DRAFT ENVIRONMENTAL IMPACT REPORT

LOWS CREEK AGRICULTURE PROJECT: CLEARING OF NATURAL- AND TRANSFORMED LAND FOR AGRICULTURAL USE AND CLEARANCE OF AN AREA OF 60HA ON THE FARM NAUDES RUST 272 JU PORTIONS 17 AND 21: LOWS CREEK AREA, MPUMALANGA
PROJECT REFERENCE: 1/3/1/16/1E-427

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1. EXECUTIVE SUMMARY

The initial phases of the **Environmental Investigation Process** were conducted over a period of eight months in the Lows Creek area of Nkomazi. The proposed development includes clearing natural vegetation for orchards on an existing crop farm in the Lows Creek area of Mpumalanga.

The public participation process was advertised locally and regionally **(25 August 2022)** in the printed media, on site and at various sites of interest including those open to the Public (e.g., Lows Creek Clinic) in the town of Lows Creek. The immediate neighbours of the property were contacted specifically via e mail and requested to attend the Site/Public Meeting **(6 October 2022)**. Government officials and representatives from the irrigation boards were also invited to on-site meetings and discussions.

The **Scoping Reports including this Draft EIR were** made available for comment at the **Kudu Farm Gate (opposite the Lows Creek Police Station), the farm office of the applicant, the offices of Nkomazi/Mbombela Municipal Councils and to all individuals and departments that registered and or attended the Public Site Meeting.**

Comments received from various departments are included in **Appendix 2** (Issues and Responses Report) and were listed for consideration during the impact assessment phase of the project.

This **study and evaluation** to date has looked at the various aspects that could be affected by the implementation of such a proposal. Experience gleaned from similar projects in the valley was sourced for additional input.

The **Environmental Impact Assessment (EIR Phase)** investigated the **significance** of impacts, **alternative** options and **mitigation** measures where applicable. The EIR also includes an **Environmental Management Programme (EMPr), Specialist Studies** on the terrestrial ecology of the designated project site, the agricultural potential of the soils and a **Heritage Impact Assessment (HIA)** of the project area.

Summary of Key Issues and Outcomes:

1.1. Establishment of Orchards: The development team have more than **30 years of experience of crop farming** in the Lowveld area and have expressed the wish to improve their farming operations.
As per the comment from DALRRD the applicant must apply for a cultivation of virgin land once the project is approved.
1.2. Biodiversity Conservation: More than **50% of the project sections are set aside for biodiversity** conservation and all riparian zones, drainage lines, rocky outcrops and sensitive areas will not be developed.
1.3. Specialist Study: The **Specialist Study on Biodiversity** and ecology followed the guidelines described in the Mpumalanga Biodiversity Sector Handbook (MBSP) as compiled by Dr. Mervyn Lötter *et al*. Following these guidelines, the project area:

- Will not affect any critical biodiversity areas.
- Biodiversity Protection: **See Appendix 4.4.2.** Refer to applicable maps in **Appendix 1**.
- These conditions listed below are based on the identification of mitigation measures and solutions that minimise impacts on biodiversity and conflicts in land-use by making use of use of CBA maps in the Environmental Impact Assessment.

- **a) <u>Retain natural habitat and connectivity in CBAs and ESAs</u>**: The avoidance of environmentally sensitive areas identified during the Sensitivity Mapping exercise is regarded as the single most effective possible mitigation measure for mitigating impacts on the ecology of the project area.
- Maximise connectivity in CBAs and ESAs, the retention of intact natural habitat and avoid fragmentation: The buffered drainage line at Site 1 connects the riparian corridor to the Crocodile Gorge Mountain (ONA).
- It is clear that the implementation of buffers around sensitive habitat types is regarded as the most effective possible mitigation measure for mitigating impacts to the biodiversity of the project.
- **b) <u>Apply the mitigation hierarchy</u>?**
- By making use of “best practice guidelines” during the construction- and operational phases, identify the best practical environmental options by avoiding loss of biodiversity and disturbance to ecosystems, especially in CBAs, by applying the mitigation hierarchy and the land-use guidelines recommended. In particular:
- Management actions should be implemented such as:
- the re-establishment of indigenous vegetation wherever possible;
- control of storm water run-off;
- ongoing repair- and stabilisation of any erosion;
- implement an alien plant control programme;
- make use of current roads or tracks as far as possible;
- implement a veld management plan for the conservation area, which emphasises the use of sustainable grazing and controlled fires;
- prevent erosion and sediment-laden water from entering the adjacent watercourses;
- generic buffers should be established around wetlands;
- strict management of potential sources of agrochemical pollution;
- avoid over irrigation;
- maintaining an intact riparian corridor.
- **c) <u>Remedy degradation and fragmentation through rehabilitation</u>:**
- A network of corridors will be established by the farm drainage lines and connect most of the farm with the Crocodile Gorge Mountain (ONA):
- Buffers around drainage lines;
- Planting or rehabilitation of cleared or excavated areas should commence as soon as the development activity is completed.
- Clear invasive alien vegetation and rehabilitate existing degraded habitats.
- **d) <u>Secure priority biodiversity in CBAs and ESAs through biodiversity stewardship</u>**
- Set aside land of high biodiversity importance for conservation through biodiversity stewardship options. Where biodiversity losses are unavoidable, set aside another piece of land of equivalent or greater biodiversity importance for conservation:
- It is not foreseen that the Crocodile Gorge Mountain (ONA) will be affected in any future farming practises.
- **e) <u>Promote long-term persistence of taxa of special concern</u>**
- It is not foreseen that the Crocodile Gorge Mountain (ONA) will be affected in any future farming practises and the taxa of special concern can escape to this safe haven.
- **f) <u>Integrating *in situ* biodiversity-sensitive management into the overall design and operation of the proposed land-use development</u>**
- The owners will create a strict conservation ethic with reference to the natural Crocodile Gorge Mountain ONA with its vast stretches of untransformed woodland.

- **Soils: Screening Assessment**: The 21ha of arable areas were chosen because they are uniform and there are no rocky, steep or wetland areas within the sections assessed for the orchards.
- The screening study ensured that buffers were established around the sensitive habitat types, no obvious areas of concern were encountered and there is sufficient water available to establish orchards.

1.4. The Project: Additional **key issues** include:

- The applicant has access to **adequate water** as per entitlements and lawful water use to establish the crops.
- The soils are **suited to crop farming** especially macadamia and avocado.

1.5. Expertise: The applicant has access to the equipment, trained staff and knowledge to undertake this expansion project.

1.6. Best Practice: The applicant has implemented Agriculture Best Practice Techniques on all his farming operations to date and these will continue with this expansion project. These are:

- **Orchards:** Establish the plants on good, well drained soils in line with the recommendations provided by the soil scientist.
- Design the orchards along the contours of the farm and follow the lie of the land.
- Promote controlled, gradual run-off and drainage channels.
- Space crop plants as per crop type specifications.
- Use disease free plants from accredited nurseries.
- Prepare the land using fertilisers recommended by an accredited agronomist and ensure that lands are weed free.
- Install water saving irrigation systems which conserve water use over the long term.

1.7. Area Integrity: Maintain the integrity of the riparian zones, the ecological corridors and all buffer areas as indicated on the project maps and as delineated by Dr. Deacon and described in the Specialist Study.

1.8. Heritage Aspects:

- It is recommended that an Environmental Control Officer (ECO) oversee the implementation of the development phase and the handling procedure of any finds is described in the Environmental Management Programme (EMPr).
- Should any artefact, or historical site be incidentally discovered during excavations for foundations as well as in future, all works must cease with immediate effect. The find must be reported to the Project Manager for the development and the ECO for the project.
- These representatives will initiate an Action Plan in conjunction with SAHRA and the developer to address the management and handling of the find.

1.9. Conclusion:

- The project site is fixed. Less than 50% of the four sites will be used for agriculture and the remainder will be conserved for the maintenance of biodiversity, ecological corridors and riparian zones.
- Service provision for power will be supplied by Eskom and water will be sourced from the existing storage dams, canals and boreholes on site.
- Preparation will commence during the mid-season avoiding windy conditions and very wet periods where possible.
- A low flow irrigation system will be used for purposes of irrigation during the establishment phase.
- This will be combined with a computerised water/moisture maintenance facility to maximise water application at the correct times and only when necessary.
- Extension officers and consultants will assist with the choice of crop varieties. This will be determined as per the soil potential of each orchard section.
- The evaluation process did not reveal any fatal flaws during the assessment of potential impacts. The project satisfies the requirements of sustainable integrated environmental management. Provided the developer implements the implications/conditions of this report, and the mitigation measures proposed, it is recommended that the change in land use is approved.

2. ABBREVIATIONS

ASAP	As Soon As Possible
Asl	Above sea level
BEE	Black Economic Empowerment
cm	centimetre
DARDLEA	Department of Agriculture, Rural Development, Land and Environment Affairs
DFFE	Department of Forestry, Fisheries and Environment:MP
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
ESKOM	Electricity Supply Commission
GPS	Geographical Positioning System
ha	Hectare
HIA	Heritage Impact Assessment
I&AP's	Interested and Affected Parties
IEM	Integrated Environmental Management
IUCMA	Inkomati Usuthu Catchment Management Agency
kPa	kilopascal
LFIS	Low Flow irrigation System
LUDS	Land Use Decision Support Tool
m	metre
mm	millimeter
MTPA	Mpumalanga Tourism and Parks Agency
m/s	metre per second
NA	Not Applicable
OHASA	Occupational Health and Safety Act
OMPr	Operational Management Programme
ONA	Other Natural Areas
PDI	Previously Disadvantaged Individual

PES	Present Ecological State
PPP	Public Participation Process
RES	Rhengu Environmental Services
SABS	South African Bureau of Standards
SAHRA	South African Heritage Resources Agency
sqm	square metre

3. LEGISLATION APPLICABLE TO THE PROPOSED PROJECT

Legislation and guidelines that are being considered for the environmental impact assessment process are as follows:

3.1. Constitution of the Republic of South Africa (No.108, 1996):

The Constitution is the supreme law of South Africa, against which all other laws are measured. It sets out several fundamental environmental rights, which include:

The Environmental Clause:

Section 24 of the Constitution outlines the basic framework for all environmental policy and legislation:

It states that everyone has the right to an environment that is not harmful to their health or well-being and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation; promote conservation and secure ecologically sustainable development and use of natural resources while promoting justifiable economic- and social development.

Access to Information:

Section 32 of the Constitution provides that everyone has the right of access to any information held by the State or another juristic person and that is required for the exercise or protection of any rights.

Fair Administrative Action:

Section 33 of the Constitution provides for the right to lawful, reasonable and procedurally fair administrative action.

Enforcement of Rights and Administrative Review:

Section 38 of the Constitution guarantees the right to approach a court of law and to seek legal relief in the case where any of the rights that are entrenched in the Bill of Rights are infringed or threatened.

3.2. National Environmental Management Act (No. 107, 1998):

The National Environmental Management Act (NEMA) is South Africa's overarching environmental legislation. The Act gives meaning to the right to an environment that is not harmful to health or well-being, entrenched in Section 24 of the Constitution of the Republic of South Africa, Act 108 of 1996. The National Environmental Management Act (NEMA, Act No. 107 of 1998) establishes a set of principles which all authorities (organs of State) have to consider when exercising their powers, for example, during the granting of permits. 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.
- Responsibility for the environmental consequences of a policy, project, product or service applies throughout its life cycle.

NEMA further provides for an equitable access to natural resources, environmental protection and the formulation of environmental management frameworks. The Act is underpinned by the global concept of sustainable development.

The interpretation, administration and application of NEMA are guided by fundamental principles of sustainable development, provided in Chapter 1 of the Act. “Development must be socially, environmentally and economically sustainable” (s 2(3)) and requires the consideration of all relevant factors, which are elaborated by eight sub-principles”.

These principles include:
- The polluter pays principle (s 2(4) (p)).
- The public trust doctrine (s2(4)(o)).
- The equitable access to natural resources (s 2(4)(d)).

Section 24 of the Act states that all activities that may significantly affect the environment and require authorisation by law must be assessed prior to their approval.

The Act goes on to list the requirements for an assessment. These include:
- The environment likely to be affected by the activity and viable alternatives.
- Cumulative effects and their potential significance.
- Mitigation measures including the “no go” option.

Section 28(1) states that “every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring”.

If such degradation/pollution cannot be prevented, then appropriate measures must be taken to minimise or rectify such pollution. These measures may include:
- Assessing the impact on the environment.
- Informing and educating employees about the environmental risks of their work and ways of minimising these risks.
- Ceasing, modifying or controlling actions which cause pollution/degradation.
- Containing pollutants or preventing movement of pollutants.
- Eliminating the source of pollution.
- Remedying the effects of the pollution.

3.3. National Water Act (No. 36, 1998):

The Act details the management of South Africa’s water resources in terms of utilisation and duty of care to prevent water pollution. The act further details the legislation pertaining to the pollution of water reserves (surface and ground water) and the remediation/rehabilitation thereof.

3.4. Mpumalanga Nature Conservation Act (No. 10, 1998):

An Act to consolidate and amend the laws relating to nature conservation within the Province and to provide for matters connected therewith. This Act makes provision with respect to nature conservation in the Mpumalanga Province. It provides for, among other things, protection of wildlife, hunting, fisheries, protection of endangered fauna and flora as listed in the Convention on International Trade in Endangered Species of Wild Fauna and Flora, the control of harmful animals, freshwater pollution and enforcement. The Mpumalanga Parks Board (now MTPA), established by section 2 of the Eastern Transvaal Parks Board Act, 1995, shall be responsible for the administration of the Act.

3.5. Conservation of Agricultural Resources Act (No. 43, 1983):

This Act provides for control over the utilisation of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the combatting of weeds and invader plants and for matters connected therewith.

3.6. National Environmental Management: Biodiversity Act (No.10, 2004):

To provide for, inter alia, the management and conservation of South Africa's biodiversity, to protect species and ecosystems. The Act also covers alien- and invasive species and genetically modified organisms that pose a threat to biodiversity.

The objectives of this Act are to within the framework of the National Environmental Management Act provide for:

- The management and conservation of biological diversity within the Republic and of the components of such biological diversity.
- The use of indigenous biological resources in a sustainable manner.
- The fair and equitable sharing among stakeholders of benefits arising.
- To give effect to ratified international agreements relating to biodiversity.
- To provide for co-operative governance in biodiversity management and conservation.
- To provide for a South African National Biodiversity Institute to assist in achieving these objectives of this act.

3.7. National Environmental Management: Protected Areas Act (No. 57, 2003) as amended by the National Environmental Management: Protected Areas Amendment Act (No 31 of 2004):

To provide for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes; for the establishment of a national register of all national, provincial and local protected areas; for the management of those areas in accordance with national norms and standards; for inter-governmental co-operation and public consultation in matters concerning protected areas and for matters in connection therewith.

3.8. National Environment Conservation Act (No 73, 1989):

The purpose of the Act is to provide for the effective protection and controlled utilisation of the environment and for matters incidental thereto. It embodies the concept of control of activities which may have detrimental effects on the environment which may be:

- Land use and transformation.
- Water use and disposal.
- Resource removal, including natural living resources.
- Resource renewal and,
- Agricultural processes.

The Act also provides for the control of Environmental Pollution through:

- Prohibition of littering.
- Removal of litter.
- Waste management.

In addition to the above the Act provides for the regulations regarding waste management such as:

- The classification of different types of waste and the handling, storage, transport and disposal of waste.
- Reduction of waste.
- Utilisation of waste by way of recovery, re-use or processing of waste.
- Location, planning and design of disposal sites and the site used for waste disposal.
- Administrative arrangements for the effective disposal of waste.
- Dissemination of information to the public on effective waste disposal.
- Control over the import and export of waste, etc.

3.9. National Heritage Resources Act (No. 25, 1999):

The protection and management of South Africa's heritage resources are controlled by the National Heritage Resources Act (Act No. 25 of 1999). The enforcing authority for this act is the South African National Heritage Resources Agency (SAHRA). In terms of the Act, historically important features such as graves, trees, archaeology and fossil beds are protected. Similarly, culturally significant symbols, spaces and landscapes are also afforded protection.

In terms of Section 38 of the National Heritage Resources Act, SAHRA can call for a Heritage Impact Assessment (HIA) where certain categories of development are proposed. The Act also makes provision for the assessment of heritage impacts as part of an EIA process and indicates that if such an assessment is deemed adequate, a separate HIA is not required.

According to the National Heritage Resources Act (Section 38(8)), such an assessment has to meet the requirements of the relevant heritage authority. The following requires the approval of SAHRA:

- Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised.
- The construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length.
- Any development or other activity which will change the character of a site - exceeding 5 000 m² in extent; or involving three or more erven or divisions thereof which have been consolidated within the past five years.
- The costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority.
- The re-zoning of a site exceeding 10 000 m² in extent.
- Any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

3.10. Occupational Health and Safety Act (No. 85, 1993):

To provide for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work; to establish an advisory council for occupational health and safety and to provide for matters connected therewith.

3.11. Promotion of Access to Information Act (No 2, 2000):

To give effect to the constitutional right of access to any information held by the State and any information that is held by another person and that is required for the exercise or protection of any rights and to provide for matters connected therewith.

3.12. National Environment Management: Waste Act, 2008 (No 59 of 2008):

To reform the law regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development.

- To provide for institutional arrangements and planning matters.
- To provide for national norms and standards for regulating the management of waste by all spheres of government.
- To provide for specific waste management measures.
- To provide for the licensing and control of waste management activities.
- To provide for the remediation of contaminated land.
- To provide for the national waste information system.
- To provide for compliance and enforcement.
- To provide for matters connected therewith.

Section 24 of the National Environmental Management Act (1998) requires that activities that require authorisation or permission by law which may significantly affect the environment, must be considered, investigated and assessed prior to their implementation and reported to the organ of state charged by law with authorising, permitting, or otherwise allowing the implementation of an activity. The EIA process is the tool used to apply for authorisation from the regulating authority for the relevant activities identified that may impact on the environment.

3.13. National Forests Act, 1998 (Act No. 84 of 1998):

No person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree, except under a licence or exemption granted by the Minister to an applicant and subject to such period and conditions as may be stipulated.

3.14. ACTIVITY NUMBER LISTED UNDER NEMA

This assessment considered the following listed activities:

Indicate the number and date of the relevant notice:	Activity No (s) (in terms of the relevant notice):	Describe each listed activity as per the detailed project description:
EIA Regulations R 984: Listing Notice 2 of 2014 and No: 325 of 7 April 2017 Gazette Number: 40772	**15**	The clearance of an area of 20 hectares or more of indigenous- and transformed vegetation for the establishment of macadamia orchards. As per the current evaluation and assessment process 21ha of indigenous vegetation will be cleared.
EIA Regulations R 985: Listing Notice 3 of 2014 and No: 324 of 7 April 2017 Gazette Number: 40772	**12**	21 ha of indigenous vegetation will be cleared to accommodate the new orchards.

4. NEEDS AND DESIRABILITY OF THE PROPOSED ACTIVITY: CLEARING OF NATURAL VEGETATION FOR CROP PRODUCTION.

- **Introduction:** Development proposals should always follow an integrated approach to project planning. With this in mind the project must make economic sense, while minimising environmental damage or mitigating it fully.
- Secondly, the needs and aspirations of society must be met with the view to producing the best long-term product for the community (both internal- and external community).
- Developers risk and spend significant sums of hard-earned money to ensure the financial viability of each proposed project. Due to this they are obliged to thoroughly investigate and plan before budgeting funds towards a specific project – it is ultimately not in their interest to commence with a project without having assessed all risks involved. They, along with society, are keen to see that the project is a long-term sustainable success.
- **Strategic Regional Initiatives:** The Lows Creek area is a historical farming area where farmers have traditionally established and grown short-term fruit and vegetable crops such as tomatoes, cabbage, beans, brinjals and butternuts. In the 1980's sugarcane was established and widely cultivated in the area but has been gradually removed due to the high water demand by the crop, increased input costs, distance from the mill and low returns achieved.
- As a result of this many farmers investigated and experimented with crops which would give better returns, use less water and be able to be locally processed and exported. The most successful experimental crops identified were macadamias and citrus and the area has seen such large plantings volumes of both macadamias and citrus that a processing plant was established in the Lows Creek area for the intake, processing and export of macadamia kernel and macadamia products.
- A packing facility was also established at Eureka for the sorting and packing of citrus products for export.
- With the continued growth within the local Nkomazi region, particularly through the establishment of the Maputo Corridor initiative, export- and economic activities have increased substantially due to the location and ease of exporting through the Port of Maputo.
- The local Nkomazi- and Mbombela Councils are supportive of developments associated with the Maputo Corridor and the expansion of agriculture and sustainable land use envisaged by this project proposal under investigation compliments the regional vision that the authorities have for this area.
- **The Proposed Clearing of Indigenous Vegetation:** Developing the current areas of indigenous vegetation will ensure that Portions 17 and 21 of Naudes Rust 272 JU will remain a viable and profitable entity and achieve economies of scale in terms of employment, machinery and market share.
- Additionally, the macadamia processing facility in Lows Creek and the citrus facility at Eureka will achieve security of supply from the immediate local area and allow it to expand as increased volumes become available ensuring additional job opportunities and local investment in the area as per the economic vision described above.

- **Do we need more area to cultivate crops?:** The farm presently has 100ha of existing arable land which traditionally was farmed with papaya, bananas, sugarcane and vegetables - these crops are extremely water dependent and hence the current registered 120ha (778,800m³) of water rights was suitable for those historical crops planted, however with the planned change to macadamias and/or citrus the water demand will be lower which permits additional areas to be farmed thus increasing income for the property and creating additional employment and increased services required for the farming operations. This will in return maximise return on investment for the property owners.
- **What are the benefits of having additional areas to cultivate?:** The property will require additional staff to be employed to develop and maintain those areas which in turn will generate long term income for the property thus benefitting the surrounding communities as well as associated industries which will benefit from the additional crop generated – this includes but is not limited to additional processing in the local processing and packing facilities and forex income generated for the crops exported.
- **Will the areas cleared affect the neighbours negatively?** No. The proposed areas to be cleared are adjacent to existing arable areas (already under agricultural production) both on the property concerned and the neighbouring properties.
- **Will the additional arable areas be beneficial to the community at large**? Yes. It will create additional employment, both permanent and on contract, in the farming community as the new arable areas will require to be managed and operated during both the production/growth- and harvesting stages.
- **What are the economic benefits of the new arable areas?** Additional employment will be created and increased volumes of product will be delivered to the local processing and packing facilities thus ensuring job security and bringing much needed income to the local area.
- **What is the development cost of the new arable areas?** The estimated cost is in the region of R 3million which is a substantial investment to ensure the long-term agricultural objective and benefit of the properties.
- **Neighbouring Land Uses and Compatibility**: The project area is surrounded by agriculture and an assortment of similar crops are presently being farmed which includes macadamia, papaya and vegetable production.
- To date no objections to the project proposal have been submitted by any of the neighbours.
- **Financial Viability and Agricultural Potential of the Properties:** The properties, and its neighbours, have been farmed for many years producing crops for local markets however in the past 10 years more interest has arisen for exportable crops.
- For the current crop types, a financial analysis by the Project Team has emphasised distance from local markets as inhibiting agricultural growth and preventing continued sustainability of the agricultural crops of the properties in the long term. It thus makes sense to convert the farming type to macadamia plants.
- **Land Claims:** The Lows Creek area was subjected to various land claim assessments by the Land Claims Commissioner in the past few years and combined with a recession in the agricultural sector many property owners were, until recently, reluctant to expand or diversify their enterprises under prevailing uncertain conditions.
- The project area is owned by the applicants and no claims exist on the properties. See **Appendix 4.2.**

- **Industry Growth**: The **Ivory Macadamias** processing facility in Lows Creek has joined forces with **Marquis Macadamias Africa** and established a new processing plant in Alkmaar (Nelspruit) and is currently considering expanding the current facility at Lows Creek due to the forecasted growth of the macadamia industry.
- The financial model for these properties is based on crop production and Ivory Macadamias is dependent on a reliable supply of macadamias for processing. To this end the proposal makes economic sense as the crop is a long-term project and will ensure that production does not stifle incoming product and growth within the local area for other industries.
- The security of the ample water allocations also provides the landowners an opportunity to maximise their return on investment and remain financially competitive in an ever changing and diverse business market.
- **Social Commitment and Job Creation**: A number of business sectors and community members will benefit if this project is successful.
- The property owners and their families will benefit financially in the long term. In the short to medium term however the proposed development areas will require substantial capital (approximately R3million) to clear the area, install irrigation and associated infrastructure and maintain the orchards during their growth phase.
- The Nkomazi region and outlying rural areas have been classified as one of the poorest in South Africa. Conservative estimates list unemployment figures in the region of 30%, HIV infections just under 40% and the reality of many job-seeking immigrants from neighbouring countries migrate to this area and add to the challenges faced by rural communities.
- An earthworks company will be tasked with clearing the areas – this will provide work opportunities (an estimated 15 persons) for both skilled and unskilled labour (machinery operators and general labour to clear some of the vegetation).
- Unskilled labour will earn in the region of R4000/month.
- The opportunities listed above do not include the economic addition to subsidiary services such as vehicle maintenance; retail needs; medical facilities and building material. This development will as a result benefit businesses in Malelane, Barberton and Mbombela.
- **Location**: **Is this the correct location for the project**? Alternatives were assessed during this survey and all options were discussed during the course of this investigation. **The alternatives (as part of the 60ha) were identified as not being suitable due to topography limitations and soil conditions (rocky outcrops).**
- The project sites are fixed and the proponents do not own similar land elsewhere. In terms of compatibility of land uses this development will fit in with current agricultural developments in the area and surrounding farms. The site locations are thus regarded as ideal.
- The project site is surrounded in all directions with similar land uses.
- **Environmental (Ecological) Implications/Limitations**: An initial assessment of the prevailing fauna and flora has not revealed any threats to individual species/habitat or highlighted any critical limitations to the development which can be of ecological significance or which cannot be mitigated to ensure sustainability of the environment.
- Detailed studies have however been commissioned to ensure that impacts on the environment are clearly understood and the results are included in the specialist reports on biodiversity with the Environmental Impact Assessment Report.
- All indications are however that by not developing the alternative rocky sites and steeper slopes more of the natural vegetation will remain intact and this will ensure that ecological corridors (as per MTPA policy and requirements) are maintained on the properties.

- **Positive Impacts:** Job creation and the prevention of job losses is regarded as a significant impact which will spill over into the well-being of a number of families in the local community.
- Additionally, the financial viability of the project will translate into further economic growth for the investors and the local Mbombela and Nkomazi area as a whole, albeit in the medium- to long term.
- The growth in agricultural production together with the improvement in the sustainability of the properties will result in higher incomes and ensure food/crop security.
- **Access Road**: The access to the Project Areas from the R38 Provincial tar road is functional and does not require any changes or upgrading.
- Construction/farm vehicles and equipment will have unhindered access to the project sites.
- **Timing: Is this the right time to implement such a development?** The ever-increasing costs relating to bringing local crops to market in metro areas has highlighted the fact that crop production must plan ahead to remain sustainably competitive. By having an export product which brings in Forex is critical for the long-term success of farming enterprises and of benefit to the South African economy as a whole.
- Additionally, by establishing less water dependent crops the pressures associated with droughts that the region experiences will allow farming operations to continue with a lower negative financial- and operational impact than would occur with other crops.
- **Integrated Environmental Management**: The objective of integrated environmental management is to balance all interests towards sustainability. For many the word "sustainability" remains a 'unicorn' of environmental management – i.e., a myth that is often poorly defined and/or understood. As participants in environmental management, we can at best evaluate the project for its inherent advantages and disadvantages. With the help and input of the Public, Specialists and Project Consultants we endeavour to draw a clearer picture with which we all can associate and hopefully agree to as well as support.
- **We raise the questions, which include but are not limited to:**
- Is the proposed activity/development harmful to the environment?
- Did we ensure that all perceived impacts were mitigated adequately in favour of maintaining the environmental integrity?
- Will the local/regional/national community benefit from this development or is the development an improvement on an old or outdated concept?
- Did we ensure that the general public participated in this project from the day of advertisement till submission of documentation?
- Did we ensure that the economics of the activity were in place prior to project implementation? Is the project feasible? What are the alternatives?
- Have we taken into account the various Government role players with regards to sharing information and/or authorisation requirements of this project?
- The list goes on however the team associated with this proposal is confident that we have ticked the right boxes to date and can answer in the positive to the questions listed above. In some cases, we have suggested measures of mitigation to soften the impact towards a degree of sustainability.
- **Need and Desirability of the Proposed Project**: In conclusion, it is the opinion of the EAP that the cumulative effect of the factors listed above will result in a positive contribution in the fields of economic benefit and social upliftment in the region with little, or at most manageable, impacts in the environmental arena.

5. GENERAL INFORMATION

Project Title	Environmental Impact Assessment: Lows Creek Agriculture Project: Clearing of Natural- and Transformed Vegetation on the Farm: Naudes Rust 272 JU on Portions 17 and 21 in the Lows Creek Area.

Name of Applicants	Mr. Walter Giuricich.
Address	P. O. Box 2161 Rivonia 2128
Contact Persons	Mr. Walter Giuricich.
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Environmental Assessment Practitioner (EAP)	Rhengu Environmental Services (RES)
Address	P. O. Box 1046 Malelane 1320
Contact Person	Ralf Kalwa
Telephone Number	082 414 7088
Fax Number	086 685 8003
Date of Report	April 2023.

Date of Site Inspection/s and Meetings	1. **19 and 20 September 2022:** Inspection and site meetings/fieldwork with Applicants and Specialists. 2. **6 October 2022**: Public Meeting on site with Interested and Affected Parties (I&APs) and Government Officials. **See Minutes attached in Appendix 2.**

6. LOCALITY INFORMATION

Name of Place and Locality.	The development site is found on Portions 17 and 21 of the farm Naudes Rust 272 JU: Lows Creek, Mpumalanga Province. The project site is located adjacent to and west of the R38 Provincial tar road between Lows Creek and Kaapmuiden. The property is bordered in all wind directions by farms practicing agricultural land uses.
Region/District	The property is found in the Nkomazi Region of the Onderberg, between the towns of Kaapmuiden and Lows Creek in Mpumalanga.
Title Deeds	See **Appendix 4.1**.
Size of Proposed Development	Approximately 60ha. The final project area size will be determined once the specialist studies have been completed.
Magisterial District	Nkomazi-Mbombela District Municipalies.
Nearest Towns	Lows Creek.
Nearest Main Road	R38 Provincial Road. The farm is well serviced by all weather gravel roads.

Type of area where the proposed development will take place (mark all applicable blocks).

CBD		Rural	**X**	City		Recreational area	
Commercial		Agricultural	**X**	Town		Informal Settlement	
Industrial		Staff Housing		Township		Other:	
Tourism		Road	**X**	In a Building			

7. PROJECT DESCRIPTION

Current Status and Infrastructure:

- **Infrastructure**: The farms are **well serviced** with several homesteads, pump houses; storerooms, garages, staff housing and various access roads and service lines which include potable/irrigation water and power supply (Eskom).
- The properties are fenced for security purposes.
- **Access** to the proposed sites are in place. No new roads will be developed.
- **Road Access** for purposes of marketing and product sales is in place and functional.
- **No Property Alternatives**: The land earmarked for development is fixed and is part and parcel of existing farming operations. By virtue of its position, it links into all current agricultural land uses.
- **Sustainability**: By optimising the potential of the proposed portions of the farm the applicant is confident that the orchards can continue to contribute sustainably to the agricultural business opportunities in- and around Lows Creek and Mbombela/Nkomazi including the surrounding Maputo Corridor area.
- No other property is available to be considered for an alternative.
- **Alternatives**: RES has assessed the farm as a whole (60ha) and can confirm that no other alternative sites are suitable for agriculture (**Alternative Sites**: too rocky, undulating topography and susceptible to run-off and erosion/too steep).
- **Water for Irrigation**: Existing entitlements will suffice. No new water will be required for this project.
- **Expertise:** All existing farming operations will remain the same. The farmer has access to all applicable expertise, experience, equipment and logistics to accommodate- and manage the operations of a dam.

Planned/Proposed Activity:

- The applicant wishes to develop additional orchards for crop production.
- It is proposed to develop the orchards on the Farm: Naudes Rust 272 JU Portions 17 and 21 at the following locations:
- GPS Latitude: 25º 38’ 47.86″ Longitude: 31º 15’ 32.88″
- GPS Latitude: 25º 39’ 01.16″ Longitude: 31º 16’ 19.33″
- GPS Latitude: 25º 38’ 49.93″ Longitude: 31º 16’ 45.45″
- GPS Latitude: 25º 38’ 05.95″ Longitude: 31º 16’ 43.66″
- 60ha of natural vegetation are under evaluation during this assessment process. The final project size will be determined by the outcome of the biodiversity- and soil studies.
- Development costs are in the region of R3 million (Clearing vegetation; preparing orchards and irrigation equipment).

8. DESCRIPTION OF NATURAL ENVIRONMENT (Mucina and Rutherford, 2006)

Topography	Mountain	Midslope	Flats	Valley Bottom	Wetland	River	Other
		X	X	X	X	X	

Geology	• Veld Type: SVI 3 Granite Lowveld: Mucina and Rutherford (2006). • From north to south, the Swazian Goudplaats Gneiss, Makhutswi Gneiss and Nelspruit Suite (granite gneiss and migmatite) and further south, the younger Mpuluzi Granite (Randian) form the major basement geology of the area. • Archaean granite and gneiss weather into sandy soils in the uplands and clayey soils with high sodium content in the lowland**s.**	
Climate	• Summer rainfall with dry winters. • The annual average rainfall in the area is around 630 mm. • Generally, a frost-free region. • Mean annual maximum and minimum temperatures for Skukuza are 39.5ºC and -0.1ºC for January and June, respectively.	
Soil Description	**Depth**	**Texture**	**Dominant Soil Forms**
	Not Applicable	Valley Bottom: Sandy/Loam Midslopes: Coarse. Sandy/Coarse Gravel.	Not Applicable.
Stability	Buildings, e.g., pump houses, homesteads, workshops etc.; have been developed on these soils using normal construction methods and processes. Soils are considered as stable.		

Flora Description	• As per the classification by Mucina and Rutherford (2006) the farms fall within the Granite Lowveld Veld Type. • **Tree species** that **normally dominate** this veld type under natural conditions include: *Sclerocarya birrea; Ficus sansibarica; Trichilia emetica; Peltophorum africanum; Terminalia sericea; Acacia nigrescens; Acacia nilotica; Albizia harveyi; Combretum apiculatum; Combretum imberbe; Combretum zeyheri; Ficus stuhlmannii; Pterocarpus rotundifolius; Acacia exuvialis; Acacia gerrardii; Bolusanthus speciosus; Cassia abbreviata; Combretum collinum; Dalbergia melanoxylon; Gymnosporia glaucophylla; Lannea schweinfurthii; Pavetta schumanniana; Plectroniella armata* and *Terminalia prunioides.* • **Shrub species** in this vegetation type include: *Combretum hereroense; Dichrostachys cinerea; Euclea divinorum; Strychnos madagascariensis; Gardenia volkensii; Hibiscus micranthus; Tephrosia polystachya; Abutilon austro-africanum; Agathisanthemum bojeri; Aptosimum lineare; Baleria elegans; Clerodendrum ternatum; Commiphora africana; Gossypium herbaceum* and *Pavonia burchellii.* • **Woody Climbers** include: *Sphedamnocarpus pruniensis*. • **Herbaceous climbers** include*: Rhynchosia totta.* • **Grasses and other Graminoids** include: *Brachiaria nigropedata; Digitaria eriantha; Eragrostis rigidior; Melinis repens; Panicum maximum; Pogonarthria squarrosa; Aristida congesta; Bulbostylis hispidula; Chloris mosambicensis; Enneapogon cenchroides; Heteropogon contortus; Leptochloa eleusine; Perotis patens;*

	Schmidtia pappophoroides; Sehima galpinii; Tricholaena monachne and *Urochloa mosambicenis.* • **Herbs** include: *Achyranthes aspersa; Aspilia mosambicensis; Becium filamentosum; Chamaecrista absus; Commelina benghalensis; Commelina erecta; Cucumis africanus; Evolvulus alsinoides; Heliotropium strigosum; Hermbstaedtia odorata; Hibiscus praeteritus; Indigofera filipes; Indigofera sanguinea; Kohautia virgata; Kyphocarpa angustifolia; Leucas glabrata; Ocimum gratissimum; Phyllanthus maderaspatensis; Pupalia lappacea; Vahlia capensis; Waltheria indica; Orbea rogersii* and *Stapelia leendertziae.* • **Note:** Scientific names are quoted as per the article referenced. • A **detailed Biodiversity Study** of all Terrestrial- and Ecological aspects has been commissioned.

Conservation Status	• This veld type is classified as vulnerable. 17% is statutorily conserved in the Kruger National Park. About 20% of this vegetation type has been transformed mainly by cultivation- and settlement development.

Has the applicant proof of sufficient water for the proposed development?

Yes	No
X	

Comments:

Water rights are available for agriculture and no additional water will be required. Water use is regulated, and the applicants will abide by the water entitlements allocated to the farms. **See Appendix 4.3 for copies of water rights documents.**

Are there any known Red Data biota on or near the proposed development?

Yes	No
	X

Comments:

- No rare biota was observed during the site visits or during any other visits to the site.
- The Specialist Ecologist that has been appointed for the project has assessed this aspect in more detail as part of the Biodiversity- and Ecology Specialist Study.

Are there any known rare bird breeding sites on or near the proposed development?

Yes	No
	X

Comments:

No breeding sites were discovered at or near the project site. The Specialist Study has however assessed this aspect in more detail.

Are there any known archaeological, cultural- or historical sites on or near the proposed development?

Yes	No
	X

- A Heritage- and Culture Specialist has been commissioned to assess the potential presence of historical sites and artefacts.
- No artefacts have been observed during the farming activities which have occurred on the property for decades.
- Should any artefacts or a find be discovered during the development phase, the proponent must engage the services of an accredited archaeologist to deal with the find.
- Should the application be approved, it is recommended that an Environmental Control Officer (ECO) oversee the implementation of the development phase and the handling of any finds will be addressed as per the conditions listed in the Environmental Management Programme (EMPr).

What general precautionary measures will be taken if an archaeological, cultural- or historical site is discovered?

- Should any artefact, or historical site be discovered during the removal of vegetation and or installation of irrigation systems as well as in future, all works must cease with immediate effect.
- The find must be reported to the Project Manager for the development and the ECO for the project. These representatives will initiate an Action Plan in conjunction with SAHRA to address the management and handling of the find.

Any **social benefits** that will result from this proposed development?

Yes	No
X	

Comments:

- **<u>Job Security</u>:** The development process will result in significant job security and business opportunities during various stages of the process.
- Development labour and expertise will be required to install the irrigation systems and shape the orchards as per the best land use practice requirements.
- This phase will require input from both informal- and formal sectors of the agricultural industry.
- The advent of the proposed project will necessitate the employment of skilled- and unskilled labour and expertise.
- Job opportunities will include but not be limited to maintenance positions on the irrigation systems and general farming operations.
- Unskilled labour will earn in the region of R 4000.00 per person per month.
- The opportunities above do not include subsidiary services such as an increase in maintenance of vehicles, retail needs and medical facilities. This development will thus benefit the businesses in Lows Creek-Kaapmuiden and Mbombela.

9. ENVIRONMENTAL ISSUES

This chapter describes the **issues, queries, concerns and opinions** identified:

- during the **public participation process, i.e., focus group meetings;**
- by **authorities and the applicant/management authority** during consultation- and pre-application meetings and telephonic discussions;
- by the **EAP** based on previous experience in the area.

9.1. Key Issues: See Issues and Responses Report in Appendix 2.

- The response to the on-site and newspaper advertisements was poor. The call for potential Interested and Affected Parties to attend the on-site meeting did not attract any interest from the broader public.
- The EAP has made a **special effort** to engage the local councils in the form of Mr. Jan Mashele and Mr. Sihle Mthembu to ensure that these important role-players were kept abreast of the progress of all aspects of the project.
- The following key **issues/impacts** are listed for consideration:

Environmental Aspects	• Specialist Study on Terrestrial Ecology and Biodiversity. • Irrigation Systems and Water Rights. • Protected Tree/Special Plant Species. • Soil Type and Suitability. • Agricultural Potential.
Economic-Operational Aspects	• Job Opportunities. • Economic Sustainability.
Social Aspects	• Cultural Artefacts. • Job Opportunities. • Land Claim. • Needs- and Desirability of Project.

9.2. Ranking of Environmental Issues Identified

To identify the significant issues, these were ranked as per the four different criteria outlined in the Environmental Impact Assessment Guideline Document for assessing impacts in Environmental Impact Reports.
The environmental elements (issues/impacts) are evaluated according to the following criteria:

1. **Intensity** – 4 Categories were distinguished:
   Positive (**+**), Negative (**-**), No Impact (**0**), and Uncertain (**U**).

   The positive- and negative categories were further divided to distinguish between low-, medium-, and significant impacts.
   Scores were awarded as follows:
   Low = 1, Medium = 2, and Significant = 3.

   Issues/Impacts were ranked in order of importance as:

   1. Critical Issues/Impacts with scores ≥ -5,
   2. Important Issues/Impacts with scores < - 5 to - 1, and
   3. Operational/Management Issues/Impacts with scores ≥ 0.

2. **Duration** - Is the impact – **S**hort-, **M**edium term, or **P**ermanent.

3. **Probability** of impact – Improbable (**I**); Probable (**?**); Definite (**D**),

4. **Extent** – Is the effect **L**ocal; **R**egional; **N**ational; or **I**nternational.
5. **NA -** Not Applicable.

9.3. Environmental Screening

KEY OF SYMBOLS TO BE USED IN TABLE			
Intensity of impact/issue:	Significant Impact	Medium Impact	Low Impact
Positive (**+**)	**+ 3**	**+ 2**	**+ 1**
Negative (**-**)	**- 3**	**- 2**	**- 1**
Impact uncertain (**U**)	**U**		
No envisaged impact (**0**)	**0**		
Duration of impact/issue	**S**hort Term = **S**	**M**edium Term = **M**	**P**ermanent = **P**
Probability of impact/issue	**I**mprobable = **I**	**P**robable = **?**	**D**efinite = **D**
Extent of impact/issue	**L**ocal = **L**	**R**egional = **R**	**N**ational / Int. = **N**
NA: Not **A**pplicable	**TABLE FOR IDENTIFICATION OF POTENTIAL ENVIRONMENTAL IMPACTS**		

ENVIRONMENTAL ELEMENT	DEVELOPMENT PHASE	OPERATIONAL PHASE	TOTAL SCORE
ENVIRONMENTAL ASPECTS: GENERAL			
Specialist Study on Terrestrial/Aquatic Ecology.	-1,P,D,L	0,P,D,L	-1
Water Rights, Abstraction Quota, Irrigation Systems.	0,P,D,L	0,P,D,L	0
Protected Tree/Special Plant Species.	-1,P,D,L	0,P,D,L	-1
Soil Type, Suitability and Agricultural Potential.	+1,P,D,L	+1,P,D,L	+2
ECONOMIC ASPECTS:			
Job Opportunities.	+1,M,D,L	+1,P,D,L	+2
Economic Sustainability.	0,M,D,L	+1,P,D,L	+1
SOCIAL ASPECTS			
Cultural Artefacts.	0,S,D,L	0,P,D,L	0
Job Opportunities.	+1,M,D,L	+1,P,D,L	+2
Land Claim.	0,S,D,L	0,P,D,L	0
Needs and Desirability of Project.	+1,M,D,L	+2,P,D,L	+3

9.4. Issues Identified

9.4.1 Critical Issues

No **Critical Issues** were identified during the screening process.

9.4.2 Important Issues

- Specialist Study on Terrestrial/Aquatic Ecology.
- Protected Tree/Special Plant Species.

9.4.3. Operational/Management Issues

- Cultural Artefacts.
- Land Claim.
- Water Rights, Abstraction Quota, Irrigation Systems.

9.4.4. Positive Impacts

- Job Opportunities.
- Needs and Desirability of Project.
- Economic Sustainability.
- Soil Type, Suitability and Agricultural Potential.

9.5. Impacts/Issues: (This Section must be read in conjunction with the contents of the Environmental Management Programme: Appendix 5).

Important Issues	Discussion/Mitigation/Recommended Management Approach
1. Specialist Study on Terrestrial/Aquatic Ecology.	• See **Appendix 4.4.2** for detail on all aspects of the biodiversity associated with the Project Area. • **Impact 1: Clearing of approximately 42 ha of transformed and untransformed land types.** • **Nature of Impact:** This impact refers to the loss of transformed and untransformed habitat assemblages. The clearing of vegetation within the agricultural footprint will result in the permanent removal of approximately 30 ha of Untransformed Savannah woodland. • The proposed clearing of these biotopes was mapped on areas identified in the Mpumalanga Biodiversity Sector Plan. Sites 3 and 4 are partially included in the ESA Protected Area Buffer around the Mountainlands Nature Reserve, while Site 1 is inside the ONA of the Crocodile Gorge Mountain foothills. • The clearance of vegetation for orchard establishment and associated infrastructure will result in the direct loss of vegetation and indirect loss of habitat that will decrease the viability of biota by reducing the size of populations that can be supported on the project site. • **Mitigation of Impact 1:** • **Mitigation Description:** Avoid environmentally sensitive areas identified as described in the Sensitivity Map (Final Site Development Map) and implement all the buffers as per this map to protect these areas. • **Buffer Zones**: The drainage line in Site 1 has been delineated and a 10m buffer added around the riparian zone. The buffer zones should be honoured and no development must take place inside the buffered area. • **Demarcation:** Before clearing, demarcate the extent of the orchards footprint and ensure that clearing impacts are contained within this area and do not affect areas of natural habitat. • Limit the removal of vegetation to the development footprint only.
	• **Impact 2: Erosion and Siltation.** • **Nature of Impact:** Erosion of cleared areas and siltation of water courses. • During both site preparation and the clearing of fields for the orchards, as well as the construction of access roads and trenching for pipelines, soil erosion may increase and result in sediment deposits into the drainage lines and eventually into the Low's Creek River. This will result in elevated instream turbidity levels and changes in instream habitat conditions. • These activities could also result in the infilling of the river channel and transport and deposition of sediment downstream. • Inadequate storm water erosion-control in the newly established fields and along linear structures could result in

	sediment-laden water entering the adjacent watercourses. • Furthermore, both vegetation clearing (exposed soil surfaces) and compacted surfaces (access roads) may alter the hydrological nature of the area by increasing the surface run-off velocities, while reducing the potential for any run-off to infiltrate into the soils, which escalates the potential for erosion and sedimentation to occur. Recharge of groundwater and surface run-off patterns may also be altered. • Some of the sites are situated on hilly slopes and others on foot-slopes of mountainous areas. Only develop in areas where slopes are in the recommended range for irrigated lands (**See Soil Report**). Slopes with a steep incline will be prone to erosion and silting up the drainage lines. • **Mitigation of Impact 2:** • **Seasonal Aspects**: Clearing and development should take place during the driest time of the year, however storm events can happen at any time. Clearing activities should be kept as short as possible and planting or rehabilitation of cleared or excavated areas should commence as soon as the development activity is completed. • **Anti-Erosion Measures**: Management actions should be implemented, i.e., the re-establishment of indigenous vegetation wherever possible, control of storm water run-off and ongoing repair and stabilisation of any erosion. Where steeper slopes are cleared of vegetation, stop-boards should be erected at the commencement of clearing to prevent wash-away down the slopes. • Only clear low sloping areas and refrain from the steeper slopes due to the possibility of erosion. • **Sediment Control**: Strict measures must be taken to prevent erosion and sediment-laden water from entering the adjacent watercourses. Storm water management measures are to be included in roadways especially at water course crossings. • The vegetated riparian buffer zone should remain intact along all watercourses to facilitate the containment of sediment-laden run-off from orchards. • Sediment basins (including debris basins, desilting basins, or silt traps) shall be installed on the project site in conjunction with the initial grading operations and maintained through the development process to remove sediment from runoff waters. • Sediment traps are considered temporary structures and often placed at the site on an “as needed” basis by field personnel. Construct traps of rock (mixed with smaller stone), rock-filled fibre bags, or use approved commercial sediment trap products installed and spaced according to manufacturer’s instructions. • Silt fences and straw bales can be used to form silt traps and dykes to keep sediment from washing downstream during excavation and other activities that disturb soil at crossings and that could lead to temporary sediment flushing.

	• **Impact 3: Habitat Fragmentation.** • **Nature of Impact:** Fragmentation will interfere with migration corridors and the linking of biotopes. • The clearance of vegetation will cause habitat fragmentation. Fragmentation is a process whereby large tracts of the natural landscape are gradually developed and subdivided until only patches of original habitat remain. Habitat fragmentation is a less obvious consequence of development, reducing both the quantity- and quality of habitat. • Fragmented habitat will create isolated subpopulations of animals, disrupt individual behaviour, prevent gene flow between populations, prevent species interaction and inhibit ecological processes. • The land patches are often too small and too far apart to support the basic survival and reproductive needs of many wildlife species during various stages of their life cycle or at different times of the year. • When a species' habitat is separated by distances that make movement from one patch to another impossible, the impacts on the genetic health of the population are significant and reduce a species' ability to reproduce and withstand stress. • **Mitigation of Impact 3:** • **Ecological Corridors**: A network of corridors is provided by drainage lines on the Naude's Rust Farm. To prevent the corridor created by the drainage line in Site 1 becoming obstructed by vegetation clearing and development, a 10m buffer is proposed around the riparian zone. The buffered drainage line will create a corridor through Site 1 to the Crocodile Gorge Mountain foothills. • This network will provide viable corridors and dwellings for animals undertaking a range of movements, including daily or regular movements, seasonal and migratory movements, dispersal movements and range expansion. • The network, which includes the buffered drainage line, will be a sanctuary for both animals and plants, which includes a number of Red listed and protected species.
	• **Impact 4: Disturbance to Fauna.** • **Nature of Impact:** This impact refers to the human-related disturbances of fauna that reside on the site. • Clearing activities may lead to disturbance of fauna that reside on the site. Increased levels of noise, pollution, disturbance and human presence during the clearing phase, will be detrimental to fauna. • Retreating mammals would likely move away from the area, particularly during the clearing phase as a result of the noise and human activities present. • **Frogs**: Currently no threatened frog species is expected to occur in the area. • **Other Fauna**: No special species of concern listed in the sensitivity theme list were observed in the project sites. • **Mitigation of Impact 4:** • The disturbance factor will be high during the bush clearing activities.

	• **Manage People Movements**: During the operational phase of the project, fewer people participate in the farming activities in the orchards and thus the visual disturbance and noise impact is lower. This also applies to the movement and the noise factor of farming vehicles and other implements. • **No-Go Zones**: During all phases it is important to establish no-go zones for both workers and their vehicles, especially in the untransformed habitats. • People presence and movement in the drainage line buffer areas will disturb animals, chances of interference (poaching and collecting) with both plants and animals, trampling of plants and pet dogs are all possible adverse influences that impacts on the local ecology.
	• **Impact 5: Human Interference Impacting on Biota.** • **Nature of Impact:** Human interference and utilisation impacting on biota. • **Poaching**: Disturbance or persecution of fauna during the clearing phase may occur. Poaching of animals (hunting with dogs, snares and trapping) – especially game birds (francolin and guinea fowl) and small mammals (steenbok and duiker). • Some mammals (hedgehogs, pangolin) and reptiles, such as tortoises would be vulnerable to illegal harvesting or poaching during the clearing phase. Indiscriminate persecution of snakes and other reptiles due to superstition and fear may occur. • **Pets:** Predation on wildlife by wandering pet dogs and cats. Domestic pets, particularly cats, may prey excessively on wildlife, such as ground-nesting birds. Pet dogs running free will eventually scare away all mammals (even nocturnal) that are able to survive by hiding in the dense woodland/outcrop habitats. • **Resource Harvesting**: Other activities such as the unsustainable collecting of wood for fire (both dead logs and chopping down trees), sedges and thatching grass, rocks and boulders for building, clay from termite mounds for building, sand mining, etc., will impact on the diversity of viable aspects of habitat. • **Mitigation of Impact 5:** • **Upgrade the Security on the Farm:** The collection, hunting or harvesting of animals at the project site should be strictly forbidden. No animals should be intentionally killed or destroyed and poaching and hunting should not be permitted on the project site and adjacent areas. • There should be a stringent and dedicated control to prevent collection, poaching, hunting or harvesting of animals. All personnel should be informed not to harm or collect species such as snakes and tortoises. • Faunal species encountered during construction activities should be removed by the ECO from the immediate site and relocated to an adjacent, suitable area. • Poaching could be a significant threat. If any external labour teams are used during soil preparation and planting, then these teams should preferably be accommodated off site; if this is not possible then teams should be carefully

	monitored to ensure that no unsupervised access to plant- and animal resources takes place. Site access to be controlled and no unauthorised persons should be allowed onto the site. • **Animals have the Right of Way**: Any slow-moving fauna (particularly tortoises, hedgehogs, golden moles and subterranean species) disturbed during the clearing phase should be relocated to another site and not harmed in any way. • **Trench Monitoring**: Check open trenches daily for trapped animals (e.g., bullfrogs, hedgehogs and reptiles), which should be caught and relocated according to the specifications of a relevant specialist. • **Demarcation**: Limit construction impacts to the development footprints only. • Ensure that unnecessary impacts on natural habitat do not occur, e.g., driving around in the grassland or riparian zone. Highlight all prohibited activities to workers using training workshops and toolbox talks.
	Impact 6: Linear Structures: Impacts of Roads and Pipelines. • **Nature of Impact:** Clearing of areas along the linear structures results in erosion and siltation, acting as barriers and may result in an increase in alien invasive vegetation. • During both site preparation and construction, particularly for the construction of orchard roads and trenching for pipelines, may result in an increase in soil erosion and result in sediment input into the river. • This will result in elevated instream turbidity levels and changes in instream habitat conditions. These activities could also result in the infilling of the river channel and transport and deposition of sediment downstream. • The potential increase in alien invasive plants will impact on habitat integrity. • Vehicle movement generating dust during operational activities will impact on sensitive habitat. • **Mitigation of Impact 6:** • **Use Existing Routes**: Refrain from creating unnecessary new orchard roads or tracks, make use of current routes as far as possible. • **Manage Run-Off**: Management actions should be implemented such as the re-establishment of indigenous vegetation wherever possible, control of storm water run-off and ongoing repair and stabilisation of any erosion. Where steeper slopes are cleared of vegetation, stop-boards should be erected at the commencement of the clearing to prevent wash-off down-slope. • **Allow Movement of Fauna**: Refrain from incorporating continuous low solid barricades such as road curbs or steep-walled ditches that might act as barriers to smaller vertebrates moving or migrating through the area. Check open trenches daily for trapped animals (e.g., bullfrogs, hedgehogs and reptiles), which should be carefully caught and relocated according to the specifications of a relevant specialist. • **Alien Invader Plants**: Develop- and implement an alien plant control programme for the project area in order to prevent the further degradation of the faunal habitat.

	• **Impact 7: Alien invasive vegetation**. • **Nature of Impact:** Competition. • **Alien Plant Infestation within Orchard areas:** • The spread of alien plants causes a gradual change in the structure and diversity of the vegetation. This can lead to a substantial change in the character of the ecosystem and habitat within the area. • Exotic invader plants and trees deteriorate the natural environment and reduce biodiversity. • **Key factors in weed invasion appear to be**: • Soil disturbance (e.g., tracks, clearing, erosion). • The presence of adjoining agricultural land with weed species. • Too-frequent fires. • If a seed-base of invasive alien species is present, an invasion by these species could increase as bare soil is exposed. • **Soil Disturbance**: The disturbance to the vegetation and soils, during the clearing and orchard preparation phase, could increase the risk of an alien plant invasion, especially where soils are exposed. Some of the natural vegetation along roads and pipelines and orchard areas will be lost during the orchard establishment phase of the project. • **Losing Habitat**: Loss of habitat adjacent to roads and pipelines may result in an increase in alien invasive plant species. Roads and traffic may facilitate the invasion of weeds and exotic plants as seeds attached to undercarriages in mud and dirt may transport seeds from a large catchment and move them across the landscape rapidly. • Inappropriate maintenance activities during the operational phase would also promote the invasion or dominance of alien plant species at the site. A high abundance of alien plant species within the site would impact adjacent plant communities and promote the invasion of alien species into the intact vegetation. Alien species are already present on the farm and will colonise any area of disturbance should they not be actively controlled. • The spread of alien invasive species is an ongoing problem as alien plants in the surrounding landscape and the gum and wattle plantation act as a long-term source of seeds and future spread. In terms of the Conservation of Agricultural Resources Act (CARA, Act No. 43 of 1984), alien species must be managed and controlled in terms of their respective categories. All aggressive alien species, as indicated above, should be removed. • **Mitigation of Impact 7:** • **Implement a Control Plan**: An alien invasive plant management- and control plan should be put in place for both the construction- and operational phases on the farm. A programme for the eradication, or at least control, of alien

	plants present within the project area must be developed. • **Ongoing Process**: The Contractor and Farm Manager, during orchard establishment, and the various construction phases, should ensure that immediate removal of alien invasive species (seedlings) is implemented as these species establish themselves rapidly within disturbed areas. Mechanical removal is preferred and should follow the guidelines laid down in an alien plant management and control plan. • **Include Buffer- and No Go Areas**: Alien plant removal should include in the natural biotopes not impacted by the development.
	• **Impact 8: Loss of Red Listed and Protected Fauna/Flora Species**. • **Nature of Impact:** Displacement of protected fauna/flora species. • Several Red listed and protected faunal and plant species are expected to be present in the project area. Seven plant species of concern are expected to occur in different habitat types on the farm. • **Species of Concern: Plants:** • Protected trees (Government Gazette, 2019; Department of Agriculture, Forestry and Fisheries, 2019) present in the project area: • Apple-leaf (*Philenoptera violacea*) • Marula (*Sclerocarya birrea*) • Green-thorn (*Balanites maughamii*) • Red ivory (*Berchemia zeyheri*) • **Conservation-important plant species listed for the quarter-degree grid 2531CB**: • Transvaal saffron *(Elaeodendron transvaalense)* • Orange fire lily *(Cyrtanthus eucallus)* • *Streptocarpus fasciatus* • **Of all the faunal Species of Special Concern, 12 species of animals have a "Medium" to "Optimal" probability of occurring in the different habitat types of the project area:** • Barberton girdled lizard *(Smaug warreni barbertonensis*) • Wilhelm's flat lizard (*Platysaurus intermedius wilhelmi*) • Distant's ground agama *(Agama aculeata distanti)* • Knysna Turaco *(Tauraco corythaix)* • Chorister Robin-Chat *(Cossypha dichroa)* • Greater Double-collared Sunbird *(Cinnyris afer)* • Lanner Falcon *(Falco biarmicus)* • European Roller (*Coracias garrulus*)

	• Martial Eagle *(Polemaetus bellicosus)* • Tawny Eagle (Aquila rapax) • Honey badger (Mellivora capensis) • Serval (*Leptailurus serval*). • The main impact that probably will have an adverse impact on the SCC species, is the process of clearing fields for planting of crops. The main reason for this involves the clearance of 30 ha of Untransformed Savannah woodland and a small area of old lands that have recovered to a certain level. • Nineteen Species of Special Concern (SCC) that have a high probability of occurring in the region, are expected to frequent the Naude's Rust farm. • The four sites proposed to be cleared for agriculture, consists mainly of savannah woodland. Most of the mammal and bird SCC will be able to move out of the areas during the clearing process due to their size and mobility. Burrowing frogs and reptiles will be affected by vegetation clearing. • **Mitigation of Impact 8:** • The areas earmarked for development consist mostly of savannah woodland. • **Relocate**: Specified faunal species not able to move away, must be captured and relocated to suitable habitat in the area. • The operations must be handled by specialists with expertise in the field of relocations. All relocations must be permitted by the MTPA and or DFFE. • Species data (GIS point locality, species name and date) must be forwarded to the MTPA. • It is suggested that any species caught during the process, should be translocated in the area towards the west, i.e., the Crocodile Gorge Mountain foothills. • Relocation plans of plants of conservation importance should be included and this relocation should be undertaken by specialists that have expertise in the area of relocations. • **Ecological Corridors**: A network of corridors is provided by drainage lines on the Naude's Rust Farm. To prevent the corridor created by the drainage line in Site 1 becoming obstructed by vegetation clearing and development, a 10m buffer is proposed around the riparian zone. The buffered drainage line will establish a corridor through Site 1 to the Crocodile Gorge Mountain foothills. • This network will provide viable corridors and dwellings for animals undertaking a range of movements, including daily or regular movements, seasonal and migratory movements, dispersal movements and range expansion. • The network, which includes the buffered drainage line, will be a sanctuary for both animals and plants, which includes a number of Red listed and protected species.

2. Protected Tree/Special Plant Species.	• **Few individual protected trees** are affected by the clearing of natural vegetation in the proposed project areas. • **Mitigation: Six weeks prior to bush clearing**: The ECO for the project will undertake a final walk-through prior to the clearing taking place and mark all protected trees that will be removed in the project areas. • The ECO will submit a removal application to DFFE (Mpumalanga) for approval. • Once the removal licence has been approved the protected trees will be cleared as specified. • Where possible accredited nurseries and or wood carvers/workers will be offered any useful wood material. • **Special Plants of Concern**: As listed in the specialist study **no plants of concern** were observed during the evaluation process, however prior to the removal of vegetation taking place the ECO will undertake a final walk-through and verify that no plants are found in the project area which correspond with the list submitted by Dr. Deacon in the Biodiversity Report. • Should any individual plants be found then the ECO will initiate an **Action Plan** in conjunction with the botanist from MTPA to address the management and handling of the plants.

Operational Issues	Discussion/Mitigation/Recommended Management Approach
1. Water Rights, Abstraction Quota and Irrigation Systems.	• **See Appendix 4.3. for copies of water entitlements and quotas:** • **Water Allocations**: The farms have access to 778 800.00 m³ of water per annum. This is regarded as more than adequate to irrigate the crops on the proposed orchards described in this report. • **Low Flow Irrigation**: The efficient use of water and the implementation of a site-specific irrigation system will go a long way towards the sustainable use of irrigation water on the new orchards. • It is therefore essential that a cost-effective system is used which optimises the use of water and prevents run-off and erosion. For this reason, the **Low Flow Irrigation System (LFIS)** is proposed for consideration. • It is widely known that water is a scarce commodity and for this reason the following measures of mitigation will be implemented: • **Mitigation Description:** • **Irrigation Scheduling**: Irrigation scheduling involves deciding when and how much water to apply to an orchard. Good scheduling will apply water at the right time and in the right quantity in order to optimise production and minimise adverse environmental impacts. Bad scheduling will mean that either not enough water is applied, or it is not applied at the right time, resulting in under-watering, or too much is applied, or it is applied too soon resulting in over-watering. Under- or overwatering can lead to reduced yields, lower quality and inefficient use of nutrients. • **Water Efficiency**: The efficiency of water use in agricultural production is generally low. Only 40% to 60% of the water is effectively used by the crop, the rest of the water is lost in the system or in the farm either through evaporation, run-off or by percolation into the groundwater. **Irrigation scheduling**, if properly managed can offer a good solution to **improve water efficiency** in the farm. • Various methods and tools have been developed to determine when crops require water and how much irrigation water needs to be applied. These include the various soil- and plant monitoring methods as well as the more common **soil water balance and scheduling simulation models**. • **Advantages of Irrigation Scheduling**: It can: • Enable farmers to schedule watering to minimise crop water stress and maximise yields. • Reduce farmer's costs of water and labour through less irrigation, thereby making maximum use of soil moisture storage. • Lower fertiliser costs by reducing surface run-off and deep percolation (leaching) to a minimum. • Increase net returns by increasing crop yields and crop quality. • Minimise water-logging problems by reducing the drainage requirements. • **What is Low Flow Irrigation?** Sub-surface or low volume irrigation is the process of delivering precise amounts of

	water and nutrients directly to the plant's root zone, drop by drop, offering users exact irrigation control and efficient use of limited water resources. • **Why Should One Use Low Volume Irrigation?** This method saves water use**.** It is far more water-efficient than sprinklers. In general, these applications use 30% - 70% less water than an overhead irrigation system and plants grow to maturity about 50% faster. • Water loss due to evaporation, mist, surface run-off or wind interference is virtually eliminated. Because of the conserving nature of low volume products, users report that they are typically granted an exemption from their water management district when other forms of irrigation are being restricted or banned. • **Advantages of Low Flow Irrigation**: Notable advantages are: • A slow, even flow of water application to the plants and soil. Plants will thrive under these conditions. • A slow, steady application of water and nutrients directly to the plant's roots is the best way to ensure plant health and vitality (Improved plant growth). • The system is easy to install, it is flexible and adaptable. • It solves spray- and rotor irrigation problems. • No damaging spray finds its way onto unwanted areas, e.g., roads and buildings. This prevents erosion and unnecessary run-off. • The adjacent soil and foliage are kept dry, reducing fungal diseases. • Soil aeration is improved because soil particles are not washed down, thus decreasing soil compaction and improving root growth. • The system saves on maintenance and labour. • The system does not make use of moving sprinkler parts which require intensive maintenance to repair. • Unobtrusive and aesthetic. Hidden under mulch or beneath the soil. • The system does not interfere with landscaping or scenery. • Decreased labour to install and maintain plus lower overall material cost. • Security/Less theft. No exposed sprinkler heads, pipes or surface driplines to tamper with. • **Summary of Benefits of Low Flow Irrigation System:** • **Broader water distribution:** Since water enters the ground at a slow pace, it spreads around the sides of the plant rather than seeping downward. • **Better nutrient utilisation:** Since water stays closer to the area where the roots are most active, more nutrients are available to the plant, and there are fewer ground pollutants. • **Larger and enhanced yields:** Since the in-ground air-water ratio at any given moment is higher, crop yields are larger and of a better quality.

	• **Lower nutrient usage:** Since all fertiliser is distributed at the active root-zone level, the plant receives a high percentage of the amount distributed, leading to lower quantities of applied fertiliser. • **Water saving:** Irrigation is placed underneath the agricultural fabric; the low flow drip ensures no over irrigation. Drip emitters have an ultra-low flow of 0.7 lt/hr each, spaced 1m apart.
2. Cultural Artefacts.	See **Appendix 4.4.3.** for detail on the Heritage aspects of the project area. • A specialist study on the cultural importance of the project area was undertaken by Christine Rowe. • The survey revealed no archaeological or historical structures/artefacts of significance in the four project areas. • It is not believed that any archaeological or historical features will be impacted upon by the orchard development. • Archaeological material or graves are not always visible during a field survey and therefore some significant material may only be revealed during construction activities of the proposed dam development. • **Mitigation Nr. 1**: It is recommended that the owner be made aware that distinct archaeological material or human remains may only be revealed during the debushing or trenching activities. Based on the survey and the findings in this report, Adansonia Heritage Consultants state **that there are no compelling reasons which may prevent the proposed orchard development to continue**, but it is recommended that debushing activities be monitored by a qualified archaeologist and that an assessment be undertaken should any archaeological material be found. • The specialist study was submitted to SAHRA and their comments to date are included in **Appendix 2**. • **Mitigation Nr. 2**: **No artefacts** have been observed during the farming activities which have occurred on the property for decades. • The developer has farmed this site for several years and has not **unearthed/located** any grave sites; historical sites or artefacts which are of historical importance. • However, should any artefacts or a find be incidentally discovered during trenching/debushing activities, the proponent **must engage the services of an accredited archaeologist** to deal with the find. • It is recommended that an **Environmental Control Officer** (ECO) oversee the implementation of the development phase and the handling procedure of any finds is described in the Environmental Management Programme (EMPr). • Should any artefact, or historical site be **incidentally** discovered during excavations for foundations as well as in future, all works must cease with immediate effect. • **The find must be reported to the Project Manager for the development and the ECO for the project. These representatives will initiate an Action Plan in conjunction with SAHRA and the developer to address the management and handling of the find.**

3.Land Claim.	• See **Appendix 4.2**. for detail on the Land Claim process in the project area. • As per the contents of the letter from the Lands Claim Commissioner, the proposed project area has been exempted from any land claims. • The applicant is free to expand his farming activity. No objections to the proposed improvement of the infrastructure have been lodged with the EAP. • **No mitigation measures** are applicable.

Positive Issues	Discussion/Mitigation/Recommended Management Approach
1.Job Creation and Stability.	• **<u>Social Commitment and Job Creation</u>**: A number of business sectors and community members will benefit if this project is successful. • The property owners and their families will benefit financially in the long term. In the short to medium term however the proposed development areas will require substantial capital (approximately R3million) to clear the area, install irrigation and associated infrastructure and maintain the orchards during their growth phase. • The Nkomazi region and outlying rural areas have been classified as one of the poorest in South Africa. Conservative estimates list unemployment figures in the region of 30%, HIV infections just under 40% and the reality of many job-seeking immigrants from neighbouring countries migrate to this area and add to the challenges faced by rural communities. • An earthworks company will be tasked with clearing the areas – this will provide work opportunities (an estimated 15 persons) for both skilled and unskilled labour (machinery operators and general labour to clear some of the vegetation). • Unskilled labour will earn in the region of R4000/month. • The opportunities listed above do not include the economic addition to subsidiary services such as vehicle maintenance; retail needs; medical facilities and building material. This development will as a result benefit businesses in Malelane, Barberton and Mbombela. • **No mitigation measures** are applicable.
2.Needs and Desirability of Project.	• **<u>Strategic Regional Initiatives</u>:** The Lows Creek area is a historical farming area where farmers have traditionally established and grown short-term fruit and vegetable crops such as tomatoes, cabbage, beans, brinjals and butternuts. In the 1980's sugarcane was established and widely cultivated in the area but has been gradually removed due to the high-water demand by the crop, increased input costs, distance from the mill and low returns achieved. • As a result of this many farmers investigated and experimented with crops which would give better returns, use less water and be able to be locally processed and exported. The most successful experimental crops identified were macadamias and citrus and the area has seen such large plantings volumes of both macadamias and citrus that a processing plant was established in the Lows Creek area for the intake, processing and export of macadamia kernel and macadamia products. • A packing facility was also established at Eureka for the sorting and packing of citrus products for export. • With the continued growth within the local Nkomazi region, particularly through the establishment of the Maputo Corridor initiative, export- and economic activities have increased substantially due to the location and ease of

	exporting through the Port of Maputo. • The local Nkomazi- and Mbombela Councils are supportive of developments associated with the Maputo Corridor and the expansion of agriculture and sustainable land use envisaged by this project proposal under investigation compliments the regional vision that the authorities have for this area. • **The Proposed Clearing of Indigenous Vegetation:** Developing the current areas of indigenous vegetation will ensure that Portions 17 and 21 of Naudes Rust 272 JU will remain a viable and profitable entity and achieve economies of scale in terms of employment, machinery and market share. • Additionally, the macadamia processing facility in Lows Creek and the citrus facility at Eureka will achieve security of supply from the immediate local area and allow it to expand as increased volumes become available ensuring additional job opportunities and local investment in the area as per the economic vision described above. • **Do we need more area to cultivate crops?:** The farm presently has 100ha of existing arable land which traditionally was farmed with papaya, bananas, sugarcane and vegetables - these crops are extremely water dependent and hence the current registered 120ha (778,800m³) of water rights was suitable for those historical crops planted, however with the planned change to macadamias and/or citrus the water demand will be lower which permits additional areas to be farmed thus increasing income for the property and creating additional employment and increased services required for the farming operations. This will in return maximise return on investment for the property owners. • **What are the benefits of having additional areas to cultivate?:** The property will require additional staff to be employed to develop and maintain those areas which in turn will generate long term income for the property thus benefitting the surrounding communities as well as associated industries which will benefit from the additional crop generated – this includes but is not limited to additional processing in the local processing and packing facilities and forex income generated for the crops exported. • **Will the areas cleared affect the neighbours negatively?** No. The proposed areas to be cleared are adjacent to existing arable areas (already under agricultural production) both on the property concerned and the neighbouring properties. • **Will the additional arable areas be beneficial to the community at large**? Yes. It will create additional employment, both permanent and on contract, in the farming community as the new arable areas will require to be managed and operated during both the production/growth- and harvesting stages. • **What are the economic benefits of the new arable areas?** Additional employment will be created and increased volumes of product will be delivered to the local processing and packing facilities thus ensuring job security and bringing much needed income to the local area. • **What is the development cost of the new arable areas?** The estimated cost is in the region of R 3million which is a substantial investment to ensure the long-term agricultural objective and benefit of the properties.

	• **Neighbouring Land Uses and Compatibility**: The project area is surrounded by agriculture and an assortment of similar crops are presently being farmed which includes macadamia, papaya and vegetable production. • To date no objections to the project proposal have been submitted by any of the neighbours. • **Financial Viability and Agricultural Potential of the Properties:** The properties, and its neighbours, have been farmed for many years producing crops for local markets however in the past 10 years more interest has arisen for exportable crops. • For the current crop types, a financial analysis by the Project Team has emphasised distance from local markets as inhibiting agricultural growth and preventing continued sustainability of the agricultural crops of the properties in the long term. It thus makes sense to convert the farming type to macadamia plants. • **Land Claims:** The Lows Creek area was subjected to various land claim assessments by the Land Claims Commissioner in the past few years and combined with a recession in the agricultural sector many property owners were, until recently, reluctant to expand or diversify their enterprises under prevailing uncertain conditions. • The project area is owned by the applicants and no claims exist on the properties. See **Appendix 4.2.** • **Industry Growth**: The **Ivory Macadamias** processing facility in Lows Creek has joined forces with **Marquis Macadamias Africa** and established a new processing plant in Alkmaar (Nelspruit) and is currently considering expanding the current facility at Lows Creek due to the forecasted growth of the macadamia industry. • The financial model for these properties is based on crop production and Ivory Macadamias is dependent on a reliable supply of macadamias for processing. To this end the proposal makes economic sense as the crop is a long-term project and will ensure that production does not stifle incoming product and growth within the local area for other industries. • The security of the ample water allocations also provides the landowners an opportunity to maximise their return on investment and remain financially competitive in an ever changing and diverse business market. • **Social Commitment and Job Creation**: A number of business sectors and community members will benefit if this project is successful. • The property owners and their families will benefit financially in the long term. In the short to medium term however the proposed development areas will require substantial capital (approximately R3million) to clear the area, install irrigation and associated infrastructure and maintain the orchards during their growth phase. • The Nkomazi region and outlying rural areas have been classified as one of the poorest in South Africa. Conservative estimates list unemployment figures in the region of 30%, HIV infections just under 40% and the reality of many job-seeking immigrants from neighbouring countries migrate to this area and add to the challenges faced by rural communities. • An earthworks company will be tasked with clearing the areas – this will provide work opportunities (an estimated 15 persons) for both skilled and unskilled labour (machinery operators and general labour to clear some of the

	vegetation). • Unskilled labour will earn in the region of R4000/month. • The opportunities listed above do not include the economic addition to subsidiary services such as vehicle maintenance; retail needs; medical facilities and building material. This development will as a result benefit businesses in Malelane, Barberton and Mbombela. • **Location**: **Is this the correct location for the project**? Alternatives were assessed during this survey and all options were discussed during the course of this investigation. **The alternatives (as part of the 60ha) were identified as not being suitable due to topography limitations and soil conditions (rocky outcrops).** • The project sites are fixed and the proponents do not own similar land elsewhere. In terms of compatibility of land uses this development will fit in with current agricultural developments in the area and surrounding farms. The site locations are thus regarded as ideal. • The project site is surrounded in all directions with similar land uses. • **Environmental (Ecological) Implications/Limitations**: An initial assessment of the prevailing fauna and flora has not revealed any threats to individual species/habitat or highlighted any critical limitations to the development which can be of ecological significance or which cannot be mitigated to ensure sustainability of the environment. • Detailed studies have however been commissioned to ensure that impacts on the environment are clearly understood and the results areincluded in the specialist reports on biodiversity with the Environmental Impact Assessment Report. • All indications are however that by not developing the alternative rocky sites and steeper slopes more of the natural vegetation will remain intact and this will ensure that ecological corridors (as per MTPA policy and requirements) are maintained on the properties. • **Positive Impacts:** Job creation and the prevention of job losses is regarded as a significant impact which will spill over into the well-being of a number of families in the local community. • Additionally, the financial viability of the project will translate into further economic growth for the investors and the local Mbombela and Nkomazi area as a whole, albeit in the medium- to long term. • The growth in agricultural production together with the improvement in the sustainability of the properties will result in higher incomes and ensure food/crop security. • **Access Road**: The access to the Project Areas from the R38 Provincial tar road is functional and does not require any changes or upgrading. • Construction/farm vehicles and equipment will have unhindered access to the project sites. • **Timing: Is this the right time to implement such a development?** The ever-increasing costs relating to bringing local crops to market in metro areas has highlighted the fact that crop production must plan ahead to remain sustainably competitive. By having an export product which brings in Forex is critical for the long-term success of

	farming enterprises and of benefit to the South African economy as a whole. • Additionally, by establishing less water dependent crops the pressures associated with droughts that the region experiences will allow farming operations to continue with a lower negative financial- and operational impact than would occur with other crops. • **Integrated Environmental Management**: The objective of integrated environmental management is to balance all interests towards sustainability. For many the word “sustainability” remains a ‘unicorn’ of environmental management – i.e., a myth that is often poorly defined and/or understood. As participants in environmental management, we can at best evaluate the project for its inherent advantages and disadvantages. With the help and input of the Public, Specialists and Project Consultants we endeavour to draw a clearer picture with which we all can associate and hopefully agree to as well as support. • **We raise the questions, which include but are not limited to:** • Is the proposed activity/development harmful to the environment? • Did we ensure that all perceived impacts were mitigated adequately in favour of maintaining the environmental integrity? • Will the local/regional/national community benefit from this development or is the development an improvement on an old or outdated concept? • Did we ensure that the general public participated in this project from the day of advertisement till submission of documentation? • Did we ensure that the economics of the activity were in place prior to project implementation? Is the project feasible? What are the alternatives? • Have we taken into account the various Government role players with regards to sharing information and/or authorisation requirements of this project? • The list goes on however the team associated with this proposal is confident that we have ticked the right boxes to date and can answer in the positive to the questions listed above. In some cases, we have suggested measures of mitigation to soften the impact towards a degree of sustainability. • **Need and Desirability of the Proposed Project**: In conclusion, it is the opinion of the EAP that the cumulative effect of the factors listed above will result in a positive contribution in the fields of economic benefit and social upliftment in the region with little, or at most manageable, impacts in the environmental arena.

3.Economic Sustainability.	• **Economics of the Development**: Additional employment will be created and increased volumes of product will be delivered to the local processing and packing facilities thus ensuring job security and bringing much needed income to the local area. • **Financial Viability of the Project:** The properties, and its neighbours, have been farmed for many years producing crops for local markets however in the past 10 years more interest has arisen for exportable crops. • For the current crop types, a financial analysis by the Project Team has emphasised distance from local markets as inhibiting agricultural growth and preventing continued sustainability of the agricultural crops of the properties in the long term. It thus makes sense to convert the farming type to macadamia plants. • **Industry Growth**: The **Ivory Macadamias** processing facility in Lows Creek has joined forces with **Marquis Macadamias Africa** and established a new processing plant in Alkmaar (Nelspruit) and is currently considering expanding the current facility at Lows Creek due to the forecasted growth of the macadamia industry. • The **financial model** for these properties is based on crop production and Ivory Macadamias is dependent on a reliable supply of macadamias for processing. To this end the proposal makes economic sense as the crop is a long-term project and will ensure that production does not stifle incoming product and growth within the local area for other industries. • The security of the ample water allocations also provides the landowners an opportunity to maximise their return on investment and remain financially competitive in an ever changing and diverse business market.
4. Soil Type, Suitability and Agricultural Potential.	• **See Appendix 4.4.1** for detail on the soils of the project area. • A soil survey was conducted by Edward Smit (Mataffin Macadamia) on all four project sites. • A number of maps and chemical analysis were compiled and undertaken by the consultant. • Although the applicant identified 60ha for evaluation Edward concluded that the **21ha of the soils** at Naudes Rust are suitable for the farming of macadamia and avocados. • **Suitability and Potential: Key Factors** to support this conclusion are: • **Soil Depth**: Soil depth is not limited and varies on average between 1400-1600mm in the Hutton and Nkonkoni soils whilst the Mispah and Glenrosa soil forms represented an average depth of 400mm. • **Land Capability**: • **Area Nr. 1**: Area Nr. 1 contains 4ha of high potential soil which is suitable for development with a moderate to high land capability (Mispah, Nkononi and Glenrosa soil forms). • **Area Nr. 2**: Area Nr. 2 contains 1.3ha of high potential soil which is suitable for irrigation purposes with a moderate to high land capability (Mispah, Nkononi and Glenrosa soil forms). • **Area Nr. 3**: Area Nr. 3 contains 10.8ha high potential soil which is suitable for irrigation purposes with a moderate

	to high land capability (Mispah, Hutton and Glenrosa soil forms). • **Area Nr. 4**: Area Nr. 4 contains 4ha high potential soil which is suitable for irrigation purposes with a moderate to high land capability (Mispah, Swartland and Glenrosa soil forms). • **Chemical Composition**: The pH is slightly acidic and ranges from 4.66-6.48 indicating that salinity is not a high risk according to pH values which can be altered from a fertility perspective. • The laboratory results indicate that the chemical parameters are manageable provided there is sufficient external drainage. • **Texture:** The sandy-loam soils are well drained as well as possessing a good chemical fertility basis. • **Susceptibility to Erosion:** Areas 1, 2 and 4 are considered to be classified as moderate to low in terms of susceptibility for water- and wind erosion. This is the same for Area 3 except on the steeper slopes (steeper than 15%). • **Mitigation Measures for Macadamia Establishment:** • **Normal Orchard Development**: No extra-ordinary agronomic measures are under discussion at the moment e.g., orchard layout however, the following environmental requirements are included for clarity: • **Irrigation Water:** It is necessary to supplement moisture by using irrigation during the **establishment phase** to ensure that moisture stress does not suppress growth and production. Water for irrigation is available within the allocated quota. • **Suitable Soils**: These crops can be grown in a wide variety of suitable soil types. • The layout of the orchard largely depends on the irrigation system used and the desired number of trees per hectare. • **Slopes:** Do not establish orchards on slopes steeper than 15 percent. • Do not remove the natural vegetation on these steep slopes.

9.6. Description of Options, Alternatives and Monitoring Requirements

9.6.1. Site Alternatives:

Site Location Alternatives: The land earmarked for development is fixed and is part and parcel of existing farming enterprises. The proposed development is required to ensure a sustainable outcome for agriculture through crop production. Although more than 60ha were assessed at four alternative sites various factors narrowed down the final hectarage to **21ha of suitable farming land**. The remainder of the sites were either too steep and or not suited for farming as the soils were considered marginal. **Access** to the site is in place and no new roads will be required.

The No-Go Option will affect economic growth and negate economic opportunity in the area. The developer has ownership of a property within the borders of the agricultural business sector in the Lows Creek area and has expressed the wish to formalise the operations (develop four sites for orchards) to support his business enterprise. The farming activity is already in place on the applicants' farm.

A no-go approach would remove these options out of the economic- and social equation in the area. No known environmental reasons were identified which could make this a "No Go" option.

9.6.2. Demand Alternatives:

1. Power Supply:

Eskom Supply: Eskom remains the only viable and practical option for an agricultural activity of this nature. The electricity will be required to pump water and run pumps to the various orchards. Eskom supply is in place and a pump house is functional and in working order.

Solar Power: Solar power (panels and energisers) have been installed to electrify certain boundary- and installation/facility fences. These units provide security and controlled access to the various sites on the farm.

2. Water Supply:

Water supply will be made available from the farm dams, the canal and bore holes as per the water allocation and entitlements existing in the name of the applicant.

3. Low Flow Irrigation: Advantages	3. Overhead/Sprinkler Systems: Advantages
• Efficient use of available irrigation water.	• Easy to install.
• Water is deposited on the plant roots, optimising plant growth.	• Labour intensive creating more job opportunities during operational and maintenance phases.
• Cost effective as it limits wastage.	• Applies vast quantities of water in a short period.
• Reduces evaporation and overspray.	
• The system is easy to install, it is flexible and adaptable.	
• No damaging spray finds its way onto unwanted areas, e.g., roads and buildings. This prevents erosion and unnecessary run-off.	
• The adjacent soil and foliage are kept dry, reducing fungal diseases.	
• Water and nutrients are delivered directly to the root zone which promotes healthy plant growth and reduces plant stress.	
• Soil aeration is improved because soil particles are not washed down, thus decreasing soil compaction and improving root growth.	
• The system saves on maintenance and labour.	
• The system does not make use of moving sprinkler parts which require intensive maintenance to repair.	
• Unobtrusive and aesthetic. Hidden under mulch or beneath the soil.	
• The system does not interfere with landscaping or scenery.	
• Decreased labour to install and maintain plus lower overall material cost.	
• Security. No exposed sprinkler heads, pipes or surface driplines to tamper with.	
Dripline Irrigation: Disadvantages	**Overhead/Sprinkler Systems: Disadvantages**
• Blockages can be troublesome.	• Water loss and wastage is high.
• Less labour required during various phases.	• Water application per plant not always effective.
	• More water is irrigated increasing costs and more electricity is used.
	• Unwanted areas, e.g., roads are often covered in water and spray.
	• More incidents of erosion and run-off are associated with this irrigation method.
	• Less effective during windy periods.
	• Susceptible to theft of the various components.
	• High maintenance costs.

9.6.3. Scheduling Phases/Alternatives:

1. Time of Year (Season):

To ensure a safe working environment and to reduce the potential impact to the surrounding natural environment, it remains imperative that the orchards are developed during the period April to October. This period is relatively dry and will allow for unhindered construction operations.

2. Time of Week:

It is recommended to keep the development period as short as possible. Work will be limited to normal working hours daily (07h00-17h00) from Monday through to Saturday.

9.6.4. Input/Systems Alternatives:

1. Plant Variety:

Macadamia and avocado crops are not limited to one or two varieties. Varieties are numerous and each type has its own set of advantages and disadvantages. These characteristics vary from being disease resistant; water friendly (require less irrigation); producing more product per plant (less is more) and being adaptable to soil type diversity. The applicant has access to an **Advisory Service** in the industry and these officials will play a vital role in matching the project site with a plant variety that will best fit the local project site conditions.

9.6.5. Monitoring Requirements: Alternative Methods:

- **Measuring Mitigation**: Environmental performance monitoring should be designed to ensure that mitigation measures are implemented. The monitoring programme should clearly indicate the linkages between impacts, indicators to be measured, measurement methods and definition of thresholds that will signal the need for corrective actions.
- **ECO:** The applicant must appoint an independent ECO that will have the responsibility of monitoring and reporting on compliance with the conditions of the Environmental Authorisation (EA), as well as monitoring and reporting on the implementation of the approved EMPr.
- **Monitoring Programme**: A monitoring programme for the biodiversity associated with the project, would ideally be to record the reaction of the biota to changes in the environment due to the impacts of the project.
- **Aspect Nr. 1: Removals under Supervision**: Before the clearing of untransformed habitats, a botanist/ECO must be part of the identification-, relocation or removal programme of plant species of conservation importance.
- **Aspect Nr. 2: Maintain Records**: Establish an effective record keeping system regarding veld condition, alien vegetation presence and burning programmes.

- **Aspect Nr. 3: Red Data List**: The large number of Red Data listed and endemic species (26 species have a **high probability of occurring** on the Naude's Rust farm) necessitates a monitoring program to assess their numbers and status in the project area. An inventory system should be established in a concerted effort with regular staff working in the project area to identify Red Data or Species of Special Concern and record these species. In the event that any threatened or near-threatened animal species are recorded within the study area in future, appropriate conservation measures should be developed in consultation with the relevant conservation authorities.
- **Aspect Nr. 4: Vegetation clearing or disturbing soil**: Establish an effective record keeping system for each area where soil is disturbed for whatever purposes. The monitoring will evaluate whether the erosion and sedimentation control techniques that are employed throughout the site preparation activities are effective in minimising erosion of exposed areas and sedimentation of site surface water.
- **Aspect Nr. 5: Exotic- and alien invasive plants**: To anticipate and evaluate imminent or potential risks to the project area regarding exotic- and alien invasive plants, as well as pathways of invasion, a monitoring programme should be developed in order to create effective mechanisms to manage or mitigate these. Monitor all sites disturbed by construction activities for colonisation by exotics or invasive plants and control these as they emerge. It is important to evaluate the effectiveness of control methods and to monitor the cleared areas on a regular basis to identify emergent seedlings and to remove those immediately.

Summary of Preferred Alternatives: Key Points:

- The project site is fixed. Less than 50% of the four sites will be used for agriculture and the remainder will be conserved for the maintenance of biodiversity, ecological corridors and riparian zones.
- Service provision for power will be supplied by Eskom and water will be sourced from the existing storage dams, canals and boreholes on site.
- Preparation will commence during the mid-season avoiding windy conditions and very wet periods where possible.
- A low flow irrigation system will be used for purposes of irrigation during the establishment phase.
- This will be combined with a computerised water/moisture maintenance facility to maximise water application at the correct times and only when necessary.
- Extension officers and consultants will assist with the choice of crop varieties. This will be determined as per the soil potential of each orchard section.

10. PUBLIC PARTICIPATION

10.1. Legislation: As per applicable environmental legislation the applicant must submit an application to the local Department of Environmental Affairs to obtain authorisation and permission to develop the proposed dam.

10.2. Advertisements (Printed Media): A newspaper advertisement (The Lowvelder: Local- and Regional newspaper) was placed in the printed press on **25 August 2022** inviting public participation and involvement.

10.3. Advertisements on Site and Town: Site Notices were placed at the entrance/access to the site on the Lows Creek-Kaapmuiden Tar Road, near the sites on the farm and at public facilities (Lows Creek Clinic) in Lows Creek Town. **See Appendix 2** for copies of Notices, Advertisements and Newspaper clippings.

10.4. Neighbours: Advertisements and invitations were also submitted to direct neighbours of the property.

10.5. Government Departments: The Department of Agriculture, South African Heritage Resources Agency; the Department of Rural Development, Land and Environmental Affairs; the Inkomati Usuthu Catchment Management Agency (IUCMA); the Department of Agriculture, Forestry and Fisheries; Mpumalanga Tourism and Parks Agency and the Municipalities of Mbombela/Nkomazi were all informed of the project and invited to participate.

10.6. Public Information Meeting: An information/public meeting was held on site on **6 October 2022 at 10h00**. Persons that may be affected and or interested in the proposed project were invited to register their interest with the EAP and requested to attend the Public Meeting.

10.7. Focus Group Meetings: Where applicable, on-going consultation was formalised through focus group meetings with each neighbour and or official department as per request and or as the need arises.

10.8. Reports/Copies of Information: Copies of all **Reports** generated were submitted for comments as per the registered list of Interested and Affected Parties. **Hard Copies** were made available at **Public Venues** and electronic copies submitted as requested via Postnet.

10.9. Specialist Studies Completed: Ms Christine Rowe (Heritage Specialist) has completed an archaeological evaluation of the Project Site and Dr. Andrew Deacon (Biodiversity Specialist) has undertaken various terrestrial/biodiversity surveys. Contents and outcomes of these studies were shared with I&APs with the submission of the **Environmental Impact Reports**. Additional reports include an assessment of the agricultural potential of the proposed soils in the development zones.

10.10. Impacts: Issues and Impacts were determined by RES and complimented by those raised during discussions with neighbours and officials from the various departments. Many of these were also gleaned from similar projects in the Onderberg valley and from previous experience obtained on projects recently completed in the area.

10.11. Minutes: See **Appendix 2** for a comprehensive set of minutes and the Issues and Responses Report.

10.12. Reports: The **Scoping Report and Draft EIRs** were made available for public- and official comment and input.

11. DECOMMISSIONING PHASE

The applicant accepts responsibility for the Cradle to Grave principle.
It is unlikely that the proposed development will be decommissioned in the foreseeable future however elements of the site may require a change in land use or must undergo a process of decommissioning in some form or another. For this event, several **objectives** are submitted for the record and consideration.

11.1. Decommissioning Objectives

The applicant/developer remains responsible for the life cycle of the project and all the decommissioning activities in the project area. The infrastructure will undergo a full and comprehensive decommissioning programme. This programme must be described in a **decommissioning plan**.

It is recommended that an **Independent Environmental Assessment Practitioner (EAP)** is appointed at the time **to compile a detailed decommissioning plan** to address all the aspects of the decommissioning process prevalent at the time.

11.2. Decommissioning Approach (Under guidance of an EAP)

Essentially the following approach must be implemented:

11.2.1. Removable concrete structures

- All foreign material such as gravel and concrete (Pump Houses?) must be broken up and removed to a designated gravel pit, which will be identified by the local Municipality for purposes of rehabilitation.
- All roads, buildings and service infrastructure must be demolished and removed off site.
- All service lines, where applicable (electrical- and water supply) must be removed and trenches rehabilitated.
- The lie of the land must be returned to fit in with the adjoining land surface.

11.2.2. Reinstatement

- All foreign material must be removed and disposed of at a borrow pit earmarked for rehabilitation.
- The disturbed area must be levelled off and contoured to fit in with the rest of the landscape.
- The disturbed area must be ripped and fertilised to enhance re-vegetation.
- The exposed soil must be brush packed with brush and grass material from the area, to serve as a seed bank for re-vegetation.
- The reinstated area must be irrigated once a week to promote the re-vegetation process.
- These aspects will require on-site monitoring, as the occurrence of natural rainfall will determine the frequency of irrigation required.

12. MONITORING AND AUDITING

It is recommended, that in the event that this proposal/application is approved, that the developer/applicant appoint an independent **Environmental Control Officer (ECO)** to oversee the implementation of the **Environmental Management Programme (EMPr)** and **monitor compliance** of the **Environmental Impact Assessment (EIA) and the Environmental Authorisation (EA).**

Furthermore, if the proposal is approved, the ECO must ensure that all the **conditions** as set out in the **Environmental Authorisation** issued by DARDLEA, are met and implemented as stipulated.
The ECO must submit a monthly Audit Report during the development phase to the applicant and DARDLEA for record- and implementation purposes.

The **role of the ECO** and independent audit teams are well defined within the framework of the **Integrated Environmental Management** (IEM).

13. RECOMMENDATIONS AND CONCLUSIONS:

1. Establishment of Orchards: The development team have more than **30 years of experience of crop farming** in the Lowveld area and have expressed the wish to improve their farming operations.
As per the comment from DALRRD the applicant must apply for a cultivation of virgin land once the project is approved.
2. Biodiversity Conservation: More than **50% of the project sections are set aside for biodiversity** conservation and all riparian zones, drainage lines, rocky outcrops and sensitive areas will not be developed.
3. Specialist Study: The **Specialist Study on Biodiversity** and ecology followed the guidelines described in the Mpumalanga Biodiversity Sector Handbook (MBSP) as compiled by Dr. Mervyn Lötter *et al*. Following these guidelines, the project area:

- Will not affect any critical biodiversity areas.
- Biodiversity Protection: **See Appendix 4.4.2.** Refer to applicable maps in **Appendix 1**.
- These conditions listed below are based on the identification of mitigation measures and solutions that minimise impacts on biodiversity and conflicts in land-use by making use of use of CBA maps in the Environmental Impact Assessment.
- **a) Retain natural habitat and connectivity in CBAs and ESAs**: The avoidance of environmentally sensitive areas identified during the Sensitivity Mapping exercise is regarded as the single most effective possible mitigation measure for mitigating impacts on the ecology of the project area.
- Maximise connectivity in CBAs and ESAs, the retention of intact natural habitat and avoid fragmentation: The buffered drainage line at Site 1 connects the riparian corridor to the Crocodile Gorge Mountain (ONA).
- It is clear that the implementation of buffers around sensitive habitat types is regarded as the most effective possible mitigation measure for mitigating impacts to the biodiversity of the project.
- **b) Apply the mitigation hierarchy?**
- By making use of “best practice guidelines” during the construction- and operational phases, identify the best practical environmental options by avoiding loss of biodiversity and disturbance to ecosystems, especially in CBAs, by applying the mitigation hierarchy and the land-use guidelines recommended. In particular:
- Management actions should be implemented such as:
- the re-establishment of indigenous vegetation wherever possible;
- control of storm water run-off;
- ongoing repair- and stabilisation of any erosion;
- implement an alien plant control programme;
- make use of current roads or tracks as far as possible;
- implement a veld management plan for the conservation area, which emphasises the use of sustainable grazing and controlled fires;
- prevent erosion and sediment-laden water from entering the adjacent watercourses;
- generic buffers should be established around wetlands;
- strict management of potential sources of agrochemical pollution;
- avoid over irrigation;
- maintaining an intact riparian corridor.
- **c) Remedy degradation and fragmentation through rehabilitation:**
- A network of corridors will be established by the farm drainage lines and connect most of the farm with the Crocodile Gorge Mountain (ONA):
- Buffers around drainage lines;
- Planting or rehabilitation of cleared or excavated areas should commence as soon as the development activity is completed.
- Clear invasive alien vegetation and rehabilitate existing degraded habitats.

- **d) <u>Secure priority biodiversity in CBAs and ESAs through biodiversity stewardship</u>**
- Set aside land of high biodiversity importance for conservation through biodiversity stewardship options. Where biodiversity losses are unavoidable, set aside another piece of land of equivalent or greater biodiversity importance for conservation:
- It is not foreseen that the Crocodile Gorge Mountain (ONA) will be affected in any future farming practises.
- **e) <u>Promote long-term persistence of taxa of special concern</u>**
- It is not foreseen that the Crocodile Gorge Mountain ONA will be affected in any future farming practises and the taxa of special concern can escape to this safe haven.
- **f) <u>Integrating *in situ* biodiversity-sensitive management into the overall design and operation of the proposed land-use development</u>**
- The owners will create a strict conservation ethic with reference to the natural Crocodile Gorge Mountain (ONA) with its vast stretches of untransformed woodland.
- **<u>Soils: Screening Assessment</u>**: The 21ha of arable areas were chosen because they are uniform and there are no rocky, steep or wetland areas within the sections assessed for the orchards.
- The screening study ensured that buffers were established around the sensitive habitat types, no obvious areas of concern were encountered and there is sufficient water available to establish orchards.

<u>4. The Project</u>: Additional **<u>key issues</u>** include:

- The applicant has access to **<u>adequate water</u>** as per entitlements and lawful water use to establish the crops.
- The soils are **<u>suited to crop farming</u>** especially macadamia and avocado.

<u>5. Expertise</u>: The applicant has access to the equipment, trained staff and knowledge to undertake this expansion project.

<u>6. Best Practice</u>: The applicant has implemented Agriculture Best Practice Techniques on all his farming operations to date and these will continue with this expansion project. These are:

- **<u>Orchards:</u>** Establish the plants on good, well drained soils in line with the recommendations provided by the soil scientist.
- Design the orchards along the contours of the farm and follow the lie of the land.
- Promote controlled, gradual run-off and drainage channels.
- Space crop plants as per crop type specifications.
- Use disease free plants from accredited nurseries.
- Prepare the land using fertilisers recommended by an accredited agronomist and ensure that lands are weed free.
- Install water saving irrigation systems which conserve water use over the long term.

<u>7. Area Integrity</u>: Maintain the integrity of the riparian zones, the ecological corridors and all buffer areas as indicated on the project maps and as delineated by Dr. Deacon and described in the Specialist Study.

<u>8. Heritage Aspects</u>:

- It is recommended that an Environmental Control Officer (ECO) oversee the implementation of the development phase and the handling procedure of any finds is described in the Environmental Management Programme (EMPr).
- Should any artefact, or historical site be incidentally discovered during excavations for foundations as well as in future, all works must cease with immediate effect. The find must be reported to the Project Manager for the development and the ECO for the project.
- These representatives will initiate an Action Plan in conjunction with SAHRA and the developer to address the management and handling of the find.

9. Conclusion: The evaluation process did not reveal any fatal flaws during the assessment of potential impacts. The project satisfies the requirements of sustainable integrated environmental management. Provided the developer implements the implications/conditions of this report, and the mitigation measures proposed, it is recommended that the change in land use is approved.

14. REFERENCES

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