

# DRAFT SCOPING REPORT

**Proposed cultivation of 100 ha for the establishment of a vineyard and associated pipeline on Portion 10 & 11 of the Farm De Eelt no 26 near Prieska within the Siyathemba Local Municipality, Northern Cape Province**

**Prepared for: Mahoebe  
Eiendomme (Pty) Ltd**

**Prepared by: Enviroworks**

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## EXECUTIVE SUMMARY

The company Mahoebe Eiendomme (Pty) Ltd has recently commenced with the process of procuring Portion 10 of the Farm De Eelt no 26 near the town of Prieska in the Northern Cape Province (approximately 147.91 ha). The reason for the intended procurement is for establishing a 100 ha vineyard on this portion of natural previously uncultivated land. The grapes produced will be used for the local production of wine.

Envioworks was appointed by Mahoebe Eiendomme (Pty) Ltd as the independent Environmental Assessment Practitioner (EAP) to conduct a full Scoping & EIA process for the proposed project. Envioworks was established in November 2002. Although the formal establishment of the company took place in 2002, it is backed by more than 70 years of collective professional service and experience in the environmental field. The qualifications, expertise and experience of our professional team form the backbone of the company's continued success.

The development activities in the National Environmental Management Act (Act 107 of 1998): Environmental Impact Assessment Regulations, 2014 (Government Notices R983, R984 and R985 in Government Gazette No. 38282 of 04 December 2014) which are triggered by the proposed project are listed in the table below:

Regulation	Activity	Description of trigger activity in proposed project
<b>GN. R. 983 Listing Notice 1</b>	<b>Activity 9</b> 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;	A maximum 250 mm – 300 mm pipeline of approximately 1.7 km in length will be constructed to transport water from the extraction point in the Orange River and deposit it into the proposed storage dam on site.
<b>GN. R. 983 Listing Notice 1</b>	<b>Activity 24</b> The development of-  (ii) a road with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8	Associated access roads will be established in and around the proposed vineyard which will be wider than 8 m

Regulation	Activity	Description of trigger activity in proposed project
	metres;	
<p><b>GN. R. 984 Listing Notice 2</b></p>	<p><b>Activity 13</b> The physical alteration of virgin soil to agriculture, or afforestation for the purposes of commercial tree, timber or wood production of 100 hectares or more.</p>	<p>Cultivation and establishment of a vineyard on approximately 100 ha of natural vegetation.</p> <p>The total size of the farm portion to be impacted by roads and associated infrastructure of the proposed project is approximately 147.91 ha.</p>
<p><b>GN. R. 984 Listing Notice 2</b></p>	<p><b>Activity 15</b> 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.</p>	<p>Cultivation and establishment of a vineyard on approximately 100 ha of natural vegetation.</p> <p>The total size of the farm portion to be impacted by roads and associated infrastructure of the proposed project is approximately 147.91 ha.</p>
<p><b>GN. R. 985 Listing Notice 3</b></p>	<p><b>Activity 4</b> The development of a road wider than 4 metres with a reserve less than 13,5 metres. (a) In Free State, Limpopo, Mpumalanga and Northern Cape provinces: (ii) Outside urban areas, in: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent</p>	<p>The site falls inside a Critical Biodiversity Area and associated access roads wider than 4 m will be established in and around the proposed vineyard.</p>



Regulation	Activity	Description of trigger activity in proposed project
	authority or in bioregional plans	
<p><b>GN. R. 985 Listing Notice 3</b></p>	<p><b>Activity 12</b>                      The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with the maintenance management plan.                      (d) In Northern Cape:                      (ii) Within critical biodiversity areas identified in bioregional plans</p>	<p>The site falls inside a Critical Biodiversity Area and cultivation and establishment of a vineyard on approximately 100 ha will occur.</p> <p>The total size of the farm portion to be impacted by roads and associated infrastructure of the proposed project is approximately 147.91 ha.</p>

The proposed project area is approximately 147.91 ha in surface size and is situated on Portion 10 of the Farm De Eelt No 26. The proposed water pipeline will also traverse Portion 11 of the Farm De Eelt No 26. The farm portion is approximately 15 km north-east of the town of Prieska in the Northern Cape Province and is owned by S & L Boerdery BK. The property falls inside the Siyathemba Local Municipality which, in turn, forms part of the greater Pixley Ka Seme District Municipality. Access to the proposed project area is obtained by way of the R 368 provincial road and a subsequent dirt farm road which lies approximately 6 km to the west of the proposed project area.

Various key factors must be taken into consideration as motivation/incentive for the potential benefits involved with the proposed project. Portion 10 of the Farm De Eelt no 26 is currently of little economic value due to low grazing capacity for livestock purposes. Should the portion not be developed and efficiently utilised, the economic value will stay low. The development of a vineyard on the farm will significantly increase the agricultural potential of the property, which will in turn increase the economic value. Construction and operational phase job creation (local employment) and sustainable capacity building (skills, experience and resources development) of this project will aid in immediate and continuous local community upliftment and poverty alleviation and are therefore regarded as significant socio-economic benefits associated with the proposed project to motivate the need and desirability. The outcomes of this project are also in line with the

requirements and objectives of the National Development Plan; Northern Cape Provincial Spatial Development Framework; Northern Cape Provincial Growth and Development Strategy as well as the Pixley Ka Seme District Municipality and Siyathemba Local Municipality Integrated Development Plans.

An alternative viable site location was not identified and evaluated for the project. The specific proposed location for the vineyard cultivation is preferred as it is the only viable portion of land available in that vicinity which is up for procurement. Procurements arrangements have been made between the applicant and the current land owner. The portion is also situated directly adjacent to the homestead of the intending developer/project applicant which is on the farm portion from where water will be lawfully obtained for irrigation through extraction from the Orange River. This will render the project viable from an economic and logistic perspective. Two preliminary water pipeline routes and storage dam locations have been determined on the proposed project footprint. Neither of the two alternative pipeline routes or dam locations is preferred. There is no difference between the potentially anticipated impacts of the two alternatives. These two alternatives are only preliminary recommendations and the final pipeline route and dam location will be finalised during the Environmental Impact Assessment phase.

A continual and comprehensive Public Participation Process (PPP) will be undertaken throughout the entire Scoping & EIA process with all stakeholders and Interested and Affected Parties (I & AP's), including the relevant organs of state and competent authority (Northern Cape Department of Environment and Nature Conservation) as identified during the Scoping Phase. The PPP will be conducted in accordance with the requirements of Regulation 41 of the EIA Regulations, 2014 and the designated Public Participation Officer will ensure that the PPP is facilitated in a manner which ensures reasonable opportunity for all stakeholders and registered I & AP's to comment and provide input on the proposed project.

The Scoping phase has identified various potential impacts which are discussed in detail in this report. They will need further investigation during the EIA phase to conclude on their significance. At this preliminary stage, no "red flag" significant potential impacts on the environment have been identified of which the severity might suggest that the EIA phase and proposed project should not continue. All identified impacts can be suitably mitigated to within acceptable levels.

In conclusion, although there are a number of potential ecologically significant issues to be addressed in the proposed project, no environmental fatal flaws were identified during the Scoping Phase. A detailed Environmental Impact Assessment is therefore recommended to further

investigate, assess and conclude on these potential issues and the appropriate mitigation measures required.



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## ABBREVIATIONS

BA	Basic Assessment
CARA	Conservation of Agricultural Resources Act (Act 43 of 1983)
CEL	Cost Estimate Letter
CIA	Cumulative Impact Assessment
CO <sub>2</sub>	Carbon Dioxide
CO <sub>2</sub> e	Carbon Dioxide Equivalent
CPA	Communal Property Association
CRR	Comments and Responses Report
CSP	Concentrated Solar Power
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
DENC	Department of Environment and Nature Conservation
DM	District Municipality
DMR	Department of Mineral Resources
DoE	Department of Energy
DSR	Draft Scoping Report
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMPr	Environmental Management Programme
FSR	Final Scoping Report
Ha	Hectares
HTF	Heat Transfer Fluid
I & APs	Interested and Affected Parties
IDP	Integrated Development Plan
IPP	Independent Power Producer
kV	Kilovolt
LED	Local Economic Development
LM	Local Municipality
LSA	Late Stone Age
MAP	Mean Annual Precipitation
MASL	Metres Above Sea Level

MLL	Minimum living level
MSA	Middle Stone Age
MVA	Megavolt ampere
MW	Megawatt
NCPSDF	Northern Cape Provincial Spatial Development Framework
NDP	National Development Plan
NEMA	National Environmental Management Act (Act 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act (Act 10 of 2004)
NEMWA	National Environmental Management: Waste Act (Act 59 of 2008)
NERSA	National Energy Regulator of South Africa
NFA	National Forests Act (Act 84 of 1998)
NHRA	National Heritage Resources Act (Act 25 of 1999)
NIP	National Infrastructure Plan
NWA	National Water Act (Act 36 of 1998)
PFS	Pre-feasibility Study
PPP	Public Participation Process
PUC	Point of Utility Connection
PoSEIA	Plan of Study for Environmental Impact Assessment
REIPPP	Renewable Energy Independent Power Producers Procurement Programme
SAHRA	South African Heritage Resources Agency
SDF	Spatial Development Framework
SIA	Social Impact Assessment
SIP	Strategic Integrated Project
ToR	Terms of Reference
UNFCCC	United Nations Framework Convention on Climate Change
VIA	Visual Impact Assessment
WRYCM	Water Resource Yield Computer Model
WULA	Water Use Licence Application

## **1. INTRODUCTION**

The agricultural industry forms a significant part of the annual GDP of the Republic of South Africa. Agriculture primarily contributes in the form of food national production and security and through import and export process as well as primary and secondary employment creation.

The company Mahoebe Eiendomme (Pty) Ltd has recently commenced with the process of procuring Portion 10 of the Farm De Eelt no 26 near the town of Prieska in the Northern Cape Province (approximately 147.91 ha). The reason for the intended procurement is for establishing a 100 ha vineyard on this portion of natural previously uncultivated land. The grapes produced will be used for the local production of wine. It is anticipated that 45 tons/ha can be produced on the proposed project area which will amount to a total of 4500 tons/annum.

The completion of the farm portion procurement process is however dependent on a number of factors. The major conditional factors are the suitability of the area for vineyard establishment (soil, water, transformation of natural resources, heritage significance) as well as the successful acquisition of an environmental authorisation (EA) from the competent authority. The Northern Cape Department of Environment and Nature Conservation has in this case been identified as the competent authority.

In accordance with the National Environmental Management Act (Act 107 of 1998); Environmental Impact Assessment Regulations of 2014, a full Scoping & Environmental Impact Assessment (EIA) processes is required for the proposed project in order to obtain the necessary environmental authorisation from the competent authority. Enviroworks was appointed by the owner of Mahoebe Eiendomme (Pty) Ltd to act as the independent Environmental Assessment Practitioner (EAP) to facilitate the entire environmental authorisation application process and complete the full Scoping & EIA processes for the construction and operational phases of the proposed project.

The following report aims to give context to the proposed development through providing a comprehensive description of the envisaged activities and relevant infrastructure; the identification of significant environmental impacts associated to the proposed project; identification of appropriate alternatives and mitigation measures for reduction of undesired impacts; and communication of results in a clear and concise manner to the competent authority and other relevant parties.

## 1.1 PROJECT APPLICANT INFORMATION

**Table 1: Project applicant information**

<b>Company/entity name:</b>	Mahoebe Eiendomme (Pty) Ltd
<b>Registration number:</b>	2001/014186/07 (see Appendix F for documentation)
<b>Physical address:</b>	Farm Mahoebe, Prieska, Northern Cape Province
<b>Postal address:</b>	PO Box 410, Prieska 8940
<b>Contact person:</b>	Johannes Hendrik Coetzee
<b>ID number:</b>	541104 5039 082
<b>Designation:</b>	Owner
<b>Contact number:</b>	072 403 8717
<b>E-mail address:</b>	mahoebe2@gmail.com



## 2. ENVIRONMENTAL ASSESSMENT PRACTITIONER

### 2.1 DETAILS OF THE EAP

Enviroworks was appointed by Mahoebe Eiendomme (Pty) Ltd as the independent Environmental Assessment Practitioner (EAP) to conduct a full Scoping & EIA process for the proposed project.

Enviroworks was established in November 2002. Although the formal establishment of the company took place in 2002, it is backed by more than 70 years of collective professional service and experience in the environmental field. The qualifications, expertise and experience of our professional team form the backbone of the company's continued success.

The vision of Enviroworks is to provide excellent, cutting edge Environmental Management Solutions and Services, underpinned by a team of professional consultants together with our associated network of specialist partners and project managers. The company continuously engages existing and emerging legislation, guidelines and practices in order to ensure the execution of high quality and appropriate studies. Through an integration of skills and expertise, it is envisioned that Enviroworks will deliver exceptional, competitive services for task execution and to meet deliverables. Enviroworks through years of experience and industry presence assures the seamless execution and roll out of tasks to achieve projected results on time. Our past experience on vineyard cultivation projects further benefits our understanding of the required and associated processes and the impacts thereof.

**Table 2: Details of the EAP**

Company/entity name:	Rikus Lamprecht (on behalf of Enviroworks)
Physical address:	5 Walter Sisulu Street; Universitas; Bloemfontein; 9301
Postal address:	PO Box X 01; Suite 116; Brandhof; 9324
Contact person:	Rikus Lamprecht
Designation:	Senior Environmental Consultant
Contact number:	072 230 9598
E-mail address:	rikus@enviroworks.co.za
Qualifications:	M.Env.Sci Ecological Remediation and Sustainable Utilisation

## **2.2 EXPERTISE OF THE EAP REPRESENTATIVE**

Rikus Lamprecht was employed by Enviroworks in 2016 as a Senior Environmental Consultant. Rikus was previously employed by Fraser Alexander Tailings from 2011 to 2015 as an Environmental Contracts Manager where he was responsible for the technical and operational management of all Fraser Alexander Tailings' environmental mining rehabilitation work. He was responsible for all facets of project management as well as implementation of rehabilitation and environmental strategies by planning activities, organizing physical, financial and human resources, delegating task responsibilities, leading people, controlling risks and providing technical support.

Rikus holds a B.Sc Botany and Zoology as well as an M.Env.Sci Ecological Remediation and Sustainable Utilisation degree. His environmental management knowledge and practical experience as well as his enthusiasm, disciplined goal-driven mind-set and high personal standards ensures high quality outputs during the implementation and completion of any environmental projects.

### **Relevant Project Experience**

#### **2016**

- Management of the Environmental Authorisation and EIA processes of the proposed Meerkat Hydropower Facility Project in the Orange River in the Northern Cape Province.
- Management of the Environmental Authorisation and EIA processes of the proposed N8 Realignment Project in the Freestate Province.
- Compilation of an Environmental Impact Assessment Report for the proposed cultivation of a 500 ha Vineyard for CarpeDiem in the Northern Cape
- Management of the 24G Environmental Authorisation and EIA processes of the Mooihoekdam Project in the Freestate Province.
- Conducting of Waste License and Air Emissions License applications for the 24G process of Clinvet International (Pty) Ltd
- Completion of a specialist vegetation study and report for the proposed Olifantshoek Bulk Water Supply Project in the Northern Cape Province.
- Completion of a specialist vegetation study and report for the proposed N8 gravel quarries in the Freestate Province.

See Appendix A for Curriculum Vitae.

### **2.3 PUBLIC PARTICIPATION OFFICER**

The entire Public Participation Process for the Scoping as well as EIA phases will also be conducted and coordinated by Rikus Lamprecht.

See Appendix A for Curriculum Vitae.

### **2.4 DETAILS OF THE INTERNAL REVIEWER**

Elbi Bredenkamp started her career as a case officer and served as an environmental specialist with the Department of Minerals and Energy gaining extensive knowledge of mining impact and attributing management mechanisms.

From 1997 to 2002 Elbi further developed her knowledge in the environmental field as a case officer working for the Department of Tourism, Environment and Economic Affairs, Free State (DTEEA-FS). Here Elbi was responsible for reviewing environmental impact assessments and developing administrative processes & organizational structures within the department. Through ongoing dealings with Environmental Legislation Elbi familiarized herself with the National Environment Management Act (Act 107 of 1998 “NEMA”) and NEMA EIA Regulations.

In 2002 Elbi established Enviroworks. As the Director of the company, Elbi gained extensive experience in the conducting of Environmental Impact Assessments, Risk Analysis, Auditing and Monitoring and Compiling of Environmental Management Plans for numerous projects. A familiarity with departmental mechanisms and functioning aided towards the success of these projects.

**Designation:** Company Director  
**Contact number:** 082 562 4134  
**Email address:** elbi@enviroworks.co.za

See Appendix A for Curriculum Vitae.

### **3. RELEVANT ENVIRONMENTAL LEGISLATION AND GUIDELINES**

#### **3.1 CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA (ACT 108 OF 1996)**

Section 24 of the Constitution of South Africa provides the main national legislative obligation towards sustainable environmental management and development. This section forms the foundation of all other subsequent environmental legislation and governance in South Africa. Section 24 states the following:

every person shall have the right -

- (a) to an environment that is not harmful to their health nor well-being; and
- (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures, that -
  - (i) prevent pollution and ecological degradation;
  - (ii) promote conservation; and
  - (i) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.”

The following sections provide an overview of the relevant environmental legislation and guideline documents applicable to the proposed project.

#### **3.2 OTHER RELEVANT ENVIRONMENTAL LEGISLATION**

Aside from NEMA, other key environmental legislation, policies, plans and guidelines will also be triggered by the proposed project, whilst others shall provide strategic goals and priorities for different resources and sectors.

The environmental legislation relevant to the proposed project and which has been taken into account in the preparation of the Final Scoping Report is summarised below:

##### **3.2.1 National**

###### **3.2.1.1 National Environmental Management Act (Act 107 of 1998) (NEMA)**

NEMA is the principle/framework legislation governing EIA and subsequent EA processes under the authority of the National Department of Environmental Affairs.

NEMA makes provisions for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment; institutions that will promote co-operative governance; procedures for co-ordinating environmental functions exercised by Organs of State and to provide for matters connected therewith.

Section 2 of the Act establishes a set of principles, which apply to the activities of all Organs of State that may significantly affect the environment. These include the following:

- Development must be sustainable;
- Pollution must be avoided or minimised and remedied;
- Waste must be avoided or minimised, reused or recycled;
- Negative impacts must be minimised and positive impacts enhanced; and
- Responsibility for the environmental health and safety consequences of a policy, project, product or service exists throughout its entire life cycle.

These principles are taken into consideration when a Governmental Department needs to exercise its powers for example, during the processes of granting permits or Environmental Authorisations or the enforcement of existing legislation or conditions of approval.

Section 23 of NEMA furthermore provides for general objectives of Integrated Environmental Management. In alignment with these objectives, the potential impacts on the biophysical and socio-economic environments are identified and evaluated. These potential environmental impacts have been assessed during the Scoping Report phase and mitigation measures are provided where relevant.

The subsequent Environmental Impact Assessment Regulations, 2014 (Government Notices R983, R984 and R985 in Government Gazette No. 38282 of 04 December 2014), which are also referred to as Listing Notices 1, 2 and 3 respectively, list development activities which will trigger the necessity to conduct either a Basic Assessment or a full Scoping & EIA process prior to EA being obtained for a proposed project. Listing notices 1 & 3 activities require only a Basic Assessment to be conducted while Listing notice 2 activities trigger the requirement for a full Scoping & EIA process to be conducted.

Considering the nature and scale of the development activities triggered by the proposed project, it was required that a full Scoping & EIA process be conducted to provide sufficient information to the competent authority in order for them to make an informed decision regarding the approval or rejection of the EA applied for.

Only once the EA is granted and the required supporting permits have been issued, may the applicant lawfully commence with the proposed project. The Scoping & EIA process is therefore a critical component in the feasibility and planning stage of any proposed project.

### **3.2.1.2 National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEMBA)**

NEMBA aims to provide for the management and conservation of the country's rich biodiversity within the framework of NEMA. It aids in the protection of species and ecosystems which warrant national protection and provides for the sustainable usage of the country's indigenous biological resources.

NEMBA and its Regulations was therefore utilised for determining the ecological/biodiversity significance, value and subsequently the adequate management of the proposed project area with regards to ecosystems, habitats and individual species.

The Department of Environmental Affairs is responsible for the implementation and overseeing of this legislation along with the South African National Biodiversity Institute (SANBI).

### **3.2.1.3 National Forests Act (Act 84 of 1998) (NFA)**

The aim of the NFA is to promote the sustainable usage, management and development of forests for the benefit of all in South Africa. The Act also makes special provisions for the protection of specific forests and tree species which duly require formal protection in order to ensure their prolonged existence.

The National Forests Act was therefore utilised to determine the potential presence of any protected forests or tree species in the proposed project area in order to ensure that the correct processes are followed for the approval of any listed activities for which a permit may be necessary regarding such forests or species, should it be required.

Permit applications in terms of the National Forests Act are lodged with the Department of Agriculture, Forestry and Fisheries.

### **3.2.1.4 Conservation of Agricultural Resources Act (Act 43 of 1983) (CARA)**

CARA aims to provide for the protection and control over utilisation of the country's agricultural resources in order to promote conservation of soils, water and natural vegetation as well as the combatting of weeds and invader plants. Sustainable utilisation is a key objective.

CARA was therefore used for determining the agricultural significance, value and subsequently the adequate management of the proposed project area.

It is overseen by The Department of Agriculture, Land Reform and Rural Development in the Northern Cape Province.

### **3.2.1.5 National Water Act (Act 36 of 1998) (NWA)**

The NWA aims to ensure sustainable use of water through the protection of the quality of water resources for the benefit of all water users. Its principal focus is the rectification and equitable allocation and use of the scarce and disproportionately distributed water resources of South Africa.

The property of the proposed project has standing water rights which allows the owner to extract from the Orange River. Section 21 of NWA defines the types of water uses which require a Water Use License to be applied for. The Act stipulates that a Water Use License Application must be submitted if a development takes place within 500 m of a natural watercourse. The relevance of this section of the Act to the specific project will be determined during the Environmental Impact Assessment phase.

The Department of Water and Sanitation is responsible for the implementation and overseeing of this legislation and is also the responsible authority for the issuing of permits for water use.

### **3.2.1.6 National Heritage Resources Act (Act 25 of 1999) (NHRA)**

The NHRA aims to provide for the integrated and interactive management and conservation of the national heritage resources in South Africa so that they may be bequeathed for future generations.

Section 38 lists categorised development processes which require the South African Heritage Resources Agency (SAHRA) to be notified and furnished with an archaeological and palaeontological study of a proposed project area in order to obtain project authorisation. The following development processes are triggered during the construction and operational phases of the proposed project:

- (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as -
  - (c) any development or other activity which will change the character of a site -
    - (i) exceeding 5 000m<sup>2</sup> in extent; or

The South African Heritage Resources Agency (SAHRA) has a mandate, in terms of the NHRA, to enforce the conditions of the NHRA, and hence oversees the management of heritage resources together with provincial heritage agencies.

### **3.2.1.7 National Development Plan – 2030 (NDP)**

The executive summary of the National Development Plan (NDP) initiates with the following paragraph, *“The National Development Plan aims to eliminate poverty and reduce inequality by*



*2030. South Africa can realise these goals by drawing on the energies of its people, growing an inclusive economy, building capabilities, enhancing the capacity of the state, and promoting leadership and partnerships throughout society.”*

Chapter 6 of the NDP specifically discusses the role and importance of commercial agriculture in the success of the country's economy and reaching the objectives of the NDP. It discusses the potential associated with the expansion of irrigated land towards food security and also job creation and capacity building (skills development and experience). The opportunity for the expansion of specifically grape production in the Orange River region is also highlighted as having significant potential benefits.

The development of the proposed vineyard could therefore be beneficial in terms of the goals/objectives described with regards to agriculture in the NDP.

### **3.2.2 Provincial**

#### **3.2.2.1 Northern Cape Nature Conservation Act (Act 9 of 2009)**

In addition to the NFA, the Northern Cape Nature Conservation Act also makes provision for the protection and sustainable utilisation of wild animals, aquatic biota and plants on a provincial scale in the Northern Cape Province. It is therefore used in conjunction with the NFA to determine the ecological/biodiversity significance, value and subsequent management of the proposed project area.

The Northern Cape Nature Conservation Act was utilised to determine the potential presence of any provincially protected or specially protected species in the proposed project area in order to ensure that the correct processes are followed for the approval of any listed activities for which a permit may be necessary regarding such species, should it be required.

Permit applications in terms of the Northern Cape Nature Conservation Act (Act 9 of 2009) are lodged with the relevant provincial authority, which in this case is the Department of Environment and Nature Conservation in the Northern Cape Province.

#### **3.2.2.2 Northern Cape Provincial Spatial Development Framework**

The Northern Cape Provincial Spatial Development Framework (NCPSDF) was formulated in 2011 to meet the requirements of the Northern Cape Planning and Development Act, 1998 (Act 7 of 1998) and the Municipal Systems Act, 2000 (Act 32 of 2000). Prepared in accordance with a bioregional planning approach adapted to suit the site-specific requirements of the Northern Cape, the NCPSDF recognises that no region or area should be planned and managed as an 'island' in

isolation from its surroundings. Together, unit areas form part of the broader environment and the mutual relationships and linkages between adjacent units must be understood and applied.

The framework aims to act as a policy and strategy providing direction and guidance for:

- future land use,
- spatial context for provincial sectoral strategies,
- promoting a developmental state,
- alignment of environmental management priorities, and
- mobilising the overarching objective of the Northern Cape Provincial Growth and Development Strategy (PGDS) to build prosperous, sustainable and growing provincial economy to eradicate poverty and improves social development.

A focus for achieving sustainable development as discussed in the framework, requires four areas of capital, being environmental, human, infrastructure and monetary. The plan further stresses the need for integrative participation, positive interventions and innovative finance. The SDF makes specific reference to the importance of agriculture and capacity increase in this sector in the Northern Cape Province.

The proposed project will make a positive contribution towards various objectives of the SDF.

### **3.2.2.3 Northern Cape Provincial Growth and Development Strategy (NCPGDS)**

The Northern Cape Provincial Growth and Development Strategy (NCPGDS) (2004 – 2014) highlights the most significant growth and development challenge as the reduction of poverty, and that only through long-term sustainable economic growth and development shall this be achieved. Important areas where growth can be achieved include agriculture and agro-processing, transport and tourism. In support of such growth areas the creation of opportunities for life-long learning, improvement of labour force skills to enhance productivity and expanding access to education and knowledge shall lead to the further realisation of such growth.

The inclusion of macro-level objectives shall mobilize these primary growth areas. Such objectives include the developing of human and social capital, improving the efficiency and effectiveness of governance and associated institutions and enhancing infrastructure for economic growth and development.

### **3.2.3 District and Local**

#### **3.2.3.1 Pixley Ka Seme District Municipality Integrated Development Plan 2015-2016 Review**

The District Municipality has developed its vision, development priorities, objectives and strategies with specific outcomes and outputs for the 2015/2016 financial year.

##### **Vision**

Pixley Ka Seme DM, Pioneers of Development, and Home and Future for all.

##### **Mission**

The Pixley Ka Seme DM will achieve its vision by:

- Using the integrated development planning process to create a home for all in our towns, settlements and rural areas through rendering efficient and effective, excellent and dedicated services
- Providing political and administrative leadership in the development planning process
- Promoting economic growth that is shared across and within communities;
- Assisting local municipalities to provide a sustainable delivery of services to local communities;
- Mainstream integrated planning in the operations of our municipalities;
- Ensuring that all development initiatives in the district are aligned to the National Development Plan.

The proposed project will be able to contribute positively to these objectives through job creation and sustainable capacity building (skills development and experience).

#### **3.2.3.2 Siyathemba Local Municipality Integrated Development Plan Final 29 May 2015**

The following vision and mission is engrained into the Integrated Development Plan (IDP) of the Siyathemba Local Municipality

##### **Vision**

Siyathemba Municipality undertakes to improve the standard of living of its entire community by delivering visible and affordable services.

##### **Mission**

To be a developmental Municipality, which has the interests of its communities at the centre of all its activities.

This will be done through:

- an optimal distribution of resources
- economic development through job creation and poverty reduction strategies
- effective and efficient service delivery through optimal distribution and human resources development; and
- effective and efficient maintenance of equipment and buildings

The proposed project will be able to contribute positively to these objectives through job creation and sustainable capacity building (skills development and experience).

### 3.3 RELEVANT GUIDELINES

The table below lists the Guideline Documents that are applicable to the proposed project, and which are considered as part of the EIA process, as are required in terms of the NEMA EIA Regulations; 2014.

**Table 3: Applicable guideline documents**

<b>1</b>	<b>DETEA EIA Guideline and Information Document Series</b>
<b>1.1</b>	<i>Draft Guideline on the <b>Need and Desirability</b> in terms of the EIA Regulations of 2010.</i> Integrated Environmental Management Guideline Series 9, Government Notice 792 of 2012.
<b>2</b>	<b>DEA &amp; DP EIA Guideline and Information Document Series</b>
<b>2.1</b>	<i>Guideline on <b>Generic Terms of Reference for EAPs and Project Schedules</b>,</i> EIA Guideline and Information Document Series. Western Cape Department of Environmental Affairs & Development Planning, March 2013.
<b>2.2</b>	<i>Guideline on <b>Need and Desirability</b>,</i> EIA Guideline and Information Document Series. Western Cape Department of Environmental Affairs & Development Planning, March 2013.
<b>2.3</b>	<i>Guideline on <b>Alternatives</b>,</i> EIA Guideline and Information Document Series. Western Cape Department of Environmental Affairs & Development Planning, March 2013.
<b>2.4</b>	<i>Guideline on <b>Public Participation</b>,</i> EIA Guideline and Information Document Series. Western Cape Department of Environmental Affairs & Development Planning, March 2013.
<b>3</b>	<b>DEA&amp;DP Guideline Document Series for Involving Specialists in the EIA Process, and others</b>
<b>3.1</b>	<i>Guideline for <b>Environmental Management Plans</b>.</i> CSIR Report No ENV-S-C2005-053 H. Republic of South Africa, Provincial Government of the Western Cape, Department of

### 3.4 NEMA LISTED ACTIVITIES TRIGGERED BY THE PROPOSED PROJECT

The development activities in the National Environmental Management Act (Act 107 of 1998): Environmental Impact Assessment Regulations, 2014 (Government Notices R983, R984 and R985 in Government Gazette No. 38282 of 04 December 2014) which are triggered by the proposed project are listed in the table below:

**Table 4: Environmental Impact Assessment Regulations, 2014 listed activities triggered by the proposed project**

Regulation	Activity	Description of trigger activity in proposed project
<b>GN. R. 983 Listing Notice 1</b>	<b>Activity 9</b>  The development of infrastructure exceeding 1000 metres in length for the bulk transportation of water or storm water-  (ii) with an internal diameter of 0,36 metres or more;	A maximum 250 mm – 300 mm pipeline of approximately 1.7 km in length will be constructed to transport water from the extraction point in the Orange River and deposit it into the proposed storage dam on site.
<b>GN. R. 983 Listing Notice 1</b>	<b>Activity 24</b>  The development of-  (ii) a road with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres;	Associated access roads will be established in and around the proposed vineyard which will be wider than 8 m
<b>GN. R. 984 Listing Notice 2</b>	<b>Activity 13</b>  The physical alteration of virgin soil to agriculture, or afforestation for the purposes of commercial tree, timber or wood production of 100 hectares or more.	Cultivation and establishment of a vineyard on approximately 100 ha of natural vegetation.  The total size of the farm portion to be impacted by roads and associated

Regulation	Activity	Description of trigger activity in proposed project
		infrastructure of the proposed project is approximately 147.91 ha.
<p><b>GN. R. 984 Listing Notice 2</b></p>	<p><b>Activity 15</b> 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.</p>	<p>Cultivation and establishment of a vineyard on approximately 100 ha of natural vegetation.</p> <p>The total size of the farm portion to be impacted by roads and associated infrastructure of the proposed project is approximately 147.91 ha.</p>
<p><b>GN. R. 985 Listing Notice 3</b></p>	<p><b>Activity 4</b> The development of a road wider than 4 metres with a reserve less than 13,5 metres. (a) In Free State, Limpopo, Mpumalanga and Northern Cape provinces: (ii) Outside urban areas, in: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans</p>	<p>The site falls inside a Critical Biodiversity Area and associated access roads wider than 4 m will be established in and around the proposed vineyard.</p>
<p><b>GN. R. 985 Listing Notice 3</b></p>	<p><b>Activity 12</b> The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with the</p>	<p>The site falls inside a Critical Biodiversity Area and cultivation and establishment of a vineyard on approximately 100 ha will occur.</p>

Regulation	Activity	Description of trigger activity in proposed project
	maintenance management plan. (d) In Northern Cape: (ii) Within critical biodiversity areas identified in bioregional plans	The total size of the farm portion to be impacted by roads and associated infrastructure of the proposed project is approximately 147.91 ha.

**3.5 NEMA REGULATION 21 SCOPING REPORT INFORMATION COMPLIANCE**

Regulation 21 of the Environmental Impact Assessment Regulations, 2014 (Government Notices R982 in Government Gazette No. 38282 of 04 December 2014) refers to Appendix 2 which provides the content requirements for a Scoping Report.

The table below lists the relevant requirements for the Scoping Report as per Appendix 2 of the Regulations as well as providing cross-references to where the relevant information is located in this document and/or its appendices.

**Table 5: Information required in the Scoping Report as per Appendix 2 of GN R. 982 of the EIA Regulations, 2014**

EIA Regulations, 2014 - Appendix 2 – Content of Scoping Report	Location in this document
(a) details of-	
(i) the EAP who prepared the report; and	Section 2.1
(ii) the expertise of the EAP, including a curriculum vitae;	Section 2.2
(b) the location of the activity, including-	
(i) the 21 digit Surveyor General code of each cadastral land parcel;	Section 5.1
(ii) where available, the physical address and farm name;	Section 5.1
(iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	Section 5.1
(c) a plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is-	Section 5.1
(i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or	Section 5.1



(ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	NA
(d) a description of the scope of the proposed activity, including-	
(i) all listed and specified activities triggered;	Section 3.4
(ii) a description of the activities to be undertaken, including structures and infrastructure;	Section 5.2
(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;	Section 3
(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;	Section 6
(h) a full description of the process followed to reach the proposed preferred activity, site and location within the site, including -	
(i) details of all the alternatives considered	Section 7
(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	Section 9
(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;	Section 9
(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section 8
(v) the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts- (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated;	Section 10
(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;	Section 10.1
(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,	Section 10

biological, social, economic, heritage and cultural aspects;	
(viii) the possible mitigation measures that could be applied and level of residual risk;	Section 10
(ix) the outcome of the site selection matrix;	NA
(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such and	NA
(x) a concluding statement indicating the preferred alternatives, including preferred location of the activity;	Section 10.5
(i) a plan of study for undertaking the environmental impact assessment process to be undertaken, including -	Section 4
(i) a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity;	Section 7
(ii) a description of the aspects to be assessed as part of the environmental impact assessment process;	Section 10.2
(iii) aspects to be assessed by specialists;	Section 4.2
(iv) a description of the proposed method of assessing the environmental aspects, including a description of the proposed method of assessing the environmental aspects including aspects to be assessed by specialists;	Section 10.1
(v) a description of the proposed method of assessing duration and significance;	Section 10.1
(vi) an indication of the stages at which the competent authority will be consulted;	Section 9.1
(vii) particulars of the public participation process that will be conducted during the environmental impact assessment process; and	Section 9
(viii) a description of the tasks that will be undertaken as part of the environmental impact assessment process;	Section 4.1
(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.	Section 10.2
(j) an undertaking under oath or affirmation by the EAP in relation to-	Appendix D
(i) the correctness of the information provided in the report;	
(ii) the inclusion of comments and inputs from stakeholders and interested and affected parties; and	Section 9.2 Appendix C
(iii) 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;	Section 9.2 Appendix C
(k) an undertaking under oath or affirmation by the EAP in relation to	Appendix D

the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment;	
(l) where applicable, any specific information that may be required by the competent authority and	NA
(m) any other matter required in terms of section 24(4)(a) and (b) of the Act.	NA

## **4. PLAN OF STUDY FOR THE EIA PROCESS**

During the Environmental Impact Assessment phase, the full results of the specialist studies conducted will be integrated into the Final Environmental Impact Report and potential Environmental Impacts will be thoroughly assessed and rated in order to determine their significance to the environment and recommend mitigation measures.

### **4.1 TASKS TO BE UNDERTAKEN DURING THE EIA PROCESS**

On the commencement of the Impact Assessment Phase, the key tasks to be undertaken will be as follow:

- Provide a detailed description of the proposed activity and affected bio-physical and socio-economic environment;
- Specialists will complete potential additional studies if required in order to address all significant issues identified during the Scoping Phase. A summary of the findings and recommendations will be provided and copies of the potential additional specialist reports will be included in the appendices of the Final Environmental Impact Report;
- Investigate and conduct a comparative assessment of the identified possible alternatives which include:
  - Pipeline and dam location alternatives on the selected site.
  - The ‘no-go’ alternative, which would mean that the vineyard is not developed and the status quo would prevail.
- The potential Environmental Impacts will be fully assessed and evaluated through the use of the impact rating methodologies.
- A detailed description of the Public Participation Process followed will be provided.
- An assessment of cumulative impacts will be completed.
- Account for all assumptions, uncertainties and gaps in knowledge.
- The provision of an Environmental Impact Statement.
- The assignment of mitigation and management measures for incorporation during the construction and operational phases through the preparation of an Environmental Management Programme (EMPr).

### **4.2 SPECIALIST STUDIES REQUIRED**

The final results of any potential additional specialist studies (if required) will be incorporated into the Final EIR and used to complete the impact ratings process. The required specialist studies are indicated in the table below:

**Table 6: Description of Specialist studies to be undertaken**

Specialist Study	Description of ToR for Study
Soil and Land Capability Assessment	<ul style="list-style-type: none"> <li>• A detailed Soil analysis.</li> <li>• Current Land Use on the site.</li> <li>• Surrounding Land Use.</li> <li>• Current status of land, erosion, vegetation cover, water availability etc.</li> <li>• Description and Motivation of change or no change of land use from agriculture.</li> <li>• Potential Alternative Land uses.</li> <li>• To obtain written comments on your report from the Department of Agriculture and Forestry contact person.</li> </ul>
Ecological and Wetland Assessment	<p><b>Terrestrial</b></p> <ul style="list-style-type: none"> <li>• Baseline survey and describe the impacted environment within the project footprint (including any alternatives and all associated infrastructure) from a biodiversity perspective.</li> <li>• Take into consideration the provincial biodiversity conservation plan and provincially protected species.</li> <li>• Assess the current ecological status and the conservation priority within the project footprint and adjacent area (as deemed necessary).</li> <li>• Provide a concise description of the importance of the affected area to biodiversity in terms of pattern and process, ecosystem goods and services, as appropriate.</li> <li>• Undertake sensitivity study to identify protected species, threatened species and alien/invasive species.</li> <li>• Prepare a vegetation and biodiversity sensitivity map with the use of a Geographical Information System (GIS), based on the findings of the study.</li> <li>• Identify potential fatal flaws associated with the project and its alternatives from a biodiversity perspective.</li> <li>• Assess all potential impacts and assign significance to the impacts.</li> <li>• Prepare a report including mitigation measures for minimising negative impacts.</li> </ul> <p><b>Wetland</b></p>

	<ul style="list-style-type: none"> <li>• Desktop Study</li> <li>• Walk-through Survey</li> <li>• Broad area Survey (use of aerial photographs and GIS Databases)</li> <li>• WETLAND-IHI (only applied to major wetlands)</li> <li>• Wetland delineation completed (indicated on map)</li> <li>• Compilation of Final Report by Specialist (incorporation of comments received)</li> <li>• A Wetland Sensitivity map, with the use of a Geographical Information System (GIS), based on the findings of the study, must accompany the report.</li> </ul>
<p>Heritage Impact Assessment</p>	<p><b>Archaeology</b></p> <ul style="list-style-type: none"> <li>• A Phase 1 Archaeological Impact Assessment in accordance with the South African Heritage Resources Act (Act 25 of 1999).</li> <li>• Walk-through Survey</li> <li>• Review of literature</li> <li>• Compilation of Final Report by Specialist (incorporation of comments received)</li> </ul> <p><b>Palaeontology</b></p> <ul style="list-style-type: none"> <li>• Desktop study is required and based on the outcome of the desktop study, a field assessment is likely</li> <li>• Investigate available resources (geological maps, scientific literature, previous impact assessment reports, institutional fossil collections, satellite images, etc) to inform an assessment of fossil heritage and/or exposure of potentially fossiliferous rocks within the study</li> <li>• Walk-through survey</li> <li>• Compilation of Final Report by Specialist (incorporation of comments received)</li> </ul>

## 5. PROJECT LOCATION AND DESCRIPTION

The following section provides an overview of the proposed project location as well as a detailed description of the proposed project.

### 5.1 PROJECT LOCATION

The proposed project area is approximately 147.91 ha in surface size and is situated on Portion 10 of the Farm De Eelt No 26. The proposed water pipeline will also traverse Portion 11 of the Farm De Eelt No 26. The farm portion is approximately 15 km north-east of the town of Prieska in the Northern Cape Province and is owned by S & L Boerdery BK. The property falls inside the Siyathemba Local Municipality which, in turn, forms part of the greater Pixley Ka Seme District Municipality. Access to the proposed project area is obtained by way of the R 368 provincial road and a subsequent dirt farm road which lies approximately 6 km to the west of the proposed project area.

See locality map below.

Farm Name and Number	SG 21 Digit Code	Land owner
Portion 10 of Farm De Eelt No 26	C06000000000002600010	S & L Boerdery BK
Portion 11 of Farm De Eelt No 26	C06000000000002600011	Mahoebe Eiendomme (Pty) Ltd

(See Appendix F for the title deed)

The four corner coordinate points for the corners of the proposed project area are as follows:

- North-western corner 29°34'28.36"S 22°50'10.05"E
- North-eastern corner 29°34'15.94"S 22°50'40.92"E
- South-eastern corner 29°35'11.41"S 22°50'59.94"E
- South-western corner 29°35'20.41"S 22°50'36.14"E

The starting split and end points of the proposed water pipeline alternatives are as follows:

- Start point 29°33'56.59"S 22°51'15.31"E
- Split point 29°34'10.36"S 22°51'04.12"E
- End point 1 29°34'30.30"S 22°50'26.91"E
- End point 2 29°34'44.81"S 22°50'41.93"E

These two pipeline alternatives are only preliminary recommendations and the final pipeline route and dam location will be finalised during the Environmental Impact Assessment phase.

**Table 7: Details of relevant land owner of Portion 10**

<b>Company/entity name:</b>	S & L Boerdery BK
<b>Postal address:</b>	PO Box 122, Prieska 8940
<b>Contact person:</b>	Schalk Theron
<b>Designation:</b>	Owner
<b>Contact number:</b>	082 802 2211
<b>E-mail address:</b>	tschalk@xsinet.co.za

**Table 8: Details of relevant land owner of Portion 11**

<b>Company/entity name:</b>	Mahoebe Eiendomme (Pty) Ltd
<b>Postal address:</b>	PO Box 410, Prieska 8940
<b>Contact person:</b>	Johannes Hendrik Coetzee
<b>Designation:</b>	Owner
<b>Contact number:</b>	072 403 8717
<b>E-mail address:</b>	mahoebe2@gmail.com

A visual example of the proposed project area is illustrated in Figures 1 & 2 while the location of the proposed project area in relation to the nearby town, access roads and adjacent farms is illustrated on the locality map in Figure 3 below:





**Figure 1: Image visually illustrating the general bottom flat landscape of the proposed project area**



**Figure 2: Image visually illustrating the general bottom flat landscape of the proposed project area**



See Appendix B for an A3 size version of the locality map.

## **5.2 PROJECT DESCRIPTION**

Mahoebe Eiendomme (Pty) Ltd intends to cultivate a 100 ha piece of land on the 147.91 ha project location as discussed above for the establishment of a vineyard. The additional 47.91 hectares will be utilised for the establishment of internal access roads and associated infrastructure. A pipeline will also be constructed from the water extraction point in the Orange River to the onsite storage dam. The principal objective for the grapes produced will be for the local production of wine. It is anticipated that 45 tons/ha can be produced on the proposed project area which will amount to a total of 4500 tons of grapes per annum.

The project will entail three major aspects namely:

- Construction of an onsite water storage dam and product storage building on Portion 10 of the Farm De Eelt No 26.
- The construction of a pipeline from the water extraction point in the Orange River to the onsite storage dam on Portion 10 & 11 of the Farm De Eelt No 26.
- Cultivation of a 100 ha vineyard and associated access road network on Portion 10 of the Farm De Eelt No 26.

### **5.2.1 Construction of an onsite water storage dam and product storage building**

- A water storage dam of approximately 40 m X 20 m in size will be constructed in the north eastern section of the proposed project footprint. The inner portion of the dam will be adequately lined to prevent seepage and water loss. The purpose of this dam will be to store the water supplied from the Orange River which will then subsequently be extracted from the dam for irrigation purposes on the vineyard.
- A storage building will be constructed on the proposed project footprint. The purpose of the storage building will be to provide adequate space/capacity for the storage of all products produced as well as other necessary equipment storage.

### **5.2.2 Construction of a pipeline from the water extraction point in the Orange River to the onsite storage dam.**

- A maximum 250 mm – 300 mm pipeline of approximately 1.7 km in length will be constructed to transport water from the extraction point in the Orange River and deposit it into the proposed storage dam on site. The pipeline will be buried subsurface to prevent any potential damage or obstruction. A trench of approximately 900 mm wide will be excavated in order to accommodate the subsurface burial of the pipeline. The pipeline route outside of the proposed



project footprint will run along a transformed agricultural area and access road where virtually no natural vegetation is still present.

### **5.2.3 Cultivation of a 100 ha vineyard and associated access road network.**

A 100 ha vineyard will be established on the proposed 147.91 ha project footprint.

The cultivation and planting process will work as follows:

- The area will be cleared with the use of a Bulldozer and deep-ripped with the dozer tines to breakup and aerate the soils.
- Surface rocks will be manually removed from the area.
- Soil preparation will then be conducted by cultivation with the use of a chisel plough.
- Amelioration recommendations will be obtained from a soil scientist through chemical and organic soil analyses in order to ensure the appropriate nutrients/minerals as required for the vineyard are incorporated into the growth medium (soil) prior to planting.
- A drip irrigation system will be constructed and implemented over the entire proposed vineyard area.
- Irrigation water will be abstracted from the Orange River as per the allotted water rights for the consolidated farm portions.
  - See Appendix H for the water use rights documentation indicating the allowable water use.
  - 10 000 m<sup>3</sup>/ha/annum over a total 134 ha is allotted in terms of the water use rights documentation.
- The amount of water required for the vineyard is approximately 600 mm/ha/annum of which approximately 200 mm will be obtained from rainfall. The outstanding 400 mm will effectively be required from the river extraction and irrigation.
- Planting of vineyard sprouts will be conducted manually through manual labour. sprout
  - Each sprout will be individually placed in a hole at the distances from each other as specified by the applicant's agricultural consultant.
  - They will be watered and closed up with surrounding soil to commence with growth.
- The area will be divided into practically suitable blocks with an internal access road network between blocks as well as around the outer boundary of the vineyard. Roads will be approximately 8 m in width in order to allow for sufficient access and adequate machine/truck movement between the vineyard blocks.

#### **5.2.4 Project Description Summary**

The development will constitute a total footprint area of approximately 147.91 ha as indicated on the locality map (the entire fenced off section of Portion 10 of the Farm De Eelt No 26). This will include the 100 ha vineyard along with internal access roads and associated infrastructure such as the pipeline (Portion 11 of the Farm De Eelt No 26) and onsite storage dam and storage building.

It is envisaged that the vineyard preparation and planting/development phase will take approximately 12 months to complete, while the operational phase will continue for an undisclosed period of time (multiple years).

If the operational phase is ever concluded in the future, the area will be suitable rehabilitated in order to return the project area to a self-sustainable ecological state.

### **5.3 PROJECT SERVICES**

#### **5.3.1 Electricity Supply**

- No additional electricity will be required during the construction phase. All processes will either be manually conducted or via machines on site.
- The pumps required during the operational phase at the Orange River extraction point will be incorporated into the existing pumping system and electricity feed which is already present at the extraction point and being used for other irrigation purposes.

#### **5.3.2 Sewage Management**

- Sufficient portable chemical toilets will be supplied on site for the manual labourers during the construction phase. These toilets will be cleaned and waste removed by a contractor on a regular basis as and when required.
- Sufficient portable chemical toilets will also be supplied on site for the manual labourers during the short annual harvesting periods. These toilets will be cleaned and waste removed by a contractor on a regular basis as and when required.

#### **5.3.3 Solid Waste Management**

Solid general waste generated on site will be removed by the applicant to the local municipal landfill site on a regular basis as and when required.

#### **5.3.4 Water Supply**

As discussed under section 5.2.3 above water will be extracted from the Orange River and stored in an onsite storage dam for irrigation purposes. See Appendix H for the water use rights documentation indicating the allowable water use.

## **6. NEEDS AND DESIRABILITY OF THE PROJECT**

Various key factors must be taken into consideration as motivation/incentive for the potential benefits involved with the proposed project. These factors have been summarised below:

Portion 10 of the Farm De Eelt no 26 is currently of little economic value due to low grazing capacity for livestock purposes. Should the portion not be developed and efficiently utilised, the economic value will stay low. The development of a vineyard on the farm will significantly increase the agricultural potential of the property, which will in turn increase the economic value.

The population of the Siyathemba Municipality is approximately 17 497 with 9374 living below the minimum living level (MLL). This constitutes a percentage of 53.58 %. The average monthly (individual) income for the district is approximately R 740 which is less than the stipend received as a grant from social services departments.

There has been a decrease in the number of people employed and an associated increase in the number of unemployed in the district between the 2001 and 2011 censuses. This result is directly related to the number of businesses that have closed in the region during the period reflected and indicates the need for a retention or wholesale and retail strategy regarding these businesses. Unemployment reached approximately 28.3 % with youth unemployment reaching 35.4 % in 2011 as per Stats SA 2011 Census.

While the number of jobs increased in South Africa, as well as the Northern Cape and Pixley Ka Seme District Municipality between 2000 and 2009, it declined in Siyathemba Municipality. The unemployment rate has steadily increased in Siyathemba over the past decade.

The labour participation rate for Siyathemba Municipality is 48.19 %. This indicates the labour force as a percentage of the population in the age group 15 - 64 years of age.

The total number of persons dependent on/supported by every person in the labour force, excluding him or herself is indicated by the labour dependency ratio and working individuals in the Siyathemba Municipality have to support approximately 1.99 additional persons.

The youth dependency ratio indicates the total number of youths, aged 0 - 14, supported by every person in the labour force, excluding him or her. The ratio in the Siyathemba Municipality is 0.36.

The labour aged dependency ratio indicates the total number of aged persons, older than 65, supported by every person in the labour force, excluding him or herself. The ratio for the district is 0.85.

The labour absorption capacity is the ability of the formal sector of the economy to absorb the supply of labour in the region. Approximately 25 % of the economically active population of the district is unemployed.

The Department of Economic Development and Tourism in the Northern Cape has recently concluded the development of its Provincial Local Economic Development (LED) Strategy in line with the Northern Cape Growth and Development Strategy. The LED is an approach to sustainable economic development that encourages residents of local communities to work together to stimulate local economic activity that will result in, inter alia, an improvement in the quality of life for all in the local community. These Strategies provide the foundation for Integrated Economic Development Planning throughout the Northern Cape. A development such as the proposed project would present a definite benefit and positive addition to the LED through local job creation and skills development and contribute to the alleviation of poverty and unemployment in the local municipality. This will enable a better livelihood and a higher quality of living to individuals involved.

The establishment of the vineyard will take approximately 12 months to complete. Thirty un-skilled local individuals will be employed for the duration of the establishment period. The total annual financial income value including the planting and pruning processes will be approximately R 1.4 million for the employees over the establishment period.

The experience and skills involved in completing these vineyard establishment processes will provide valuable capacity building and skills development and transfer to approximately 400 people during this process.

A semi-skilled manager along with approximately 4 permanent employment positions can then be appointed on a permanent for the duration of the operational phase once the establishment phase has been completed.

Once the vineyard has been established and moves into the production phase, the harvesting period of 4 weeks will also provide an income to approximately 375 individuals which will assist with the harvesting and will be worth up to R 970 000 for that period on an annual basis.



The expected annual project yield will be approximately 45 tons of grapes/ha which could generate an annual project income project of up to R 8.1 million.

Construction and operational phase job creation (local employment) and sustainable capacity building (skills, experience and resources development) of this project will aid in immediate and continuous local community upliftment and poverty alleviation and are therefore regarded as significant socio-economic benefits associated with the proposed project to motivate the need and desirability. As discussed in section 3, the outcomes of this project are also in line with the requirements and objectives of the National Development Plan; Northern Cape Provincial Spatial Development Framework; Northern Cape Provincial Growth and Development Strategy as well as the Pixley Ka Seme District Municipality and Siyathemba Local Municipality Integrated Development Plans.

## 7. ALTERNATIVES CONSIDERED

According to Chapter 1 of NEMA EIA Regulations 2014, Notice R982, “*Alternatives*”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to-

- (a) The **property** on which or **location** where it is proposed to undertake the activity;
- (b) The **type** of activity to be undertaken;
- (c) The **design** or **layout** of the activity;
- (d) The **technology** to be used in the activity;
- (e) The **operational** aspects of the activity; and
- (f) The option of **not implementing** the activity.

These NEMA EIA Regulations 2014, Notice R982, recognises that details on alternatives need to include “*a description of identified potential alternatives to the proposed activity, including advantages and disadvantages that the proposed activity or alternatives may have on the environment and the community that may be affected by the activity*”.

The consideration of alternatives is therefore a key component of an EIA process. While an EIA process should investigate and comparatively **consider** all alternatives that have been identified, only those found to be “feasible” and “reasonable” must be comparatively **assessed**, in terms of the advantages and disadvantages that the proposed activity and alternatives will have on the environment and on the socio-economic aspects of communities that may be affected by the activity.

The “feasibility” and “reasonability” of an alternative are measured by:

- the general purpose and requirements of the activity;
- the need and desirability of the activity;
- opportunity costs;
- the need to avoid and/or minimise negative impacts;
- the need to maximise benefits; and
- how it impacts on the community that may be affected by the activity (DEA&DP, 2013b).

Alternatives considered for the proposed vineyard cultivation include two layout alternatives and a no-go option. The following section describes those alternatives that have been considered (i.e. identified and investigated) and indicate which alternatives are deemed to be “feasible” and “reasonable” and therefore preferred. It also indicates and compares the advantages and disadvantages of these alternatives.

### **7.1 LOCATION ALTERNATIVES**

An alternative viable site location was not identified and evaluated for the project. The specific proposed location for the vineyard cultivation is preferred as it is the only viable portion of land available in that vicinity which is up for procurement. Procurements arrangements have been made between the applicant and the current land owner. The portion is also situated directly adjacent to the homestead of the intending developer/project applicant which is on the farm portion from where water will be lawfully obtained for irrigation through extraction from the Orange River. This will render the project viable from an economic and logistic perspective.

### **7.2 LAYOUT ALTERNATIVES**

Two preliminary water pipeline routes and storage dam locations have been determined on the proposed project footprint. Neither of the two alternative pipeline routes or dam locations is preferred. There is no difference between the potentially anticipated impacts of the two alternatives.

These two alternatives are only preliminary recommendations and the final pipeline route and dam location will be finalised during the Environmental Impact Assessment phase.

### **7.3 No-Go OPTION**

#### **Advantages**

The negative environmental impacts associated with the proposed project and its alternatives as identified under Section 10 will be avoided if the proposed project is not implemented.

#### **Disadvantages**

If the proposed project however does not go ahead, the local communities will forego the economic benefits which the project will have on the area such as immediate additional employment opportunities and revenue streams and most importantly, sustainable capacity building (skills, experience and resources development) for the future.

The no-go option is therefore not recommended.

## 8. DESCRIPTION OF THE ENVIRONMENT

The following section provides an overview of the bio-physical as well as the socio-economic environments of the proposed project. The table below indicates the list of specialist studies that were conducted during the assessment process:

**Table 9: List of Specialist Studies Conducted**

Specialist Name	Organisation	Specialist Assessment Type
Rikus Lamprecht	Enviroworks	Ecological and Wetland Impact Assessment (Fauna & Flora)
Report externally reviewed by Prof. Johann du Preez	Enviro-Niche Consulting	
Dr. Lloyd Rossouw	Palaeo Field Services	Archaeological and Palaeontological Impact Assessment

### 8.1 BIO-PHYSICAL DESCRIPTION

This section provides a comprehensive description of the bio-physical environment of the proposed project area.

#### 8.1.1 Climate

The rainfall of the region peaks during the autumn months and the Mean Annual Precipitation (MAP) of the area varies from 190 mm in the west to 400 mm in the north-east (Mucina & Rutherford, 2006). The specific project area falls in the lower section of this regional MAP ( $\leq 200$  mm). The average monthly midday temperature for the summer months varies between 24°C and 33°C while the winter months varies between 18°C and 29°C for the town of Prieska. The average monthly night-time temperature varies between 7°C and 17°C for the summer months while the winter months varies between 2°C and 14°C for the town of Prieska.

#### 8.1.2 Geology and Soils

According to Mucina & Rutherford, 2006, shales of the Volksrust formation and to a lesser extent the Prince Albert formation as well as Dwyka group diamictites form the underlying geology. Jurassic Karoo dolerite sills support this vegetation type in some areas while other wide stretches of land are covered by superficial deposits including clacerets of the Kalahari group. Soils vary from shallow to deep, red yellow apedal, freely drained soils to very shallow Glenrosa and Mispah.

### **8.1.3 Topography**

The proposed project area is mainly characterised by a wide, flat open plain consisting of clayey soils. A slightly elevated rocky ridge area with well drained soils is also present in the northern section of the proposed project area. The topography of the area varies between 1000 to 1500 MASL according to Mucina & Rutherford, 2006.

### **8.1.4 Ecological and Wetland Impact Assessment**

An Ecological and Wetland Impact Assessment was conducted for the proposed project area in order to determine the ecological value/significance and subsequent conservational importance and sensitivity of the area. The potential impacts that the proposed project will have on the ecology of the area were identified and evaluated to determine possible mitigation measures which could be implemented in order to acceptably reduce the significance of the associated impacts. An overview of the ecological aspects surrounding the proposed project is provided in the section below in accordance with the specialist report:

According to Mucina & Rutherford (2006) the proposed project area forms part of the Upper Gariep Alluvial vegetation type (AZa 4) which mainly consists of flat alluvial terraces supporting complex of riparian thickets and is classified as vulnerable in terms of conservation status. The vegetation structure and species encountered during the site visit however indicated that the vegetation rather forms part of the adjacently situated Northern Upper Karoo vegetation type (NKu 3) which is classified as least threatened (Mucina & Rutherford, 2006). This vegetation type is characterised by a shrubland dominated by dwarf karoo shrubs, grasses and low trees on a flat to gently sloping terrain.

In accordance with the Provincial Spatial Biodiversity Plan, the proposed project area also falls inside an area categorised as a Critical Biodiversity Area 1. Critical Biodiversity Areas are areas which play an important role in conservation and reaching certain required biodiversity targets for ecosystem types, species or ecological processes. The CBA 1 categorisation is however based on the endangered vegetation type present (AZa 4) while the ground truthing indicated that the area rather falls inside the adjacently located vegetation type (NKu 3) and it is then rather only categorised as a CBA 2.

The location of the proposed project area in relation to the various vegetation types as well as potential ecologically sensitive features in the area is illustrated on the vegetation and sensitivity maps in the figures below:

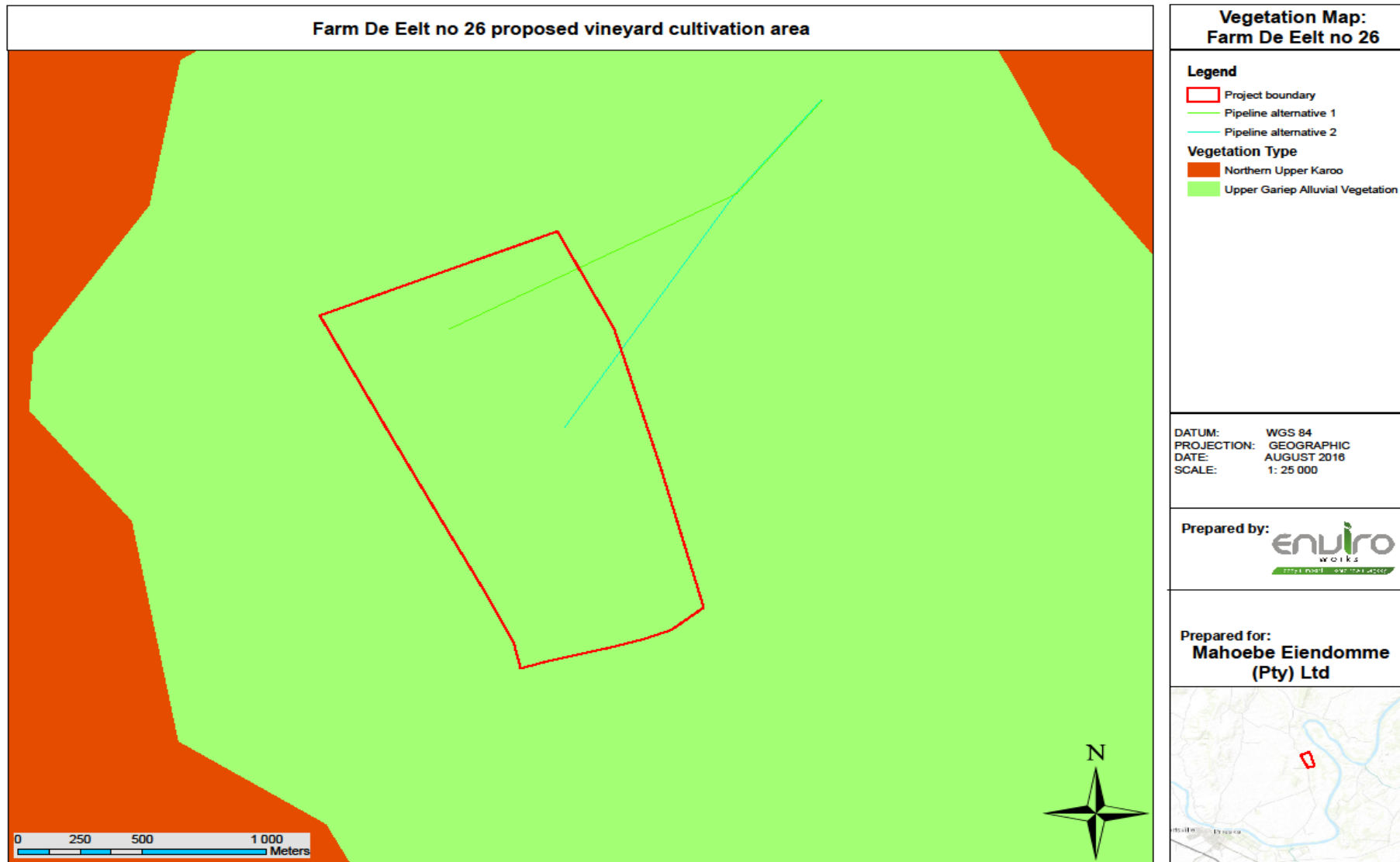


Figure 4: Vegetation map of the proposed project layout

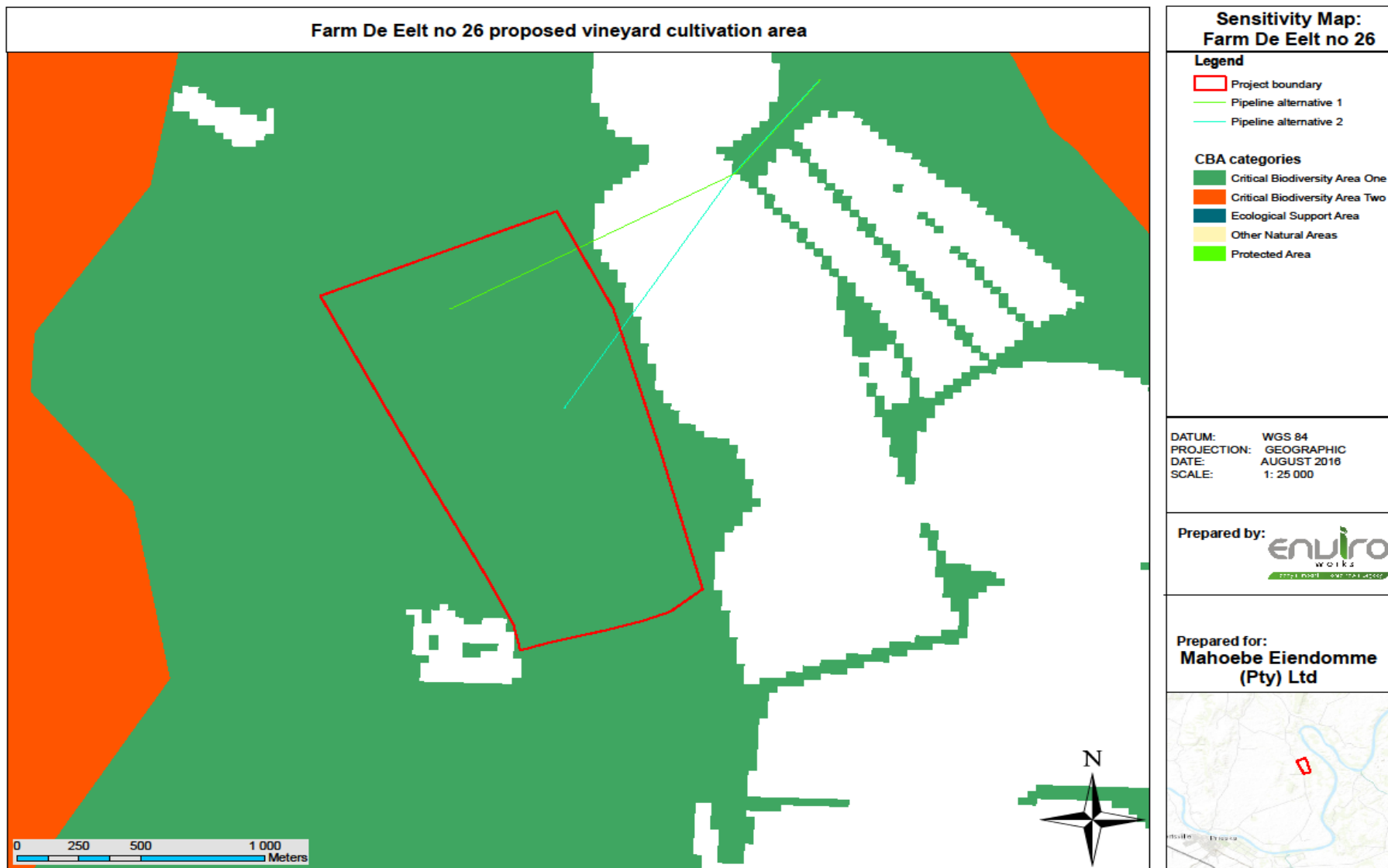


Figure 5: Ecological sensitivity map of the proposed project layout

See Appendix B for A3 sizes version of the sensitivity maps.

#### 8.1.4.1 Terrestrial environment

##### Results and Discussion of the Specialist Report

The proposed project area can roughly be divided into the following three sections based on landscape structure and condition of vegetation/extent of degradation:

- Top flat plateau of the elevated rocky ridge
- Side-slope and lower foot-slope of the rocky ridge
- Lower lying flat areas surrounding the ridge.

Each of the three sections will now be discussed:

##### Top flat plateau of the elevated rocky ridge

A slightly elevated ridge is present in the northern section of the proposed project area. The vegetation structure of the flat plateau of this ridge mainly constitutes low growing shrubs and forbs with isolated woody individuals. The grass layer is very sparse with the species *Enneapogon scoparius* mainly present. The plateau is mainly dominated by the shrubs *Rhigozum trichotomum*, *Boscia foetida* (provincially protected) and *Aptosimum spinescens*.

The following species are also present:

**Table 10: Species present on the top flat plateau with their conservation and protection statuses**

Species name	Provincial protection status	Red Data Listing
<i>Hoodia gordonii</i>	Specially protected	Data deficient
<i>Aloe claviflora</i>	Protected	Least concerned
<i>Oxalis semiloba</i>	Protected	Least concerned
<i>Ruschia sp</i>	Protected	To be confirmed
<i>Drimia sp</i>	Not listed	To be confirmed
<i>Ledebouria sp</i>	Not listed	To be confirmed
<i>Pentzia sphaerocephala</i>	Not listed	Least concerned
<i>Schismus barbatus</i>	Not listed	Least concerned
<i>Dipcadi crispum</i>	Not listed	Least concerned
<i>Geigeria filifolia</i>	Not listed	Least concerned
<i>Heliotropium lineare</i>	Not listed	Least concerned
<i>Talinum caffrum</i>	Not listed	Least concerned



Provincial permits will have to be applied for, for the relocation of provincially protected and specially protected individuals. Only one individual of the specially protected species *Hoodia gordonii* was observed on the proposed project site while approximately 30 + individuals of the other protected species were observed respectively.

The nationally protected tree species *Boscia albitrunca* (Shepherd's tree/witgat) is also sparsely present and the locations/coordinates of all the individuals encountered during the site visit have been noted and are discussed in detail later under this heading.

No Red Data Listed species were found to be present.

A small, isolated wet area is present on the plateau but it is evidently a manmade structure and does therefore not constitute a wetland or watercourse.

Due to the higher localised altitude and well drained rocky soils of this ridge area, it is well suited for vineyard establishment. The presence of the listed provincially protected species however means that permits need to be applied for in order to remove/relocate these species prior to any development taking place. Due to the size and maturity of the nationally protected tree individuals identified, relocation will not be possible. Removal permits will have to be applied for at the national and provincial departments. It is however recommended that the project rather attempts to keep and protect some of the individual trees on site. A minimum 10 m buffer zone can be implemented around each individual in order to attempt to prevent any interaction with or damage to the above and below ground components of the trees during the cultivation processes as this will constitute a transgression of the law which could be criminally prosecuted. Such a buffer could potentially be in the form of a physical fence to be erected around each individual in order to discourage any potential contact/interaction which could lead to any of the unacceptable impacts on the individuals as per the Act. Establishment of a vineyard on this area is therefore subjective to the success of the permit application and securing of the safety of all protected tree individuals.

### **Side-slope and lower foot-slope of the ridge**

This small localised side-slope portion directly beneath the flat plateau of the ridge has a distinct, significantly denser woody component when compared to the plateau. It mainly consists of *Acacia mellifera* and to a lesser extent also the nationally protected tree species *Boscia albitrunca*. The forb species as identified on the top flat plateau are all present with the species *Salsola aphylla* becoming significantly more prominent.

No Red Data Listed species were found to be present.

Once again the higher localised altitude and well drained soils result in this area being well suited for vineyard establishment if removal/relocation permits are obtained for the provincially and nationally protected species. It is again recommended that the safety of all protected tree individuals be secured with a minimum 10 m buffer zone.

### **Lower lying flat areas surrounding the ridge**

This is a significant portion of the proposed project footprint and is characterised by less rocky soils on the lower lying flat terrain. The area is virtually devoid of a woody component with the exception of isolated *Searsia lancea* and *Ziziphus mucronata* individuals and a clump of *Acacia* individuals in the western section. Mostly the same forb species as found on the flat plateau and side-slope are present with the exception of the provincially specially protected species *Hoodia gordonii* and provincially protected species *Aloe claviflora* which are confined to the ridge. Grasses mainly include *Enneapogon desvauxii* and *Schismus barbatus*. Additional species which are not present on the plateau or side-slope include *Peliostomum leucorrhizum*, *Asparagus glaucus*, *Aptosimum indivisum*, *Lycium cinereum*, *Tribulus cristatus* and *Zygophyllum incrustatum*.

The Category 3 invasive species *Prosopis glandulosa* is present in isolated areas but active management and eradication processes are evident.

No Red Data Listed species were found to be present.

The southern portion of the flat terrain is more disturbed and degraded than the rest of the area. An old road is evident and a soil berm has been constructed in order to divert storm-water past the proposed project area. This constructed water diversion is not considered a natural watercourse. The vegetation is evident of the disturbance. The species *Euphorbia mauritanica* and *Nidorella hottentotta* are only present in the disturbed areas. Although the soils are suited for vineyard establishment this southern portion is not practically ideal due to the potential water runoff occurring in that area.

### **Proposed pipeline route**

The pipeline route outside of the proposed project footprint will run along a transformed agricultural area and access road where virtually no natural vegetation is still present.

### ***Boscia albitrunca* individuals identified**

The tree species *Boscia albitrunca* is listed as a protected species under the National Forests Act (Act 84 of 1998). The Act states that no person may cut, disturb, damage or destroy any protected tree except if a permit is obtained for the desired process. The individuals present on the proposed

project site are strictly confined to the well-draining rocky soils of the top flat plateau and side-slope areas of the elevated ridge. Due to the size and maturity of the individuals identified, relocation will not be possible. Removal permits will have to be applied for at the national and provincial departments. It is however recommended that the project rather attempts to keep and protect some of the individual trees on site. A minimum 10 m buffer zone can be implemented around each individual in order to attempt to prevent any interaction with or damage to the above and below ground components of the trees during the cultivation processes. Any such damage will constitute a transgression of the law which can be criminally prosecuted. A total of 20 individuals were encountered during the site visit and their locations/coordinates have been noted and are indicated in the figure below. A number of the individuals are located directly adjacent to each other and their locations are therefore not displayed as separate icons on the figure below.

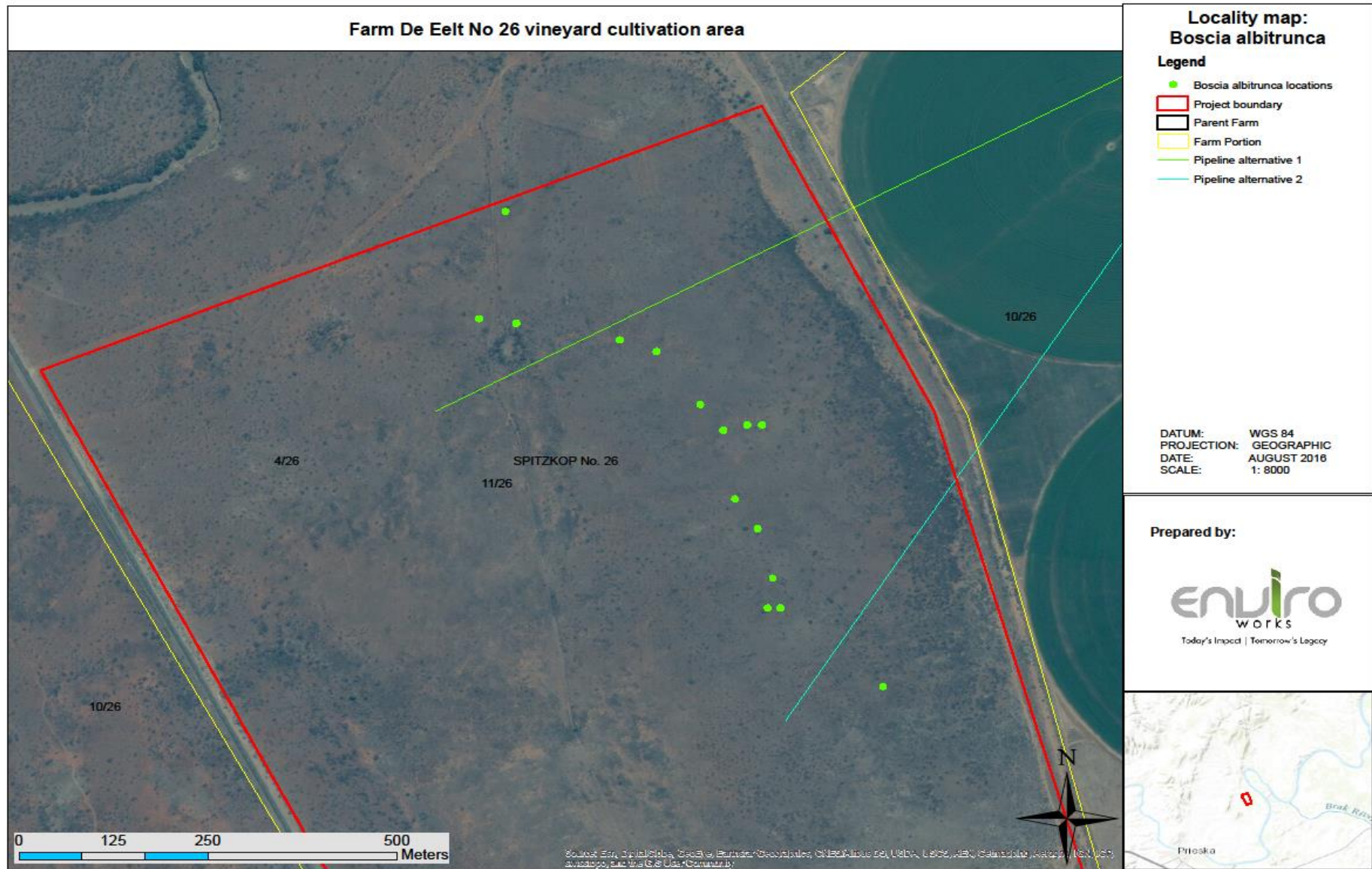


Figure 6: Locality map of the *Boscia albitrunca* individuals present on the proposed project area

#### 8.1.4.2 Aquatic environment

##### Streams & Wetlands

The topography of the area is relatively flat and contour lines are wide apart. No well-developed or seasonal drainage lines or watercourses therefore occur on the proposed project site. No wetlands or wetland vegetation is present on the proposed project site.

#### 8.1.4.3 Conclusions and Recommendations

Although the entire proposed project area forms part of a Critical Biodiversity Area 1, this categorisation is based on the endangered Upper Gariep Alluvial vegetation type. Ground truthing indicated that the area rather falls inside the adjacently located Northern Upper Karoo vegetation type and it is rather only categorised as a CBA 2. The Northern Upper Karoo vegetation type is classified as least threatened and the reason for the CBA 2 classification is mainly based on the areas being classified as areas where biodiversity targets can be successfully achieved. The project area is directly adjacent to currently cultivated areas of significant size which separate the project area from the Orange River and impedes the local surface water catchment. The cultivation of the proposed project area would therefore not add significant negative impact to the local surface water catchment feeding the Orange River as it is already isolated. For these reasons, the transformation of the CBA 2 is not considered a fatal flaw for the proposed project.

Provincial permit applications must be submitted to the department for the relocation of identified individuals of provincially protected and specially protected species. Cultivation can only commence once these permits have been obtained and identified individuals have been adequately removed and relocated.

National and provincial permit applications must be submitted to the departments for the removal/destruction of the identified individuals of the nationally protected tree species *Boscia albitrunca*. Cultivation can only commence once these permits have been obtained from the relevant departments. It is however recommended that the project rather attempts to keep and protect some of the individual trees on site. A minimum 10 m buffer zone can be implemented around each individual in order to attempt to prevent any interaction with or damage to the above and below ground components of the trees during the cultivation processes.

To conclude from an ecological perspective, no fatal flaws were identified which would merit rejection of the proposed project and it is therefore recommended that the development be allowed to continue on the proposed project area.



See specialist report in Appendix E.

### 8.1.5 Agriculture and Soil Suitability Assessment

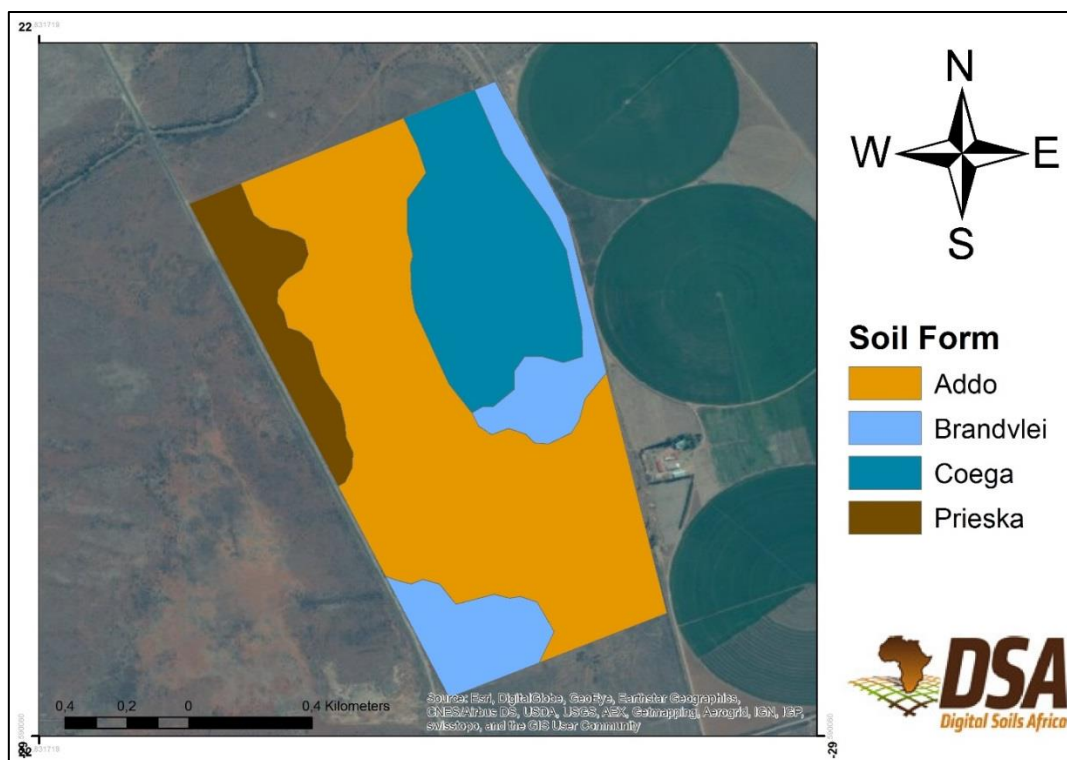
A Soil and Irrigation Suitability Assessment was conducted for the proposed project area in order to determine the agricultural value of the area. Digital Soils Africa conducted an irrigation potential soil survey for a 149 ha field on De Eelt Farm no 26 in order to assess the suitability of the area for drip irrigation for vineyards. The topography is uniform flat with a maximum slope gradient of 3%.

#### Soils forms

The soils encountered during the survey are shown in the table below and the soil form distribution is shown in Figure 7 below. Figure 8 shows the distribution of the water infiltration impeding layers.

**Table 11: Soil form encountered**

Soil Form	A Horizon	B Horizon	B2/C Horizon	Nr of Profiles
Addo	Orthic A	Neocarbonate	Soft carbonate	16
Brandvlei	Orthic A	Soft carbonate	Soft carbonate	6
Prieska	Orthic A	Neocarbonate	Hard carbonate	6
Coega	Orthic A	Hard carbonate		3



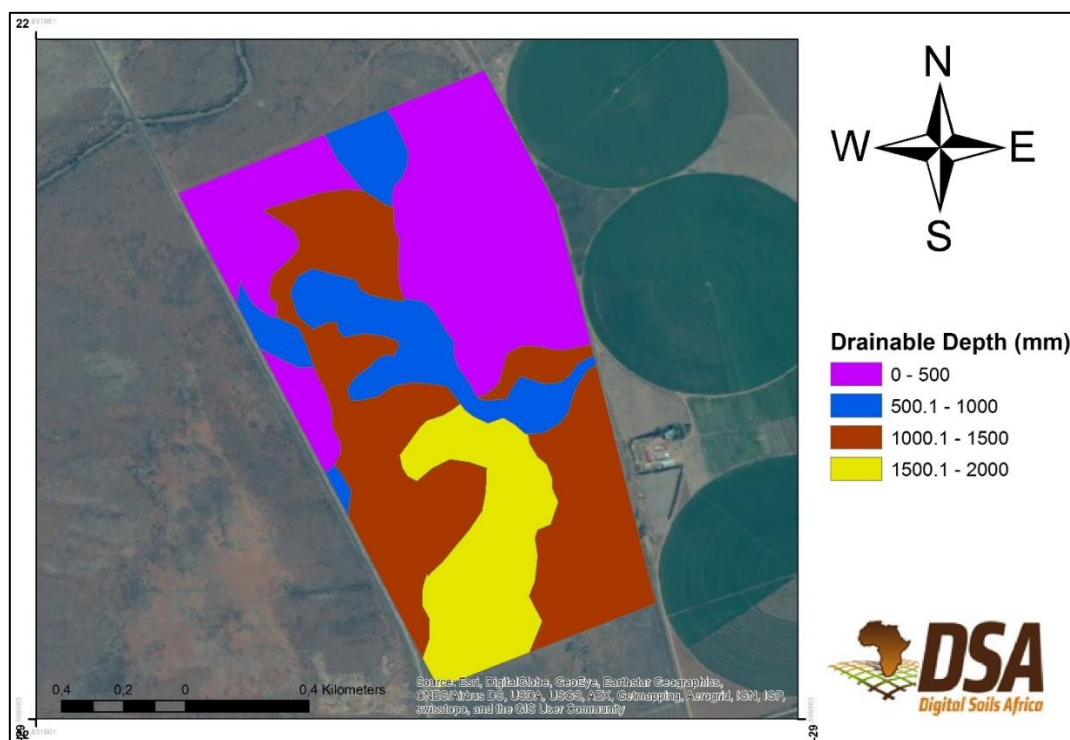
**Figure 7: Illustration of soil forms encountered**



**Figure 8: Illustration of infiltration limiting material**

### Soil Depth

The freely drainable depth is the depth where the water will freely drain, and includes the depth of the orthic A and neocarbonate B horizons. The drainable depth includes the depth of the soft carbonate as the informal experiment showed that it is also drainable. The freely drained depth reaches 1000 mm in places, while the drainable depth is much deeper, with most of the study site being deeper than 1000 mm, with a maximum encountered of 1800 mm. Vineyards require a drainable depth of 800 mm which means that a large part of the field is suitable for vineyard irrigation cultivation without significant soil preparation.

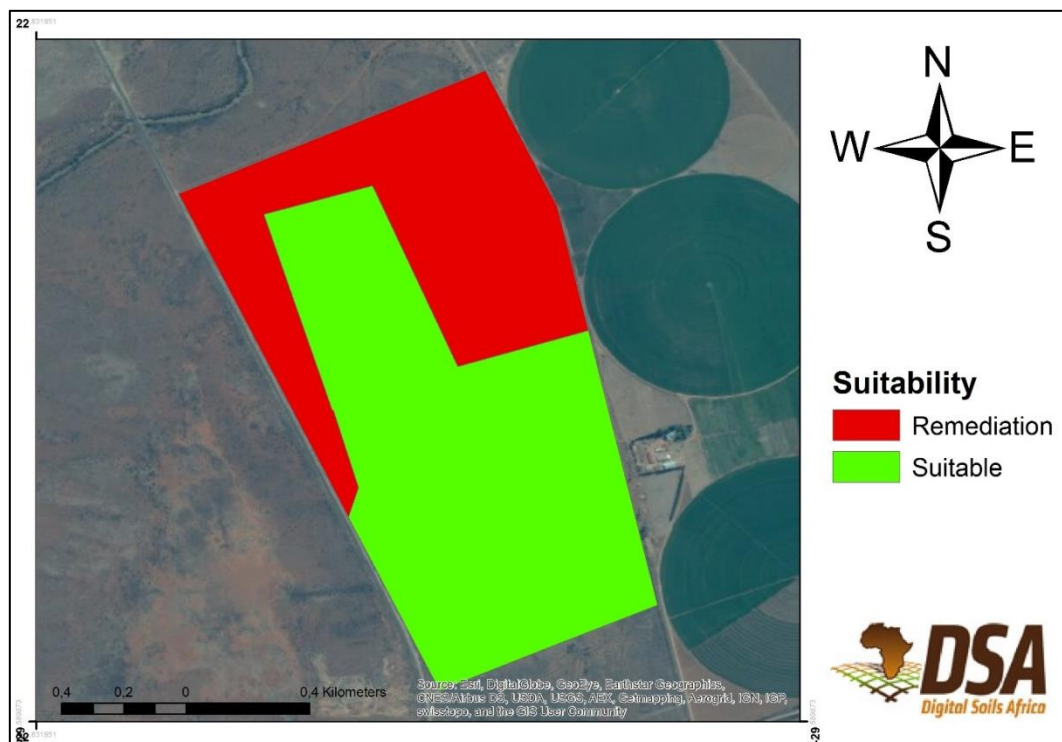


**Figure 9: Illustration of drainable depths**

### Suitability

The suitability of Addo, Coega and Prieska soils for crop production under irrigation is controlled by the crop. Vineyards grow and produce quite well on these soils and the drip irrigation controls salinity. Soils with a drainable depth deeper than 800 mm were considered to be suitable for vineyard cultivation under drip or micro irrigation. This makes 91 ha of the land surveyed preferable for irrigation of vines while the remaining portion is also cultivatable but would require significantly more soil preparation. With deep ripping of the hard carbonate horizon, the remaining portion could also be cultivated to be suitable for vineyard production. The deep ripping of hard carbonate is more expensive than the deep ripping of the softer material found in the initial 91 ha.





**Figure 10: Illustration of suitability of the proposed project area**

## Conclusion

Pedological results indicate that 91 of the 149 ha is preferable for vineyard cultivation under drip and micro irrigation, with deep ripping of soft material needed as amelioration. Deep ripping of hard carbonate would also ameliorate the remaining 58 ha, but would cost more than the deep ripping of the initial 91 ha. The entire proposed project area is therefore suitable for vineyard cultivation with the difference being the amount of soil preparation being required to suitably ameliorate the areas.

### 8.1.6 Heritage

A Phase 1 Heritage Impact Assessment was conducted for the proposed project area in order to determine the heritage value of the area as well as identify and evaluate the potential impacts that the proposed project will have on any areas of historical significance. This information was then used to determine possible mitigation measures which could be implemented in order to reduce the significance of the associated impacts. An overview of the heritage aspects surrounding the proposed project is provided in the section below:

A relatively low density of weathered stone tools was recorded as isolated surface occurrences, but no above-ground evidence was found of fossils, fossil exposures or in situ Stone Age archaeological sites. There are also no indications of rock art, prehistoric structures, graves or historically significant structures older than 60 years within the proposed development footprint.

Except for the lower valley fills where rock art localities are likely to occur on rocky outcrops, the study area is characterized by flat terrain and is not considered paleontologically or archaeologically vulnerable. The survey area is assigned a rating of Generally Protected C (GP.C). However, although considered unlikely, the potential occurrence of isolated and unmarked graves or intact subsurface archaeological finds not recorded during this survey can never be excluded. It is therefore instructed that work stops immediately in the event of potential exposure of any artefacts and that South African Heritage Resources Agency and a qualified archaeologist are informed.

As far as the palaeontological and archaeological heritage is concerned, the proposed development may proceed within the footprint with no further heritage assessments required.

## **8.2 SOCIO-ECONOMIC DESCRIPTION**

The proposed project does not hold any overriding negative social impacts to suggest a no development option. The investment, employment and income generation potential linked to the project will positively contribute to the socio-economic development objectives described in the local IDP (as discussed under heading 6).

The Department of Economic Development and Tourism in the Northern Cape has recently concluded the development of its Provincial Local Economic Development (LED) Strategy in line with the Northern Cape Growth and Development Strategy. The LED is an approach to sustainable economic development that encourages residents of local communities to work together to stimulate local economic activity that will result in, inter alia, an improvement in the quality of life for all in the local community. These Strategies provide the foundation for Integrated Economic Development Planning throughout the Northern Cape. A development such as the proposed project would present a definite benefit and addition to the LED through local job creation and skills development and contribute to the alleviation of poverty and unemployment in the local municipality. This will enable a better livelihood and a higher quality of life to individuals involved.

The establishment of the vineyard will take approximately 12 months to complete. Thirty un-skilled local individuals will be employed for the duration of the establishment period. The total annual financial income value including the planting and pruning processes will be approximately R 1.4 million for the employees over the establishment period.

The experience and skills involved in completing these vineyard establishment processes will provide valuable capacity building and skills development and transfer to approximately 400 people during this process.

A semi-skilled manager along with approximately 4 permanent employment positions can then be appointed on a permanent for the duration of the operational phase once the establishment phase has been completed.

Once the vineyard has been established and moves into the production phase, the harvesting period of 4 weeks will also provide an income to approximately 375 individuals which will assist with the harvesting and will be worth up to R 970 000 for that period on an annual basis.

The expected annual project yield will be approximately 45 tons of grapes which could generate an annual project income project of up to R 8.1 million.

Construction and operational phase job creation (local employment) and sustainable capacity building (skills, experience and resources development) of this project will aid in immediate and continuous local community upliftment and poverty alleviation and are therefore regarded as significant socio-economic benefits associated with the proposed project to motivate the need and desirability.

## **9. PUBLIC PARTICIPATION PROCESS**

A continual and comprehensive Public Participation Process (PPP) will be undertaken throughout the entire Scoping & EIA process with all stakeholders and Interested and Affected Parties (I & AP's), including the relevant organs of state and competent authority (Northern Cape Department of Environment and Nature Conservation) as identified during the Scoping Phase.

The PPP will be conducted in accordance with the requirements of Regulation 41 of the EIA Regulations, 2014 and the designated Public Participation Officer will ensure that the PPP is facilitated in a manner which ensures reasonable opportunity for all stakeholders and registered I & AP's to comment and provide input on the proposed project.

### **9.1 REGISTRATION AND NOTIFICATION**

The PPP for the draft Scoping Report will commence on 12 September 2016 and will conclude on 13 October 2016. The following means will be used to notify the public of the commencement of the process:

- Email notifications will be sent to all identified stakeholders, relevant Organs of State and competent authority.
- Advertisements will be placed in a free local newspaper (Noordwester en Oewernuus) on 8 September 2016 to inform potential I & AP's and invite them to register for the proposed project.
- Written notices will be placed at the Prieska municipal building as well as at the Prieska public library.
- Site notices will be placed at the entrance of Portion 10 of the Farm De Eelt no 26 as well as at the farm turnoff from the main road R 386.
- Hardcopies of the draft Scoping Report will be made available at the Prieska municipal building and the Prieska public library for public viewing.
- A hardcopy will also be couriered to the competent authority.

All stakeholders and I & AP's will be adequately notified of the Public Participation Processes taking place as well as the availability of the relevant documents for comment as per Regulation 41 of the EIA Regulations, 2014.

An I & AP's register containing the names and contact details of all relevant stakeholders and I & AP's will be established and will be submitted to the competent authority along with the Final Scoping Report as per Regulation 42 of the EIA Regulations, 2014 (see Appendix C).

All proof of notifications, I & AP registrations as well as comments received and responses provided during the PPP will be incorporated into a Public Participation Report which will be available in Appendix C.

The sequence of events regarding the two Public Participation Processes, which will take place, is as follows:

- Upon completion of the draft Scoping Report, the stakeholders and organs of state will be notified and the document will be made available for comments for a period of 30 days. The competent authority will also be consulted to comment on the draft Scoping Report. After the completion of the PPP the comments received and responses provided will be incorporated into a Final Scoping Report and submitted to the competent authority for decision making.
- The competent authority will then accept or reject the Final Scoping Report within a period of 43 days after receipt of the submitted document and provide feedback to the applicant on their decision.
- Upon completion of the subsequent draft Environmental Impact Report and EMPr, the stakeholders and registered I & AP's will again be notified of the second PPP to take place and the document will be made available for a second commenting period of 30 days. The competent authority will again be consulted to comment on the draft Environmental Impact Report. After completion of the PPP, the comments received will be incorporated into a Final Environmental Impact Report and EMPr and submitted to the competent authority for final decision making on the environmental authorisation.
- The competent authority (Northern Cape Department of Environment and Nature Conservation) will then approve or reject the environmental authorisation application within a period of 107 days after receipt of the submitted Final Environmental Impact Report and EMPr and provide feedback to the applicant on their decision.

## **9.2 COMMENTS AND RESPONSES**

All comments received from the I & AP's, stakeholders and organs of state together with the subsequent responses provided will be incorporated into a Public Participation Report which will be submitted to the competent authority together with the relevant documents.

See table below which will be populated with the summary of all comments and responses after completion of the PPP:

**Table 12: Summary of all comments and responses received during the PPP**

Commenting party	Comment received	Response provided

See Appendix C for the Public Participation Report (only once PPP has been completed).



## 10. ENVIRONMENTAL IMPACT ASSESSMENT

The following section identifies the potential environmental impacts (both positive and negative) which the construction as well as operational phases of the proposed project will have on the surrounding environment.

Once the potential environmental impacts are identified, they are assessed by rating their Environmental Risk after which the final Environmental Significance is calculated and rated for each identified environmental impact.

The same Environmental Risk rating process is then followed for each environmental impact to determine the Environmental Significance if the recommended mitigation measures were to be implemented.

The objective of this section is therefore firstly to identify all the potential environmental impacts of the proposed project and secondly to determine the significance of the impacts and how effective the recommended mitigation measures will be able to reduce their significance. The potential environmental impacts which are still rated as highly significant, even after implementation of mitigations, can then be identified in order to specifically focus on implement of effective management strategies for them.

### 10.1 METHODOLOGY FOR IMPACT ASSESSMENT AND RISK RATING

The tables below indicate and explain the methodology and criteria used for the evaluation of the Environmental Risk Ratings as well as the calculation of the final Environmental Significance Ratings of the identified potential environmental impacts.

Each potential environmental impact is scored for each of the Evaluation Components as per the table below.

**Table 13: Scale utilised for the evaluation of the Environmental Risk Ratings**

Evaluation Component	Rating Scale and Description/criteria
<b>MAGNITUDE of NEGATIVE IMPACT</b> (at the indicated spatial scale)	<p><b>10 - Very high:</b> Bio-physical and/or social functions and/or processes might be <i>severely</i> altered.</p> <p><b>8 - High:</b> Bio-physical and/or social functions and/or processes might be <i>considerably</i> altered.</p> <p><b>6 - Medium:</b> Bio-physical and/or social functions and/or processes might be <i>notably</i> altered.</p> <p><b>4 - Low :</b> Bio-physical and/or social functions and/or processes might be <i>slightly</i> altered.</p> <p><b>2 - Very Low:</b> Bio-physical and/or social functions and/or processes might be <i>negligibly</i> altered.</p> <p><b>0 - Zero:</b> Bio-physical and/or social functions and/or processes will remain <i>unaltered</i>.</p>

<b>MAGNITUDE of POSITIVE IMPACT</b> (at the indicated spatial scale)	<p><b>10 - Very high (positive):</b> Bio-physical and/or social functions and/or processes might be <i>substantially</i> enhanced.</p> <p><b>8 - High (positive):</b> Bio-physical and/or social functions and/or processes might be <i>considerably</i> enhanced.</p> <p><b>6 - Medium (positive):</b> Bio-physical and/or social functions and/or processes might be <i>notably</i> enhanced.</p> <p><b>4 - Low (positive):</b> Bio-physical and/or social functions and/or processes might be <i>slightly</i> enhanced.</p> <p><b>2 - Very Low (positive):</b> Bio-physical and/or social functions and/or processes might be <i>negligibly</i> enhanced.</p> <p><b>0 - Zero (positive):</b> Bio-physical and/or social functions and/or processes will remain <i>unaltered</i>.</p>
<b>DURATION</b>	<p><b>5 - Permanent</b></p> <p><b>4 - Long term:</b> Impact ceases after operational phase/life of the activity &gt; 60 years.</p> <p><b>3 - Medium term:</b> Impact might occur during the operational phase/life of the activity – 60 years.</p> <p><b>2 - Short term:</b> Impact might occur during the construction phase - &lt; 3 years.</p> <p><b>1 - Immediate</b></p>
<b>EXTENT</b> (or spatial scale/influence of impact)	<p><b>5 - International:</b> Beyond National boundaries.</p> <p><b>4 - National:</b> Beyond Provincial boundaries and within National boundaries.</p> <p><b>3 - Regional:</b> Beyond 5 km of the proposed development and within Provincial boundaries.</p> <p><b>2 - Local:</b> Within 5 km of the proposed development.</p> <p><b>1 - Site-specific:</b> On site or within 100 m of the site boundary.</p> <p><b>0 - None</b></p>
<b>IRREPLACEABLE</b> loss of resources	<p><b>5 – Definite</b> loss of irreplaceable resources.</p> <p><b>4 – High</b> potential for loss of irreplaceable resources.</p> <p><b>3 – Moderate</b> potential for loss of irreplaceable resources.</p> <p><b>2 – Low</b> potential for loss of irreplaceable resources.</p> <p><b>1 – Very low</b> potential for loss of irreplaceable resources.</p> <p><b>0 - None</b></p>
<b>REVERSIBILITY</b> of impact	<p><b>5 – Impact cannot</b> be reversed.</p> <p><b>4 – Low</b> potential that impact might be reversed.</p> <p><b>3 – Moderate</b> potential that impact might be reversed.</p> <p><b>2 – High</b> potential that impact might be reversed.</p> <p><b>1 – Impact will be</b> reversible.</p> <p><b>0 – No impact.</b></p>
<b>PROBABILITY</b> (of occurrence)	<p><b>5 - Definite:</b> &gt;95% chance of the potential impact occurring.</p> <p><b>4 - High probability:</b> 75% - 95% chance of the potential impact occurring.</p> <p><b>3 - Medium probability:</b> 25% - 75% chance of the potential impact occurring</p> <p><b>2 - Low probability:</b> 5% - 25% chance of the potential impact occurring.</p> <p><b>1 - Improbable:</b> &lt;5% chance of the potential impact occurring.</p>
<b>Evaluation Component</b>	<b>Rating Scale and Description/criteria</b>



<b>CUMULATIVE</b> impacts	<b>High:</b> The activity is one of several similar past, present or future activities in the same geographical area, and might contribute to a very significant combined impact on the natural, cultural, and/or socio-economic resources of local, regional or national concern.
	<b>Medium:</b> The activity is one of a few similar past, present or future activities in the same geographical area, and might have a combined impact of moderate significance on the natural, cultural, and/or socio-economic resources of local, regional or national concern.
	<b>Low:</b> The activity is localised and might have a negligible cumulative impact.
	<b>None:</b> No cumulative impact on the environment.

Once the Environmental Risk Ratings have been evaluated for each potential environmental impact, the Significance Score of each potential environmental impact is calculated by using the following formula:

- **SS (Significance Score) = (magnitude + duration + extent + irreplaceable + reversibility) x probability.**

The maximum Significance Score value is 150.

The Significance Score is then used to rate the Environmental Significance of each potential environmental impact as per Table 5 below. The Environmental Significance rating process is completed for all identified potential environmental impacts both before and after implementation of the recommended mitigation measures.

**Table 14: Scale used for the evaluation of the Environmental Significance Ratings**

Significance Score	Environmental Significance	Description/criteria
125 – 150	<b>Very high (VH)</b>	An impact of very high significance will mean that the project cannot proceed, and that impacts are irreversible, regardless of available mitigation options.
100 – 124	<b>High (H)</b>	An impact of high significance which could influence a decision about whether or not to proceed with the proposed project, regardless of available mitigation options.
75 – 99	<b>Medium-high (MH)</b>	If left unmanaged, an impact of medium-high significance could influence a decision about whether or not to proceed with a proposed project. Mitigation options should be relooked.
40 – 74	<b>Medium (M)</b>	If left unmanaged, an impact of moderate significance could influence a decision about whether or not to proceed with a proposed project.
<40	<b>Low (L)</b>	An impact of low is likely to contribute to positive decisions about whether or not to proceed with the project. It will have little real effect and is unlikely to have an influence on project design or alternative motivation.
+	<b>Positive impact (+)</b>	A positive impact is likely to result in a positive consequence/effect, and is likely to contribute to positive decisions about whether or not to proceed with the project.

## **10.2 DESCRIPTION OF POTENTIAL IMPACTS AND THEIR RECOMMENDED MITIGATION MEASURES**

The following section provides descriptions of the potential environmental impacts which the proposed project will have as well as the recommended mitigation measures to be implemented for each impact as identified during the Scoping phase.

### **10.2.1 Construction Phase**

#### **10.2.1.1 Destruction/transformation of a Critical Biodiversity Area**

Critical Biodiversity Areas are areas which play an important role in conservation and reaching certain required biodiversity targets for ecosystem types, species or ecological processes.

Cultivation processes will completely transform and destroy the natural vegetation and any faunal habitats present on the proposed project area. Although this entire area forms part of a Critical Biodiversity Area 1, this categorisation is only based on the endangered Upper Gariep Alluvial vegetation type (AZa 4). Ground truthing indicated that the area rather falls inside the adjacently located Northern Upper Karoo vegetation type instead of the Upper Gariep Alluvial vegetation type (NKu 3) and it is therefore rather only categorised as a Critical Biodiversity Area 2. The reason for the Critical Biodiversity Area 2 classification is mainly based on the areas being classified as areas where biodiversity targets can be successfully achieved.

The importance of that area in reaching the required conservation targets is not so significant due to the area being adjacent to already cultivated areas which separate the project area from the Orange River and therefore also impedes the local surface water catchment area reaching from the Orange River. The transformation of the Critical Biodiversity Area 2 through cultivation is therefore not considered a fatal flaw for the proposed project.

Mitigation measures to reduce potential impacts:

- The area only forms part of the CBA 2 and not a CBA 1 as per the discussion above. Due to the nature of the cultivation processes, no mitigation measures can be implemented which could result in acceptably reduced impacts on the area.
- Restrict all cultivation work to the proposed project footprint and prevent any unnecessary increase of the footprint size due to indiscriminate disturbance.

Although there are various cultivated areas in the vicinity, the majority of the area is still under natural veld conditions and the size of the vegetation type is vast. The cumulative impact of transformation of the vegetation type in the area is therefore only regarded as medium also due to the status of the vegetation type being least threatened.

### **10.2.1.2 Destruction/damage to nationally protected tree species individuals**

In accordance with the National Forests Act (Act 84 of 1998), no person may cut, disturb, damage or destroy any protected tree except if a permit is obtained for the desired process. Partaking in any such processes will therefore constitute a transgression of the law which can be criminally prosecuted

The nationally protected tree species *Boscia albitrunca* (Shepherd's tree/witgat) is present on the proposed project area. A total of 20 individuals were encountered during the site visit and their locations/coordinates have been noted. Cultivation processes could result in the potential removal of/damage to these identified individuals.

Mitigation measures to reduce potential impacts:

- A permit application must be submitted to the national and provincial departments for removal/destruction of the individuals in order to ensure that no restricted activity is unlawfully carried out on these individuals.
- It is however recommended that the project rather attempts to keep and protect some of the individual trees on site. A minimum 10 m buffer zone can be implemented around each individual in order to attempt to prevent any interaction with or damage to the above and below ground components of the trees during the cultivation processes. Such a buffer could potentially be in the form of a physical fence to be erected around each individual in order to discourage any potential contact interaction which could lead to any of the unacceptable impacts on the individuals as per the Act.

The majority of the surrounding areas are still under natural veld conditions and very few protected tree species individuals are removed. Permits are required for the removal of any protected individuals and this process is well and closely managed by the relevant national and provincial departments. The cumulative impact of removal after implementation of mitigation measures is therefore regarded as low.

### **10.2.1.3 Destruction/damage to provincially protected species individuals**

In accordance with the Northern Cape Nature Conservation Act (Act 9 of 2009), no person may without a permit pick (which includes the definition damage or destroy), import, export, transport, possess, cultivate or trade in a specimen of a protected plant. Partaking in any such processes will therefore constitute a transgression of the law which can be criminally prosecuted. Cultivation processes could result in the potential removal of/damage to such identified species individuals.

Mitigation measures to reduce potential impacts:

- A permit application must be submitted to the provincial department for the relocation of identified individuals. A suitable relocation environment must be identified and individuals must be adequately relocated with the assistance of a specialist.

As per the previous impact discussion, the majority of the surrounding areas are still under natural veld conditions and very few protected species individuals are removed. Permits are required for the removal of any protected individuals and this process is well and closely managed by the relevant provincial department. The cumulative impact of removal is therefore regarded as low.

#### **10.2.1.4 Impeding a water catchment**

The proposed project area is directly adjacent to currently cultivated areas of significant size which separate the project area from the Orange River and therefore impedes the local surface water catchment area from reaching the Orange River. The cultivation of the proposed project area would therefore not add significant negative impact to the local surface water catchment feeding the Orange River as it is already isolated.

Mitigation measures to reduce potential impacts:

- Restrict all cultivation work to the proposed project footprint and prevent any unnecessary increase of the footprint size due to indiscriminate disturbance.

The majority of cultivated areas are in close proximity to the Orange River for water and irrigation purposes. This results in a cumulative impediment of the local surface water catchment areas from higher laying areas downwards towards the river. The cumulative impact of the project on impeding of the surface water catchment is regarded as medium.

#### **10.2.1.5 Dust generation and emissions**

Increased vehicle and machine activity will result in a significant increase in dust emissions into the surrounding environment. This could have a negative impact on adjacent farmers and the road as excessive dust fallout could result in negative ecological effects on fauna and flora and/or potential health implications. If managed correctly the cumulative impact of vehicles on dust generation can be limited to low.

Mitigation measures to reduce potential impacts:

- Dust Management measures must be implemented specifically during the construction phase in order to manage and minimize undesired dust emissions.

There is not a significant amount of new cultivation developments taking place in the area and the cumulative impact of dust generation is therefore regarded as low.

#### **10.2.1.6 Damage or destruction of archaeological and palaeontological heritage**

A relatively low density of weathered stone tools was recorded as isolated surface occurrences, but no above-ground evidence was found of fossils, fossil exposures or in situ Stone Age archaeological sites. There are also no indications of rock art, prehistoric structures, graves or historically significant structures older than 60 years within the proposed development footprint. The area therefore poses no archaeological and palaeontological significance or value.

Mitigation measures to reduce potential impacts:

- Restrict all cultivation work to the proposed project footprint as this was the only area assessed during the site inspection.

Due to the low archaeological and palaeontological significance/value of the area and the low potential of the majority of the surrounding area, the cumulative impact is regarded as low.

#### **10.2.1.7 Job creation and capacity building (skills, experience and resources development)**

The proposed project will result in the creation of a significant amount of employment opportunities during both the construction and operational phases. This will provide a financial advantage/benefit to members of the local community and is therefore seen as a positive localised socio-economic impact associated with the project

Mitigation measures to reduce potential impacts:

- Ensure that the principle of local employment is applied as far as possible during the project.

Small scale agricultural job creation in the area contributes to the alleviation of unemployment in the local municipal area and the cumulative positive impact is therefore regarded as medium positive.

## **10.2.2 Operational Phase**

### **10.2.2.1 Continued destruction/transformation of a Critical Biodiversity Area due to initial construction phase**

The initial impact as per the construction phase will continue.

Mitigation measures to reduce potential impacts:

- Ensure no unnecessary expansion of the project footprint occurs.

The same medium cumulative impact as per the construction phase applies.

### **10.2.2.2 Continued destruction/damage to nationally protected tree species individuals**

Activities during the operational phase could still cause harm to individuals of the protected tree species *Boscia albitrunca* (Shepherd's tree/witgat) which are intended to be preserved on site if their protection is not managed.

Mitigation measures to reduce potential impacts:

- Once the protected individuals identified for preservation have been adequately buffered, it is important that the buffer be sufficiently maintained on a continual basis to ensure its integrity and functionality.
- Complete a training and awareness intervention with the employees and any new/additional employees in order to inform them of the protected tree individuals as well as the reasoning behind the protection.

The same low cumulative impact as per the construction phase applies.

### **10.2.2.3 Continued destruction/damage to provincially protected species individuals**

Once all identified provincially protected species individuals have been adequately relocated the project will not have an impact on them anymore.

Mitigation measures to reduce potential impacts:

- Ensure all identified provincially protected species individuals are suitably relocated with the assistance of a specialist prior to the commencement of any cultivation.

The same low cumulative impact as per the construction phase applies.



#### **10.2.2.4 Continued impeding of a water catchment**

The initial impact as per the construction phase will continue.

Mitigation measures to reduce potential impacts:

- Restrict all cultivation work to the proposed project footprint and prevent any unnecessary increase of the footprint size due to indiscriminate disturbance.

The same medium cumulative impact as per the construction phase applies.

#### **10.2.2.5 Soil erosion**

Although the topography of the area is relatively flat, the potential for loss of soil due to erosion is present due to the removal of natural vegetation and alteration of the landscape during the construction phase. This must be continually monitored and managed.

Mitigation measures to reduce potential impacts:

- Ensure adequate erosion control measures are implemented to reduce the risk of soil erosion during the operational phase.

The cumulative impact of this development is expected to be low due to the relatively flat topography of the larger area. This makes the larger area less prone to erosion.

#### **10.2.2.6 Continued dust generation and emissions**

The generation of dust will be considerably reduced once the vineyard has been established and continual irrigation commences. The generation of undesired dust will therefore be minimized.

Mitigation measures to reduce potential impacts:

- Continued Dust Management measures must be implemented in order to manage and minimize undesired dust emissions.

The same low cumulative impact as per the construction phase applies.

#### **10.2.2.7 Continued damage or destruction of archaeological and palaeontological heritage**

As per the construction phase the area poses no archaeological and palaeontological significance or value.

Mitigation measures to reduce potential impacts:

- Restrict all cultivation work to the proposed project footprint as this was the only area assessed during the site inspection.

The same low cumulative impact as per the construction phase applies.

#### **10.2.2.8 Continued job creation and capacity building (skills, experience and resources development)**

Permanent job creation during the operational phase will be considerably lower than for the initial construction phase. It will however still provide a positive economic input/financial benefit into the local community and is therefore seen as a positive localised socio-economic impact associated with the project.

Mitigation measures to reduce potential impacts:

- Ensure that the principle of local employment is applied as far as possible during the project.

Small scale agricultural job creation in the area contributes to the alleviation of unemployment in the local municipal area and the cumulative positive impact is therefore regarded as medium positive.

### **10.3 RISK RATINGS OF POTENTIAL IMPACTS**

The following section provides the Environmental Risk as well as the Environmental Significance Ratings for the potential environmental impacts for the proposed project both before and after implementation of the recommended mitigation measures.



## 10.3.1 Construction Phase

Table 15: Environmental Risk and Significance Ratings for the Construction Phase

Bio-Physical Aspects			
	Pipeline/dam Alternative 1	Pipeline/dam Alternative 2	No-Go Alternative
<b>Identified Environmental Impacts</b>	<b>Destruction/transformation of a Critical Biodiversity Area</b>	<b>Destruction/transformation of a Critical Biodiversity Area</b>	<b>The proposed development will not take place and as such this impact will not occur</b>
<b>Magnitude of Impact</b>	High (8)	High (8)	-
<b>Duration of impact:</b>	Permanent (5)	Permanent (5)	-
<b>Extent of the impact</b>	Site specific (1)	Site specific (1)	-
<b>Degree to which local resources are irreplaceable</b>	Moderate (3)	Moderate (3)	-
<b>Degree to which the impact can be reversed:</b>	Low (4)	Low (4)	-
<b>Probability of occurrence:</b>	Definite (5)	Definite (5)	-
<b>Cumulative impact prior to mitigation:</b>	Medium	Medium	-
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-</b>	High (105)	High (105)	-

<b>High, High, or Very-High)</b>			
<b>Proposed mitigation:</b>	The area only forms part of the CBA 2 and not a CBA 1 as per the discussion above. Due to the nature of the cultivation processes, no mitigation measures can be implemented which could result in acceptably reduced impacts on the area. Restrict all cultivation work to the proposed project footprint and prevent any unnecessary increase of the footprint size due to indiscriminate disturbance.		
<b>Cumulative impact post mitigation:</b>	Medium	Medium	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Medium High (99)	Medium High (99)	-
	<b>Pipeline/dam Alternative 1</b>	<b>Pipeline/dam Alternative 2</b>	<b>No-Go Alternative</b>
<b>Identified Environmental Impacts</b>	Destruction/damage to nationally protected tree species individuals	Destruction/damage to nationally protected tree species individuals	The proposed development will not take place and as such this impact will not occur
<b>Magnitude of Impact</b>	Medium (6)	Medium (6)	-
<b>Duration of impact:</b>	Permanent (5)	Permanent (5)	-
<b>Extent of the impact</b>	Site specific (1)	Site specific (1)	-
<b>Degree to which local resources are</b>	Moderate (3)	Moderate (3)	-

<b>irreplaceable</b>			
<b>Degree to which the impact can be reversed:</b>	Low (4)	Low (4)	-
<b>Probability of occurrence:</b>	High probability (4)	High probability (4)	-
<b>Cumulative impact prior to mitigation:</b>	Medium High	Medium High	-
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Medium High (76)	Medium High (76)	-
<b>Proposed mitigation:</b>	<p>A permit application must be submitted to the national and provincial departments for removal/destruction of the individuals in order to ensure that no restricted activity is unlawfully carried out on these individuals.</p> <p>It is however recommended that the project rather attempts to keep and protect some of the individual trees on site. A minimum 10 m buffer zone can be implemented around each individual in order to attempt to prevent any interaction with or damage to the above and below ground components of the trees during the cultivation processes. Such a buffer could potentially be in the form of a physical fence to be erected around each individual in order to discourage any potential contact interaction which could lead to any of the unacceptable impacts on the individuals as per the Act.</p>		
<b>Cumulative impact post mitigation:</b>	Low	Low	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-</b>	Low (34)	Low (34)	-

High, High, or Very-High)			
	Pipeline/dam Alternative 1	Pipeline/dam Alternative 2	No-Go Alternative
<b>Identified Environmental Impacts</b>	Destruction/damage to provincially protected species individuals	Destruction/damage to provincially protected species individuals	The proposed development will not take place and as such this impact will not occur
<b>Magnitude of Impact</b>	Medium (6)	Medium (6)	-
<b>Duration of impact:</b>	Permanent (5)	Permanent (5)	-
<b>Extent of the impact</b>	Site specific (1)	Site specific (1)	-
<b>Degree to which local resources are irreplaceable</b>	Low (2)	Low (2)	-
<b>Degree to which the impact can be reversed:</b>	Low (4)	Low (4)	-
<b>Probability of occurrence:</b>	High probability (4)	High probability (4)	-
<b>Cumulative impact prior to mitigation:</b>	Medium	Medium	-
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Medium (72)	Medium (72)	-

<b>Proposed mitigation:</b>	A permit application must be submitted to the provincial department for the relocation of identified individuals. A suitable relocation environment must be identified and individuals must be adequately relocated with the assistance of a specialist.		
<b>-Cumulative impact post mitigation:</b>	Low	Low	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (32)	Low (32)	-
	<b>Pipeline/dam Alternative 1</b>	<b>Pipeline/dam Alternative 2</b>	<b>No-Go Alternative</b>
<b>Identified Environmental Impacts</b>	Impeding a water catchment	Impeding a water catchment	The proposed development will not take place and as such this impact will not occur
<b>Magnitude of Impact</b>	Low (4)	Low (4)	-
<b>Duration of impact:</b>	Permanent (5)	Permanent (5)	-
<b>Extent of the impact</b>	Local (2)	Local (2)	-
<b>Degree to which local resources are irreplaceable</b>	Low (2)	Low (2)	-
<b>Degree to which the impact can be reversed:</b>	Low (4)	Low (4)	-

<b>Probability of occurrence:</b>	Medium probability (3)	Medium probability (3)	-
<b>Cumulative impact prior to mitigation:</b>	Medium	Medium	-
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Medium (51)	Medium (51)	-
<b>Proposed mitigation:</b>	Restrict all cultivation work to the proposed project footprint and prevent any unnecessary increase of the footprint size due to indiscriminate disturbance.		-
<b>Cumulative impact post mitigation:</b>	Medium	Medium	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Medium (51)	Medium (51)	-
	<b>Pipeline/dam Alternative 1</b>	<b>Pipeline/dam Alternative 2</b>	<b>No-Go Alternative</b>
<b>Identified Environmental Impacts</b>	Dust generation and emissions	Dust generation and emissions	The proposed development will not take place and as such this impact will not occur
<b>Magnitude of Impact</b>	Very low (2)	Very low (2)	-
<b>Duration of impact:</b>	Medium term (3)	Medium term (3)	-

<b>Extent of the impact</b>	Local (2)	Local (2)	-
<b>Degree to which local resources are irreplaceable</b>	Low (2)	Low (2)	-
<b>Degree to which the impact can be reversed:</b>	High (2)	High (2)	-
<b>Probability of occurrence:</b>	Medium probability (3)	Medium probability (3)	-
<b>Cumulative impact prior to mitigation:</b>	Low	Low	
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (33)	Low (33)	-
<b>Proposed mitigation:</b>	Dust Management measures must be implemented in order to manage and minimize undesired dust emissions.		-
<b>Cumulative impact post mitigation:</b>	Low	Low	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (16)	Low (16)	-

	Pipeline/dam Alternative 1	Pipeline/dam Alternative 2	No-Go Alternative
<b>Identified Environmental Impacts</b>	Damage or destruction of archaeological and palaeontological heritage	Damage or destruction of archaeological and palaeontological heritage	The proposed development will not take place and as such this impact will not occur
<b>Magnitude of Impact</b>	Very low (2)	Very low (2)	-
<b>Duration of impact:</b>	Medium term (3)	Medium term (3)	-
<b>Extent of the impact</b>	Site specific (1)	Site specific (1)	-
<b>Degree to which local resources are irreplaceable</b>	Very low (1)	Very low (1)	-
<b>Degree to which the impact can be reversed:</b>	High (2)	High (2)	-
<b>Probability of occurrence:</b>	Medium probability (3)	Medium probability (3)	-
<b>Cumulative impact prior to mitigation:</b>	Low	Low	
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (27)	Low (27)	-
<b>Proposed mitigation:</b>	Restrict all cultivation work to the proposed project footprint as this was the only area assessed during the site inspection.		-



<b>Cumulative impact post mitigation:</b>	Low	Low	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (18)	Low (18)	-
<b>Socio-economic Aspects</b>			
	<b>Pipeline/dam Alternative 1</b>	<b>Pipeline/dam Alternative 2</b>	<b>No-Go Alternative</b>
<b>Identified Environmental Impacts</b>	<b>Job creation and capacity building (skills, experience and resources development)</b>	<b>Job creation and capacity building (skills, experience and resources development)</b>	<b>The proposed development will not take place and as such this impact will not occur</b>
<b>Magnitude of Impact</b>	High (8)	High (8)	-
<b>Duration of impact:</b>	Medium term (3)	Medium term (3)	-
<b>Extent of the impact</b>	Regional (3)	Regional (3)	-
<b>Degree to which local resources are irreplaceable</b>	None (0)	None (0)	-
<b>Degree to which the impact can be reversed:</b>	0	0	-

<b>Probability of occurrence:</b>	High probability (4)	High probability (4)	-
<b>Cumulative impact prior to mitigation:</b>	Positive	Positive	
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Positive (+ 56)	Positive (+ 56)	-
<b>Proposed mitigation:</b>	Ensure that the principle of local employment is applied as far as possible during the project.		None
<b>Cumulative impact post mitigation:</b>	Positive	Positive	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Positive (+ 56)	Positive (+ 56)	-

## 10.3.2 Operational Phase

Table 16: Environmental Risk and Significance Ratings for the Operational Phase

Bio-Physical Aspects			
	Pipeline/dam Alternative 1	Pipeline/dam Alternative 2	No-Go Alternative
<b>Identified Environmental Impacts</b>	Continued destruction/transformation of a Critical Biodiversity Area	Continued destruction/transformation of a Critical Biodiversity Area	The proposed development will not take place and as such this impact will not occur
<b>Magnitude of Impact</b>	High (8)	High (8)	-
<b>Duration of impact:</b>	Permanent (5)	Permanent (5)	-
<b>Extent of the impact</b>	Site specific (1)	Site specific (1)	-
<b>Degree to which local resources are irreplaceable</b>	Moderate (3)	Moderate (3)	-
<b>Degree to which the impact can be reversed:</b>	Low (4)	Low (4)	-
<b>Probability of occurrence:</b>	Definite (5)	Definite (5)	-
<b>Cumulative impact prior to mitigation:</b>	Medium	Medium	-
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-</b>	High (105)	High (105)	-

<b>High, High, or Very-High)</b>			
<b>Proposed mitigation:</b>	Ensure no unnecessary expansion of the project footprint occurs.		
<b>Cumulative impact post mitigation:</b>	Medium	Medium	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Medium High (99)	Medium High (99)	-
	<b>Pipeline/dam Alternative 1</b>	<b>Pipeline/dam Alternative 2</b>	<b>No-Go Alternative</b>
<b>Identified Environmental Impacts</b>	Continued destruction/damage to nationally protected tree species individuals	Continued destruction/damage to nationally protected tree species individuals	The proposed development will not take place and as such this impact will not occur
<b>Magnitude of Impact</b>	Medium (6)	Medium (6)	-
<b>Duration of impact:</b>	Permanent (5)	Permanent (5)	-
<b>Extent of the impact</b>	Site specific (1)	Site specific (1)	-
<b>Degree to which local resources are irreplaceable</b>	Moderate (3)	Moderate (3)	-
<b>Degree to which the impact can be reversed:</b>	Low (4)	Low (4)	-

<b>Probability of occurrence:</b>	High probability (4)	High probability (4)	-
<b>Cumulative impact prior to mitigation:</b>	Medium High	Medium High	-
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Medium High (76)	Medium High (76)	-
<b>Proposed mitigation:</b>	<p>Once the protected individuals identified for preservation have been adequately buffered, it is important that the buffer be sufficiently maintained on a continual basis to ensure its integrity and functionality.</p> <p>Complete a training and awareness intervention with the employees and any new/additional employees in order to inform them of the protected tree individuals as well as the reasoning behind the protection.</p>		
<b>Cumulative impact post mitigation:</b>	Low	Low	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (34)	Low (34)	-
	<b>Pipeline/dam Alternative 1</b>	<b>Pipeline/dam Alternative 2</b>	<b>No-Go Alternative</b>
<b>Identified Environmental Impacts</b>	Continued destruction/damage to provincially protected species individuals	Continued destruction/damage to provincially protected species individuals	The proposed development will not take place and as such this impact will not occur

<b>Magnitude of Impact</b>	Medium (6)	Medium (6)	-
<b>Duration of impact:</b>	Permanent (5)	Permanent (5)	-
<b>Extent of the impact</b>	Site specific (1)	Site specific (1)	-
<b>Degree to which local resources are irreplaceable</b>	Low (2)	Low (2)	-
<b>Degree to which the impact can be reversed:</b>	Low (4)	Low (4)	-
<b>Probability of occurrence:</b>	High probability (4)	High probability (4)	-
<b>Cumulative impact prior to mitigation:</b>	Medium	Medium	-
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Medium (72)	Medium (72)	-
<b>Proposed mitigation:</b>	Ensure all identified provincially protected species individuals are suitably relocated with the assistance of a specialist prior to the commencement of any cultivation.		
<b>Cumulative impact post mitigation:</b>	Low	Low	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-</b>	Low (32)	Low (32)	-

High, High, or Very-High)			
	Pipeline/dam Alternative 1	Pipeline/dam Alternative 2	No-Go Alternative
<b>Identified Environmental Impacts</b>	Continued impeding of a water catchment	Continued impeding of a water catchment	The proposed development will not take place and as such this impact will not occur
<b>Magnitude of Impact</b>	Low (4)	Low (4)	-
<b>Duration of impact:</b>	Permanent (5)	Permanent (5)	-
<b>Extent of the impact</b>	Local (2)	Local (2)	-
<b>Degree to which local resources are irreplaceable</b>	Low (2)	Low (2)	-
<b>Degree to which the impact can be reversed:</b>	Low (4)	Low (4)	-
<b>Probability of occurrence:</b>	Medium probability (3)	Medium probability (3)	-
<b>Cumulative impact prior to mitigation:</b>	Medium	Medium	-
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Medium (51)	Medium (51)	-

<b>Proposed mitigation:</b>	Restrict all cultivation work to the proposed project footprint and prevent any unnecessary increase of the footprint size due to indiscriminate disturbance.		-
<b>Cumulative impact post mitigation:</b>	Medium	Medium	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Medium (51)	Medium (51)	-
	<b>Pipeline/dam Alternative 1</b>	<b>Pipeline/dam Alternative 2</b>	<b>No-Go Alternative</b>
<b>Identified Environmental Impacts</b>	Soil erosion	Soil erosion	The proposed development will not take place and as such this impact will not occur
<b>Magnitude of Impact</b>	Low (4)	Low (4)	-
<b>Duration of impact:</b>	Medium term (3)	Medium term (3)	-
<b>Extent of the impact</b>	Site specific (1)	Site specific (1)	-
<b>Degree to which local resources are irreplaceable</b>	Low (2)	Low (2)	-
<b>Degree to which the impact can be reversed:</b>	Moderate (3)	Moderate (3)	-



<b>Probability of occurrence:</b>	Medium probability (3)	Medium probability (3)	-
<b>Cumulative impact prior to mitigation:</b>	Low	Low	
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (39)	Low (39)	-
<b>Proposed mitigation:</b>	Ensure adequate erosion control measures are implemented to reduce the risk of soil erosion during the operational phase.		
<b>Cumulative impact post mitigation:</b>	Low	Low	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (33)	Low (33)	-
	<b>Pipeline/dam Alternative 1</b>	<b>Pipeline/dam Alternative 2</b>	<b>No-Go Alternative</b>
<b>Identified Environmental Impacts</b>	Continued dust generation and emissions	Continued dust generation and emissions	The proposed development will not take place and as such this impact will not occur
<b>Magnitude of Impact</b>	Very low (2)	Very low (2)	-
<b>Duration of impact:</b>	Medium term (3)	Medium term (3)	-

<b>Extent of the impact</b>	Local (2)	Local (2)	-
<b>Degree to which local resources are irreplaceable</b>	Low (2)	Low (2)	-
<b>Degree to which the impact can be reversed:</b>	High (2)	High (2)	-
<b>Probability of occurrence:</b>	Medium probability (3)	Medium probability (3)	-
<b>Cumulative impact prior to mitigation:</b>	Low	Low	
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (33)	Low (33)	-
<b>Proposed mitigation:</b>	Continued Dust Management measures must be implemented in order to manage and minimize undesired dust emissions.		-
<b>Cumulative impact post mitigation:</b>	Low	Low	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (16)	Low (16)	-

	Pipeline/dam Alternative 1	Pipeline/dam Alternative 2	No-Go Alternative
<b>Identified Environmental Impacts</b>	Continued damage or destruction of archaeological and palaeontological heritage	Continued damage or destruction of archaeological and palaeontological heritage	The proposed development will not take place and as such this impact will not occur
<b>Magnitude of Impact</b>	Very low (2)	Very low (2)	-
<b>Duration of impact:</b>	Medium term (3)	Medium term (3)	-
<b>Extent of the impact</b>	Site specific (1)	Site specific (1)	-
<b>Degree to which local resources are irreplaceable</b>	Very low (1)	Very low (1)	-
<b>Degree to which the impact can be reversed:</b>	High (2)	High (2)	-
<b>Probability of occurrence:</b>	Medium probability (3)	Medium probability (3)	-
<b>Cumulative impact prior to mitigation:</b>	Low	Low	
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (27)	Low (27)	-
<b>Proposed mitigation:</b>	Restrict all cultivation work to the proposed project footprint as this was the only area assessed during the site inspection.		-

<b>Cumulative impact post mitigation:</b>	Low	Low	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Low (18)	Low (18)	-
	<b>Pipeline/dam Alternative 1</b>	<b>Pipeline/dam Alternative 2</b>	<b>No-Go Alternative</b>
<b>Identified Environmental Impacts</b>	<b>Continued job creation and capacity building (skills, experience and resources development)</b>	<b>Continued job creation and capacity building (skills, experience and resources development)</b>	<b>The proposed development will not take place and as such this impact will not occur</b>
<b>Magnitude of Impact</b>	High (8)	High (8)	-
<b>Duration of impact:</b>	Medium term (3)	Medium term (3)	-
<b>Extent of the impact</b>	Regional (3)	Regional (3)	-
<b>Degree to which local resources are irreplaceable</b>	None (0)	None (0)	-
<b>Degree to which the impact can be reversed:</b>	0	0	-
<b>Probability of occurrence:</b>	High probability (4)	High probability (4)	-

<b>Cumulative impact prior to mitigation:</b>	Positive	Positive	
<b>Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Positive (+ 56)	Positive (+ 56)	-
<b>Proposed mitigation:</b>	Ensure that the principle of local employment is applied as far as possible during the project.		None
<b>Cumulative impact post mitigation:</b>	Positive	Positive	-
<b>Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)</b>	Positive (+ 56)	Positive (+ 56)	-

#### **10.4 CUMULATIVE IMPACTS**

There are various cultivated areas in the vicinity, specifically directly adjacent or in close proximity to the Orange River for water and irrigation purposes. The majority of the area is however still under natural veld conditions rendering the cumulative impacts of the project less significant. The identified impacts together with their cumulative effects have been discussed under heading 10.2.

The cumulative effects of most of the identified impacts are regarded as low - medium. The only impacts which could potentially cumulatively contribute to more significant combined effects are the transformation of the relevant vegetation type and CBA as well as the impeding of the local surface water catchment areas to the Orange River.

Although the area is classified as a CBA 1, the ground truthing indicated that it rather falls inside the adjacently located CBA 2. The CBA 2 is mainly based on the vegetation type present and this vegetation type is classified as least threatened. The cumulative impact of transformation of the vegetation type along with other cultivation developments in the area is therefore only regarded as medium also due to the vast size of the vegetation type.

The cumulative impact of impeding of the local surface water catchment areas to the Orange River along with other cultivation developments in the area is also regarded as having a medium level effect.

The cumulative impacts have been rated by the specialists and included in the descriptions and risk rating tables present under headings 10.2 and 10.3.

#### **Terrestrial and Wetland Ecology**

This project will not result in any significant cumulative impacts (low - medium) as the vegetation type is classified as least threatened and national and provincially protected species will be preserved and/or relocated as far as possible. The potential effects of dust and/or erosion will be managed in order to reduce the associated impacts.

#### **Heritage**

Due to the low archaeological and palaeontological significance/value of the area and the low potential of the majority of the surrounding area, the cumulative impact is regarded as low.

### **Socio-Economic description**

The proposed project, along with other agricultural developments in the area, will cumulatively contribute to reduction in poverty and unemployment figures in the local community and municipal area by means of job creation and skills and experience development and transfer.

### **Conclusion**

The potential cumulative impacts of this proposed vineyard development have been adequately assessed and no fatal flaws or unacceptable environmental impacts have been identified due to the cumulative effects in combination with other similar developments in the region which cannot be acceptably mitigated.

### **10.5 PREFERRED ALTERNATIVE CONCLUDING STATEMENT**

In identifying, evaluating and comparing impacts associated with the proposed vineyard establishment and considered alternatives as well as financial and logistic feasibility, it has been concluded that either of the two pipeline/dam alternatives can be utilised for the proposed project.

## 11. ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE

The processes of investigation which have led to the production of this report, harbours several **assumptions**, which include the following:

- All information provided by the applicant and his/her assistants to the environmental team was correct and valid at the time that it was provided;
- Strategic level investigations undertaken by the agricultural specialist upon instruction from the applicant prior to the commencement of the EIA process, determined that the development site represents a potentially suitable and technically acceptable location;
- The public received a fair and reoccurring opportunity to participate in the EIA process, through the provision of adequate public participation timeframes stipulated in the Regulations;
- The need and desirability was based on strategic national, provincial and local plans and policies which reflect the interests of both statutory and public viewpoints;
- The information provided by specialists is accurate and unbiased;
- The EIA process is a project-level framework and is limited to assessing the anticipated environmental impacts associated with the construction and operation phases of the proposed facility
- Strategic level decision making is conducted through cooperative governance principles with the consideration of sustainable and responsible development principles underpinning all decision making.

Given that an EIA involves prediction, **uncertainty** forms an integral part of the process. Two types of uncertainty are associated with the EIA process, namely process-related and prediction-related.

- Uncertainty of prediction is critical at the data collection phase as final certainty will only be resolved upon implementation of the proposed development. Adequate research may minimise this uncertainty;
- Uncertainty of values depicts the approach assumed during the EIA process, while final certainty will be determined at the time of decision making. Enhanced communication and widespread/comprehensive coordination can lower uncertainty;
- Uncertainty of related decision relates to the interpretation and decision making aspect of the EIA process, which shall be appeased once monitoring of the project phases is undertaken.

The significance/importance of widespread/comprehensive consultation towards minimising the risk of omitting significant impacts is further stressed. The use of quantitative impact significance rating formulas (as utilised in this document) can further limit the occurrence and scale of uncertainty.



**Gaps in knowledge can be attributed to:**

The EIA process is being undertaken prior to the availing of certain information which would be derived from the project design and feasibility studies. As such, technical aspects included herein are derived from a range of sources such as personal communication with the applicant and his/her assistants and agricultural consultant.

The principle of human nature also provides for uncertainties with regards to the identified socio-economic impacts of the proposed development.

Enviroworks is an independent environmental consulting firm and as such, all processes and attributes of the EIA are addressed in a fair and unbiased/objective manner. It is believed that through the running of a transparent and participatory process, risks associated with assumptions, uncertainties and gaps in knowledge can be and have been acceptably reduced.

## **12. PROFESSIONAL OPINION OF THE EAP AND ENVIRONMENTAL IMPACT STATEMENT**

### **12.1 PRELIMINARY PROFESSIONAL OPINION OF THE EAP**

After careful consideration of the findings and outcomes during the Scoping phase, Enviroworks is of the opinion that the full Environmental Impact Assessment (EIA) phase of this proposed project should be allowed to continue in order to comprehensively evaluate the potential impacts vs benefits associated with this proposed project and conclude on the project's final viability. Based on all information that was captured in this report, the proposed development will not lead to unacceptable impacts or fatal flaws and should be considered plausible in the framework of NEMA. Thus far, it is indicated that the majority of the anticipated impacts can be adequately addressed and mitigated to acceptable levels.

### **12.2 PRELIMINARY ENVIRONMENTAL IMPACT STATEMENT**

The key findings of the Scoping phase can be summarised as follows:

#### **The Receiving Environment**

The surrounding area is mainly characterised by farming activities and natural veld. Although the proposed project area is of ecological significance due to the presence of nationally and provincially protected species, the potential impacts can be successfully mitigated to acceptable levels through relocation and buffer activities. The proposed project area is currently regarded as being of little economic or heritage significance/value according to the results of the various specialist reports. The proposed project also poses significant potential local socio-economic benefits which will outweigh the potential negative impacts.

#### **Public Participation**

To support public interest and inform the Scoping & EIA process, a continual public consultation process will occur throughout the duration of the assessment processes. A diverse mix of authorities, stakeholders and I & AP's will be consulted during this time, representing the environment, social, economic and political sectors of local, regional and provincial bodies.

Comments will be responded to during various stages of the public participation process in the Scoping & EIA phases and will be formally addressed in project reports. It is considered that through the public participation conducted by the EAP, all relevant parties will have adequate opportunity to partake in this process and express opinions and concerns. All relevant concerns will be adequately addressed to ensure that all parties are in agreement with the proposed project.

### **13. CONCLUSION**

In conclusion, although there are a number of potential ecologically significant issues to be addressed in the proposed project, no environmental fatal flaws were identified during the Scoping Phase. A detailed Environmental Impact Assessment is therefore recommended to further investigate, assess and conclude on these potential issues and the appropriate mitigation measures required.

A period of 30 days will be made available for public comment on the draft Scoping Report. The availability of the draft Scoping Report will be announced through the placing of site notices at the relevant farm entrances; the publication of an advertisement in a free local newspaper and the distribution of written notifications to all identified stakeholders as well as registered I & AP's. In addition, site notices and hardcopies of the report will be made available at the Siyathemba Municipal offices and Prieska public library. A downloadable version will be available on the Enviroworks website: <http://www.enviroworks.co.za/projectdownloads.php> under the name Farm De Eelt no 26 vineyard cultivation.

## 14. REFERENCES

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