Draft Environmental Management Plan for Propose clearance of approximately 2000 hectares of vegetation for agricultural purposes, Nkomazi Game Reserve, Near Tjakastad, Mpumalanga Province

Draft Environmental Management Plan

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CORE Environmental Services

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Professional Registration -
SACNASP: 300067/15
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1. OVERVIEW OF THE PROJECT

1.1 Introduction

Nkomazi Game Reserve (Pty) Ltd is proposing to clear vegetation to establish an agricultural area for the purpose of macadamia farming.
The project will include the following:

- Clearance of approximately 1823 hectares of indigenous vegetation.
- Construction of 3 dehusking plants

In accordance with the National Environmental Management Act 107 of 1998, GNR 983 of 2014 (as amended in 2017), an Environmental Authorisation (EA) is required before any clearance activities can take place. Nkomazi Game Reserve (Pty) Ltd subsequently appointed **Core Environmental Services** to apply for the EA by means of conducting a Scoping and Environmental Impact Assessment process as regulated within General Notice Regulation 982, 2014 (as amended in 2017).

1.2 Location

The proposed site is located along the R541 near Badplaas, Mpumalanga Province on the following farm names and portion numbers:

- Portion 2 and 4 of Vergelegen 728-JT
- Portion 7 of Batavia 151-JT
- Portion 0 of Cambalala 765-JT
- Portion 0 of Sterkspruit 709-JT
- Portion 1 of Sterkpsruit 709-JT
- Portion 3 of Sterkspruit 709-JT
- Portion 4 of Sterkspruit 709-JT
- Portion 5 of Sterkspruit 709-JT

21-digit Surveyor General codes:

- T0JT00000000072800002
- T0JT00000000072800004
- T0JT00000000015100007
- T0JT00000000076500000
- T0JT00000000070900000
- T0JT00000000070900001
- T0JT00000000070900003
- T0JT00000000070900004
- T0JT00000000070900005

Central coordinates of the site are:
25° 58'03.35"S
30° 40'24.39"E

Please refer to the locality map below, Figure 1

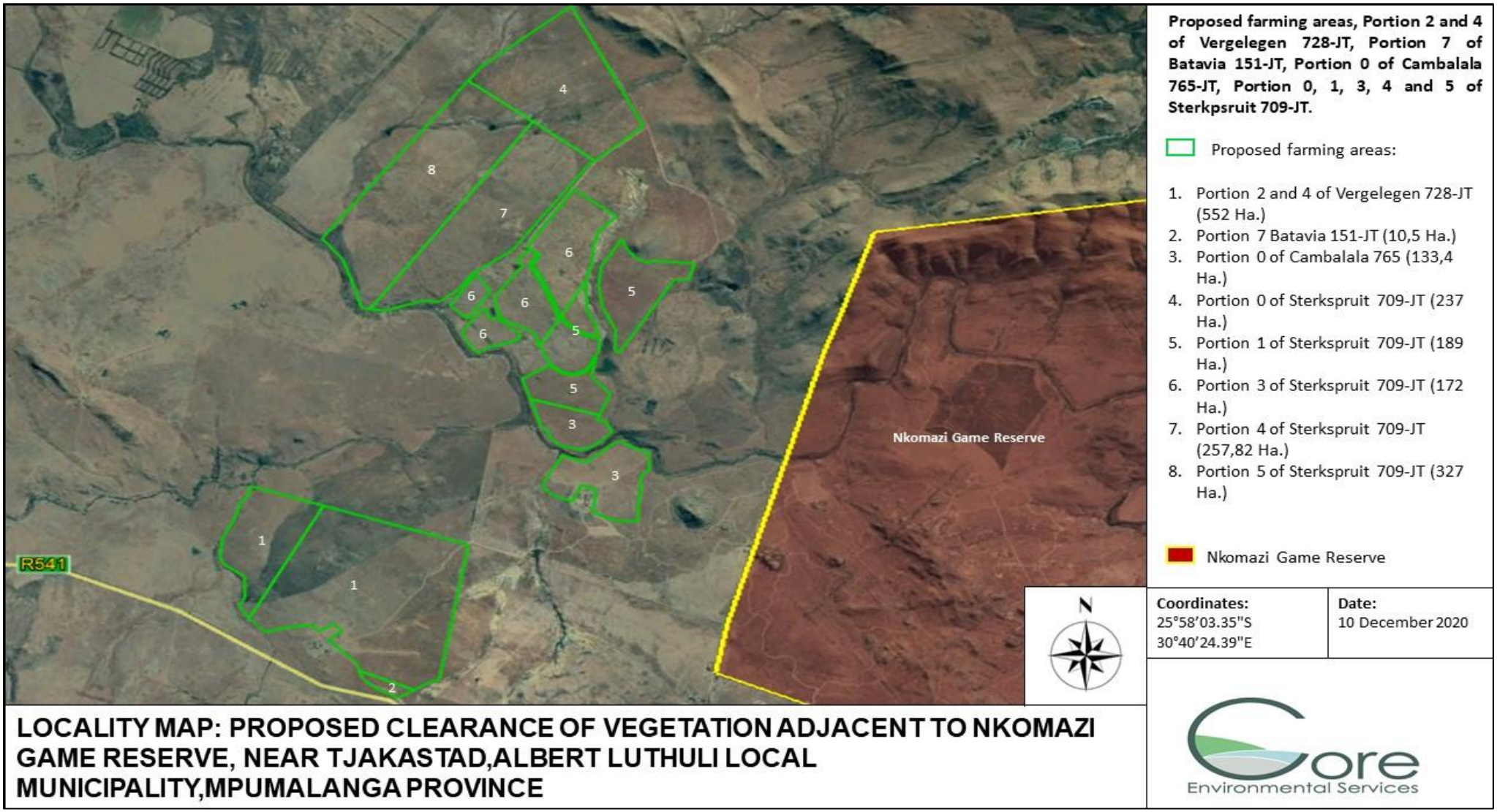

FIGURE 1: LOCALITY MAP – PROPOSED PROJECT AREA

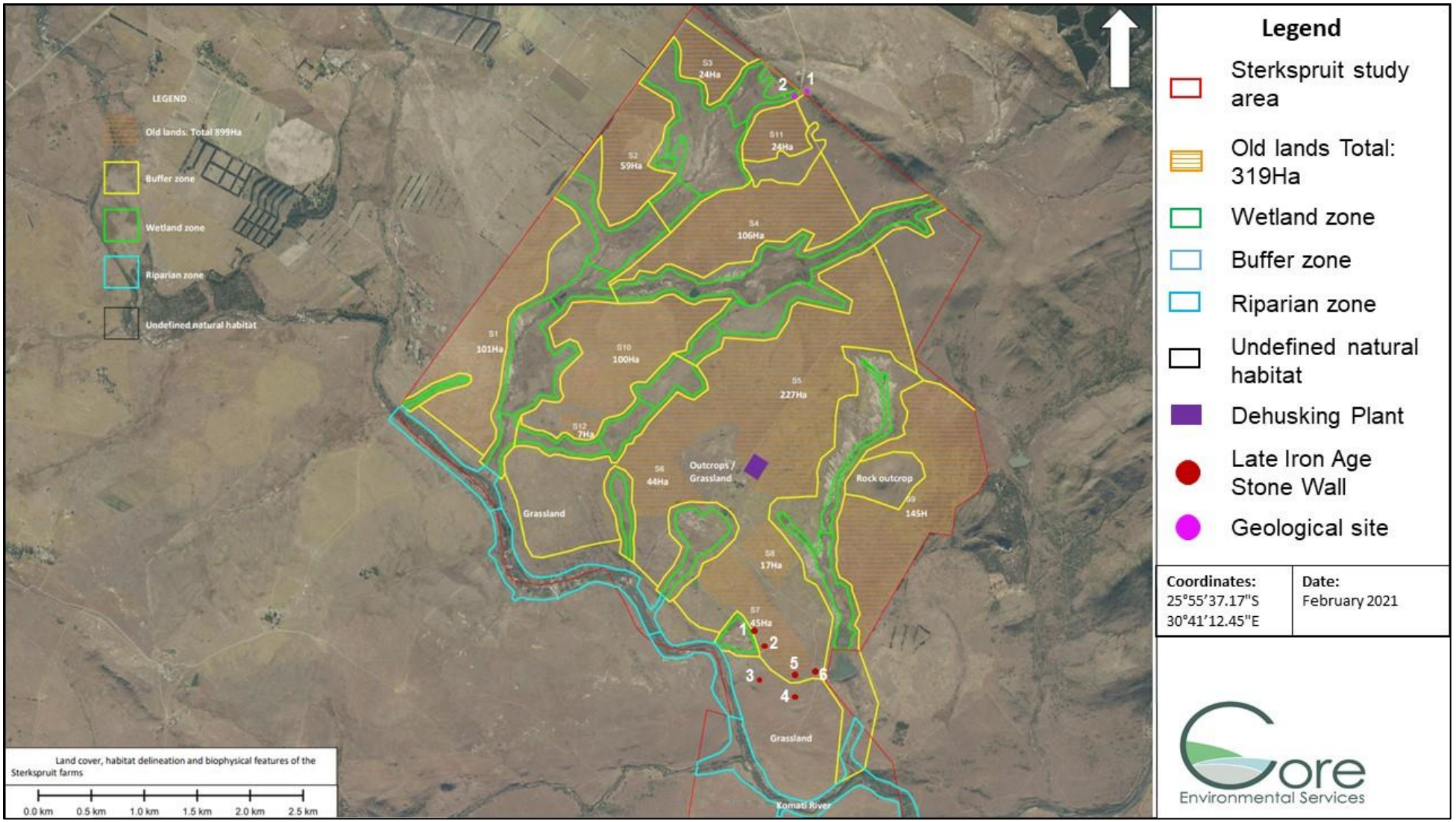

FIGURE 2: LAYOUT MAP- STERKSPRUIT

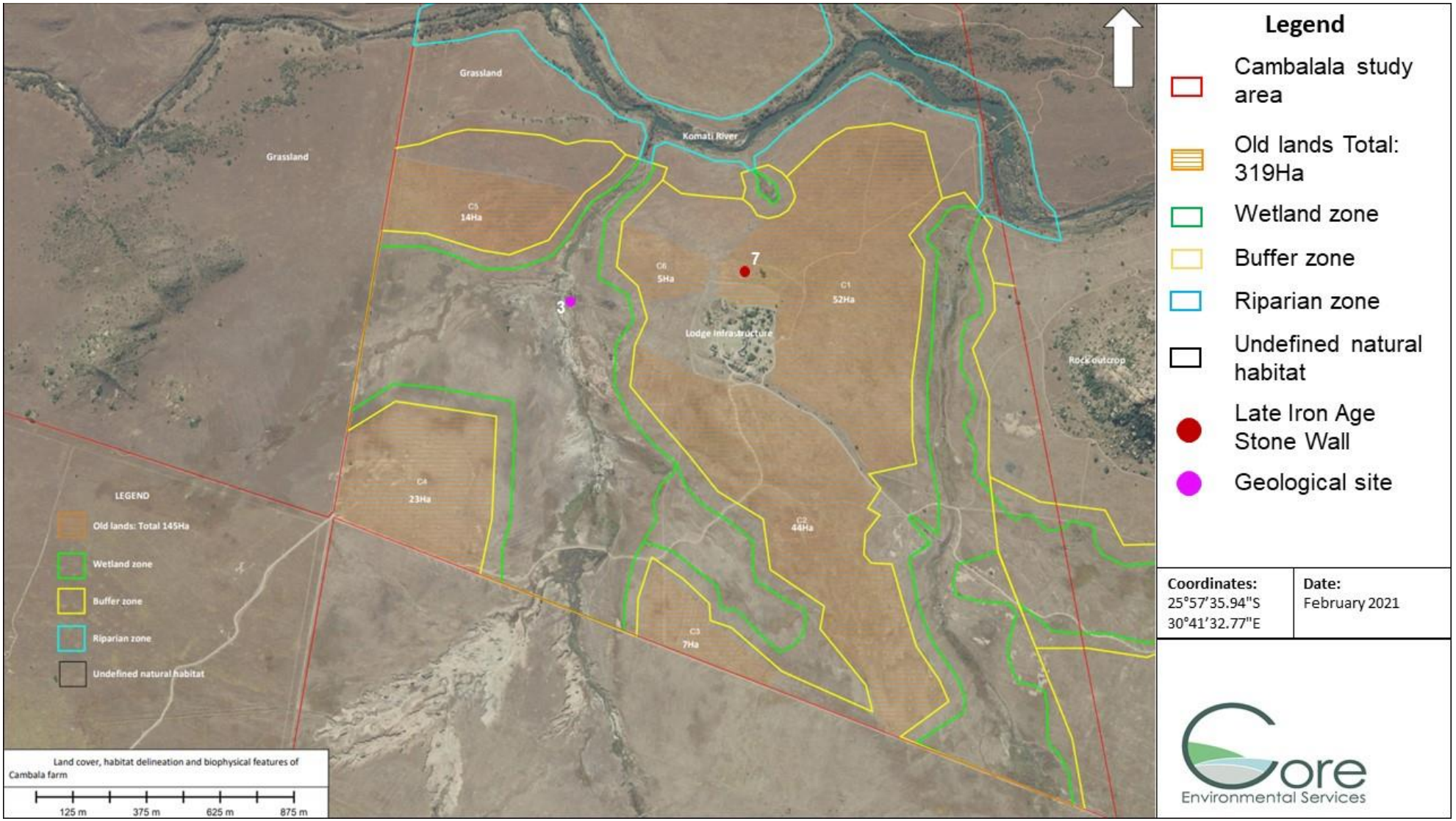

FIGURE 3: LAYOUT MAP- CAMBALALA

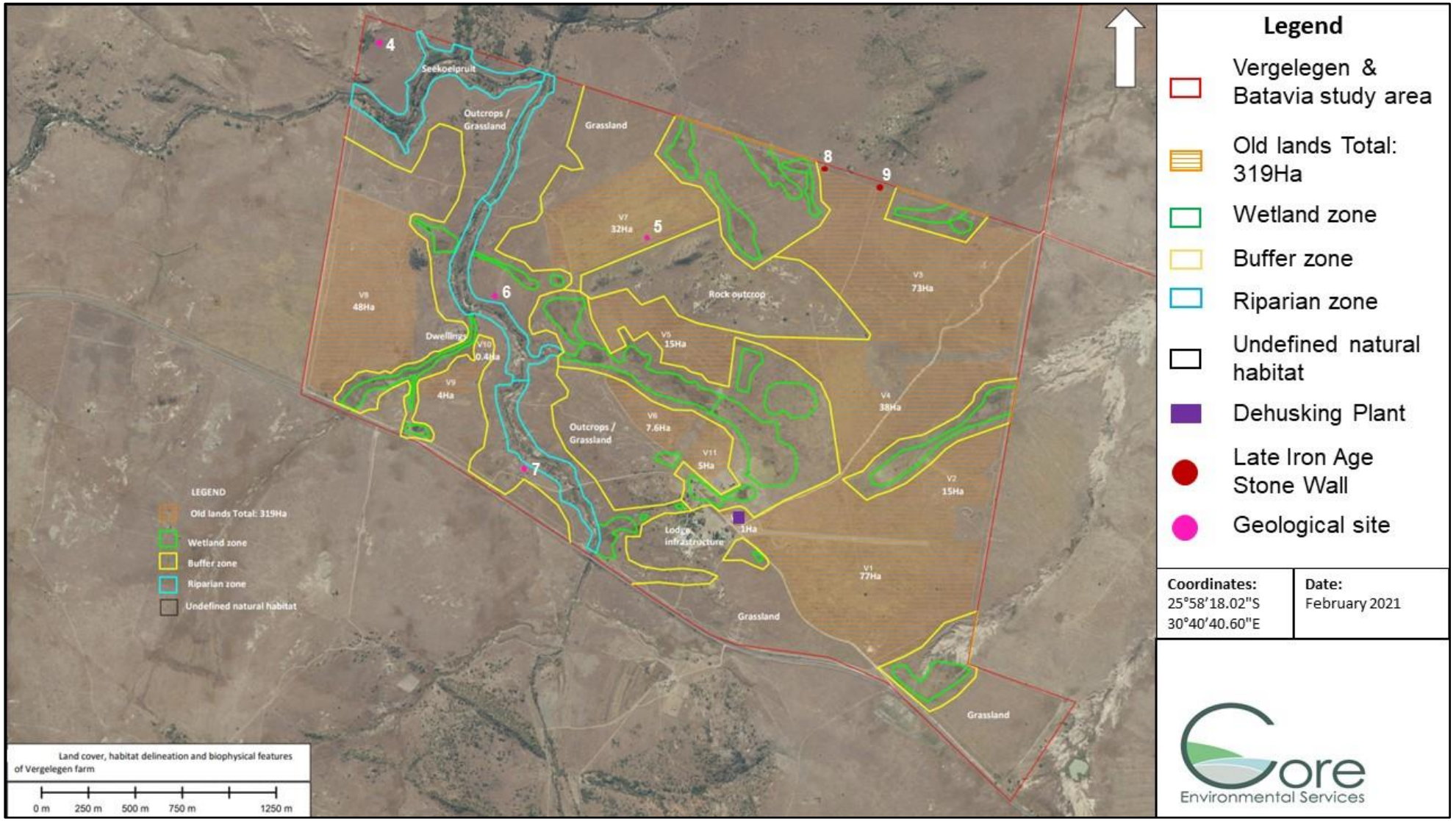

FIGURE 4: LAYOUT MAP- VERGELEGEN AND BATAVIA

1.3 Details of the EAP

Ms. Anne-Mari White, is an Environmental Specialist, who started her studies at the North-West University (NWU) and completed her Bachelor of Science: Environmental Management at the University of South Africa (UNISA) in 2007. Ms. White is registered with the Environmental Assessment Practitioners Association of South Africa (EAPASA Reg No: 2020/602) as well as the South African Council for Natural Scientific Professionals as a Certificated Natural Scientist (Reg. No 300067/15). In addition to her qualification, she completed short courses in soil classification and wetland delineations (Terrasoil Science), Geographic Information Systems (University of KwaZulu-Natal), and Environmental Impact Assessments (NWU).

1.4 Policy Legal and Administrative Framework

TABLE 1: LEGISLATION APPLICABLE TO THE PROJECT

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

	to minimise the impact on the terrestrial biodiversity.
Occupational Health and Safety Act, 1998 (Act No. 85 of 1998)	The Act provides for the health and safety of people at work and for the health and safety of people using plant and machinery. During establishment, work must be conducted with strict adherence to the Occupational Health and Safety Act 85 of 1998.
National Heritage Resources Act, 1999 (Act No 25 of 1999)	This legislation aims to promote good management of the national estate, and to enable and encourage communities to nurture and conserve their legacy so that it may be bequeathed to future generations.
Albert Luthuli Local Municipality Integrated Development Plan (IDP) (2017 - 2022)	The primary objectives of the IDP are to foster economic growth that creates jobs and improve infrastructure within the Province. Job opportunities will be created by the proposed agricultural activities which supports economic growth within the area.

In accordance with the National Environmental Management Act 107, of 1998, the following listed activities will be triggered by the proposed development and will require approval prior to commencement:

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

GNR 984, Activity 15:
The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for – (i) The undertaking of a linear activity; or Maintenance purposes undertaken in accordance with a maintenance management plan.

The applicant is proposing to clear approximately 2000 hectares of vegetation for cultivation purposes.

GNR 985, Activity 12(f):
The clearance of an area of 300 square meters or more of indigenous vegetation, except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in

accordance with a maintenance management plan. (ii) Within critical biodiversity areas identified in bioregional plans.

While certain portions proposed for cultivation was previously cultivated, a small portion of the area proposed are identified to be a Critical Biodiversity Area. It must also be noted that the areas proposed for agriculture does not fall within the areas gazetted as a Protected Area.

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

1.5 Description of the project

Nkomazi Game Reserve (Pty) Ltd is proposing to clear approximately 2000 hectares of vegetation to establish an agricultural area for the purpose of macadamia farming. After the specialist investigations were conducted, it was concluded that approximately 1 823 hectares of the area investigated, is viable for agricultural purposes.

New structures proposed include the construction of three dehusking plants.

In terms of water use, the owner has water rights from the Inkomati Ushuthu Catchment Management Agency (IUCMA) for:

Property	Water rights
Portion 0 of Cambalala 765 JT	420 000m^3 per annum abstraction from the Komati River
Portion 0 of Nkomazi 772 JT	2 192 400m^3 per annum abstraction from the Komati River
Portion 1 and 4 of Sterkspruit 709 JT	660 000m^3 per annum from the Komati River 228 000m^3 per annum from Gladdespruit 240 000m^3 per annum from Sterkspruit
Portion 4 of Vergelegen 728 JT	501 600m^3 per annum from Lekkerloopspruit 102 100m^3 per annum from Seekooispruit
TOTAL	**4 344 100m^3**

Approximately 250 trees will be planted per hectare on this portion of which approximately 1823 hectares would be cultivated. Each mature tree requires 0.18m^3 of water per week, which totals a water requirement of 4 265 820m^3 per annum. With 4 344 100m^3 of water allocated per annum, the applicant has sufficient water for the proposed cultivation and will have a surplus of 78 280m^3 per annum available.

2. DESCRIPTION OF IMPACT MANAGEMENT OUTCOMES

2.1 Impact Management Outcomes

The impact management measures described in this section have been informed by the independent environmental assessment of the activities conducted and to be conducted on the farm. These measures have been proposed to mitigate negative impacts and enhance the positive benefits of the project and to, ultimately, achieve the impact management outcomes:

1. **Nkomazi Game Reserve (Pty) Ltd** is operated in an environmentally and socially responsible manner;
2. The EMPr prescribes practical measures for the mitigation of impacts;
3. Roles and responsibilities for the environmental management and monitoring of the proposed activities are defined;
4. All employees and its contractors are aware of the environmental impacts of the activities, thus enabling them to take timeous precautions against environmental damage;
5. Pollution or similar events are mitigated effectively; and
6. Regulatory requirements are complied with throughout.

Nkomazi Game Reserve (Pty) Ltd has a legal obligation to comply with the EMPr and to ensure compliance by its workers and agents, where applicable.

The EMPr describes mitigation measures designed to minimise or eliminate the significant adverse impacts that may be caused by the operational activities. It shall form the basis for environmental management at the company. This EMPr should be considered dynamic, as it should be amended if conditions change or more information becomes available.

2.2 Management Statement

A commitment is required from the management in that they shall:

- Take into consideration the surrounding environment and neighbours;
- Always behave professionally on and off site;
- Ensure quality in all work done, both technical and environmental;
- Resolve problems and claims arising from damage immediately, to ensure an uninterrupted flow of operations;
- Read and understand this EMPr and use it for the benefit of all involved;
- Preserve the natural environment by limiting destructive actions on site and by using resources efficiently; and
- Continually improve their environmental management strategies.

3. IMPACT MANAGEMENT

This section forms the core of the EMPr as it provides a description of the proposed impact management actions by identifying the manner in which the impact management outcomes contemplated in section 2 will be achieved. These actions, outlined in Table 2, are shown for the establishment and operational phase throughout. It is the responsibility of the owner of the farm to ensure that adequate resources are allocated to the achievement of these actions. It is the responsibility of the site manager to ensure that these actions are implemented on a day-to-day basis and to verify compliance to the EMPr. The time period for the implementation of the EMPr will be throughout the lifetime of the farming activities, or until such time as the EMPr is amended as a result of an environmental audit or if significant activity-changes take place.

TABLE 2 | MITIGATION MEASURES REQUIRED FOR ACTIVITIES ASSOCIATED WITH ESTABLISHMENT AND OPERATIONAL PHASE.

Aspect	Phase	Potential Impact	Activity	Actions to avoid, modify, remedy, control or stop action, activity or process causing pollution or environmental degradation	Recommended Monitoring Method	Frequency of Monitoring	Performance Indicator
Biodiversity	Establishment and operational	Spreading of invasive plant species Clearing additional vegetation Loss of important species Loss and fragmentation of habitat	Clearance of vegetation for footprint of the agricultural area	**Objective(s):** • Elimination of invasive plant species. • Protection of indigenous vegetation of surrounding areas • Protection of fauna **Target(s):** (a) Where possible, large trees must be retained on site and cultivation of macadamia trees must be undertaken underneath such large trees; (b) Spoil material may not be pushed into the natural habitats,	Visual Inspection and yearly external environmental audit	On-going, continuous monitoring by farm manager during establishment and operation. Yearly external audit by an external environmental auditor	No invasive plant species within the perimeter of the site. No additional clearance of vegetation besides the footprint of the agricultural area

Aspect	Phase	Potential Impact	Activity	Actions to avoid, modify, remedy, control or stop action, activity or process causing pollution or environmental degradation	Recommended Monitoring Method	Frequency of Monitoring	Performance Indicator
				buffer zones or riparian and wetland habitats. (c) Relocate important species (Aloe marlothii; Crinum macowanii) before clearance activities and construction commences (d) Conserve all the natural habitats with high sensitivity (e) Workers to be discouraged from killing animals and birds for relish; (f) No staff member may be allowed to collect firewood or any other plant resources from surrounding vegetation. Any evidence of this must be followed up with prosecution and penalties levied on the company responsible for the establishment. Trees removed within the footprint of the agricultural area may be sold or donated during the establishment phase. (g) Where alien invasive plants occur, they must be uprooted, cut and /or chemically treated. (Use only approved chemicals); (h) Implement an alien vegetation control programme;			

Aspect	Phase	Potential Impact	Activity	Actions to avoid, modify, remedy, control or stop action, activity or process causing pollution or environmental degradation	Recommended Monitoring Method	Frequency of Monitoring	Performance Indicator
				(i) No wild animal may under any circumstance be handled, removed or be interfered with (j) Protect the high sensitivity habitat by applying the calculated buffer lines as delineated within the Biodiversity Assessment and layout plan attached.			
Air Quality	Establishment phase	Dust generation	Clearance of vegetation Disturbance of soil Vehicle movement on and off site	**Objectives:** To minimise the impact of dust generated, on neighbouring land users **Targets:** a) Speed limit must be enforced in all areas to reduce the levels of dust pollution. b) No refuse waste or vegetation are to be burned on the premises or on surrounding premises	Visual inspection and complaints received from neighbouring land users.	On-going, continuous monitoring by farm manager.	No complaints from neighbouring land users No excessive dust generated during establishment activities
Water	Establishment and operational phase	Irresponsible water use	Irrigation	**Objectives:** To minimise the impact on water resources and minimise water consumption	Visual inspection and monthly monitoring of water abstraction.	Monthly by the farm manager	Water use within the allocation

Aspect	Phase	Potential Impact	Activity	Actions to avoid, modify, remedy, control or stop action, activity or process causing pollution or environmental degradation	Recommended Monitoring Method	Frequency of Monitoring	Performance Indicator
				Targets: a) No activities may take place within the allocated buffer of the riparian and/or wetland area. b) Conserve all the watercourses, riparian habitat and natural habitats with High sensitivity. c) Water use must be monitored and used sparingly. d) The use of pesticides and herbicides must be managed to prevent any substances from entering the watercourse. e) Protect the high sensitivity habitat by applying the calculated buffer lines as delineated. f) The recommended footprints are indicated in the layout maps **g)** Management activities be focused on maintaining water quantity and quality and the integrity of natural habitat in the sub-catchment			
Sanitation and waste disposal	Establishment and operational phase	Soil pollution Environmental pollution	Personnel conduct	**Objectives:** To prevent pollution caused by improper sanitation and waste storage and disposal	Visual inspection	Daily by the farm manager	No littering on site or pollution caused by improper storage and disposal of waste

Aspect	Phase	Potential Impact	Activity	Actions to avoid, modify, remedy, control or stop action, activity or process causing pollution or environmental degradation	Recommended Monitoring Method	Frequency of Monitoring	Performance Indicator
				Targets: a) Littering on site and the surroundings areas are prohibited. b) Waste must be disposed, as soon as possible and not be allowed to stand on to decay, resulting in bad odours and attracting vermin. c) All waste removed from site must be disposed at the municipal/permitted waste disposal site.			
Soil	Establishment and operational phase	Soil erosion Soil contamination	Heavy rain/storms increasing the possibility of erosion Use of pesticides during establishment	**Objective(s):** To minimise soil erosion and soil contamination with the use of pesticides. **Target(s):** a) Measures must be taken to prevent soil erosion. This can be achieved by means of using sandbags as a temporary measure or gabions on areas prone to erosion during the operational phase; b) Clearance of vegetation must be limited to the footprint of the	Visual inspections	Continuous site inspections, especially after heavy rainfall.	No erosion and soil contamination present on site

Aspect	Phase	Potential Impact	Activity	Actions to avoid, modify, remedy, control or stop action, activity or process causing pollution or environmental degradation	Recommended Monitoring Method	Frequency of Monitoring	Performance Indicator
				agricultural area only. Areas cleared of vegetation must be rehabilitated immediately after the establishment phase is complete c) Measures to reduce the velocity of water, must be taken on areas prone to erosion d) Access roads used during the removal of vegetation, must be adequately rehabilitated after the establishment phase; e) Alternatives for the management of pests must be investigated. Only approved pesticides and herbicides may be used for the management of pests			
All environ-mental aspects Health and safety	Establishment	Various environmental, Health and safety impacts.	Personnel conduct	**Objective:** • To ensure that personnel adhere to EMPr requirements; • To ensure the health and safety of employees and surrounding landowners **Target:** a) Ensure that inductions are conducted, and all personnel have records that are up to date;	Visual inspection and inspection of records	On-going, continuous monitoring by farm manager.	No incidents recorded or reported.

Aspect	Phase	Potential Impact	Activity	Actions to avoid, modify, remedy, control or stop action, activity or process causing pollution or environmental degradation	Recommended Monitoring Method	Frequency of Monitoring	Performance Indicator
				b) Ensure that all training includes requirements of the EMPr. c) Take adequate precautions to ensure that fires are not started as a result of works on site. d) Do not permit any fires or open flames, especially during the dry season. e) Ensure that the site is equipped with adequate firefighting equipment. Take immediate steps to extinguish any fire, which may break out. f) No open trenches are permitted without the use of demarcation tape. g) Secure storage of materials on site particularly hazardous material e.g. chemicals and fuels. h) Do not store any fuel or chemicals under trees. i) Do not permit any smoking within 3m of any fuel or chemical storage area, or refuelling area.			
Heritage	Establishment Phase	Disturbance of heritage resources or artefacts	Possible excavation activities	**Objective:** Protection of heritage resources	Visual inspection during excavation	Prior and during excavation	Protection of heritage resources if any is observed

Aspect	Phase	Potential Impact	Activity	Actions to avoid, modify, remedy, control or stop action, activity or process causing pollution or environmental degradation	Recommended Monitoring Method	Frequency of Monitoring	Performance Indicator
				Target: a) In the unlikely event that fossils are uncovered during construction then construction must cease within the immediate vicinity, a buffer of 30 m must be established, and a palaeontologist called in to inspect the finds. The palaeontologist must obtain a section 35(4) permit in terms of NHRA and Chapter IV NHRA Regulations, before any fossils are collected. b) If there are any new heritages resources are discovered during construction and operation phases of the proposed development, then a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the findings at the expense of the developer. c) If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required at the			

Aspect	Phase	Potential Impact	Activity	Actions to avoid, modify, remedy, control or stop action, activity or process causing pollution or environmental degradation	Recommended Monitoring Method	Frequency of Monitoring	Performance Indicator
				expense of the developer. Mitigation will only be carried out after the archaeologist or palaeontologist obtains a permit in terms of section 35 of the NHRA (Act 25 of 1999); d) Should the section of the stone wall be excluded from the proposed development, a 10m buffer zone must be established around the site to ensure the preservation of the site and any possible future research, if required.			
Palaeontological	Establishment Phase	Disturbance of palaeontological resources	Possible excavation activities	**Objective:** Protection of palaeontological resources **Target:** a) The EAP and ECO must be informed of the fact that a low and very low palaeontological sensitivity is allocated to the study area. b) No further mitigation for Palaeontological Heritage is recommended. If, however any observations of possible	Visual inspection during excavation	Prior and during excavation	Protection of palaeontological resources if any is observed

Aspect	Phase	Potential Impact	Activity	Actions to avoid, modify, remedy, control or stop action, activity or process causing pollution or environmental degradation	Recommended Monitoring Method	Frequency of Monitoring	Performance Indicator
				fossils are made, the developer must appoint a suitably qualified palaeontologist to implement the Chance Find Protocol			
Social	Establishment and operational phase	Employment	Employment opportunities	**Objectives:** To ensure that employment opportunities and social benefits are maximised. **Targets:** a) Unskilled job opportunities should be afforded to local communities where feasible. b) Payment should comply with applicable labour legislation in terms of minimum wages.	As and when basis.	Whenever new labour is hired.	Job and contracting opportunities are afforded where feasible.