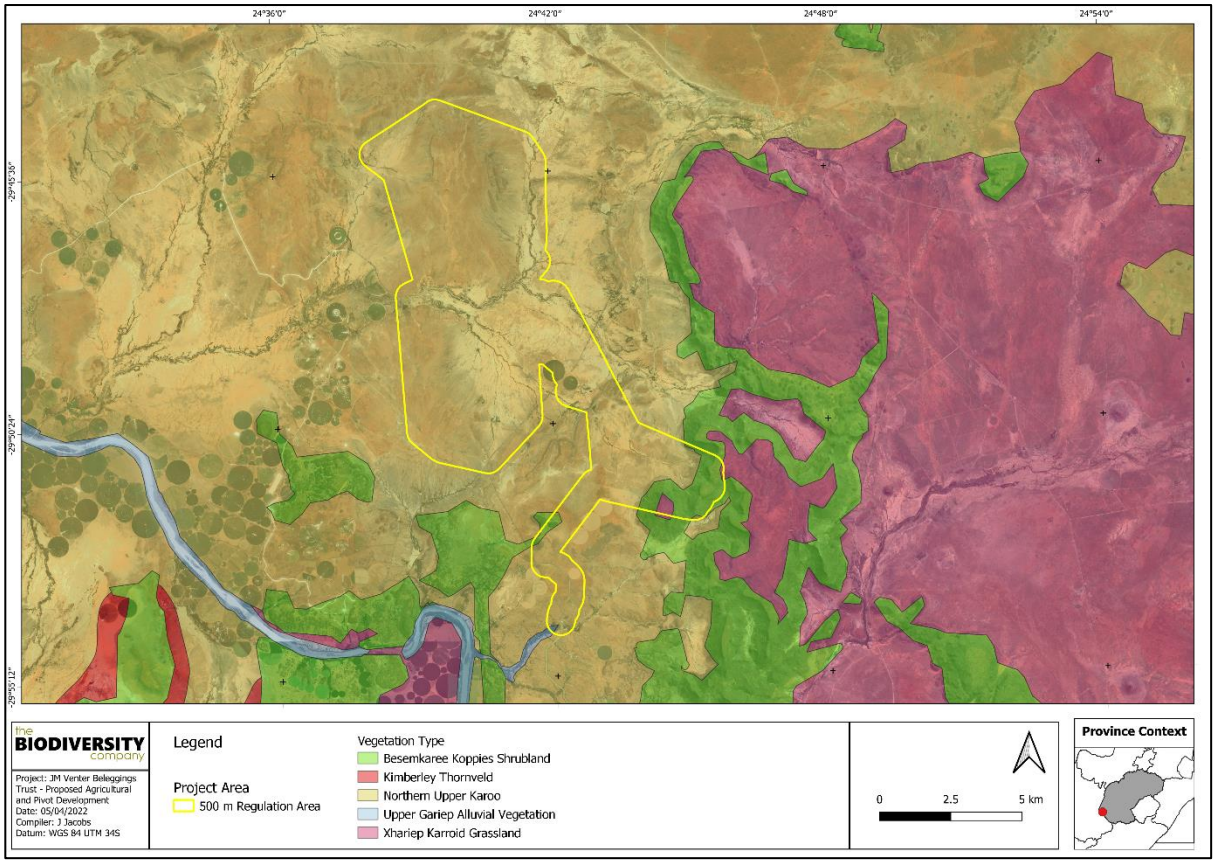

Figure 6.7: Map illustrating the vegetation type associated with the project area

Northern Upper Karoo

Northern Upper Karoo is restricted to the Northern Cape and Free State Provinces, specifically in the northern regions of the Upper Karoo plateau from Prieska, Vosburg and Carnarvon in the west to Philipstown, Petrusville and Petrusburg in the east. In the north, it is bordered by the towns of Niekerkshoop, Douglas and Petrusburg and in the south by Carnarvon, Pampoenpoort and De Aar. Additionally, there are a few patches in Griqualand West. Altitude varies mostly from 1000 to 1500 m (Mucina & Rutherford, 2006).

Its main vegetation feature is a shrubland dominated by dwarf karoo shrubs, grasses and *Senegalia mellifera* subsp. *detinens* and some other low trees (especially on sandy soils in the northern parts and vicinity of the Orange River). In terms of landscape features, it is flat to gently sloping, with isolated hills of Upper Karoo Hardeveld in the south and Vaalbos Rocky Shrubland in the northeast and with many interspersed pans (Mucina & Rutherford, 2006).

Important Plant Taxa in Northern Upper Karoo

Based on Mucina and Rutherford's (2006) vegetation classification, important plant taxa are those species that have a high abundance, a frequent occurrence (not being particularly abundant) or are prominent in the landscape within a particular vegetation type. They note that the following species are important taxa in the Northern Upper Karoo vegetation type:

» **Small Trees:** *Senegalia mellifera* subsp. *detinens*, *Boscia albitrunca*.

- **Tall Shrubs:** *Lycium cinereum*, *L. horridum*, *L. oxycarpum*, *L. schizocalyx*, *Rhigozum trichotomum*.
- **Low Shrubs:** *Chrysocoma ciliata*, *Gnidia polycephala*, *Pentzia calcarea*, *P. globosa*, *P. incana*, *P. spinescens*, *Rosenia humilis*, *Amphiglossa triflora*, *Aptosimum marlothii*, *A. spinescens*, *Asparagus glaucus*, *Barleria rigida*, *Berkheya annectens*, *Eriocephalus ericoides* subsp. *ericoides*, *E. glandulosus*, *E. spinescens*, *Euryops asparagoides*, *Felicia muricata*, *Helichrysum lucilioides*, *Hermannia spinosa*, *Leucas capensis*, *Limeum aethiopicum*, *Melolobium candicans*, *Microloma armatum*, *Osteospermum leptolobum*, *O. spinescens*, *Pegolettia retrofracta*, *Pentzia lanata*, *Phyllanthus maderaspatensis*, *Plinthus karooicus*, *Pteronia glauca*, *P. sordida*, *Selago geniculata*, *S. saxatilis*, *Tetragonia arbuscula*, *Zygophyllum lichtensteinianum*.
- **Succulent Shrubs:** *Hertia pallens*, *Salsola calluna*, *S. glabrescens*, *S. rabieana*, *S. tuberculata*, *Zygophyllum flexuosum*.
- **Semiparasitic Shrub:** *Thesium hystrix*.
- **Herbs:** *Chamaesyce inaequilatera*, *Convolvulus sagittatus*, *Dicoma capensis*, *Gazania krebsiana*, *Hermannia comosa*, *Indigofera alternans*, *Lessertia pauciflora*, *Radyera urens*, *Sesamum capense*, *Sutera pinnatifida*, *Tribulus terrestris*, *Vahlia capensis*.
- **Succulent Herb:** *Psilocaulon coriarium*.
- **Geophytic Herb:** *Moraea pallida*.
- **Graminoids:** *Aristida adscensionis*, *A. congesta*, *A. diffusa*, *Enneapogon desvauxii*, *Eragrostis lehmanniana*, *E. obtusa*, *E. truncata*, *Sporobolus fimbriatus*, *Stipagrostis obtusa, Eragrostis bicolor*, *E. porosa*, *Fingerhuthia africana*, *Heteropogon contortus*, *Stipagrostis ciliata*, *Themeda triandra*, *Tragus berteronianus*, *T. koelerioides*, *T. racemosus*.

Conservation Status

According to Mucina and Rutherford (2006), Northern Upper Karoo is classified as Least Threatened. Although the conservation target 21%, none is being conserved in statutory conservation areas and about 4% has already been cleared for cultivation (the highest proportion of any type in the Nama-Karoo) or irreversibly transformed by building of dams (Houwater, Kalkfontein and Smart Syndicate Dams). *Prosopis glandulosa*, one of the 12 agriculturally most important invasive alien plants in South Africa, is widely distributed in this vegetation type (Hoffman *et al.* 1999). Erosion ranges from very low to moderate.

Besemkaree Koppies Shrubland

Besemkaree Koppies Shrubland is restricted to the Northern Cape, Free State and Eastern Cape Provinces. Within these provinces, it can be found on plains of Eastern Upper Karoo (between Richmond and Middelburg in the south and the Orange River) and within dry grasslands of the southern and central Free State. Additionally, there are also extensive dolerite-dominated landscapes along the upper Orange River that belong to this unit as well. It extends northwards to around Fauresmith in the northwest and to the Wepener District in the northeast. Altitude varies from 1120m to 1680m (Mucina & Rutherford, 2006).

In terms of vegetation and landscape features, this vegetation type is characterised by slopes of koppies, butts and tafelbergs covered with two-layered karroid shrublands. The lower closed-canopy layer is dominated by dwarf small-leaved shrubs and, especially in precipitation-rich years, also by abundant grasses, while the upper loose canopy layer is dominated by tall shrubs, including several *Rhus* species, *Euclea crispa* subsp. *ovata*, *Diospyros austro-africana* and *Olea europaea* subsp. *africana* (Mucina & Rutherford, 2006).

Important Plant Taxa in Besemkaree Koppies Shrubland

Mucina and Rutherford (2006) note that the following species are important taxa in the Besemkaree Koppies Shrubland:

- **Small Trees:** *Cussonia paniculata*, *Ziziphus mucronata*.
- **Tall Shrubs:** *Diospyros austro-africana*, *Euclea crispa* subsp. *ovata*, *Olea europaea* subsp. *africana*, *Rhus burchellii*, *R. ciliata*, *R. erosa*, *Buddleja saligna*, *Diospyros lycioides* subsp. *lycioides*, *Ehretia rigida*, *Grewia occidentalis*, *Gymnosporia polyacantha*, *Tarchonanthus minor*.
- **Low Shrubs:** *Asparagus suaveolens*, *Chrysocoma ciliata*, *Amphiglossa triflora*, *Aptosimum elongatum*, *Asparagus striatus*, *Diospyros pallens*, *Eriocephalus ericoides*, *E. spinescens*, *Euryops empetrifolius*, *Felicia filifolia* subsp. *filifolia*, *F. muricata*, *Helichrysum dregeanum*, *H. lucilioides*, *Hermannia multiflora*, *H. vestita*, *Lantana rugosa*, *Limeum aethiopicum*, *Lycium cinereum*, *Melolobium candicans*, *M. microphyllum*, *Nenax microphylla*, *Pegolettia retrofracta*, *Pentzia globosa*, *Rhigozum obovatum*, *Selago saxatilis*, *Stachys linearis*, *S. rugosa*, *Sutera halimifolia*, *Wahlenbergia albens*.
- **Succulent Shrubs:** *Aloe broomii*, *Chasmatophyllum musculinum*, *C. verdoorniae*, *Cotyledon orbiculata* var. *dactylopsis*, *Pachypodium succulentum*.
- **Graminoids:** *Aristida adscensionis*, *A. congesta*, *A. diffusa*, *Cenchrus ciliaris*, *Cymbopogon caesius*, *Cynodon incompletus*, *Digitaria eriantha*, *Eragrostis curvula*, *E. lehmanniana*, *Heteropogon contortus*, *Setaria lindenbergiana*, *Themeda triandra*, *Tragus koelerioides*, *Cymbopogon pospischilii*, *Enneapogon scoparius*, *Eragrostis chloromelas*, *E. obtusa*, *Eustachys paspaloides*, *Fingerhuthia africana*, *Hyparrhenia hirta*, *Sporobolus fimbriatus*.
- **Herbs:** *Convolvulus sagittatus*, *Dianthus caespitosus* subsp. *caespitosus*, *Gazania krebsiana* subsp. *krebsiana*, *Hibiscus pusillus*, *Indigofera alternans*, *I. rhytidocarpa*, *Lepidium africanum* subsp. *africanum*, *Pollichia campestris*.
- **Herbaceous Climber:** *Argyrolobium lanceolatum*.
- **Geophytic Herbs:** *Albuca setosa*, *Asplenium cordatum*, *Cheilanthes bergiana*, *C. eckloniana*, *Freesia andersoniae*, *Haemanthus humilis* subsp. *humilis*, *Oxalis depressa*, *Pellaea calomelanos*.
- **Succulent Herbs:** *Aloe grandidentata*, *Crassula nudicaulis*, *Duvalia caespitosa*, *Euphorbia pulvinata*, *Huernia piersii*, *Stapelia grandiflora*, *S. olivacea*, *Tridentea gemmiflora*.

Conservation Status

This vegetation is classified as Least Threatened because it is largely excluded from intensive agricultural activities. The conservation target is 28% and about 5% statutorily conserved in the Rolfontein, Tussen Die Riviere, Oviston, Gariep Dam, Caledon and Kalkfontein Dam Nature Reserves. Additionally, there is a small patch that is protected in the private Vulture Conservation Area. About 3% of the area has been transformed due to dams building. Erosion varies from low to high (Mucina & Rutherford, 2006).

Upper Gariep Alluvial Vegetation

Upper Gariep Alluvial Vegetation is limited to the Free State and Northern Cape Provinces. It occurs as broad alluvia along the Orange River, lower Caledon and lower stretches of the Vaal, Riet and Modder Rivers as far as Groblershoop. Altitudes range from 1000 to 1500 (Mucina & Rutherford, 2006).

Important Plant Taxa in Upper Gariep Alluvial Vegetation

Mucina and Rutherford (2006) note that the following species are important taxa in the Upper Gariep Alluvial Vegetation:

- **Small trees:** *Vachellia karroo*, *Celtis africana*, *Salix mucronata* subsp. *mucronata*.
- **Tall shrubs:** *Diospyros lycioides*, *Melianthus comosus*, *Searsia pyroides*.
- **Low shrubs:** *Asparagus setaceus*, *A. suaveolens*.
- **Woody Climber:** *Clematis brachiata*.
- **Succulent Shrubs:** *Lycium arenicola*, *L. hirsutum*.
- **Herbs:** *Rubia cordifolia*, *Cineraria dregeana*, *C. lobata*.
- **Graminoid:** *Melica decumbens*.

Conservation Status

This vegetation type is classified as Vulnerable because only about 3% is statutorily conserved in Tussen Die Riviere, Gariep Dam and Oviston Nature Reserves. Over 20% has been transformed for cultivation and dam construction. The invasion of several woody alien plant species has also become a problem in heavily disturbed alluvial vegetation patches, where they have become common dominants. It has a conservation target of 31% (Mucina & Rutherford, 2006).

b) Expected Flora Species

The POSA database indicates that 330 species of indigenous plants are expected to occur within the project area (The full list of species will be provided in the final report). One SCC based on their conservation status could be expected to occur within the project area and are provided in **Table 6.4** below. It is believed that additional SCC will be recorded in the assessment.

Table 7.4: Threatened flora species that may occur within the project area

Family	Taxon	Author	IUCN	Ecology
Aizoaceae	*Drosanthemum pulchrum*	L. Bolus	VU	Indigenous; Endemic

i. Desktop Faunal Assessment

a) Amphibians

Based on the IUCN Red List Spatial Data and FrogMap, 13 amphibian species are expected to occur within the area (The full list will be provided in the final assessment). One is regarded as threatened (**Table 7.5**).

Table 7.5: Threatened amphibian species that are expected to occur within the project area

Species	Common Name	Conservation Status		Likelihood of occurrence
		Regional (SANBI, 2016)	IUCN (2021)	
Pyxicephalus adspersus	Giant Bullfrog	NT	LC	Moderate

Giant Bull Frog (*Pyxicephalus adspersus*) is listed as NT on a regional scale. It is a species of drier savannas where it is fossorial for most of the year, remaining buried in cocoons. They emerge at the start of the rains,

and breed in shallow, temporary waters in pools, pans and ditches (IUCN, 2017). This species has a moderate likelihood of occurrence in the project area, due to the presence of wetlands within the project area.

b) Reptiles

Based on the IUCN Red List Spatial Data and the ReptileMAP database, 40 reptile species are expected to occur within the area (The full list will be provided in the final assessment). One is regarded as threatened (**Table 6.6**).

Table 6.6: Threatened reptile species that are expected to occur within the project area

Species	Common Name	Conservation Status		Likelihood of Occurrence
		Regional (SANBI, 2016)	IUCN (2021)	
Psammobates tentorius	Tent Tortoise	NT	NT	Moderate

Tent Tortoise (*Psammobates tentorius*) is classified as NT both regionally and internationally. This species is endemic to South Africa and Namibia, where it is found in dwarf shrublands with succulents, annuals, grasses and geophytes of the Nama-Karoo, Succulent Karoo, Fynbos and Albany Thicket. The likelihood of occurrence is moderate because the project area is within the Northern Nama-Karoo vegetation type, which has succulents and grasses for food.

c) Mammals

The IUCN Red List Spatial Data lists 59 mammal species that could be expected to occur within the area (The full list will be provided in the final assessment). This list excludes large mammal species that are normally restricted to protected areas. Nine of these expected species are regarded as threatened (Table 7.7), of which one has a low likelihood of occurrence based on the lack of suitable habitat in the project area.

Table 6.7: Threatened mammal species that are expected to occur within the project area

Species	Common Name	Conservation Status		Likelihood of occurrence
		Regional (SANBI, 2016)	IUCN (2021)	
Atelerix frontalis	South Africa Hedgehog	NT	LC	High
Eidolon helvum	African Straw-colored Fruit Bat	LC	NT	Moderate
Felis nigripes	Black-footed Cat	VU	VU	Moderate
Hydrictis maculicollis	Spotted-necked Otter	VU	NT	High
Leptailurus serval	Serval	NT	LC	High
Panthera pardus	Leopard	VU	VU	High
Parahyaena brunnea	Brown Hyaena	NT	NT	Moderate
Poecilogale albinucha	African Striped Weasel	NT	LC	Low
Redunca fulvorufula	Mountain Reedbuck	EN	LC	High

d) Avifauna

The SABAP2 Data lists 197 avifauna species that could be expected to occur within the area. Fourteen of these expected species are regarded as threatened (**Table 6.8**). Three of the species have a low likelihood of occurrence due to lack of suitable habitat and food sources in the project area.

Table 6.8: Threatened avifauna species that are expected to occur within the project area

Species	Common Name	Conservation Status		Likelihood of occurrence
		Regional (SANBI, 2016)	IUCN (2021)	
Anthus crenatus	African Rock Pipit	NT	NT	High
Ardeotis kori	Kori Bustard	NT	NT	High
Cursorius rufus	Burchell's Courser	VU	LC	High
Eupodotis caerulescens	Blue Korhaan	LC	NT	High
Falco biarmicus	Lanner Falcon	VU	LC	High
Glareola nordmanni	Black-winged Pratincole	NT	NT	Low
Grus paradisea	Blue Crane	NT	VU	Moderate
Gyps coprotheres	Cape Vulture	EN	EN	High
Heterotetrax vigorsii	Karoo Korhaan	NT	LC	High
Monticola explorator	Sentinel Rock Thrush	LC	NT	High
Neotis ludwigii	Ludwig's Bustard	EN	EN	High
Phoeniconaias minor	Lesser Flamingo	NT	NT	Low
Phoenicopterus roseus	Greater Flamingo	NT	LC	Low
Sagittarius serpentarius	Secretarybird	VU	EN	High

i. Ecosystem Threat Status

The Ecosystem Threat Status is an 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. According to the spatial dataset the proposed project overlaps with a LC ecosystem (**Figure 6.8**).

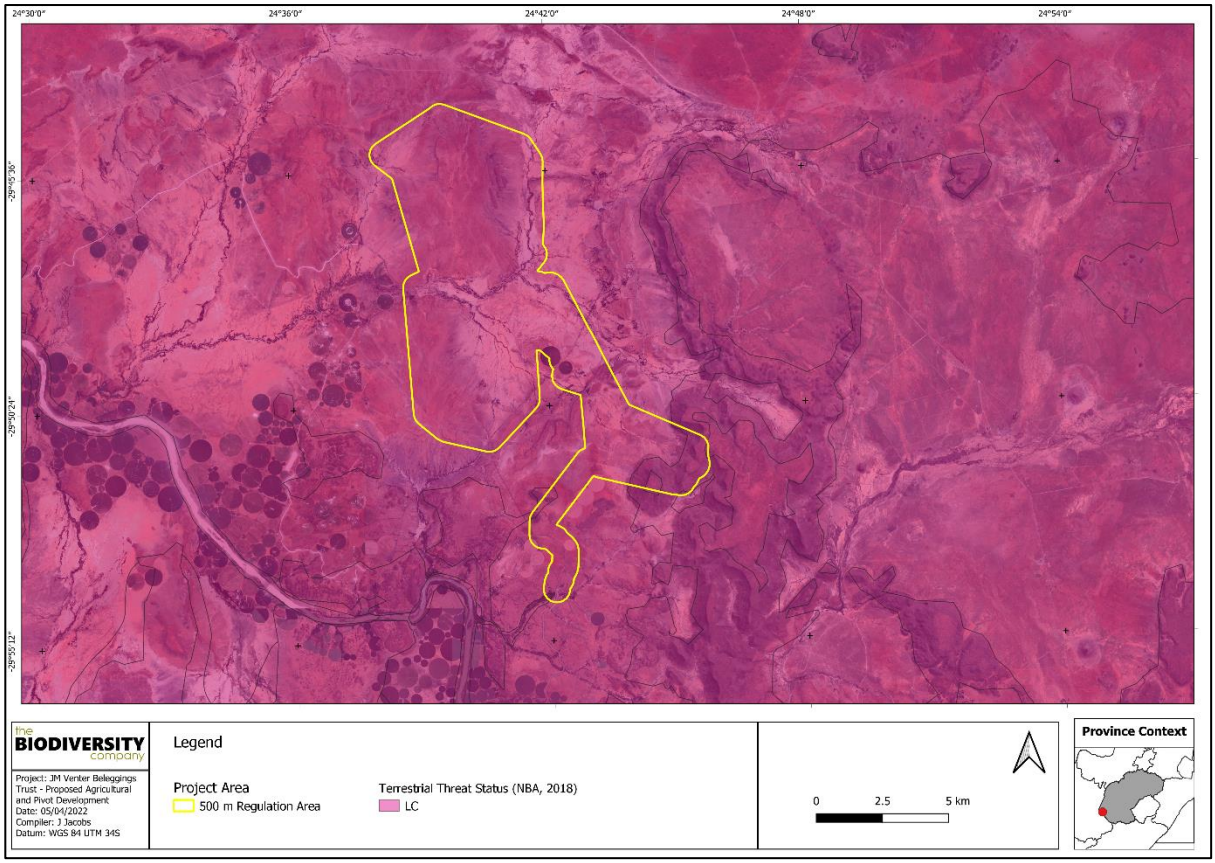

Figure 6.8: Map illustrating the ecosystem threat status associated with the project area

ii. Ecosysetm protection level

This is an indicator of the extent to which ecosystems are adequately 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. NP, PP or MP ecosystem types are collectively referred to as under-protected ecosystems. The proposed project overlaps mainly with a NP ecosystem, followed by a PP ecosystem (**Figure 6.9**).

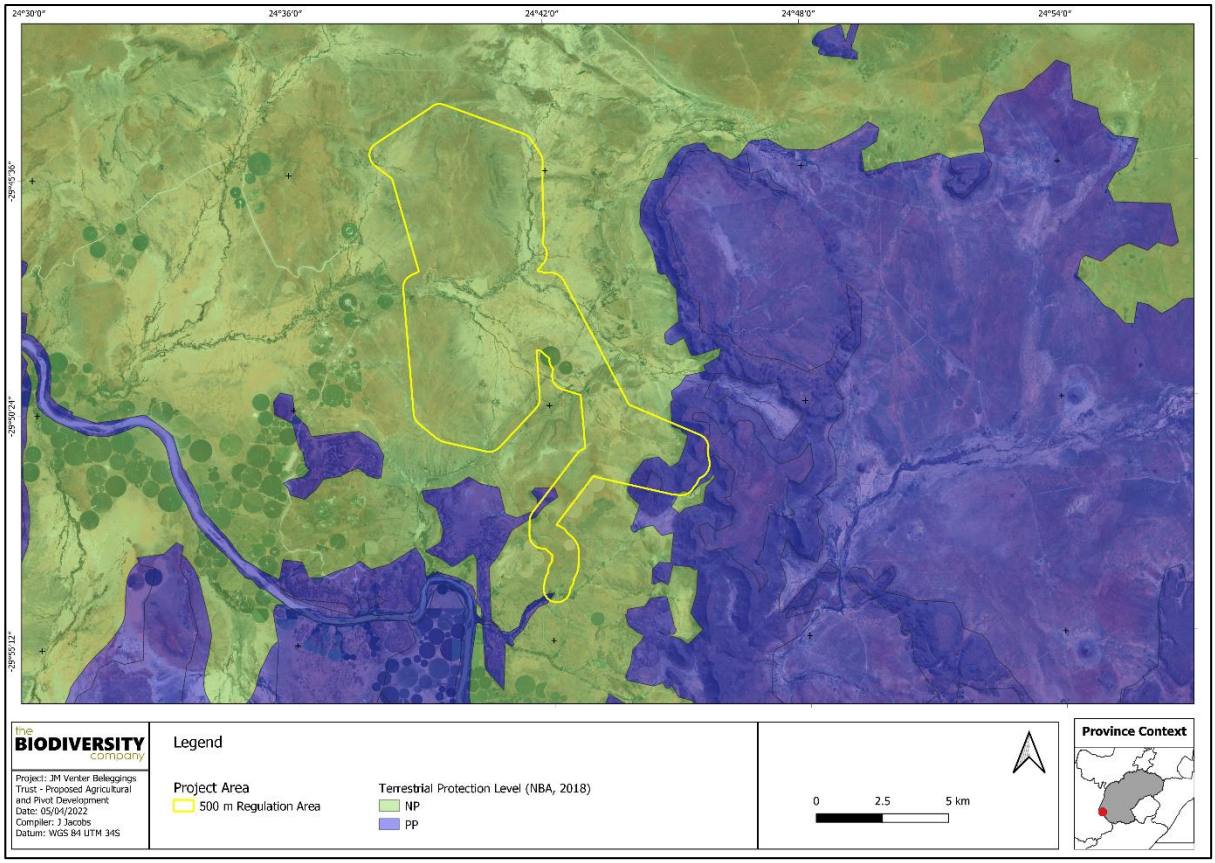

Figure 6.9: Map illustrating the ecosystem protection level associated with the project area

iii. Critical Biodiversity Areas and Ecological Support Areas

The conservation of CBAs is crucial, in that if these areas are not maintained in a natural or near-natural state, biodiversity conservation targets cannot be met. Maintaining an area in a natural state can include a variety of biodiversity compatible land uses and resource uses (SANBI-BGIS, 2017).

The purpose of the Free State Biodiversity Sector Plan (2016) is to inform land-use planning and development on a provincial scale and to aid in natural resource management. One of the outputs is a map of Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs). These are classified into different categories, namely Protected Areas, CBA1 areas, CBA2 areas, ESA1 areas, ESA2 areas, Other Natural Areas (ONAs) and areas with No Natural Habitat Remaining (NNR) based on biodiversity characteristics, spatial configuration, and requirements for meeting targets for both biodiversity patterns and ecological processes.

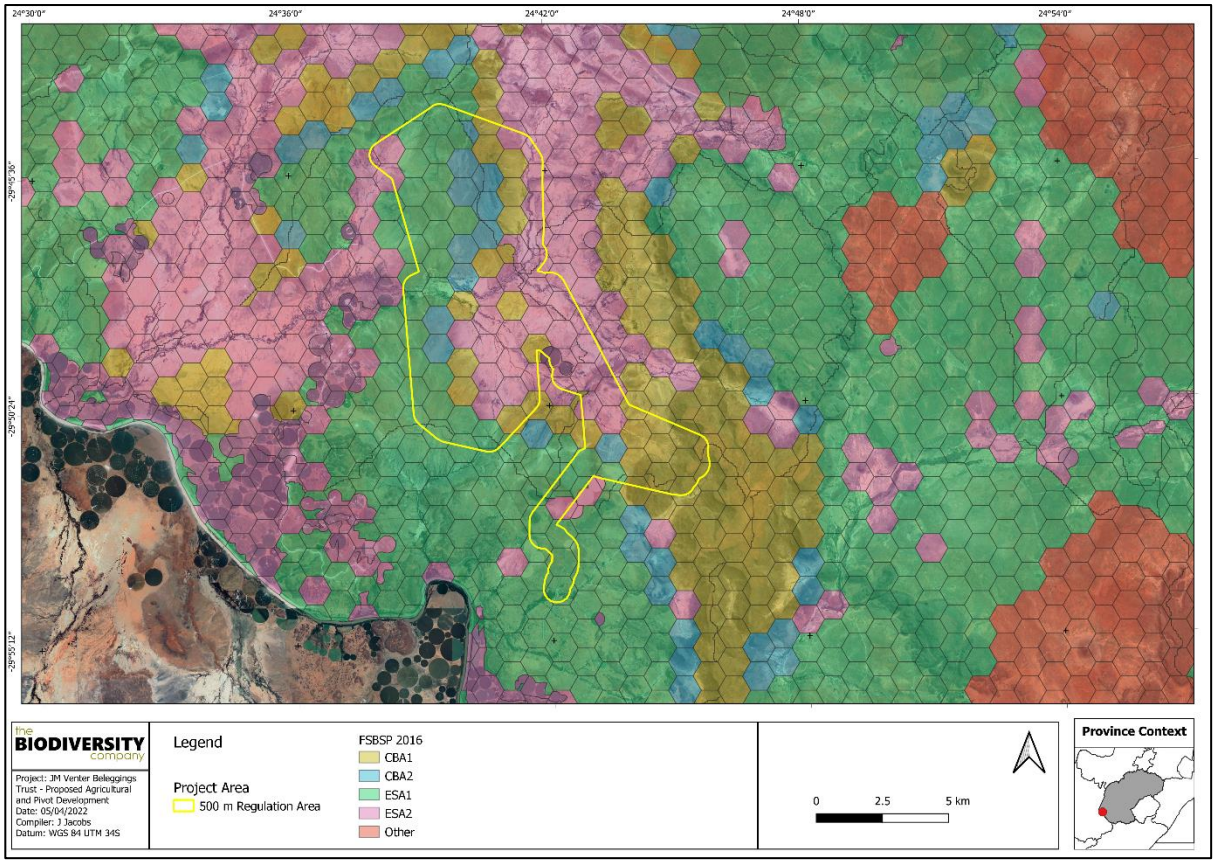

Figure 6.10: Map illustrating the locations of CBAs in the project area

iv. Protected Areas

According to the protected area spatial datasets from SAPAD (2021) and SACAD (2021), the project area does not overlap with any protected areas or conservation areas. However, the project area is located approximately 2 km northwest from Tuinhoek Reserve and Grasberg Reserve (the two reserves overlap almost identically) **(Figure 6.11**). Thus, the project area is located within the 5 km Protected Area Buffer Zones of two protected areas.

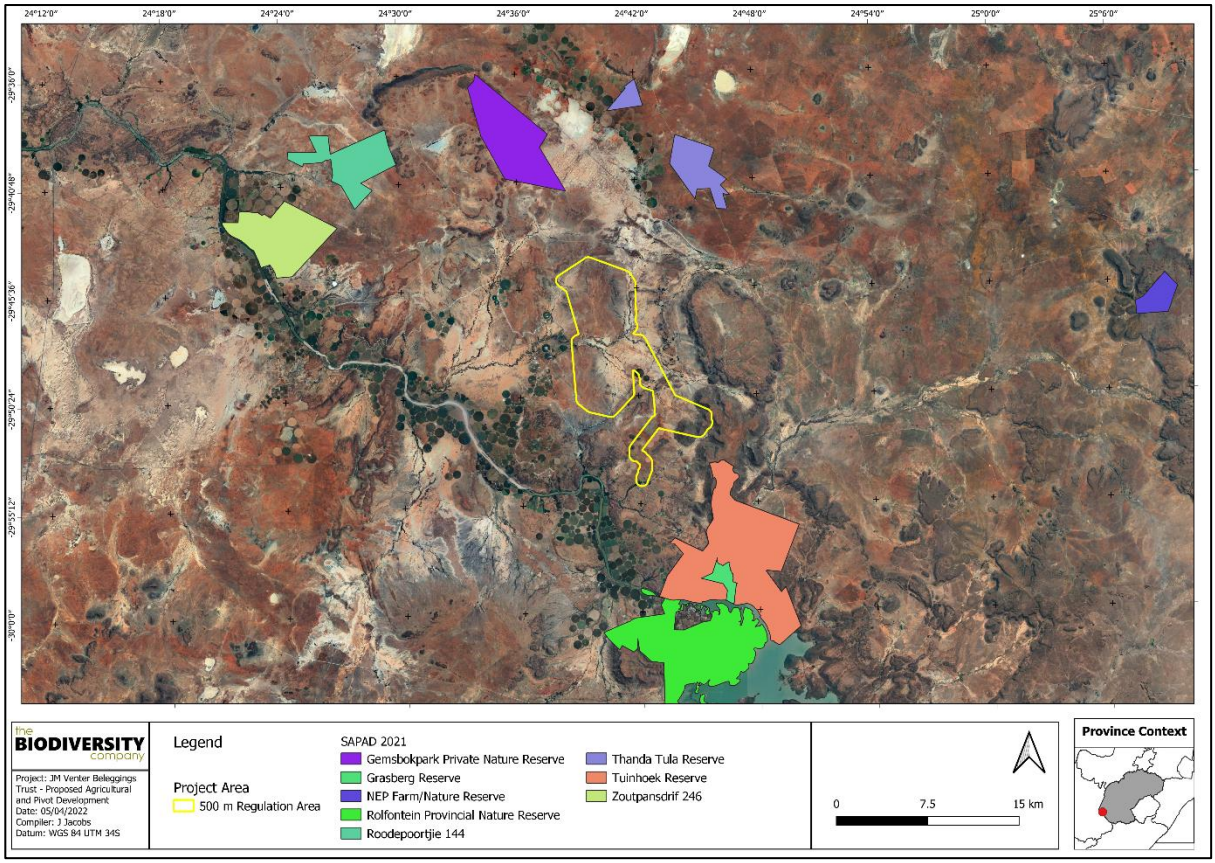

Figure 6.11: The project area in relation to the nearest protected

v. National Protected Area Expansion Strategy

National Protected Area Expansion Strategy 2016 (NPAES) areas were identified through a systematic biodiversity planning process. They present the best opportunities for meeting the ecosystem-specific protected area targets set in the NPAES and were designed with a strong emphasis on climate change resilience and requirements for protecting freshwater ecosystems. These areas should not be seen as future boundaries of protected areas, as in many cases only a portion of a particular focus area would be required to meet the protected area targets set in the NPAES. They are also not a replacement for fine scale planning which may identify a range of different priority sites based on local requirements, constraints and opportunities (NPAES, 2016). The project area overlaps with a NPAES priority focus area as can be seen in **Figure 6.12**.

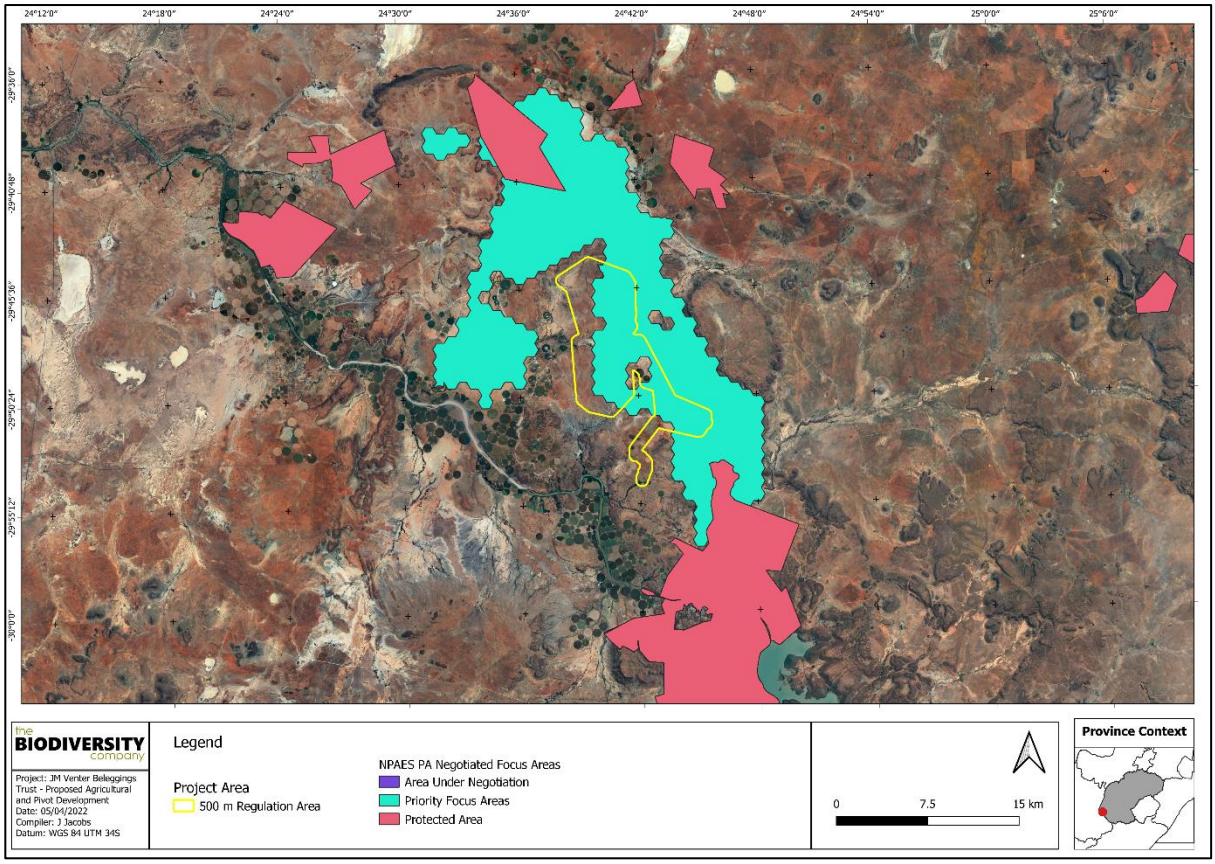

Figure 6.12: The project area in relation to the nearest IBAs

vi. Hydrological Setting

The South African Inventory of Inland Aquatic Ecosystems (SAIIAE) was released with the NBA 2018. Ecosystem threat status (ETS) of river and wetland ecosystem types are based on the extent to which each river ecosystem type had been altered from its natural condition. Ecosystem types are categorised as CR, EN, VU or LT, with CR, EN and VU ecosystem types collectively referred to as 'threatened' (Van Deventer *et al.,* 2019; Skowno *et al.,* 2019). The project area overlaps with EN NBA rivers as well as CR NBA wetlands and a VU NBA wetland (**Figure 6.13**). Additionally, the project area is adjacent to LT NBA rivers and CR NBA wetlands.

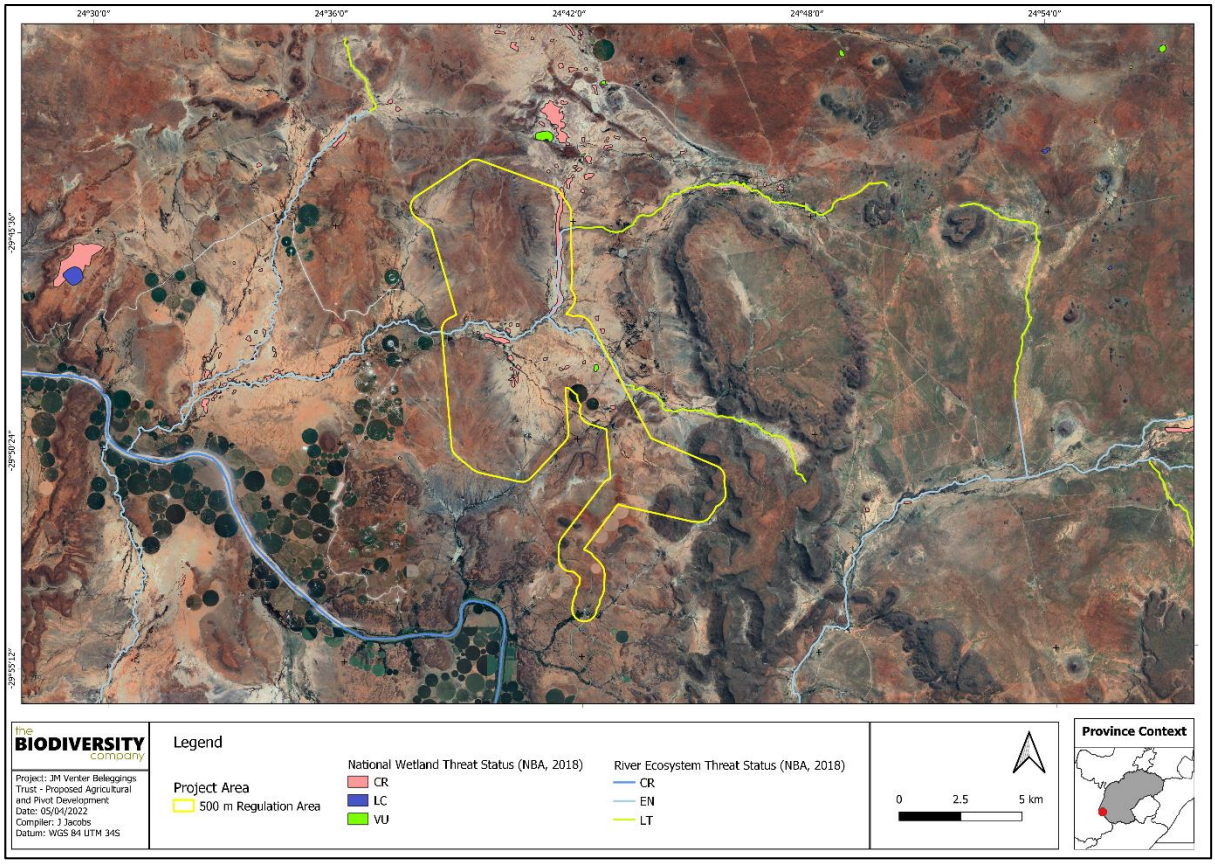

Figure 6.13: Map illustrating ecosystem threat status of rivers and wetland ecosystems in the project area

vii. National Freshwater Ecosystem Priority Area Status

In an attempt to better conserve aquatic ecosystems, South Africa has categorised its river systems according to set ecological criteria (i.e., ecosystem representation, water yield, connectivity, unique features, and threatened taxa) to identify Freshwater Ecosystem Priority Areas (FEPAs) (Driver *et al.,* 2011). The FEPAs are intended to be conservation support tools and envisioned to guide the effective implementation of measures to achieve the National Environment Management Biodiversity Act's (NEM:BA) biodiversity goals (Nel *et al.,* 2011). **Figure 6.14**shows the project area overlaps with both unclassified FEPA wetlands and true FEPA wetlands.

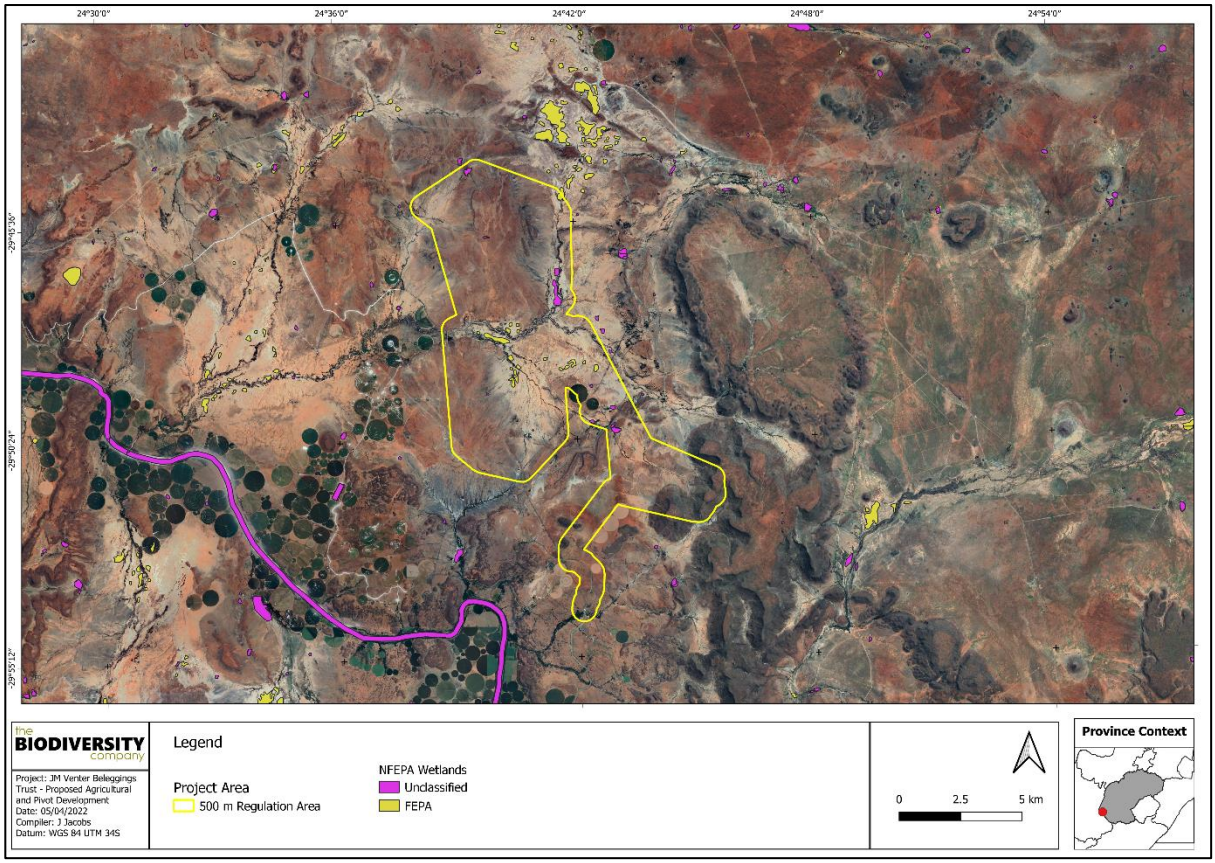

Figure 6.14: The project area in relation to the National Freshwater Ecosystem Priority Areas.

viii. Important Bird and Biodiversity Area

Important Bird & Biodiversity Areas (IBAs) are the sites of international significance for the conservation of the world's birds and other conservation significant species as identified by Birdlife International. These sites are also all Key Biodiversity Areas; sites that contribute significantly to the global persistence of biodiversity (Birdlife, 2017).

According to Birdlife International (2017), the selection of IBAs is achieved through the application of quantitative ornithological criteria, grounded in up-to-date knowledge of the sizes and trends of bird populations. The criteria ensure that the sites selected as IBAs have true significance for the international conservation of bird populations and provide a common currency that all IBAs adhere to, thus creating consistency among, and enabling comparability between, sites at national, continental and global levels.

Figure 6.15 shows that the project area is located 3.25 km northeast from the Platberg-Karoo Conservancy.

The Platberg–Karoo Conservancy IBA covers the entire districts of De Aar, Philipstown and Hanover, including suburban towns, and consists of extensive flat to gently undulating plains that are broken by dolerite hills and flat-topped inselbergs. It is used mainly for grazing and agriculture (Birdlife South Africa, 2015).

This IBA is important because it contributes significantly to the conservation of large terrestrial birds as well as raptors. These birds include Blue Crane (*Anthropoides paradiseus*), Ludwig's Bustard (*Neotis ludwigii*), Kori Bustard (*Ardeotis kori*), Blue Korhaan (*Eupodotis caerulescens*), Black Stork (*Ciconia nigra*),

Secretarybird (*Sagittarius serpentarius*), Martial Eagle (*Polemaetus bellicosus*), Verreaux's Eagle (*Aquila verreauxii*) and Tawny Eagle (*A. rapax*) (Birdlife South Africa, 2015).

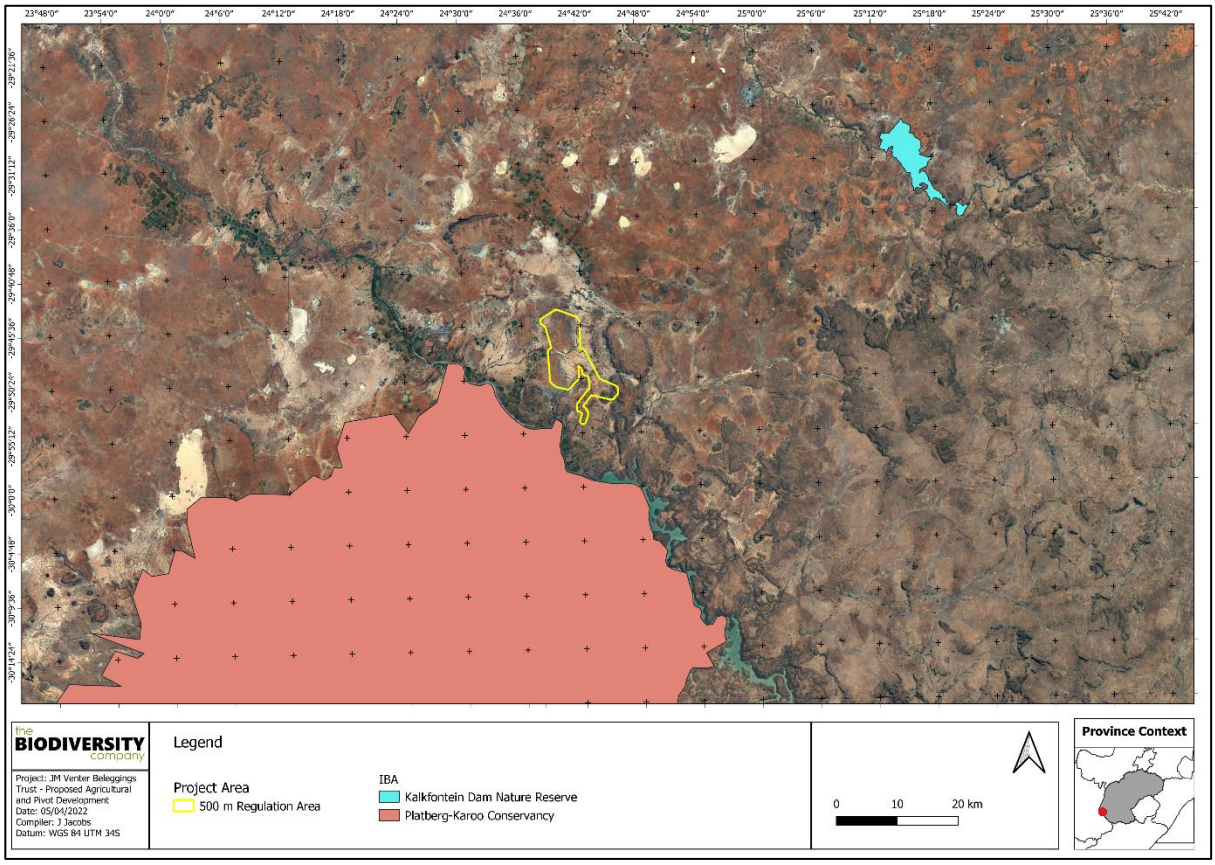

Figure 6.15: The project area in relation to the nearest IBAs

6.5. Integrated Heritage including Archaeology and Palaeontology

6.5.1. Archaeology

Very few Heritage Impact Assessments have been completed in the area according to the South African Heritage Resources Information System (**SAHRIS**, **Figure 6.16**) and very few heritage resources are known from the vicinity of the development (**Figure 6.17**). According to Morris (2008), "*The Northern Cape has a wealth of archaeological sites (Beaumont & Morris 1990; Morris & Beaumont 2004), with locales along and adjacent to the major river systems being of particular significance. Stone Age material found in the broader region spans the Earlier, Middle and Later Stone Ages through Pleistocene and Holocene times. Late Holocene material with pottery is known to occur on the riverbanks, while rock engravings are richly distributed in the region (Wilman 1933; Fock & Fock 1989; Morris 1988). A particularly notable rock engraving is known from the farm Kraai Bosch, while others occur on the hills near Petrusville*."

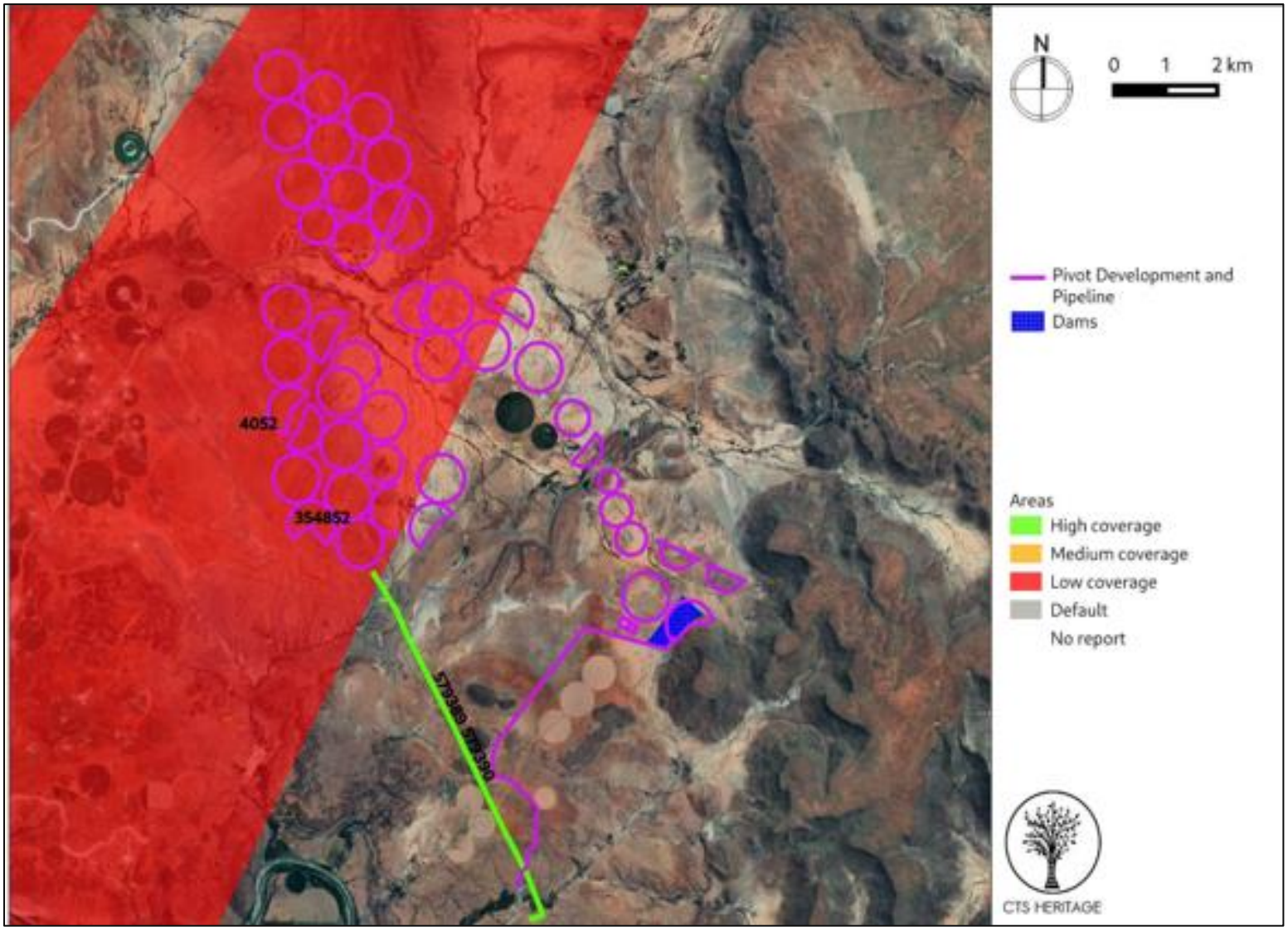

Figure 6.16: Previous Heritage Impact Assessments covering the proposed development area with SAHRIS NIDS indicated

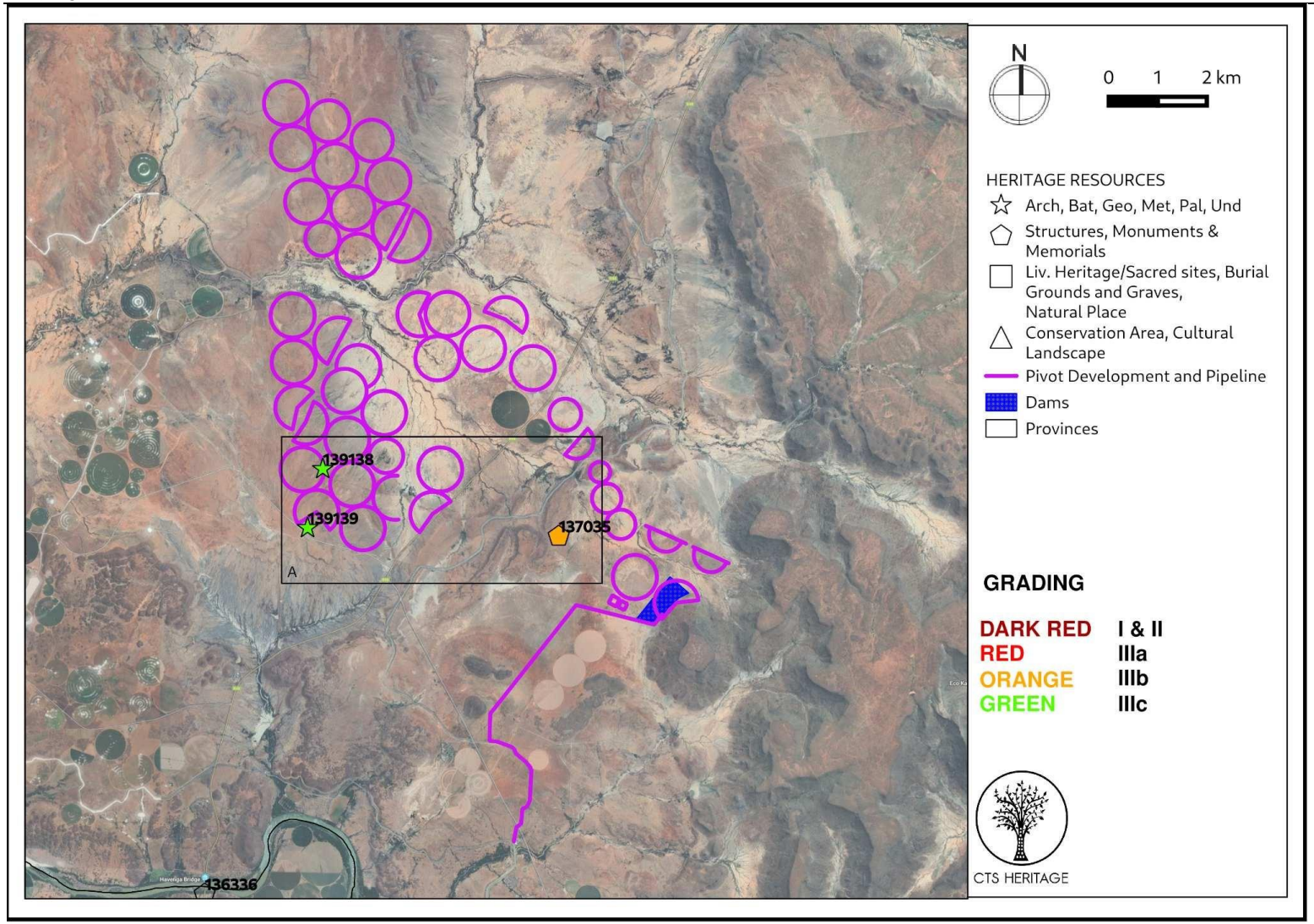

Figure 6.17: Heritage Resources previously identified within the study area, with SAHRIS Site IDs

6.5.3. Palaeontology

According to the SAHRIS Palaeo sensiitvity Map, the area proposed for development is underlain by sediments of low, moderate and high palaeontological sensitivity.

According to the extract from the Council for GeoScience Map 2924 for Koffiefontein, the area is underlain by Jurassic Dolerite (zero paleontological sensitivity) and Quaternary Sands (moderate and high sensitivity). According to the Desktop Palaeontological Assessment completed by Bamford (2021) for a grid connection project located in the immediate vicinity of this development, the proposed development is positioned within "a mix of potentially fossiliferous (trace fossils) Tierberg Formation (Ecca Group, Karoo Supergroup), Jurassic dolerite and on the Quaternary aeolian sands and calcretes that are non-fossilferous unless there are traps for fossils such as paleo-pans or palaeo-springs. No such feature is visible on the satellite imagery."

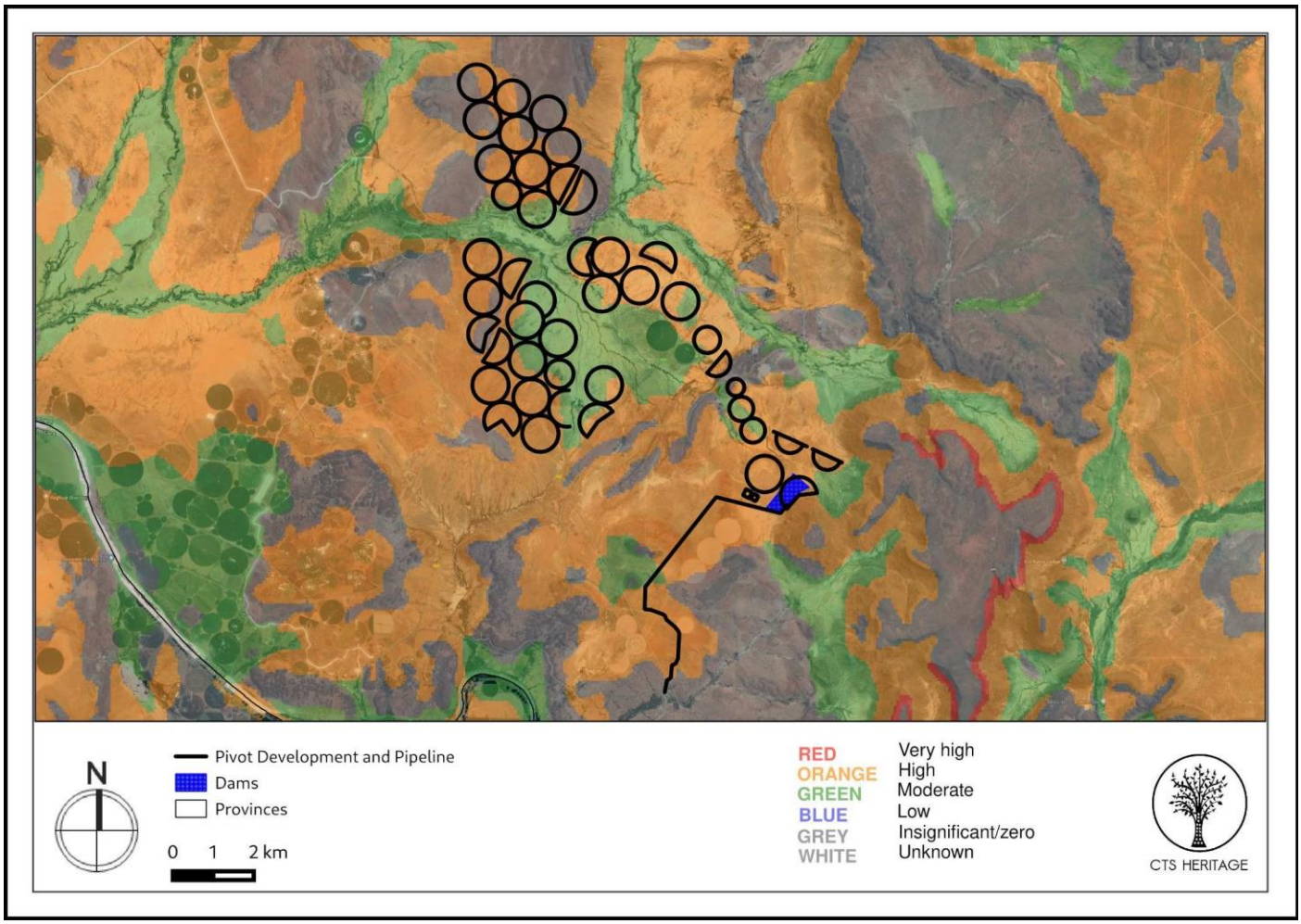

Figure 6.18: **Palaeo sensitivity Map**. Indicating fossil sensitivity underlying the project site

6.6. Socio-economic environment

Table 4.2 provides a baseline summary of the socio-economic profile of the Letsemeng LM within which the JN Venter Beleggings Trust Agricultural Development is located. In order to provide context against which the LM's socio-economic profile can be compared, the socio-economic profiles of the Xhariep DM,

Free State Province, and South Africa as a whole have also been considered. The data presented in this section have been derived from the 2011 Census, the Local Government Handbook South Africa 2019, and the Xhariep DM and Letsemeng LM IDPs.

Table 6.9.: Baseline description of the socio-economic characteristics of the area within which the JN Venter Beleggings Trust Agricultural Development

Location characteristics
» The project is proposed within the Free State Province, which is the third-largest province in South Africa and has the second-smallest population and the second lowest population density. » The project is proposed within the Letsemeng LM of the Xhariep DM. » The Letsemeng LM is approximately 9 826km² in extent, whilst Xhariep is 34 250km² in extent.
Population characteristics
» According to the Statistics SA Letsemeng had a population growth per annum of 0.82%. the total population is 40 444 which is about one-third of the figure in Xhariep (125,884). » From the StatsSA in 2016 it shows that males were more than females in age group 15-34, 35-64 and females were more than males in age groups 1-14,65+ (adults) » Males have the highest portion, particularly the highest portion are the males in the youth between 15-34. » For every 100 (ages 15-64) the dependency ratio in 2016 was 111.8 whilst in 2011 it was 105.7. » The growth rate according to 2011 census data is -1.04% (between 2001-2011)
Economic, education and household characteristics
» In terms of houses/brick structures on a separate stand dominate by far in all urban areas (83%0 » Second largest number of households type is shacks (14%) » The vast majority live in dwellings that are fully paid off (66%); 12% occupy their dwellings rent free and 11% rent through a private individual. » There is 36.6% rate on employment which is about the same as the rate in Xhariep 36.47%. » Discouraged work-seeker is about 7% (1,745), other not economically active is 46% (11,518), unemployed 10,5% (2,624). » The annual income average is R15 000 which is about the same as the amount in Xhariep (R15 000) » Those that earn between R10k – R20K is about 31% (the highest). » 57.6% have completed Grade 9 or higher which is about the same as rate in Xhariep (56.38%) » 31.9% completed matric or higher which is about the same rate in Xhariep 31.7%. » Employment for those between 15-17 years is about R7 500 an average annual income of employed about the same as the amount in Xhariep R1 500. » 14% of children between 15 and 17 are in the labour force which is a little higher than the rate in Xhariep (13.28%).
Services
» 78.3% are getting water from a regional or local service provider which is about 90 percent of the rate in Xhariep (85.7%). » Those with piped water inside the house is 47.1% (18,875); piped water inside yard is 46.1% (18,455); borehole in yard 2.2% (869; borehole outside yard is 1.8% (710) and other is 2.8% (1,136). » 2.4% have no access to electricity which is about three quarters of rate in Xhariep (3.23%) » Those with in-house prepaid meter is 79.2% (31,728); in-house conventional meter is 13.3% (5,324); other source (no paying for) is 3.1% (1,234); no access to electricity is about 2.4% (942) whilst on other is 2% (816) » 87.2% have access to flush or chemical toilets a little less than rate in Xhariep (90.4%).

- 1.4% have no access to any toilets which is about half the rate in Xhariep 2.73%.
- 61.1% are getting refuse disposal from a local authority, private company or community members about 80 percent of the rate in Xhariep (75.22%).

CHAPTER 7: SCOPING OF POTENTIAL ISSUES

This chapter serves to describe environmental issues and potential impacts (direct, indirect, and cumulative impacts) that have been identified to be associated with the development of the JN Venter Beleggings Trust Agricultural Development and associated infrastructure, and to make recommendations for further studies required to be undertaken in the EIA Phase. The scoping process has involved the review of existing information (including previous detailed studies undertaken), limited field work, input from the project proponent and specialist consultants.

Environmental issues associated with construction, operation and decommissioning activities of the project may include, among others, impacts on biodiversity (fauna, flora, and ecological integrity), loss of habitat, soil erosion, pollution by agricultural chemicals, change to ambient noise levels, and impacts on, and/or benefits to the social environment and current land use. Benefits during both the construction and operation phases include the support of local job opportunities through support of local businesses in the procurement of materials, equipment, and services to be used in the construction and operation of the proposed agricultural development. The project will contribute to local economic development of the area and surrounding towns.

The development area considered for the proposed JN Venter Beleggings Trust Agricultural Development and Associated Infrastructures include 3 interlinked properties which make up a total area of 3887ha combined, with 2690ha area considered for the proposed development and which has been investigated during this Scoping Phase to determine the environmental suitability of the site. This will provide an indication of the areas of sensitivity that the developer would need to take into consideration in the planning of the placement of the proposed activities within the development footprint.

Section 7.2 provides a summary of the findings of the desktop scoping study undertaken for the construction, operation and decommissioning phases of the agricultural development and associated infrastructures. Those impacts associated with construction can also be expected to be associated with the decommissioning phase (however, to a lesser extent as the development footprint would have previously undergone transformation and disturbance during construction phase). More detail regarding potential impacts is included in the specialist scoping reports included in Appendix **D**-**G**.

A summary of the potential cumulative impacts that may be associated with the project is provided in **Section 7.3**. These impacts are associated with the scale of the project when considered together with other similar developments within the region and will be confirmed and assessed within the EIA Phase of the project.

7.1. Legal Requirements as per the EIA Regulations, 2014 (as amended) for the undertaking a Scoping Report

This chapter includes the following information required in terms of the EIA Regulations, 2014 - Appendix 2: Content of the Scoping Report:

Requirement	Relevant Section
(g)(v) the impacts and risks which have informed the identification of each alternative, including the nature, significance, consequence, extent, duration and probability of such identified impacts, including the	The impacts and risks identified to be associated with the construction and operation phase of JN Venter Beleggings Agricultural Development have been included in **Section 7.3.** Impact tables have been included for

Requirement	Relevant Section
degree to which these impacts (aa) can be reversed (bb) may cause irreplaceable loss of resources and (cc) can be avoided, managed or mitigated.	each field of study which considers the nature, significance, consequence, extent, duration and probability of the impacts, as well the reversibility of the impacts, the loss of resources and avoidance, management or mitigation.
(g)(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.	The positive and negative impacts associated with the JN Venter Beleggings Agricultural Development have been included in **Section 7.3.**
(g)(viii) the possible mitigation measures that could be applied and level of residual risk	Possible mitigation (specifically relating to the avoidance of sensitive areas) has been included in **Section 7.3.**

7.2. Evaluation of Potential Impacts associated with the Construction Phase, Operation and Decommissioning phases

7.2.1. Impacts on ecology (including flora and fauna)

The terrestrial habitat expected in the project area consists mainly of Northern Upper Karoo. It is also believed that, due to the mostly natural state of the area, species of conservation concern (SCCs) will be recorded. Portions of the project area are classified as CBA1, CBA1, ESA1 and ESA2. The project area also overlaps with endangered rivers, critically endangered wetlands and a vulnerable wetland. The importance of these areas is highlighted by the number of fauna SCCs expected (25). A total of 14 fauna SCCs were given a high likelihood of occurrence, while a further six were given a moderate likelihood of occurrence. Based on the desktop assessment information it can be said that majority of the project area will have a high sensitivity rating.

Land clearing destroys local wildlife habitat and can lead to the loss of local breeding grounds, nesting sites and wildlife movement corridors such as rivers, streams and drainage lines, or other locally important features. Impacts associated with the construction, operation, and decommissioning phases of the proposed JN Venter Beleggins agricultural development and associated infrastructure on ecology include the following:

- Destruction, fragmentation and degradation of habitats and ecosystems
- Spread and/or establishment of alien and/or invasive species
- Direct mortality of fauna
- Reduced dispersal/migration of fauna
- Environmental pollution due to water runoff, spills from vehicles and erosion
- Disruption/alteration of ecological life cycles (breeding, migration, feeding) due to noise, dust, heat radiation and light pollution.
- Staff and others interacting directly with fauna (potentially dangerous) or poaching of animals.

Sensitivity Analysis of the Site

The National Web based Environmental Screening Tool has characterised the terrestrial theme sensitivity of the project area as "Very High". The terrestrial biodiversity theme is Very High for the project area, with the possibility of a CBA1, CBA2, ESA1, ESA2, Grasberg Reserve, Tuinhoek Reserve and a Protected Areas Expansion Strategy area being present. The plant species theme is Medium for the project area, with the possibility of *Tridentea virescens* (Not listed in IUCN) being present; and animal species theme is High for the project area, with the possibility of *Redunca fulvorufula* (EN), *Hydrictis maculicollis* (NT) *Neotis ludwigii* (EN) and *Aquila verreauxii* (LC) being present.

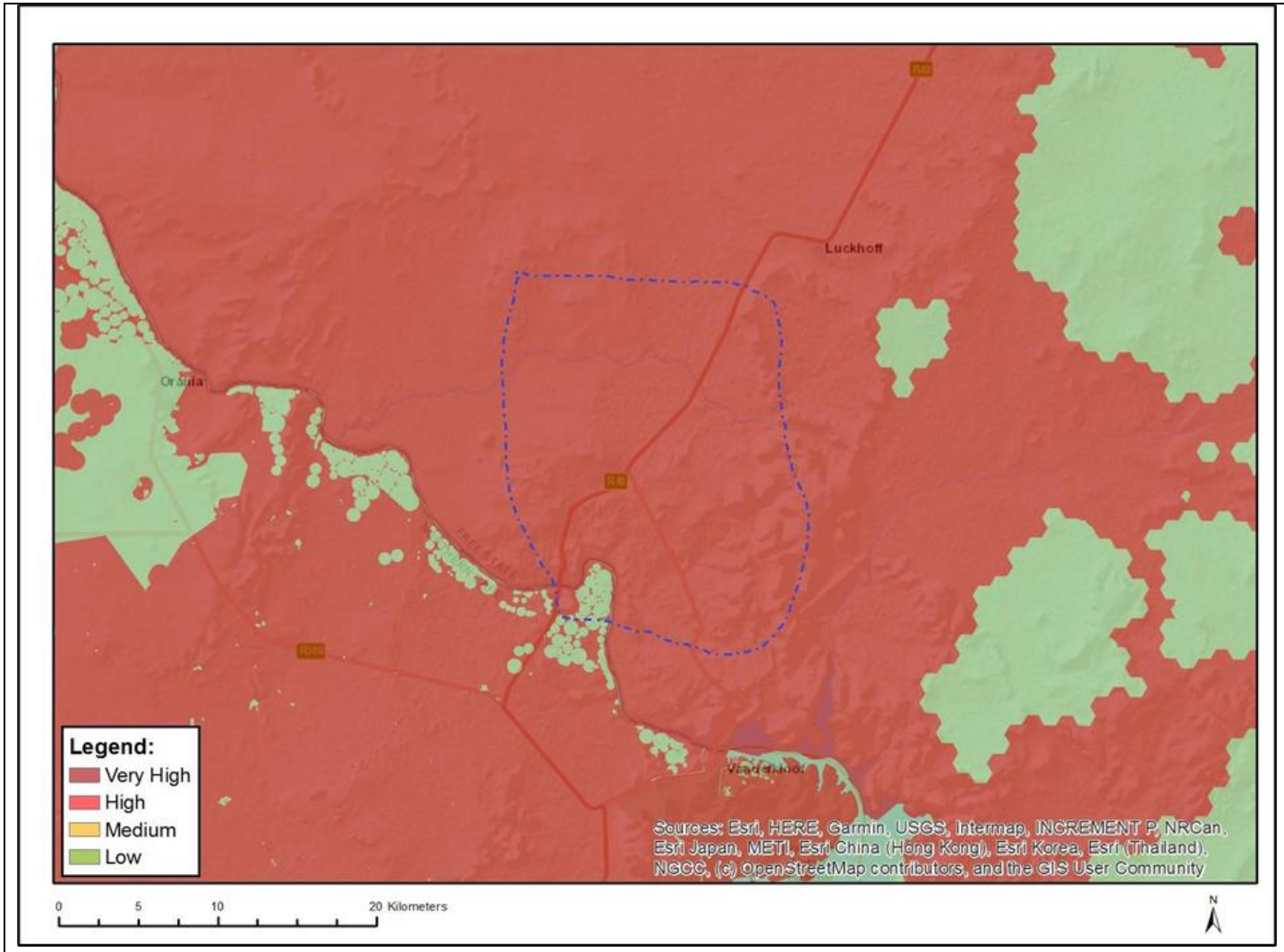

Figure 7.1. Preliminary ecological sensitivity map of the project area as per the DFFE Screening Tool

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Destruction, fragmentation and degradation of habitats and ecosystems	**Construction Phase Impacts** Direct impacts: » Disturbance / degradation / loss to vegetation and habitats » Ecological corridors are disrupted » Habitat fragmentation Indirect impacts: » Erosion risk increases » Fire risk increases » Increase in invasive alien species **Operation Phase Impacts** Direct impacts: » Habitat loss in the areas to be cleared for cultivation, solar PV and the dam and change in faunal species composition onsite. Indirect impacts: » Possible further spreading of alien plant species or bush encroachment by indigenous trees due to disturbance of natural vegetation » Continued runoff and erosion due to the bare soil in-between ploughing rows and presence of hard surfaces that change the infiltration and runoff properties of the landscape. » Changes to behavioural patterns of animals, including possible migration away or towards the project area. **Decommissioning Phase Impacts** Direct impacts: » Loss and disturbance of natural vegetation due to the removal of infrastructure and need for working sites. » Direct mortality of fauna due to machinery, construction, and increased	Regional	Water resources and buffer area

Issue	Nature of Impact	Extent of Impact	No-Go Areas
	traffic. » Displacement and/or disturbance of fauna due to increased activity and noise levels. <u>Indirect impacts:</u> » Continued establishment and spread of alien invasive plants to due vegetation clearance. Continued runoff and erosion due to the bare soil in-between ploughing rows and presence of hard surfaces that change the infiltration and runoff properties of the landscape. » Changes to behavioural patterns of animals, including possible migration away or towards the project area.		

Description of expected significance of impact

The development of the area could result in the loss or degradation of the habitat and vegetation, most of which is still in a natural condition and supports a number of fauna species. The construction of the agricultural development could also lead to the displacement/mortalities of the fauna and more specifically SCC fauna species. The operation of the facility could result in the disruption of ecological life cycles. This could be because of several things, but mainly due to dust, noise and light pollution. The disturbance of the soil/vegetation layer will allow for the establishment of flora alien invasive species, the new infrastructure in turn will provide refuge for invasive/feral fauna species. Erosion is another possible impact that could result from the disturbance of the topsoil and vegetation cover. A number of machines, vehicles and equipment will be required, aided by chemicals and concrete mixes for the project. Leaks, spillages or breakages from any of these could result in contamination of the receiving water resources. Contaminated water resources are likely to have an effect on the associated biota.

Gaps in knowledge & recommendations for further study

- This study is completed at a desktop level only.
- Identification and descriptions of habitats.
- Identification of the Site Ecological Importance.
- Location and identification of SCCs as well as in the case of fauna their location of the nests/dens.
- Determine a suitable buffer width for the identified features.

Recommendations with regards to general field surveys

- Field surveys to prioritise the development areas.
- Fieldwork to be undertaken during the wet season period.

7.2.2. Impacts on Freshwater Features

Impacts on Freshwater features

Both riverine and wetland areas are expected in the project area. Although they may be limited, these systems are expected to be characterised by alluvial (riverine) and hydromorphic properties, with supporting riparian and hydrophytic vegetation.

The proposed project is likely to result in the loss of some wetland areas due to the placement of pivots in these areas. Infrastructure will also traverse watercourses but the significance of the impact resulting from this is considered to be negligible. The abstraction of water for irrigation is likely to result in altered flows from the donor system, but this will also contribute to altered surface flow dynamics. The agricultural project may also contribute to erosion of the catchment, resulting in sedimentation of the receiving watercourses. Run-off from the catchment during the operation phase of the project could also result in impaired water quality in the event fertilisers and non-organics are used for the production.

Sensitivity Analysis of the Site

According to the SAIIAE dataset, river systems classified as Endangered (EN) and Least Threatened (LT) are both located in proximity to the project area. The NWM5 database does recognise the presence of wetlands within the extent of the project area, these are predominantly classified as Critically Endangered (CR). The aquatic biodiversity theme sensitivity as indicated in the screening report indicates some "Very High" sensitivity area, but predominantly areas of "Low" sensitivity (**Figure 7.2**). These "Very High" sensitivities are attributed to the presence of wetlands.

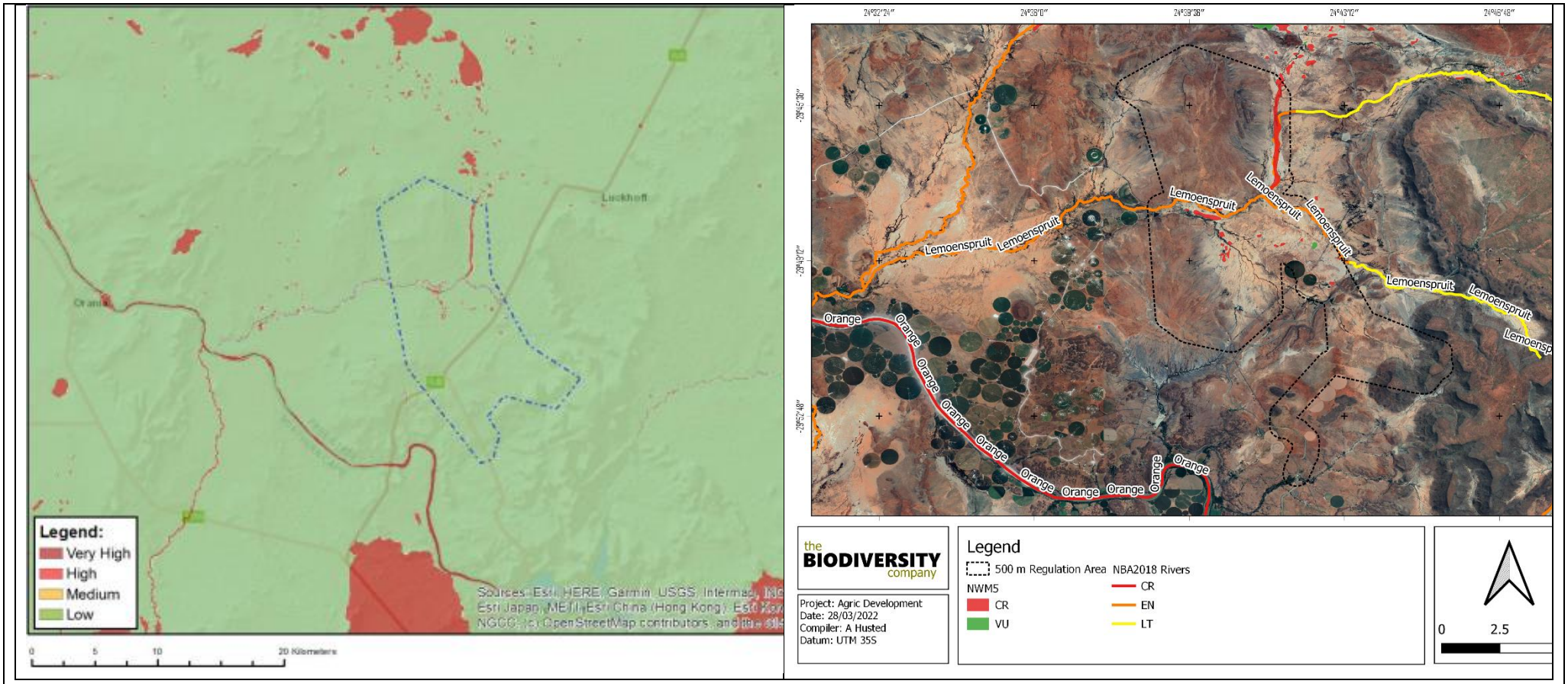

Figure 7.2: The aquatic biodiversity theme sensitivity classification and the threat status for local river systems within the development area for the JN Venter Beleggings Trust Agricultural Development.

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Disturbance / degradation / loss to wetland soils or vegetation due to the pivots and associated infrastructure, such as crossings	Direct impacts: » Disturbance / degradation / loss to wetland soils or vegetation Indirect impacts: » Loss of ecosystem services	Regional	Water resources and buffer area
Altered instream flows	Direct impacts: » Abstraction of water, causing altered flows and loss of habitat Indirect impacts: » Loss of habitat	Regional	Adhere to Ecological Water Requirements
Altered hydrodynamics from infrastructure traversing watercourses	Direct impacts: » Erosion and clearing of vegetation for the embankments Indirect impacts: » Sedimentation of downstream reaches	Regional	Water resources and buffer area, limit footprint area.
Increased erosion and sedimentation & contamination of resources	Direct impacts: » Erosion and structural changes to the systems Indirect impacts: » Sedimentation & contamination of downstream reaches	Regional	None identified at this stage

Description of expected significance of impact

The development of the area could result in the encroachment into water resources and result in the loss or degradation of these systems, most of which are functional and provide ecological services. Water resources are also likely to be traversed by linear infrastructure which might create a barrier to flow and biotic movement across the systems. These disturbances could also result in the infestation and establishment of alien vegetation would affect the functioning of the systems. Earthworks will expose and mobilise earth materials which could result in sedimentation of the receiving systems. A number of machines, vehicles and equipment will be required, aided by chemicals and concrete mixes for the project. Leaks, spillages or breakages from any of these could result in contamination of the receiving water resources. Contaminated water resources are likely to influence the associated biota. It is anticipated to increase stormwater runoff due to the clearance of vegetation, resulting in altered flow regimes. The changes could result in physical changes to the receiving systems caused by erosion, run-off and also sedimentation, and the functional changes could result in changes to the vegetative structure of the systems. The reporting of surface run-off to the systems could also result in the contamination of the systems, transporting (in addition to sediment) diesel, hydrocarbons, pollutants, and soil from the operational areas.

Gaps in knowledge & recommendations for further study

- This study is completed at a desktop level only.
- Identification, delineation and characterisation of water resources.
- Undertake a functional assessment of systems where applicable.
- Determine a suitable buffer width for the resources.

Recommendations with regards to general field surveys

- Field surveys to prioritise the development areas, but also consider the 500 m regulation area.
- Prescribed Ecological Water Requirements for the reach

Beneficial to undertake fieldwork during the wet season period.

7.2.3. Impacts on Heritage (Archaeology and Palaeontology)

Heritage and archaeological resources and cultural landscape

Based on the known archaeological sensitivity of the broader area, as well as known heritage resources located within the development area, it is likely that significant archaeological heritage will be impacted by the proposed development. The only significant findings from the field assessment for scoping phase are the two identified graves that were identified. A buffer zone of at least 50m is recommended and no impact to these graves can take place.

Palaeontological sensitivity Analysis of the Site

According to the SAHRIS Palaeo sensitivity Map, the area proposed for development is underlain by sediments of low, moderate and high palaeontological sensitivity. Desktop Palaeontological Assessment completed by Bamford (2021) for a grid connection project located in the immediate vicinity of this development, the proposed development is positioned within "a mix of potentially fossiliferous (trace fossils) Tierberg Formation (Ecca Group, Karoo Supergroup), Jurassic dolerite and on the Quaternary.

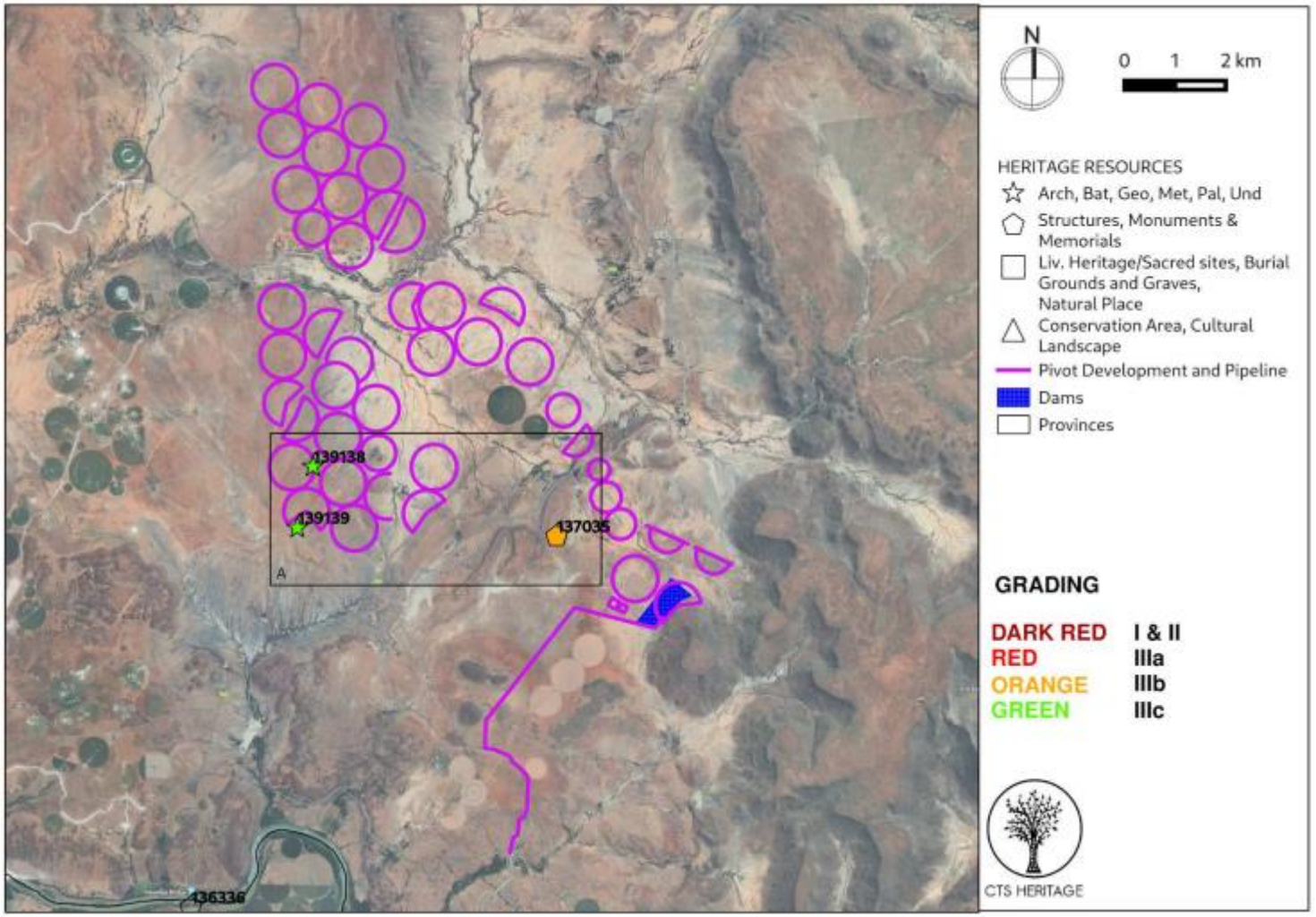

Figure 7.3: Heritage Resources previously identified within the study area

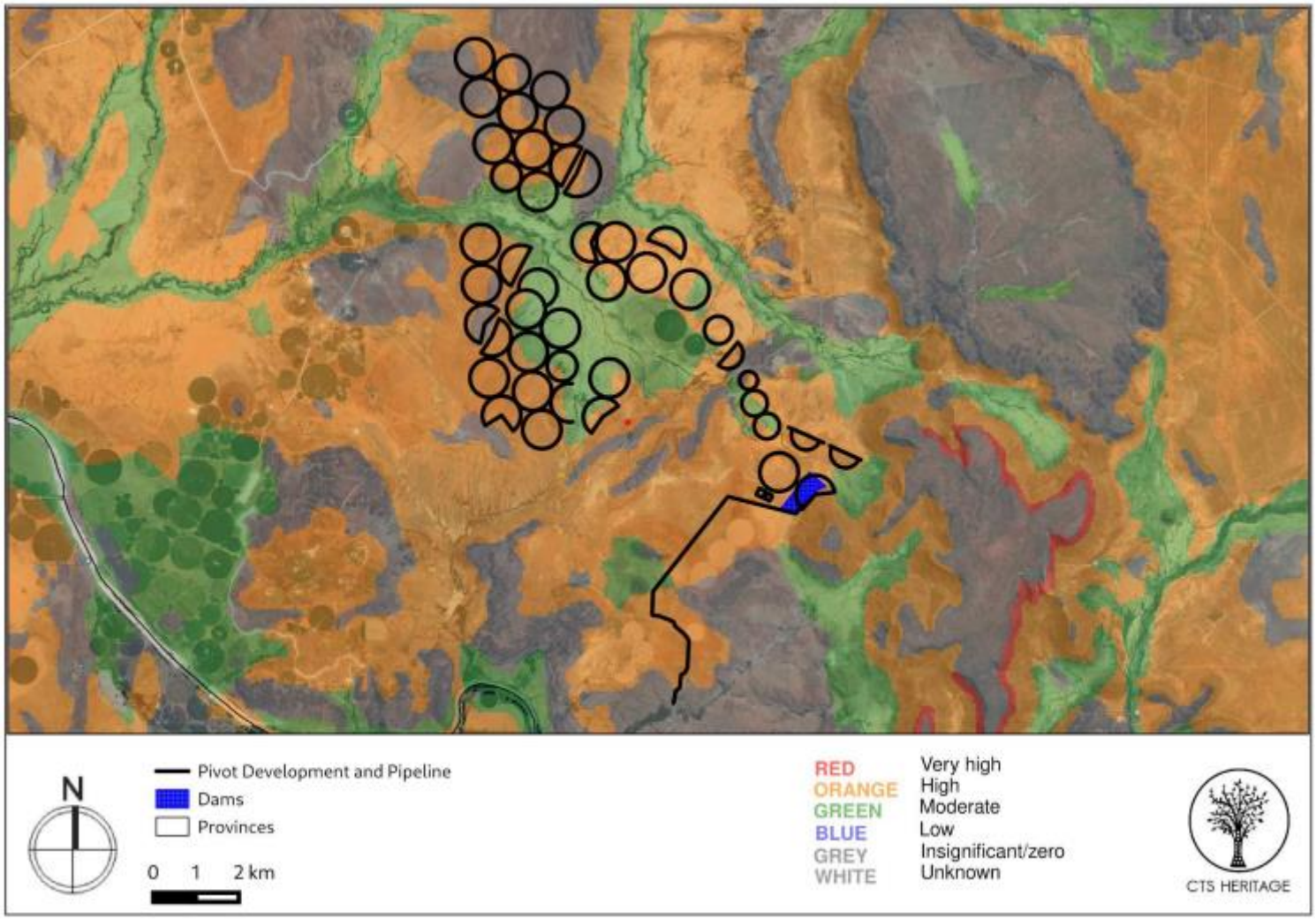

Figure 7.4: Palaeosensitivity Map indicating fossil sensitivity underlying the study area

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Impact to significant heritage resources through destruction during the development phase.	Destruction of significant heritage resources	Local scale with broader impacts to scientific knowledge	None known at present
Description of expected significance of impact » Based on the known archaeological sensitivity of the broader area as noted in these assessments, as well as known heritage resources located within the development area, it is likely that significant archaeological heritage will be impacted by the proposed development. » Based on desktop information it is recommended that no palaeontological site visit is required unless fossils are found when excavations for pole foundations commence." This recommendation is also applicable to this proposed development. It is further recommended that this be confirmed in an updated desktop palaeontological assessment. » At least 50m buffer should be applied around the identified graves, and no impact to these graves can take place.			
Gaps in knowledge & recommendations for further study » It is likely that the proposed development will impact significant archaeological heritage and as such, it is recommended that a heritage impact assessment be completed that assesses these impacts as per Section 38(3) of the NHRA.			

7.2.4. Impacts on Soils, Geology, Agricultural Potential

Considering the occurrence of various soil forms that are commonly associated with high land capabilities, it is likely that areas with high land capability sensitivity do occur within the project area. However, due to the poor climatic capability, the ultimate land potential is more likely to be low.

Sensitivity Analysis of the Site

The agriculture theme sensitivity as indicated in the screening report indicates predominantly a combination of "Low" and "Medium" sensitivities, with isolated areas of "High" sensitivity (**Figure 7.5**). It is worth noting that "High" sensitivity areas within the project area are associated with existing pivot circles.

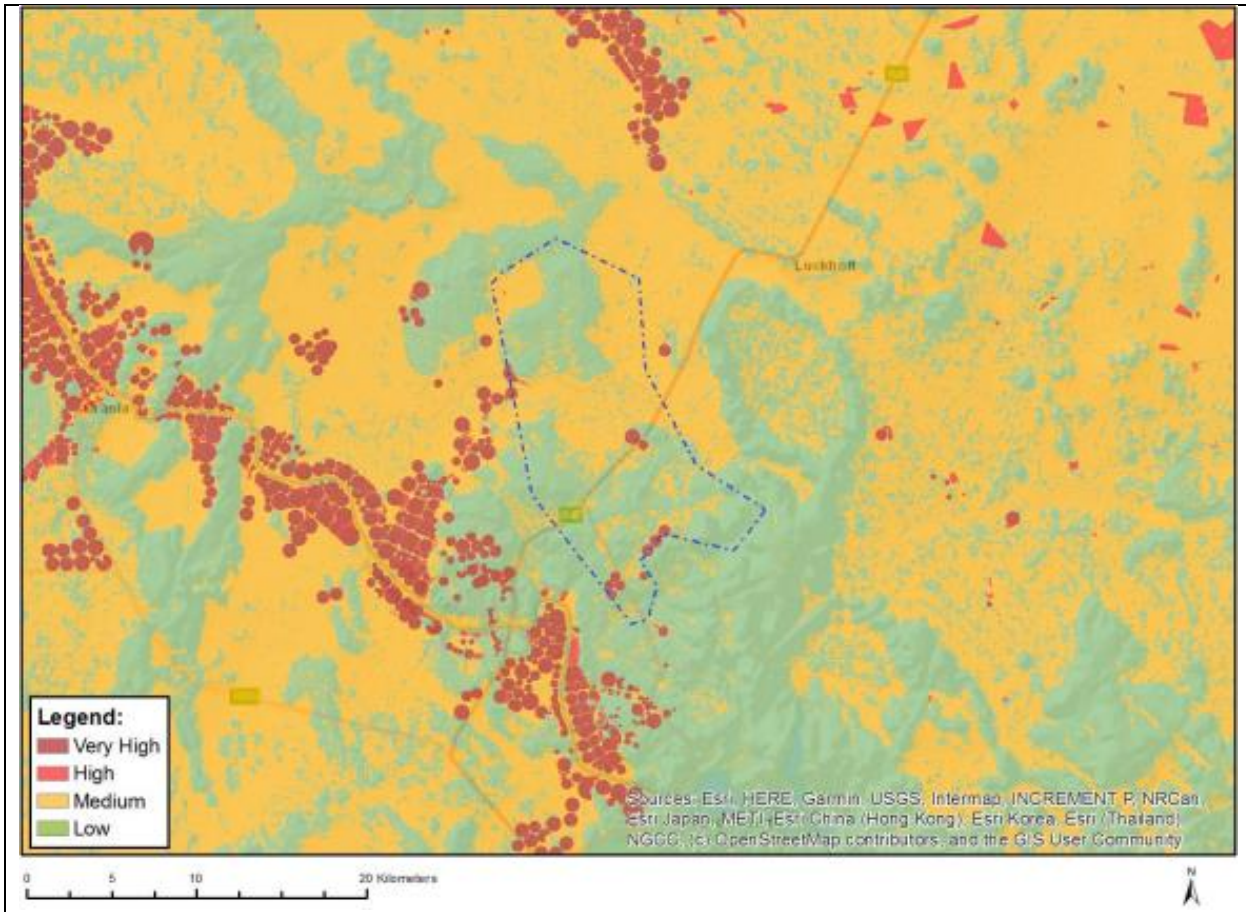

Figure 7.5: The agriculture theme sensitivity

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Loss of land capability due to cultivation, increase in traffic and use of machinery	Direct impacts: » Loss of soil / land capability Indirect impacts: » Loss of land capability	Local	None
Loss of land capability due to construction and operation of dams and pipelines	Direct impacts: » Loss of soil / land capability Indirect impacts: » Loss of land capability	Local	High sensitivity land capability areas

Description of expected significance of impact

The development of the area could result in the encroachment into areas characterised by high land potential properties, which can ultimately result in the loss of land capability. These disturbances could also result in the infestation and establishment of alien vegetation, which in turn can have a detrimental impact on soil resources. Earthworks during ploughing season and construction of infrastructure will expose and mobilise earth materials which could result in compaction and/or erosion. A number of machines, vehicles and equipment will be required, aided by chemicals and concrete mixes for the project. Leaks, spillages or breakages from any of these could result in contamination of soil resources, which could affect the salinity or pH of the soil, which can render the fertility of the soil unable to provide nutrition to plants. During the operational phase, the impacts associated with dams and pipelines will be easily managed by best "housekeeping" practices.

As for the proposed pivot irrigation systems, it is advisable that high potential land capability areas be utilised due to the fact that crop production requires suitable land capability resources. The baseline data acquired during the site assessment will provide insight to whether or not high potential areas are available within the project area,

Gaps in knowledge & recommendations for further study

» This study is completed at a desktop level only.
» Identification and delineation of soil forms.
» Determine of soil sensitivity.

Recommendations with regards to general field surveys

» Field surveys to prioritise the development areas.

7.2.5. Social Impacts

The social impacts identified (including all positive and negative impacts) will be either of a low or medium significance. No negative impacts with a high significance rating have been identified to be associated with the development of the JN Venter Beleggings Trust Agricultural Development. All negative social impacts are within acceptable limits with no impacts considered as unacceptable from a social perspective. The recommendations proposed for the project are considered to be appropriate and suitable for the mitigation of the negative impacts and the enhancement of the positive impacts.

The positive and negative social impacts identified and assessed for the **construction phase** includes:

- Direct and indirect employment opportunities
- Economic multiplier effects
- Influx of jobseekers and change in population
- Safety and security impacts
- Impacts on daily living and movement patterns
- Nuisance impacts, including noise and dust
- Visual impacts and sense of place impacts

It is anticipated that the JN Venter Beleggings Trust Agricultural Development will operate for approximately 20 – 50 years, or as long as required by the development.

The potential positive and negative social impacts that could arise because of the operation of the proposed project include the following:

- Direct and indirect employment opportunities
- Visual impact and sense of place impacts

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Creation of employment and business opportunities during the construction phase	<u>Direct impacts</u> » Creation of temporary employment opportunities » Creation of business and procurement opportunities <u>Indirect impacts</u> » Support for local economy. » Creation of training and skills development opportunities	Local -Regional	None identified at this stage.
Issue Increased pressure on	<u>Direct impacts</u>	Local	None identified at this stage.

Issue	Nature of Impact	Extent of Impact	No-Go Areas
infrastructure and basic services, and social conflicts during construction as a result of in-migration of people	» Low Negative – The in-migration of job seekers to the area could result in increased pressure being placed on infrastructure and basic services, and a rise in social conflicts.		
Potential noise, dust and safety impacts associated with construction related activities	Direct impacts » Dust impacts, and impact on quality of life and also crops and grazing. » Noise impacts, and impact on quality of life. » Safety of farmers due to movement of construction vehicles » Damage of local farm roads. Indirect impacts » Limited indirect impacts	Local	None identified at this stage.
Support for local economic development and investment	Direct impacts » Support local economic development » Create employment opportunities Indirect impacts » Up-grade local municipalities and improve quality of life of local communities	Local-Regional	None identified at this stage.
Temporary increase in safety and security concerns associated with the influx of people during the construction phase.	Direct impacts » Low Negative – The in-migration of job seekers to the area could result in increased pressure being placed on infrastructure and basic services, and a rise in social conflicts.	Local	None identified at this stage.

Description of expected significance of impact

At its peak, the construction is likely to result in the creation of approximately 100-120 employment opportunities. Of those employment opportunities available, approximately 60% will comprise opportunities for low skilled workers, 25% for semi-skilled workers, and 15% for skilled workers. Skills developed through experience in the construction of the facility will be retained by the community members involved. The increase in demand for goods and services may stimulate local business and local economic development (however locally sourced materials and services may be limited due to availability). There is likely to be a direct increase in industry and indirect increase in secondary businesses. The impact is likely to be positive, local to regional in extent, short-term, and of medium significance. The impact is likely to be positive, local to national in extent, short-term, and of medium significance.

Gaps in knowledge & recommendations for further study

- Collection on exact direct and indirect employment opportunities and skills development opportunities.
- Collection of information on local hospitality and services sector
- Collection of information on existing community challenges and needs

Recommendations with regards to general field surveys

- Site visits and interviews with representatives from local municipality, and the hospitality and services sector.
- Site visit and interviews with local farmers and local community

7.3. Evaluation of Potential Cumulative Impacts Associated with the project

Impacts of a cumulative nature place the direct and indirect impacts of the proposed project into a regional and national context, particularly in view of similar or resultant developments and activities in the region. Potential cumulative impacts associated with the proposed agricultural development and associated infrastructure are described below and will be assessed in detail as part of the subsequent EIA phase to be conducted for the project.

Cumulative impacts are assessed in context of the extent of the proposed project area; other developments in the area; and general habitat loss and transformation resulting from other activities in the area. The impacts of projects are often assessed by comparing the post-project situation to a pre-existing baseline. Where projects can be considered in isolation this provides a good method of assessing a project's impact. However, in areas where baselines have already been affected, or where future development will continue to add to the impacts in an area or region, it is appropriate to consider the cumulative effects of development. This is similar to the concept of shifting baselines, which describes how the environmental baseline at a point in time may represent a significant change from the original state of the system. This section describes the potential impacts of the project that are cumulative for fauna and flora.

Localised cumulative impacts include the cumulative effects from operations that are close enough to potentially cause additive effects on the environment or sensitive receivers (such as nearby pivots within the area). These include dust deposition, noise and vibration, disruption of corridors or habitat, groundwater drawdown, groundwater and surface water quality, and transport.

Long-term cumulative impacts due to an extensive agriculture and the associated infrastructure footprint can lead to the loss of endemic species and threatened species, loss of habitat and vegetation types and even degradation of well conserved areas. The area is characterised by agricultural development and therefore potential cumulative impacts are likely to occur. The role of the cumulative assessment is to test if such impacts are relevant to the project within the development area being considered for the development:

- Unacceptable loss of threatened or protected vegetation types, habitat or species through clearing, resulting in an impact on the conservation status of such flora, fauna

or ecological functioning. » Unacceptable risk to freshwater features through disturbance associated with construction activities and increased runoff and erosion during the operation phase. » Unacceptable loss of heritage resources (including palaeontological and archaeological resources); » Unacceptable impact to social factors and components.
Summary of the nature, significance, consequence, extent, duration and probability of the impacts » The above-mentioned impacts are considered to be probable, although it is anticipated that the extent, duration, and magnitude of these impacts can be minimised to levels where this impact can be regarded as having low significance through the implementation of appropriate mitigation measures. » The operational lifespan of the project and other similar developments within the surrounding areas is expected to be long-term (i.e. a minimum of 20 years) and subsequently the impact is also expected to be long-term. » The impact associated with the proposed development is expected to be local, affecting mainly the immediate environment and surrounding areas.
Gaps in knowledge & recommendations for further study: » Each specialist study in the EIA phase will consider and assess the cumulative impacts of agricultural developments and associated infrastructure in the area. » Cumulative impacts will be fully assessed and considered in the EIA phase.

CHAPTER 8: CONCLUSIONS

This Scoping Report is aimed at detailing the nature and extent of the proposed development, identifying and describing potential issues associated with developing the JN Venter Beleggings Trust Agricultural Development and associated infrastructure on the identified site, potential environmental fatal flaws and/or areas of sensitivity, and defining the extent of studies required to be undertaken as part of the detailed EIA phase. This was achieved through an evaluation of the proposed project, involving the project proponent, and specialist consultants. This Scoping Report has been compiled in terms of the 2014 EIA Regulations (GNR 326) published in terms of Section 24(5) of NEMA.

A summary of the conclusions of the evaluation of the potential impacts identified to be associated with the project is provided in **Section 8.2**. Recommendations regarding investigations required to be undertaken within the detailed EIA phase are provided within the Plan of Study for EIA (**Chapter 10**).

8.1 Legal Requirements as per the EIA Regulations, 2014 (as amended) for the undertaking of an Impact Assessment Report

This chapter of the scoping report includes the following information required in terms of Appendix 2: Content of the Scoping Report:

Requirement	Relevant Section
(g)(xi) a concluding statement indicating the preferred alternatives, including the preferred location of the activity.	An overall conclusion and fatal flaw analysis regarding the JN Venter Beleggings Trust Agricultural Developmentis are included within this chapter as a whole.

8.2 Overview of the Nku PV facility

This Scoping Report documents the procedure for determining the extent of, and approach to, the Environmental Impact Assessment (EIA) Phase. The Scoping Phase included the following key tasks:

- Involvement of relevant authorities and Interested and Affected Parties (I&APs) through the Public Involvement Process.
- Consideration of feasible alternatives to be assessed during the EIA Phase.
- Identification of potential impacts (positive and negative) associated with feasible project alternatives to be assessed during the EIA Phase.
- Defining Terms of Reference for any specialist studies required to inform the EIA Phase (Plan of Study (PoS) for the Environmental Impact Assessment Report.

The JN Venter Beleggings Trust Agricultural Development is proposed on a site located approximately 7km south-west of Luckhof within ward 01 of the Letsemeng Local Municipality within the Xhariep District Municipality of the Free State Province. The project site is proposed across the following 3 interlinked affected properties:

- Farm Diepdraai 754
- Farm Weltevreden 755
- Farm Lemoen- spruit 667

» The proposed pipeline will pass through the following property:
» Farm Scheiding 1252

The JN Venter Beleggings Trust Agricultural Development project site is proposed to accommodate the following infrastructure which will support the functioning of the proposed Agricultural Development:

» Development of centre pivot areas (cultivation and irrigation) which is planned to take approximately 2154ha or more within the project site.
» Construction of two bulk water pipelines following the same pipeline route of approximately 5.93km from the canal to the proposed two irrigation dams.
» Two irrigation water storage dams, each with a surface area ranging from 7ha to 46ha.
» Establishment of an irrigation pipeline network from the irrigation dams to the centre pivot areas.
» A new pump station taking a total surface area of 549m^2.
» A 5MW solar PV facility occupying an area of 9ha, and an associated overhead power line of ~6.9km in length.
» A Battery Energy Storage System covering a surface area of 0.36ha.

The Scoping study included the identification of potential impacts associated with the project through consideration of desktop information, specialist inputs and consultation with affected parties and key stakeholders. A preliminary evaluation of the extent and expected significance of potential impacts associated with the development of the JN Venter Beleggings Trust Agricultural Development have been detailed in Chapter 8. These will be assessed in detail through the EIA Phase assessment, which will include independent specialist assessments.

This scoping study has identified sensitive areas within the development area to assist in focussing the location of the development footprint for the JN Venter Beleggings Trust Agricultural Development to minimise the potential for environmental impact. The extent of the project site is ~2690ha and has been considered in this Scoping Report and allows an adequate footprint for the establishment of the cultivation of crops and associated infrastructures, while allowing for the avoidance of environmental site sensitivities. The size of the development footprint within the development area will be confirmed in the EIA phase once the development layout is available for assessment.

Most potential impacts identified to be associated with the construction of the JN Venter Beleggings Trust Agricultural Development and associated infrastructure are anticipated to be localised and restricted to the development site itself, while operation phase impacts/benefits range from local to regional. No environmental fatal flaws were identified to be associated with the development area. Areas of high and very high sensitivity were identified to be avoided by the development footprint.

The potentially significant issues related to the construction and operation of the JN Venter Beleggings Trust Agricultural Development include:

» Disturbance/destruction to and loss of vegetation and fauna and associated habitats
» Introduction and/or spread of declared weeds and alien invasive plants.
» Disturbance / degradation / loss of soils.
» Increased erosion and sedimentation & contamination of soil and water resources.
» Destruction of archaeological and palaeontological heritage.

» Visual impacts on the landscape and sense of place.
» Traffic congestion during construction.
» Social impacts, both positive and negative (job creation and business opportunities, impacts associated with construction workers in the area, and economic benefits).

8.3 Sensitivity Analysis for the JN Venter Beleggings Trust Agricultural Development

This section considers the sensitive features located within the development area, as identified by the independent specialists within each respective field, and also indicates the locations of the sensitive features within the development area.

The potentially sensitive areas which have been identified through the scoping study are listed below and illustrated in **Figure 8.1**. The detail is based on the desktop review of available baseline information for the project site, as well as the sensitivity data from specialist studies undertaken during the scoping phase, which included limited field surveys. During the site and desktop surveys, the affected area was investigated in sufficient detail in order to provide definitive insight into the potential for constraining factors on the site. The sensitivity map must be used as a tool by the developer to avoid any areas flagged to be of higher risk or sensitivity and inform the location/layout of the development footprint for the development and associated infrastructure. The development footprint is the area which will be assessed further in detail in the EIA Phase, in order to provide an assessment of environmental acceptability and suitability of the layout of the JN Venter Beleggings Trust Agricultural Development.

8.3.1 Ecological Sensitive Features

To determine sensitivity within the project site, local and regional factors were considered. Based on the desktop assessment it can be said that the project area is sensitive with a moderate-high likelihood of species of conservation concern occurring. This assumption is based on the presence of CBA1, CBA2, ESA1, ESA2, NPAES (priority focus area), Platberg–Karoo Conservancy IBA, EN rivers, CR rivers and CR wetlands as well as a vulnerable wetland found in and around the project area.

The expectant anthropogenic activities are likely to drive habitat destruction causing displacement of fauna and flora and possibly event direct mortality. Land clearing destroys local wildlife habitat and can lead to the loss of local breeding grounds, nesting sites and wildlife movement corridors such as rivers, streams and drainage lines, or other locally important features. The removal of natural vegetation may reduce the habitat available for fauna species and may reduce animal populations and species compositions within the area.

8.3.2 Freshwater Sensitive Features

Both riverine and wetland areas are expected for the project area. Albeit limited, these systems are expected to be characterised by alluvial (riverine) and hydromorphic properties, with supporting riparian and hydrophytic vegetation.

The proposed project is likely to result in the loss of some wetland areas due to the placement of pivots in these areas. Infrastructure will also traverse watercourses but the significance of the impact resulting from this is considered to be negligible. The abstraction of water for irrigation is likely to result in altered flows from the donor system, but this will also contribute to altered surface flow dynamics. The agricultural

project may also contribute to erosion of the catchment, resulting in sedimentation of the receiving watercourses. Run-off from the catchment during the operation phase of the project could also result in impaired water quality in the event fertilisers and non-organics are used for the production.

8.3.3Soils and Agricultural Potential Sensitive Features

Various soil forms are expected throughout the project area, of which some are commonly associated with high land capabilities. Even though the soil depth, texture and permeability of these soils ensure high land capability, the climatic capability of the area often reduces the land potential considerably. Therefore, very few areas characterised by "High" land potential are expected (without irrigation/in natural condition).

Considering the lack of sensitivity, together with holistic mitigation measures, it has been determined that none of the aspects scored during the impact assessment (post-mitigation) are associated with any scores higher than "Moderate". As the proposed cultivation areas will be irrigated, the area is considered suitable for the proposed land use.

9.3.3. Heritage sensitive features, the cultural landscape (incl. archaeology, palaeontology, and cultural landscape)

Heritage sensitivity relates to archaeological resources, palaeontological resources, heritage resources, and the cultural landscape. According to the extract from the Council for GeoScience Map 2924 for Koffiefontein, the area is underlain by Jurassic Dolerite (zero paleontological sensitivity) and Quaternary Sands (moderate and high sensitivity).

The two identified graves must have atleast50m buffer zone around them as recommended by the Specialist.

8.4 Overall Conclusion and Fatal Flaw Analysis

The findings of the desktop Scoping Study indicate that no environmental fatal flaws are associated with the JN Venter Beleggings Trust Agricultural Development. While some impacts of potential significance do exist, it is anticipated that the implementation of appropriate mitigation measures would assist in reducing the significance of such impacts to acceptable levels. It is however recommended, that the development area for the agricultural development and associated infrastructure be considered outside of the identified areas of a high sensitivity as far as possible in order to ensure that the development does not have a detrimental impact on the environment. This forms part of the 'funnel-down approach' for the identification of an appropriate development footprint within the project site. Even with the appropriate avoidance of sensitive areas, there is an extensive area on the site which can accommodate the proposed development and placement of the infrastructures with relatively low impacts on the environment.

With an understanding of which areas within the project site are considered sensitive to the development of the proposed facility, the Applicant can prepare the detailed infrastructure layout for consideration within the EIA Phase. During the EIA phase, more detailed environmental studies will be conducted in line with the Plan of Study for EIA contained in **Chapter 10** of this Scoping Report. These studies will consider the detailed layouts produced by the Applicant and make recommendations for the implementation of

avoidance strategies (if required), and mitigation and management measures to ensure that the final assessed layout retains an environmental impact within acceptable limits. The sensitivity map will be further refined in the EIA phase on the basis of these specialist studies, in order to provide an assessment of environmental acceptability of the final design of the facility.

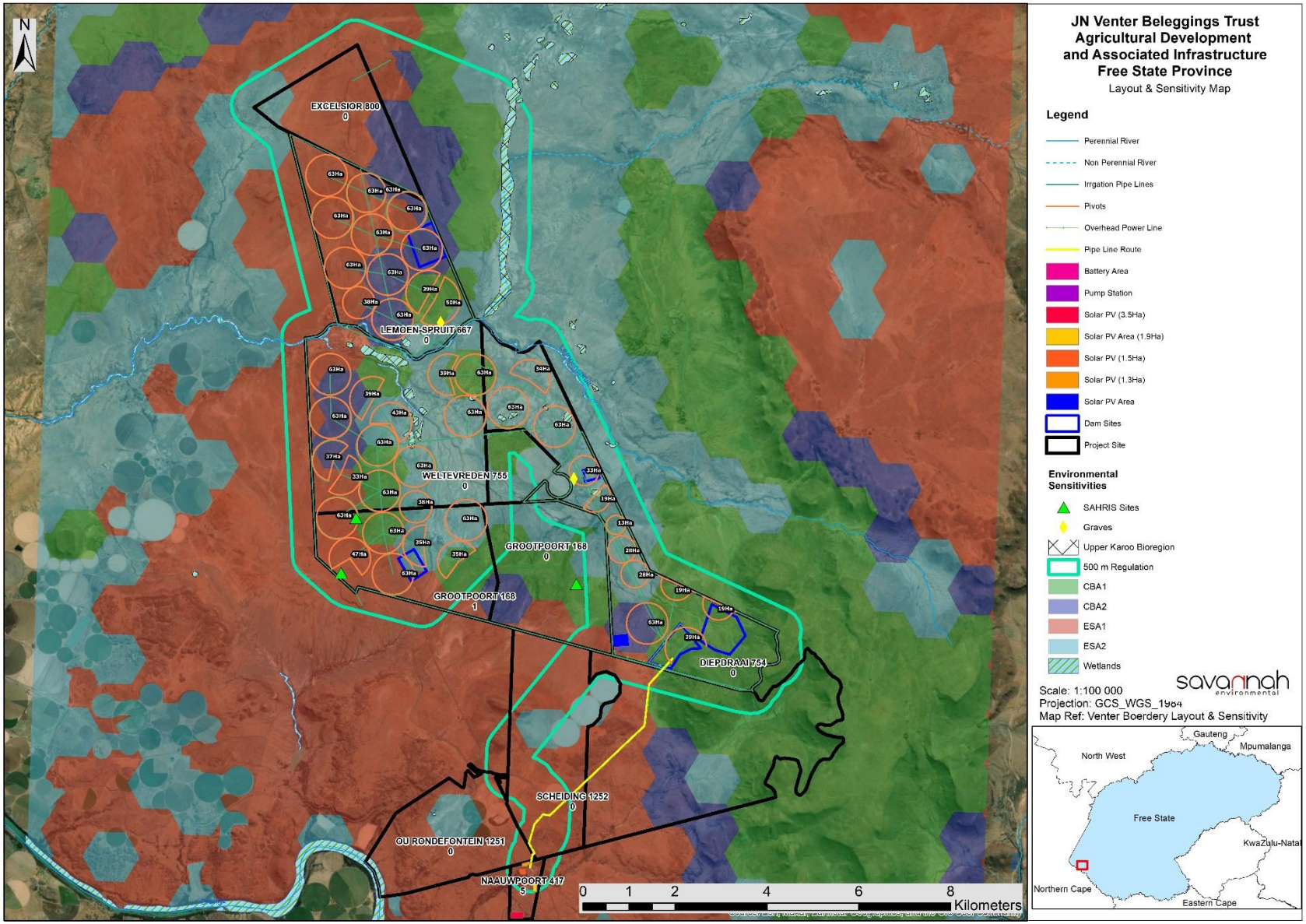

Figure 8.2. Environmental Sensitivity Map from the results of the scoping evaluation for the JN Venter Beleggins Trust Agricultural Development, indicating the recommended development envelope (area excludes any areas of significant biodiversity and do not contain any areas considered to be no-go areas

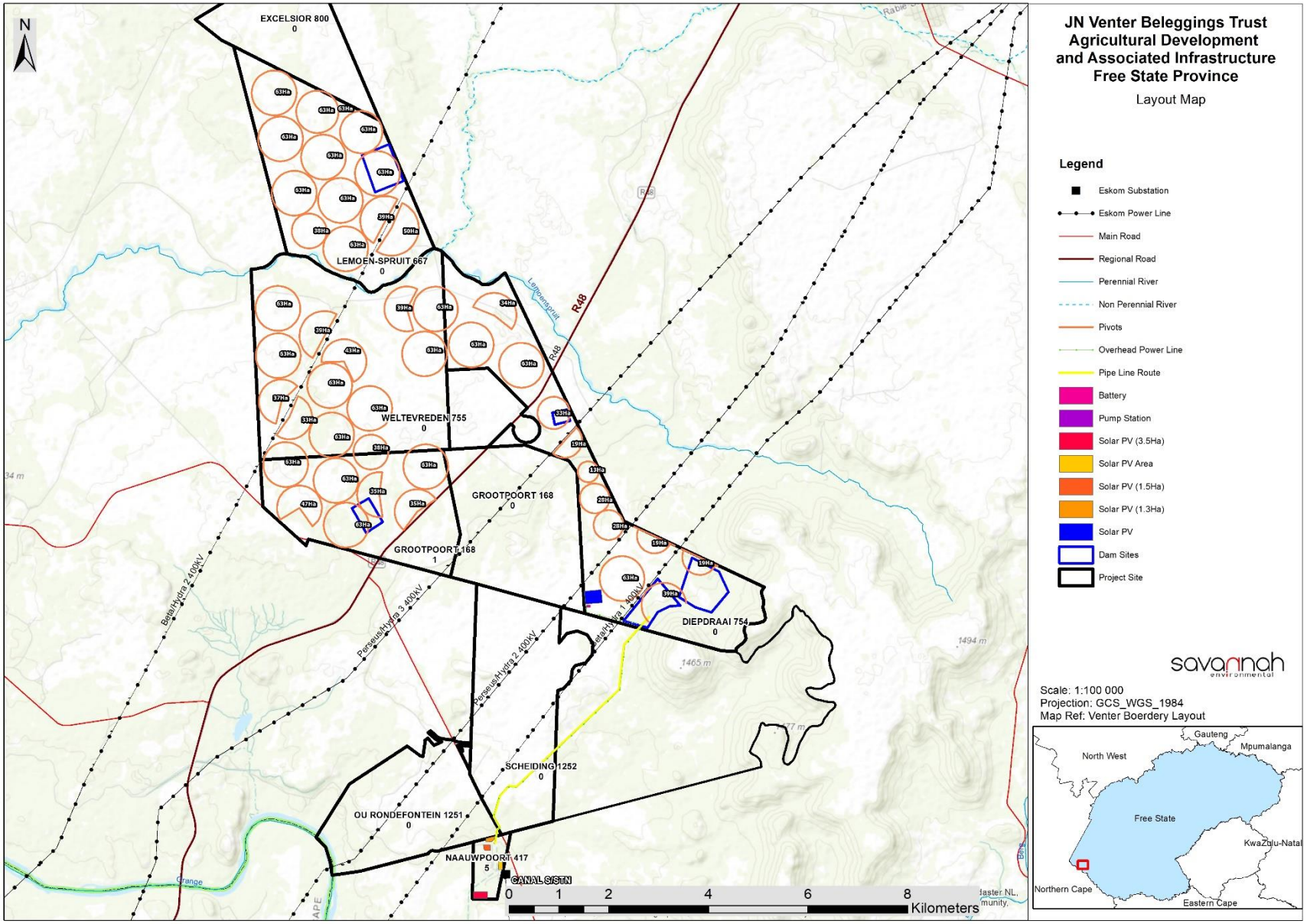

Figure 8.2. Project Layout Map showing the JN Venter Beleggins Trust Agricultural Development and associated infrastructure

CHAPTER 9: PLAN OF STUDY FOR THE ENVIRONMENTAL IMPACT ASSESSMENT

One of the key objectives of the Scoping Phase is to determine the level of assessment to be undertaken within the EIA Phase of the process. This will include the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken. This is to determine the impacts and risks a particular activity will impose on a preferred site through the life of the activity (including the nature, significance, consequence, extent, duration and probability of the impacts) to inform the location of the development footprint within the preferred site.

This Chapter contains the Plan of Study for the EIA for the JN Venter Beleggings Trust Agricultural Development and associated infrastructure, which describes how the EIA Phase will proceed, and includes details of the independent specialist studies required to be undertaken to assess the significance of those impacts identified within the Scoping Study to be of potential significance.

9.1. Legal Requirements as per the EIA Regulations, 2014 (as amended) for the Undertaking of a Scoping Report

This chapter of the scoping report includes the following information required in terms of Appendix 2: Content of the Scoping Report:

Requirement	Relevant Section
(h) a plan of study for undertaking the environmental impact assessment process to be undertaken, including - (i) a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity; (ii) a description of the aspects to be assessed as part of the environmental impact assessment process; (iii) aspects to be assessed by specialists; (iv) a description of the proposed method of assessing the environmental aspects, including aspects to be assessed by specialists; (v) a description of the proposed method of assessing duration and significance: (vi) an indication of the stages at which the competent authority will be consulted; (vii) particulars of the public participation process that will be conducted during the environmental impact assessment process; and (viii) a description of the tasks that will be undertaken as part of the environmental impact assessment process; (ix) identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.	A plan of study for the undertaking of the EIA Phase for the JN Venter Beleggings Trust Agricultural Development is included within this chapter as a whole.

9.2. Objectives of the EIA Phase

The EIA Phase to be undertaken for the JN Venter Beleggings Trust Agricultural Development and associated infrastructure will aim to achieve the following:

- Provide an overall description and detailed assessment of the social and biophysical environment affected by the development of the agricultural development and associated infrastructure.
- Assess potentially significant impacts (direct, indirect, and cumulative, where required) associated with the agricultural development and associated infrastructure.
- Identify and recommend appropriate avoidance strategies and mitigation measures for potentially significant environmental impacts.
- Undertake a fully inclusive public involvement process to ensure that I&APs are afforded the opportunity to participate, and that their comments are recorded.

The EIA will assess potential environmental impacts and benefits (direct, indirect, and cumulative impacts) associated with each phase of the development including design, construction, operation and decommissioning; and will aim to provide the Competent Authority with sufficient information to make an informed decision regarding the proposed development. The site layout being proposed for the JN Venter Beleggings Trust Agricultural Development will be assessed through detailed independent specialist studies. As required in terms of the 2014 EIA Regulations (GNR 326), as amended, the assessment will include consideration of the 'do nothing' alternative.

9.3. Consideration of Alternatives

The following project alternatives will be investigated in the EIA:

Nature of Alternatives Considered	Description of the Alternatives relating to the JN Venter Beleggings Trust Agricultural Development and Associated Infrastructure
Site-specific and Layout Alternatives	One preferred project site of 3887ha in extent (extending through 3properties) has been identified for the development of the JN Venter Beleggings Trust Agricultural Development such as, water availability, land availability, topographical consideration, and environmental features. The developable project area of ~2690 in extent has been identified within the broader project site and will run across the 3 affected properties as one project to accommodate all the proposed associated infrastructures. A project layout within this development area will be provided by the Applicant for assessment in the EIA Phase of the process.
Activity Alternatives	The JN Venter Beleggings Trust considers agricultural development consisting of cultivation of crops (maize, wheat, soya, and nuts), centre pivot irrigation system, dams for storage irrigation water, solar PV to supply energy on the farm, pump house and related network of pipelines to supply water to the centre pivot. Only the agricultural development and all the supporting infrastructures are considered in the ambit of this EIA. The project proposal is furthermore in line with surrounding land use, which has existing cultivated land and associated infrastructure.
Technology Alternatives	Only the use of centre pivot irrigation system is considered due to how they efficiently spread water onto growing crops. Centre pivots delivers water as close to the ground as possible and minimizes the amount of water lost due to the wind and runoff. The centre pivot irrigation system is considered the most efficient technology given the magnitude of the proposed agricultural development by the Applicant. With the challenges of power cuts in South Africa, the use of Solar energy is considered to

Nature of Alternatives Considered	Description of the Alternatives relating to the JN Venter Beleggings Trust Agricultural Development and Associated Infrastructure
	be the most suitable renewable energy technology for this proposed development, based on the site location, ambient conditions and renewable energy resource availability. Battery Energy storage system is also the efficient technology considered to how it can improve energy security by supplying energy during peak demands, unfavourable climatic conditions, or damage of the panels.
'Do-nothing' Alternative	This is the option to not construct and operate the JN Venter Beleggings Trust agricultural development with the associated infrastructures. No impacts (positive or negative) are expected to occur on the social and environmental sensitive features or aspects located within the project site or the surrounds. The opportunities associated with the development of the agricultural development for the affected area and other surrounding towns in the area will also not be realised.

9.4 Scope of the EIA phase and EIA report

The EIA Report will be compiled in terms of the requirements of the EIA Regulations and include the information as required in Appendix 3 of GNR 326. The results of the specialist studies and other available information will be integrated, synthesised, and presented in the EIA Report by the Savannah Environmental project team. The EIA report will assess the overall environmental impacts associated with the development, consider mitigation measures as may be required, and make recommendations regarding the best development alternative. The EIA Report will also identify mitigation measures and provide management recommendations to minimise negative impacts and enhance benefits. The EIA Report will include:

- The details and expertise of the EAP who prepared the report.
- The location of the development footprint of the activity and a locality map illustrating the location of the proposed activity.
- A description of the scope of the proposed activity including all listed activities triggered and a description of associated structures and infrastructure.
- The legislative context within which the development is located and an explanation of how the development complies and responds to the legislation and policy context.
- The need and desirability of the proposed development of the activity in the context of the preferred location.
- A motivation for the preferred development footprint within the approved site.
- A description of the process followed to reach the proposed development footprint within the approved site, including:
  - details of the development footprint considered;
  - details of the public participation process undertaken in terms of Regulation 41 of the 2014 EIA Regulations, including copies of supporting documents;
  - a summary of issues raised by interested and affected parties and the manner in which the issues were incorporated;
  - the environmental attributes associated with the development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;

- the impacts and risks identified including the nature, significance, consequence extent, duration and probability of the impacts, including the degree to which these impacts can be reversed, may cause irreplaceable loss of resources and can be avoided, managed or mitigated;
- the methodology used for determining and ranking the nature, significance, consequence, extent, duration and probability of potential environmental impacts and risks;
- positive and negative impacts that the activity and alternatives will have on the environment and the community;
- possible mitigation measures to be applied and the level of residual risk;
- a motivation for not considering alternative development locations;
- a concluding statement indicating the location of the preferred alternative development location; and
- a full description of the process followed to identify, assess and rank impacts of the activity and associated infrastructure on the preferred location including all environmental issues and risks that have been identified and an assessment of the significance of each issue and risk and the extent to which the issue/risk can be avoided or mitigated.

» An assessment of the identified potentially significant impacts and risks.
» A summary of the findings and recommendations of any specialist report and an indication as to how these findings and recommendations have been included.
» An environmental impact assessment containing a summary of key findings, an environmental sensitivity map and a summary of the positive and negative impacts and risks of the proposed activity.
» An Environmental Management Programme (EMPr), as per Appendix 4 of GNR326, containing the recommendations from specialists, the impact management objectives, and the impact management outcomes.
» The final alternatives which respond to the impact management measures, avoidance and mitigation measures identified.
» Any aspects which were conditional to the findings of the assessment.
» Description of the assumptions, uncertainties and gaps in knowledge relating to the assessment and mitigation measures proposed.
» An opinion as to whether the proposed activity should or should not be authorised and the conditions thereof.
» An undertaking under affirmation by the EAP in relation to the correctness of the information, the inclusion of comments and inputs from stakeholders and interested and affected parties, the inclusion of inputs and recommendations from the specialists and any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties.

The EIA Report will be released to the public and relevant stakeholders, Organs of State and Authorities for a 30-day review and comment period. Comments received from I&APs will be captured within a Comments and Response Report, which will be included within the Final EIA Report, for submission to the authorities for decision-making.

9.5 Specialist Assessments to be undertaken during the EIA Phase

A summary of the aspects which require further investigation within the EIA Phase through specialist studies, the terms of reference for each specialist study, as well as the proposed activities to be undertaken in order to assess and ground truth the significance of the potential impacts is provided within **Table 9.1**. The specialists proposed to undertake detailed studies in the EIA Phase are also reflected within this table.

These specialist studies will consider the development footprint proposed for the agricultural development and all associated infrastructure, as well as feasible and reasonable alternatives identified for the project.

Table 9.1: Aspects requiring further investigation by specialists during the EIA Phase and terms of reference to assess the significance of the potential impacts relevant to the JN Venter Beleggings Trust Agricultural Development

Aspect	Activities to be undertaken in order to assess significance of impacts	Specialist
Ecology (Fauna and Flora)	<u>The following site-specific assessments are recommended for the EIA Phase:</u> » Field surveys to prioritise the development areas. » Fieldwork to be undertaken during the wet season period. <u>Assessment of Impacts for the EIA</u> The methodology described in **Section 9.6** assists in the evaluation of the overall effect of a proposed activity on the environment. It includes an assessment of the significant direct, indirect, and cumulative impacts. The significance of environmental impacts is to be assessed by means of criteria including extent (scale), duration, magnitude (severity), probability (certainty) and direction (negative, neutral or positive). The nature of the impact will be defined and described. It will refer to the causes of the effect, what will be affected, and how it will be affected. For each anticipated impact, recommendations will be made for desirable mitigation measures. <u>Environmental Management Programme</u> For each overarching anticipated impact, management recommendations for the design, construction, and operational phase (where appropriate) will be drafted for inclusion in the project EMPr.	Jan Jacobs Biodiversity Specialist The Biodiversity Company
Freshwater, Soil & Agricultural Assessment	<u>The EIA Phase will include the following activities:</u> Freshwater resources located within the development area will be further assessed during the EIA Phase. The following activities will be undertaken: » Field surveys to prioritise the development areas. <u>Assessment of Impacts for the EIA:</u> The methodology described in **Section 9.6** assists in the evaluation of the overall effect of a proposed activity on the environment. It includes an assessment of the significant direct, indirect, and cumulative impacts. The significance of environmental impacts is to be assessed by means of criteria including extent (scale), duration, magnitude (severity), probability (certainty) and direction (negative, neutral or positive). The nature of the impact will be defined and described. It will refer to the causes of the effect, what will be affected, and how it will be affected. For each anticipated impact, recommendations will be made for desirable mitigation measures.	Andrew Husted and Ivan Baker of the Biodiversity Company

Aspect	Activities to be undertaken in order to assess significance of impacts	Specialist
	Environmental Management Programme: For each overarching anticipated impact, management recommendations for the design, construction, and operational phase (where appropriate) will be drafted for inclusion in the project EMPr.	
Heritage and (, Archaeology	The EIA Phase will include the following activities: As part of the EIA, it is necessary to undertake a Heritage and Archaeological Study to fulfil the SAHRA requirements in accordance with the National Heritage Resources Act (No. 25 of 1999). A Heritage and Archaeological Impact Assessment (to determine the archaeological significance of features on the site. The following activities will be undertaken during the EIA Phase: » It is likely that the proposed development will impact significant archaeological heritage and as such, it is recommended that a heritage impact assessment be completed that assesses these impacts as per section 38(3) of the NHRA. Assessment of Impacts for the EIA: The methodology described in **Section 9.6** assists in the evaluation of the overall effect of a proposed activity on the environment. It includes an assessment of the significant direct, indirect, and cumulative impacts. The significance of environmental impacts is to be assessed by means of criteria including extent (scale), duration, magnitude (severity), probability (certainty) and direction (negative, neutral or positive). The nature of the impact will be defined and described. It will refer to the causes of the effect, what will be affected, and how it will be affected. For each anticipated impact, recommendations will be made for desirable mitigation measures. Environmental Management Programme: For each overarching anticipated impact, management recommendations for the design, construction, and operational phase (where appropriate) will be drafted for inclusion in the project EMPr.	Jenna Lavin of CTS Heritage
Social	The EIA Phase will include the following activities: Based on the findings of the scoping social impact assessment, the following approach to the EIA Phase studies is proposed: » Reviewing of comments pertaining to social impacts received from members of the public, key stakeholders, and any organ of state during the public review of the Scoping Report. » Collect primary data during a site visit. Interview directly affected and adjacent landowners, and key stakeholders to obtain primary information related to the project site, social environment, and to gain their inputs on the proposed project and its perceived social impact (positive and /or negative). » Update the baseline information with information received during the site visit, as well as any additional information	

Aspect	Activities to be undertaken in order to assess significance of impacts	Specialist
	received from the client, or updates to the project description. » Assess impacts identified for the project in terms of their nature, extent, duration, magnitude, probability, status, and significance; as well as the degree to which the impact can be reversed, may cause irreplaceable loss of resources, and can be mitigated. » Identify mitigation measures with which to reduce negative impacts and enhance positive impacts for inclusion in the Environmental Management Programme (EMPr). As far as possible the mitigation hierarchy of "avoid, minimise, and reduce" will be followed in the mitigation of potential negative impacts. » Identify any monitoring requirements for inclusion in the EMPr or EA. Assessment of Impacts for the EIA: The methodology described in **Section 9.6** assists in the evaluation of the overall effect of a proposed activity on the environment. It includes an assessment of the significant direct, indirect, and cumulative impacts. The significance of environmental impacts is to be assessed by means of criteria including extent (scale), duration, magnitude (severity), probability (certainty) and direction (negative, neutral or positive). a The nature of the impact will be defined and described. It will refer to the causes of the effect, what will be affected, and how it will be affected. For each anticipated impact, recommendations will be made for desirable mitigation measures. Environmental Management Programme: For each overarching anticipated impact, management recommendations for the design, construction, and operational phase (where appropriate) will be drafted for inclusion in the project EMPr.	
Cumulative Assessment	Assess the cumulative impacts associated with the construction and operation of more than one development (i.e., agricultural development) within the immediate surrounding areas of the project site and within a 30km radius of the site on the ecological, heritage, soil and agricultural potential, and social, impacts of the area. The objective is to identify and focus on potentially significant cumulative impacts so these may be taken into consideration in the decision-making process. The following will be considered: » Unacceptable loss of threatened or protected vegetation types, habitat, or species through clearing, resulting in an impact on the conservation status of such flora, fauna or ecological functioning. » Unacceptable risk to freshwater features through disturbance associated with construction activities and increased runoff and erosion during the operation phase.	Savannah Environmental

Aspect	Activities to be undertaken in order to assess significance of impacts	Specialist
	» Unacceptable loss of heritage resources (including archaeological resources) » Unacceptable impact to social factors and components.	

9.6 Methodology for the Assessment of Potential Impacts

Direct, indirect, and cumulative impacts of the above issues identified through this Scoping Study will be assessed in terms of the following criteria:

- The **nature**, which shall include a description of what causes the effect, what will be affected and how it will be affected.
- The **extent**, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional:
  - local extending only as far as the development site area – assigned a score of 1;
  - limited to the site and its immediate surroundings (up to 10 km) – assigned a score of 2;
  - will have an impact on the region – assigned a score of 3;
  - will have an impact on a national scale – assigned a score of 4; or
  - will have an impact across international borders – assigned a score of 5.
- The **duration**, wherein it will be indicated whether:
  - the lifetime of the impact will be of a very short duration (0–1 years) – assigned a score of 1;
  - the lifetime of the impact will be of a short duration (2-5 years) - assigned a score of 2;
  - medium-term (5–15 years) – assigned a score of 3;
  - long term (> 15 years) - assigned a score of 4; or
  - permanent - assigned a score of 5.
- The **magnitude**, quantified on a scale from 0-10, where a score is assigned:
  - 0 is small and will have no effect on the environment;
  - 2 is minor and will not result in an impact on processes;
  - 4 is low and will cause a slight impact on processes;
  - 6 is moderate and will result in processes continuing but in a modified way;
  - 8 is high (processes are altered to the extent that they temporarily cease); and
  - 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
- The **probability** *of occurrence*, which shall describe the likelihood of the impact actually occurring. Probability will be estimated on a scale, and a score assigned:
  - Assigned a score of 1–5, where 1 is very improbable (probably will not happen);
  - Assigned a score of 2 is improbable (some possibility, but low likelihood);
  - Assigned a score of 3 is probable (distinct possibility);
  - Assigned a score of 4 is highly probable (most likely); and
  - Assigned a score of 5 is definite (impact will occur regardless of any prevention measures).
- the **significance**, which shall be determined through a synthesis of the characteristics described above (refer formula below) and can be assessed as low, medium or high.
- the **status**, which will be described as either positive, negative or neutral.
- the degree to which the impact can be reversed.
- the degree to which the impact may cause irreplaceable loss of resources.
- the *degree* to which the impact can be *mitigated*.

The **significance** is determined by combining the criteria in the following formula:

S= (E+D+M) P; where

S = Significance weighting

E = Extent
D = Duration
M = Magnitude
P = Probability

The **significance weightings** for each potential impact are as follows:

» < 30 points: Low (i.e., where this impact would not have a direct influence on the decision to develop in the area),
» 30-60 points: Medium (i.e., where the impact could influence the decision to develop in the area unless it is effectively mitigated),
» > 60 points: High (i.e., where the impact must have an influence on the decision process to develop in the area).

Other aspects to be taken into consideration in the specialist studies and EIA report are:

» Impacts should be described in terms of before and after the proposed mitigation and management measures have been implemented.
» All impacts should be evaluated for the full lifecycle of the proposed development, including construction, operation, and decommissioning.
» The impact assessment should take into consideration the cumulative effects associated with this and other similar developments which are either developed or in the process of being developed in the region. The purpose of the cumulative assessment is to test if such impacts are relevant to the proposed project in the proposed location (i.e., whether the addition of the proposed project in the area will increase the impact). In this regard, specialist studies will consider whether the construction of the proposed development will result in:
  » Unacceptable risk
  » Unacceptable loss
  » Complete or whole-scale changes to the environment or sense of place
  » Unacceptable increase in impact
» A conclusion regarding whether the proposed development will result in any unacceptable loss or impact considering all the projects proposed in the area is included in the respective specialist reports.

As JN Venter Beleggings Trust has the responsibility to avoid and/or minimise impacts as well as plan for their management (in terms of the EIA Regulations), the mitigation of significant impacts will be discussed. Assessment of mitigated impacts will demonstrate the effectiveness of the proposed mitigation measures.

9.7 Authority Consultation

Consultation with the regulating authorities (i.e., DESTEA) has been undertaken in the Scoping Phase and will continue throughout the EIA process. On-going consultation will include the following:

» Submission of a Final Scoping Report following a 30-day review period which will include all comments and issues raised during the review period as well as appropriate responses to the comments.
» Submission of an EIA Report and EMPr for a 30-day review and comment period.

» Submission of a Final EIA Report and EMPr following a 30-day review period which will include all comments and issues raised during the review period as well as appropriate responses to the comments received.
» Consultation and an authority site visit (if required) in order to discuss the findings and conclusions of the EIA Report.

9.8 Public Participation Process

A public participation process will be undertaken by Savannah Environmental during the EIA phase. Consultation with key stakeholders and I&APs will be on-going throughout the EIA Phase. Through this consultation process, stakeholders and I&APs will be encouraged to verify that their issues were recorded in the Scoping Phase, identify additional issues of concern or highlight positive aspects of the proposed project, and comment on the findings of the EIA Phase. In order to accommodate the varying needs of stakeholders and I&APs within the study area, as well as capture their inputs, various opportunities will be provided for stakeholders and I&APs to be involved in the EIA Phase of the process, as follows:

» Focus group meetings (pre-arranged and I&APs invited to attend) via the use of virtual platforms (Zoom or MS Teams).
» One-on-one consultation meetings (for example with directly affected and surrounding landowners) via telephone or virtual platforms.
» Telephonic consultation sessions (consultation with various parties from the EIA project team, including the public participation consultant, lead EIA consultant, as well as specialist consultants).
» Written, faxed or e-mail correspondence.

The public participation process will include the following activities:

» Placement of an advertisement in one local newspaper Volksblad online newspapar
» Maintenance and finalisation of the I&AP database.
» Release of the EIA Report and EMPr for a 30-day review and comment period.
» Ongoing consultation with all registered I&APs regarding the progress of the EIA process and the outcomes or findings of the EIA Report through stakeholder consultation via notification letters, telephone calls and virtual focus group meetings.
» Compile a Comments and Responses Report and evidence of the public participation process undertaken to be included in the final EIA Report for decision-making.

9.10 Key Milestones of the Programme for the EIA

The envisaged key milestones of the programme for the EIA Phase are outlined in the following table (and include indicative dates):

Key Milestone Activities	Proposed timeframe
Make the Scoping Report available to the public, stakeholders, and authorities for 30 days	03 June 2022- 04 July 2022
Finalisation of Scoping Report, and submission of the Final Scoping Report to DFFE	July 2022
Authority acceptance of the Final Scoping Report and Plan of Study to undertake the EIA	43 days from submission of the Final Scoping Report

Key Milestone Activities	Proposed timeframe
Undertake specialist studies and public participation process	July 2022 – August 2022
Make Draft EIA Report and EMPr available to the public, stakeholders, and authorities	September 2022– October 2022
Finalisation of EIA Report, and submission of the Final EIA Report to DESTEA	November 2022
Authority review period and decision-making (107 calendar days)	November 2022 – March 2022

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Heritage Impact Assessment

Heritage Impact Assessments				
Nid	**Report Type**	**Author/s**	**Date**	**Title**
	HERITAGE SCREENER	Jenna Lavin	**March 2022**	Agricultural and Pivot Expansion near Luckhoff, Free State Province
354852	Heritage Impact Assessment Specialist Report	Johnny Van Schalkwyk		Cultural Heritage Impact Asessment for the proposed Grootpoort Phottovoltaic Solar Energy Development Facility nearr Luckhoff, Letsemeng Local Municipality, Free State Province.
364728	PIA Desktop	John E. Almond	01/06/2016	Palaeontological Impact Assessment: Desktop Study Proposed Grootpoort Photovoltaic Solar Energy Facility Near Luckhoff, Free State Province
4052	HIA Phase 1	Albert van Jaarsveld	01/03/2006	Hydra-Perseus and Beta-Perseus 765 kV Transmission Power Lines Environmental Impact Assessment. Impact on Cultural Heritage Resources
579389	Letter of Exemption	CTS Heritage	02/08/2021	Desktop Heritage Screening Assessment: Proposed development of the Grootpoort OHL near Luckhoff in the Free State

579390	PIA Desktop	Marion Bamford	29/07/2021	Desktop Palaeontology Assessment: Proposed development of the Grootpoort OHL near Luckhoff in the Free State

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