



GEOHYDROLOGY

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EMPR

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LIM/EIA/0001203/2021

ENVIRONMENTAL MANAGEMENT PROGRAM FOR THE PROPOSED CLEARANCE OF ± 13 HECTARES OF INDIGENOUS VEGETATION FOR ORCHARDS ON THE REMAINDER OF PTN 37 AND PTN 3 OF THE FARM SCHOONUITZICHT 10 LT IN THE LEVUBU AREA, ± 6.5 KM NORTHEAST OF THE ALBASINI DAM, MAKHADO LOCAL MUNICIPALITY, VHEMBE DISTRICT, LIMPOPO

April 2021

Prepared for: Muirhead & Roux CC
Document version 2.0
Compiled by: L Wendel



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April 2021

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Neighbouring landowners		
Bruce Milton	Bruce Milton Family Trust	RE Ptn 10 Schoonuitzicht 10 LT
	Citimba (Pty) Ltd	Ptn 20 Schoonuitzicht 10 LT
Gerco	Molozi Trust	Ptn 10 Schoonuitzicht 10 LT Ptn 5 Goedgevonden 7 LT
Michael Holford	Softwater Farm (Pty) Ltd	Ptn 16 Schoonuitzicht 10 LT Ptn 9 Goedgevonden 7 LT 117 LT
Wally (Heinrich) Wahlbehler	Stevens Lumber Mills (Pty) Ltd	Ptn 25, 27 Schoonuitzicht 10 LT
Albert & Elana Eksteen		Ptn 31 Schoonuitzicht 10 LT
Mr Frans Prinsloo	Levubu Neutplase	Ptn 36 Schoonuitzicht 10 LT
Mr Kobus Janse van Rensburg	Royal Macadamia (Pty) Ltd	Ptn 38 Schoonuitzicht 10 LT
Marius Schutte	Boomsig Boerdery (Pty) Ltd	RE Boomryk 11 LT
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Municipal Manager: Mr IP Mutshinyali / Ms Hilda Mudau	Makhado Local Municipality	
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1 DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

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Contact details of EAP:

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Telephone number: 015 291 1577

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Expertise of EAP: The EAP has a Master's Degree in Environmental Management and 17 years of experience with management and conducting of EIA's.

2 DESCRIPTION OF ASPECTS OF ACTIVITY COVERED BY THE EMPR

The EMPr will cover the following aspects of the activity during the construction phase of the project:

- **Air emissions and noise**

Air emissions will mainly be the generation of dust from construction vehicles on site and exhaust emissions during the construction phase. Noise impacts will be from the movement of vehicles on site.

- **Biodiversity aspects**

The project site is situated within an existing macadamia and banana farm while the areas considered for clearance consist of natural vegetation with invasion of alien invasive species in the lower shrub stratum. Mitigation and management measures are provided for the use of herbicides, pesticides and fungicides on site which could negatively impact on biodiversity in the larger area and specifically on the sensitive rivers, streams and the wetland on the farm.

- **Training and Awareness**

The training of workers and contractors in terms of environmental awareness and the mitigation of negative environmental impacts as a result of the clearance and establishment of orchards will form part of the EMPr.

- **Storm water management**

The handling/management of storm water that could cause erosion forms part of the EMPr.

- **Dangerous substances management**

The management of dangerous substances and the mitigation of negative impacts of for e.g. storage or spillage of these substances are detailed in the EMPr.

- **Socio-economic benefits and safety on site**

The socio-economic aspects, especially the enhancement of positive aspects such as the creation of jobs in the development (construction) phase are discussed in the EMPr. Safety and security measures for the construction phase are covered as well.

- **Water Use**

Water use will be from the Existing Registered Water Use for the farms and is discussed in the EMPr.

- **Waste management**

The handling and disposal of solid waste as well as management and mitigation measures which address these aspects and impacts form part of the EMPr.

3 MAPS AND SITE LAYOUT PLAN

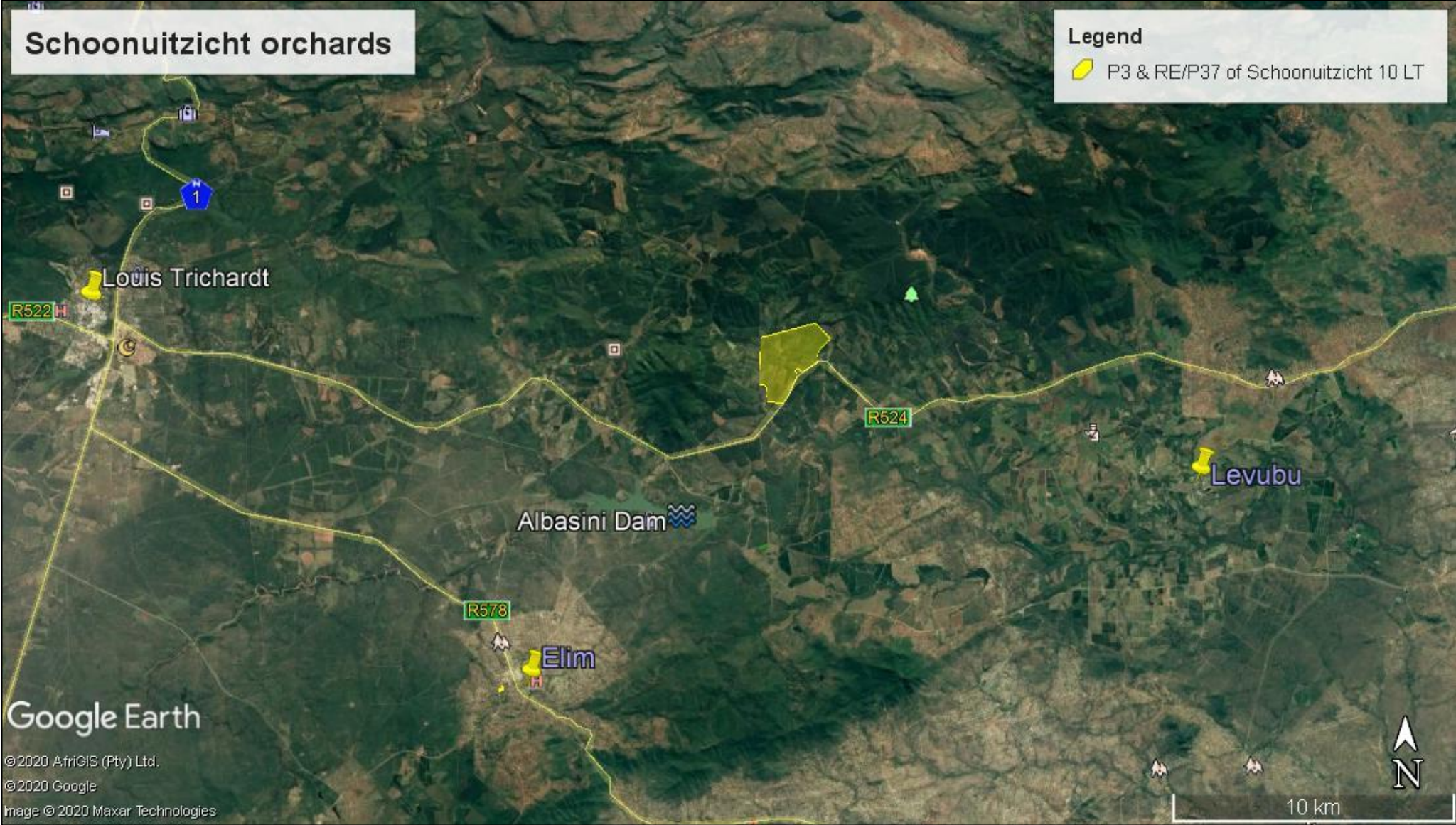


Figure 1. Location map of Schoonuitzicht farms

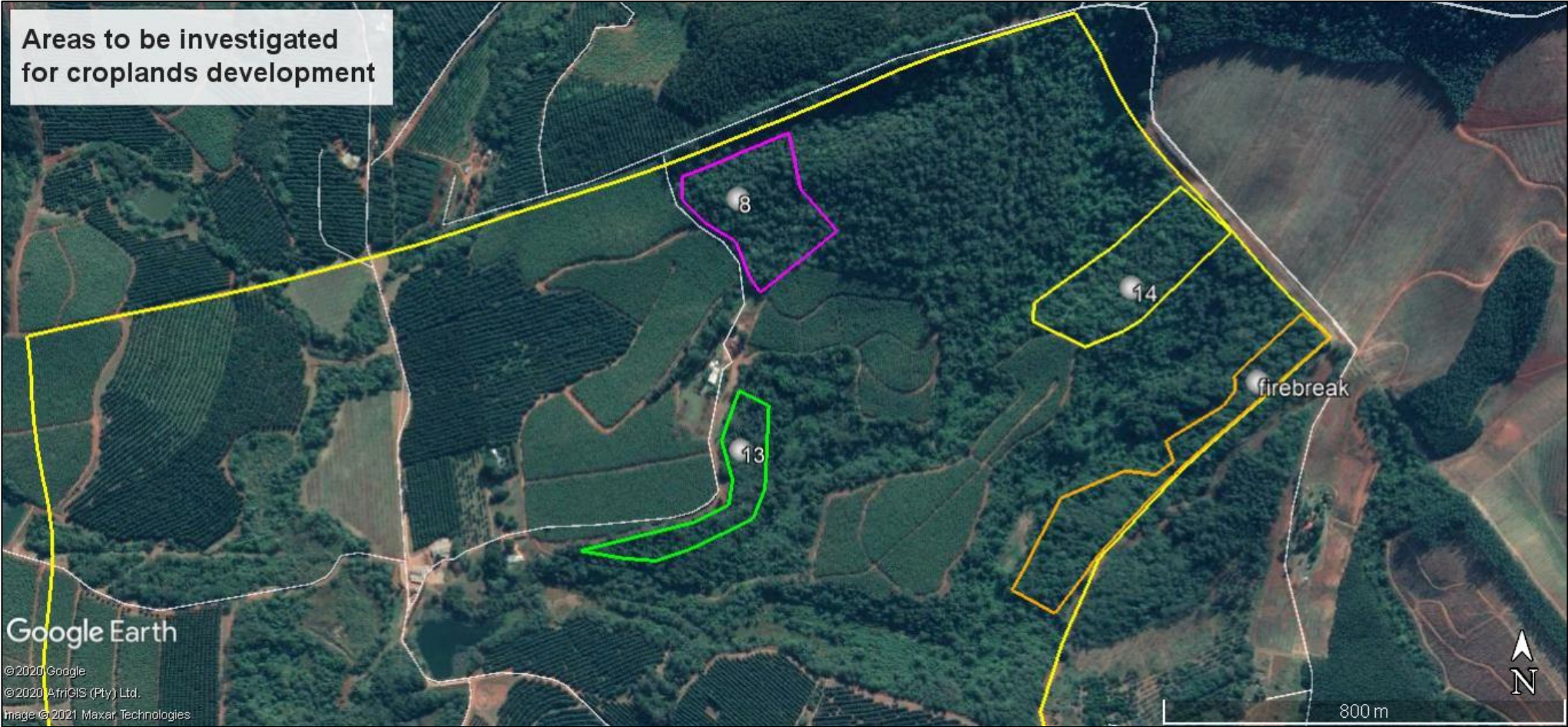


Figure 2. Areas which were investigated for orchards development

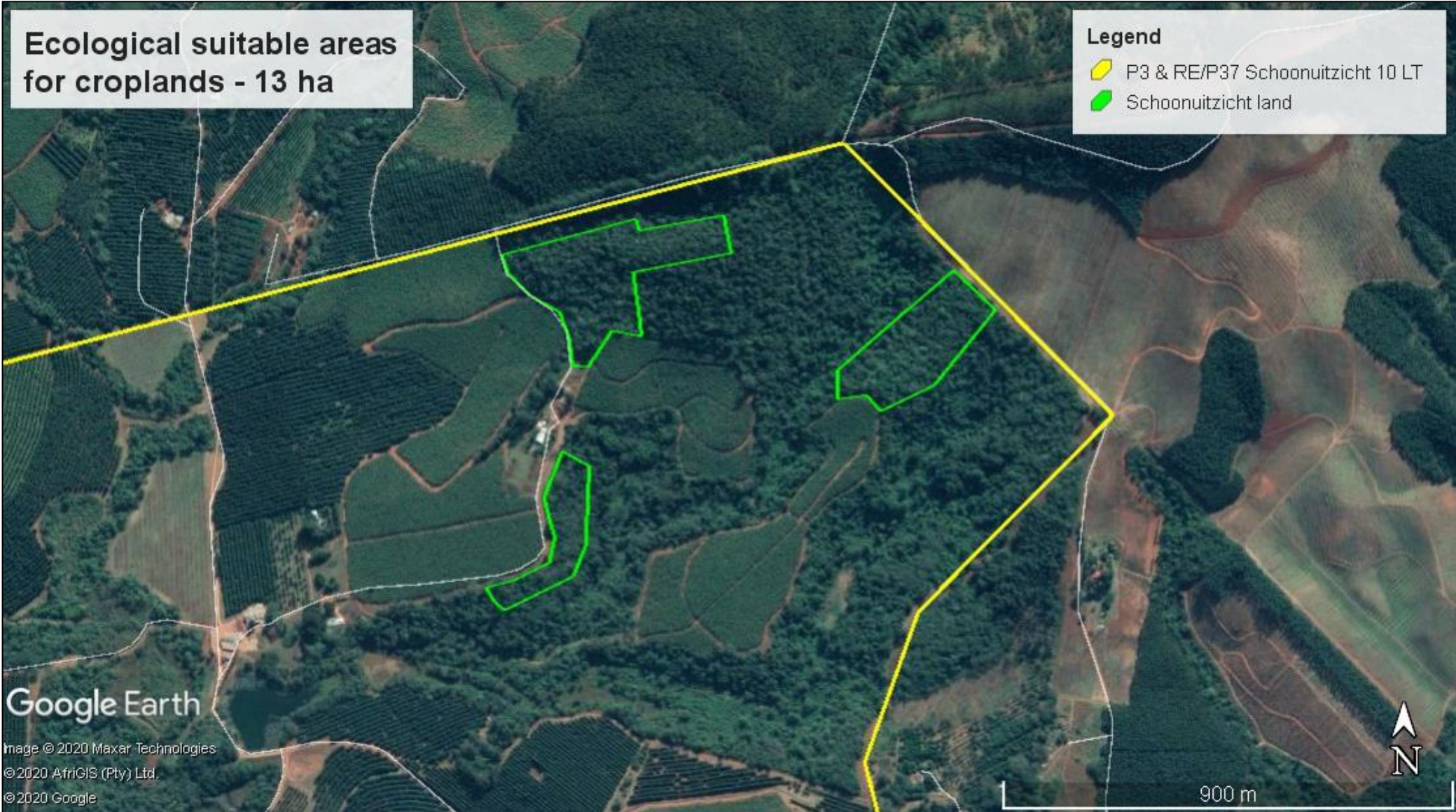


Figure 3. Areas determined to be suitable for development of orchards (firebreak block is excluded)

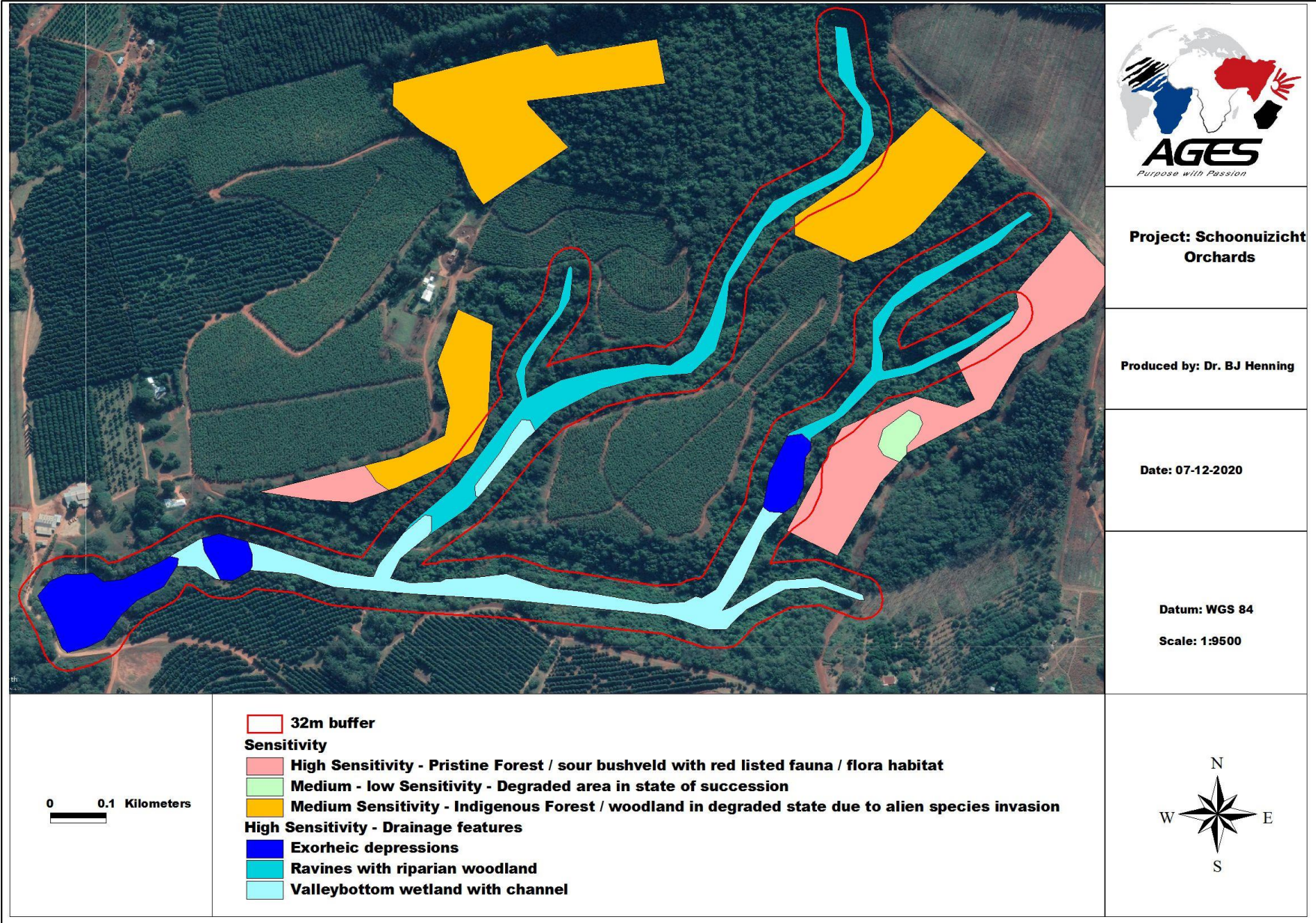


Figure 4. Sensitivity map of the project area, indicating 32-meter buffer to be maintained from the edge of riparian areas

4 GENERAL INFORMATION

AGES Limpopo (Pty) Ltd was appointed by **Muirhead & Roux CC** to compile an Environmental Management Program (EMPr) for the clearance of approximately **19 ha** of indigenous vegetation on the Remainder of Ptn 37 and Ptn 3 of the farm Schoonuitzicht 10 LT, approximately 6.5 km northeast of the Albasini Dam in the Makhado Local Municipality (See locality map above – Figure 1).

After determination of the areas suitable for development from an ecological and heritage resources perspective, the proposed development will entail the expansion of the orchards by clearing an area of approximately 13 ha of indigenous vegetation to plant banana and/or macadamia trees. Portions of the original area of 19ha which were surveyed consist of pristine indigenous forest (“Firebreak block”) and were deemed unsuitable for development hence the area now applied for under this Basic Assessment is approximately 13 ha.

At present bananas and macadamias are produced on the farms. The existing as well as the banana and macadamia trees will not be irrigated, although if needed, water is available from the existing Registered Water Use for the farms.

The establishment of orchards on these areas will result in food production, income generation and job creation.

4.1 LEGAL REQUIREMENTS

- **National Environmental Management Act, (Act No. 107 of 1998)**

The Environmental Impact Assessment process is a requirement in terms of GNR 982, published on 4 December 2014 as amended, under sections 24(5) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and the following listed activities of GNR983 and GNR985 require environmental authorisation from the Limpopo Department of Economic Development, Environment and Tourism:

- R983 - Activity 27 “The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation”.
- R985 - Activity 12 (e) (ii) “The clearance of an area of 300 m² or more of indigenous vegetation within critical biodiversity areas identified in bioregional plans”.

“indigenous vegetation” refers to vegetation consisting of indigenous plant species occurring naturally in an area, regardless of the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years.

- **This EMPr does not cover the operational phase of the orchards as the listed activity only refers to clearance and not related operation. An EMPr for operation is therefore not required. This aspect was clearly spelled out by National and Provincial Departments of Environmental Affairs during workshops conducted with EAP’s.**
- **The validity period of this construction EMPr should be 10 years.**
- **National Water Act, 1998 (Act No. 36 of 1998)**

The properties have an Existing Registered Water Use.

A Water Use License for Section 21(c) and (i) water uses will be required for development within the floodline zone or within 500 meters of a wetland, or within 100 meters of a river.

4.2 ENVIRONMENTAL MANAGEMENT PROGRAMME OBJECTIVE

The purpose of the Environmental Management Programme (EMPr) is to comply with the requirements of the Department of Environmental Affairs to ensure responsible environmental management. The objective of the EMPr is also to provide adequate measures and or recommendations to ensure that the identified environmental impacts are kept to a minimum and that the most appropriate rehabilitation measures are correctly implemented to ensure the overall integrity of the proposed site.

The mitigation measures stated in the EMPr must be adhered to as indicated for the different phases. It must be insured that the responsible persons have access to the project monitoring program included in the EMPr and that all relevant parties are aware of the route that needs to be followed when appropriate action is required.

The EMPr must be incorporated into the planning and appointment documents for any contractors in future since this will ensure that:

- Any contractor is aware of the EMPr upfront.
- The EMPr is presented in a form and language that is familiar to the contractor.
- The contractor is able to cost for compliance.
- The EMPr is binding within a well-defined legal framework.

4.3 ENVIRONMENTAL IMPACTS

Environmental impacts are associated with air quality, water quality, soil conditions and safety & security. The aspects that cause the environmental impacts, the specific impacts as well as a set of mitigation measures to apply during the construction phase were identified and are detailed in section 12 of the EMPr.

5 ENVIRONMENTAL MONITORING

The roles and responsibilities of Schoonuitzicht farm management must include:

- Ensuring that the necessary authorizations and permits have been obtained.
- Monitoring and verifying that the EMPr is adhered to at all times and taking action if the specifications are not followed.
- Monitoring and verifying that environmental impacts are kept to the minimum.
- Keeping record of all activities/incidences on site in the site diary concerning the environment.
- Inspecting the site and surrounding areas daily with regard to compliance with the EMPr.
- Keeping a register of complaints in the office and recording and dealing with any community complaints or issues.
- Ensuring that activities on site comply with all relevant legislation.
- Issuing of warnings for contravention of the EMPr.
- Compile a monitoring checklist.
- Keep a photographic record of progress on site from an environmental perspective.
- Assisting the project manager in finding environmentally responsible solutions to problems.
- Keeping accurate and detailed records of these inspections.

Any appointed contractor shall have the following responsibilities:

- To implement all provisions of the construction EMPr. If any contractor encounters difficulties with specifications, he / she must discuss alternative approaches with the project manager prior to proceeding.
- To ensure that all staff and sub-contractors are familiar with the EMPr.
- To make personnel aware of environmental issues and to ensure they show adequate consideration of the environmental aspects of the project.
- To report any incidents of non-compliance with the EMPr to the project manager.

6 ENVIRONMENTAL AWARENESS PLAN

The goal of the awareness plan is to help employees make environmentally-conscious decisions in the workplace and in their private lives. The environmental awareness plan entails the management of staff, personnel and workers on site during the construction phase.

During the construction phase there will be an appointed Environmental Control Officer as well as a person responsible for adherence to the Occupational Health and Safety Act (Act No. 85 of 1993) (OHSAC). Environmental Impacts on a site to be limited include:

- **Air quality (dust suppression and vehicle emissions)**

As a result of vehicle movement on site during clearance and planting there will be dust formation on the development area. Dust suppression with water tanks must be done if and when necessary. While removed vegetation will be made available as firewood to labourers, large trees and roots, not suitable for use as firewood, must be removed to a general waste disposal site. Alternatively, such trees may be chipped for use as mulch or compost. No burning of vegetation must take place.

- **Noise levels**

Noise levels must be maintained at acceptable levels. Personnel working in areas with high noise levels must wear ear protection devices.

- **Water pollution**

All personnel on site must be instructed to avoid and limit any waste and/or spillages. Instructions on how to handle spillages on site must be displayed clearly in a step-by-step format, at the site office in terms of steps to follow. Training must be provided and spill kits must be available on site, all the time. Training and monitoring must be provided to ensure that the application of herbicides and pesticides are in accordance with manufacturers' guidelines. It must be ensured that drifting and leaching of chemicals during the application process are minimised.

- **Water usage**

While the new orchards will mostly not be irrigated, but rely on rainfall, surplus water from the existing Registered Use is available when required, as indicated in the table below:

Annual water balance - Schoonuitzicht orchards			
Sources of water in m ³			Totals (m ³)
Water Registration Certificates			
27064710/Ptn 3 _ 27064667/RE Ptn 37 Schoonuitzicht 10 LT			
Legal water use from boreholes			167,280
Legal water use from Molozi river			439,500
Water allocation from dam			80,840
Total			687,620
	Ha	Need m ³ /ha/year	Totals (m ³)
Current Macadamia orchards	131	1.3740	180
Current banana plantation	114	3.0701	350
Orchards to be developed	13	3.0701	40
Totals	258		570
Surplus / Deficit (-)			687,050

Table 1. Water balance calculation

- **Erosion and storm water management**

The farms are located on moderately undulating hills and mountain foot-slopes. Drainage occur as sheet-wash into the drainage channels and wetlands on site that eventually drain into the major river namely the Levuvhu River to the south of the site. Due to the steep gradient of the site in certain areas, special attention must be given to institute measures to minimise and control erosion as far as possible.

- **Pollution as a result of waste generation on site (household and product waste)**

Existing and new personnel/workers arriving on site must be given a short training course in the principles of waste reduction, re-using and recycling. This must be a continuous process. Training must include steps to be taken in case of spillage or wastage and the clean-up process is to be explained in order to be understood by all involved. Measures must be in place for the removal of waste, including the availability of a sufficient number of waste bins.

- **Fire**

Practical training must be provided to all workers/staff by a qualified person in the use of fire extinguishers and all other firefighting equipment. An emergency plan aligned with the local Fire Department must be in place.

- **Invasive alien vegetation**

The following alien invasives and exotic plant species were recorded on site during the surveys as stipulated in the Alien and Invasive Species Regulations (GNR 599 of 2014):

Table 2. List of exotic plant species of the study area

Species	Category
<i>Caesalpinia decapetala</i>	1b
<i>Chromolaena odorata</i>	1b
<i>Datura stramonium</i>	1b
<i>Eucalyptus camaldulensis</i>	1b
<i>Greyvillea robusta</i>	3
<i>Jacaranda mimosifolia</i>	1b
<i>Lantana camara</i>	1b
<i>Ligustrum spp.</i>	1b
<i>Melia azedarach</i>	1b
<i>Morus alba</i>	2
<i>Opuntia ficus indica</i>	1b
<i>Paraserianthus lophantha</i>	1b
<i>Psidium guajava</i>	3
<i>Ricinus communis</i>	
<i>Solanum mauritianum</i>	1b
<i>Tecoma stans</i>	1b
<i>Tithonia rotundifolia</i>	1b
<i>Toona ciliata</i>	3
<i>Xanthium strumarium</i>	1b

The following methods can be used to control invasive alien plants:

- Mechanical methods - felling, removing or burning invading alien plants.
- Chemical methods - using environmentally safe herbicides.
- Biological control - using species-specific insects and diseases from the alien plant's country of origin. To date 76 bio-control agents have been released in South Africa against 40 weed species.
- Integrated control - combinations of the above three approaches. Often an integrated approach is required in order to prevent enormous impacts.

6.1 IMPORTANT ASPECTS OF AN AWARENESS PLAN

- All staff must receive environmental awareness training prior to commencement of the clearance.
- Allow for sufficient sessions to train all personnel with no more than 20 personnel attending each course.
- Refresher environmental awareness training must be available as and when required.
- All staff must be made aware of the conditions and controls linked to the EMPr and their individual roles and responsibilities in achieving compliance with the EMPr.
- A record of all environmental awareness training courses undertaken as part of the EMPr must be available.
- Workers must be educated on the dangers of open and/or unattended fires.
- A staff attendance register of all staff having received environmental awareness training must be available.
- Course material must be available and presented in appropriate languages that all staff can understand.

6.2 CONTENTS OF AN AWARENESS PROGRAM

Environmental awareness training must as a minimum include the following:

- Description of significant environmental impacts, actual or potential, related to their work activities.
- Mitigation measures to be implemented when carrying out specific activities.
- Emergency preparedness and response procedures.
- Water usage.
- Solid waste management procedures.
- Sanitation procedures.
- Fire prevention.

6.3 METHODS OF INFORMING PERSONNEL

The following methods can be utilised to inform personnel:

- Use translators where necessary.
- Use the farm manager to explain more difficult/technical issues and to answer

questions.

- The use of pictures and real life examples are encouraged as these tend to be more easily remembered.
- Make use of environmental awareness posters.
- Environmental induction for all contractors, sub-contractors and their staff should they be required to come on site.

7 EROSION MANAGEMENT

A major component usually during the establishment of orchards is the clearing and preparation of land, which exposes, disturbs, and moves the soil. This inevitably increases an area's susceptibility to erosion. Because it is not feasible to eliminate all erosion risk factors and thus all erosion, the goal of implementing erosion control measures is primarily to minimize erosion.

Erosion, by the action of water and wind, is a natural process in which soil and rock material is loosened and removed. There are two major classifications of erosion:

- Geological erosion, which includes soil-forming as well as soil-removing, has contributed to the formation of soils and their distribution on the surface of the earth.
- Man-made erosion, which can greatly accelerate the natural erosion process, includes the breakdown of soil aggregates and the increased removal of organic and mineral particles; it is caused by clearing, grading, or otherwise altering the land. Erosion of soils that occur at construction sites is classified as man-made erosion.

Human activities can cause compaction of the soil or disturbance of the soil. This hardening of the soil prevents water from effectively infiltrating the soil. This then results in larger volumes of water which moves quickly across a site carrying sediment to streams and rivers away from the site.

- The main factor causing or accelerating erosion is through the action of water. This is the loosening and removal of soil and rock particles from a piece of land by running water, mostly caused by rain storms. There are a number of factors influencing or affecting erosion namely soil characteristics, climate, rainfall intensity and duration, vegetation or other surface cover and topography.

7.1 PROBLEMS CAUSED BY EROSION

The most important effect of erosion is the permanent loss of valuable topsoil at a site. If it is not controlled from the onset of a project and through the duration of the project, it will cause a loss of topsoil and can degrade the area permanently. The sediment that is transported by rainwater may end up in drainage lines and dams.

7.2 ACTIONS TO STOP OR MINIMISE EROSION ON A SITE

- Erosion and storm water control should be addressed by a hydrological engineer in a detailed storm water management plan;
- Cover disturbed soils as completely as possible, using vegetation or other materials;
- Minimize the amount of land disturbance and develop and implement stringent erosion and dust control practices.
- Protect sloping areas that are susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and Work Areas;
- Ridges where trees will be planted must follow the contours.
- Repair all erosion damage as soon as possible to allow for sufficient rehabilitation growth;
- Gravel roads must be well drained to limit soil erosion by constructing a sufficient number of outflow drains from roads;
- Minimize clearance of vegetation. Retain natural trees, shrubbery, and grass species wherever possible.

7.3 MONITORING OF EROSION ON SITE

During the establishment stage, the site manager must appoint a person who will be on site for the duration of the period. This person will have the responsibility to monitoring the risk of erosion and actual erosion arising from activities on site. His/her responsibilities must include:

- Regular (after rainstorms) monitoring for erosion to ensure that no erosion problems are occurring at the site as a result of the roads and other infrastructure. All erosion problems observed must be rectified after the rain event and before the following rain event.
- Monitor any erosion damage after rain events so that repairs to damaged areas can be done before the next rain event.

8 DANGEROUS SUBSTANCES MANAGEMENT

Clearance of vegetation and establishment of orchards will inevitably use equipment and vehicles that contain dangerous substances or which has the potential to spill dangerous substances on the site. There will also be chemicals and other dangerous substances which are used on site and requiring storage on site. This creates the potential for possible

spillages and the potential that these substances can pollute soil and water systems on site. It needs to be handled with care and strict control needs to be exercised over the handling and use of such substances.

8.1 POSSIBLE SOURCES OF DANGEROUS SUBSTANCES

The following substances are **potentially** stored or used on site during the development period.

- Diesel stored either in stationary tanks or in mobile fuel trailers or bowsers on site.
- Oils needed for lubrication of the equipment and vehicles.
- Herbicides, pesticides and fungicides used on site.

8.2 MEASURES TO STORE DANGEROUS SUBSTANCES ON SITE

All dangerous substances on site must be handled in the following ways:

- All access to any of these substances must be controlled and substances must be locked away.
- All containers or store rooms where these substances are kept must have an impermeable floor and be able to contain the substance in the room/store where it may be cleaned up.
- Where the floor is not impermeable, the substances will be stored in a drip tray capable of containing any spills from these containers.
- Material Safety Data Sheets (MSDS) for the specific substances must be available in a central file and at the place where the substance is stored.
- All substances must only be issued against a signature - records must be kept.
- Fuel trailers, if used at this development, must be parked either with sufficient drip trays underneath or it must be parked on an area where there is plastic sheeting underneath to prevent ingress of the fuel/oil into the subsoil or groundwater. Polluted soil has to be removed from time to time to a dangerous waste disposal site.

8.3 HANDLING OF SPILLS

8.3.1 Small spills on the ground

- Excavate contaminated soil to a depth where it is clean from the substance and store it in a closed container from which it cannot leak and is protected from rain.
- Have this soils removed by a registered contractor and keep records of volumes and details of each removal.

8.3.2 Large spills on the ground

- Keep spill kits available on site.
- Contain the spill by either using a spill absorbent sock from the spill kit or by making a soil berm around the spill.
- Scoop or pump out as much as possible of the pollutant into a closed container.
- Excavate the polluted soil to a depth below the pollutant and place on a plastic cover to prevent any leaching of the pollutant to the soil and groundwater.
- Lift the sides of the cover to prevent the ingress of storm water.
- Have the soil removed from site by a company registered to do so to a permitted waste site or let the company treat the soil on site until the pollutants levels are low enough to dispose of the soil on site again.
- If there is any possibility that there is pollution of groundwater or surface water, samples must be taken for analysis, to ensure that pollution can be treated if necessary.

8.4 TRAINING OF STAFF

- All staff working on site and responsible for a specific area must be trained in the detection of spill incidents, and the reporting thereof.
- All staff on site must be trained in the use of spill response kits.
- All staff must be trained in the use of MSDS's and first aid kits should it be necessary during any spill incident.

8.5 REPORTING AND RECORD KEEPING

- All spill incidents must be reported to the environmental control officer who must then report it to the authorities as required by law.
- Each pollution incident must be entered into a register on site. All details about the spill, the emergency measures taken and the clean-up done must also be part of the entry in the register.
- Preventative measures must be drawn up to prevent recurrence of spill incidents.

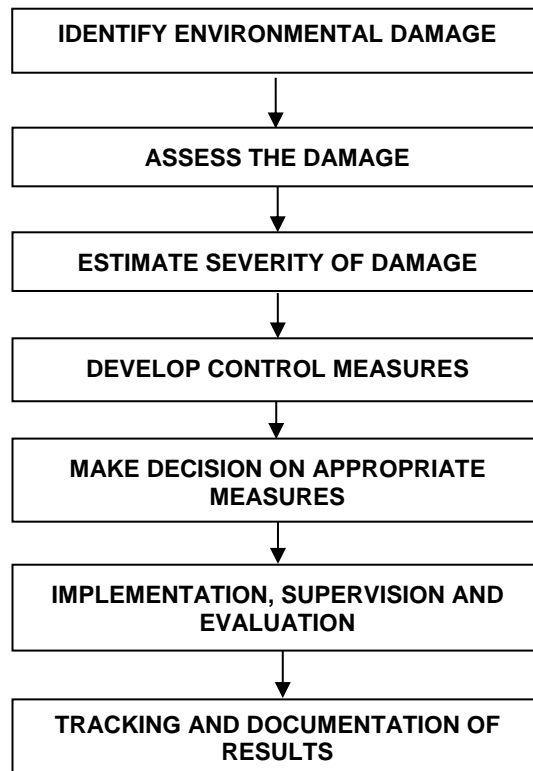
9 EMERGENCY PLAN

It is very important that an emergency plan for Schoonuitzicht farm is put in place and that personnel on the farm are familiar with the actions and details of the plan. Typical emergencies for which an emergency plan would be required are:

- fires

- physical injury (wounds, broken limbs, lacerations, burns, electric shocks, etc.)
- medical emergencies (heart attacks, loss of consciousness, insect bites, etc.)
- riots or demonstrations
- fuel/chemical spillages

10 MANAGING PROCESS FOR ENVIRONMENTAL DAMAGE/INCIDENTS



11 PHASES OF DEVELOPMENT

Planning and design Phase	
Development Phase	
Operational Phase	EMPr not required

12 EMPR: IMPACTS AND MITIGATION MEASURES

PLANNING & DESIGN PHASE						
Impact Management Outcome: Minimise impact to the environment by adhering to planning and design principles and relevant legislation						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Ensure that the orchards will be acceptable from an environmental and production perspective	Environmental Consultant	Conduct ecological & heritage studies	During BA phase	Environmental Control Officer (ECO)	When EA is issued	Approval of development plan
An Environmental Management Program (EMPr) must be compiled for the clearance of indigenous vegetation and must be approved by LEDET.	Environmental Consultant	Compile EMPr	During BA phase	ECO	When EA is issued	Approval of EMPr
A Basic Environmental Impact Assessment must be conducted and Environmental Authorisation obtained from LEDET.	Environmental Consultant	Conduct BA process and obtain EA	During BA phase	ECO	When EA is issued	Environmental Authorisation
All the aspects pertained within the EMPr must be explained to the contractor.	Applicant	Apply for permit	Prior to clearance	ECO	Before clearance starts	Records of training provided
Environmental training for all staff and contractors must be provided and implemented prior to commencement of site activities.	Applicant	Apply for permit	Prior to clearance	ECO	Before clearance starts	Records of training provided
An Integrated Water Use License (IWUL) must be obtained from DWS for development within the floodline zone, or within 500 m of a wetland, or within 100 m from the drainage channels.	Applicant to appoint ECO	Apply for WULA	Prior to clearance	Applicant	Before clearance starts	WULA
While no protected tree species were recorded on the proposed development footprint (except the firebreak block), should any such species be found during site clearance, permits must be obtained from DAFF and/or LEDET in the event that these trees require removal or transplanting.	Environmental Consultant	Apply for permit	Prior to clearance	Applicant to appoint ECO	Before clearance starts	Permit

AIR QUALITY - CLEARANCE PHASE						
Impact Management Outcome: Minimise impact to the environment and people through the control/mitigation of air quality impacts						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Earthworks and roads - dust						
<ul style="list-style-type: none"> Development areas must be dampened to prevent excessive dust formation when applicable during clearance and orchards preparation. Main roads should be gravelled or sprayed with water. 	Farm manager	Application of water / lay down gravel or mulch	During dry windy conditions	Project manager	Weekly	Visual & check records
<ul style="list-style-type: none"> Soil dumps may be covered if necessary. 	Farm manager	Lay down tarp / shade net and secure edges	During dry windy conditions	Project manager	Weekly	Visual & check records
<ul style="list-style-type: none"> A speed limit should be enforced on dirt roads (preferably 40km/h). 	Farm manager	Road signs	During clearance	Project manager	Weekly	Visual check
Movement and operation of machinery - smoke or fumes						
<ul style="list-style-type: none"> Machinery used must be in good working order to reduce excessive smoke or fumes during operation. 	Farm manager	Regular services according to manufacturer's specifications	Daily	Project manager	Weekly	Service records
Burning of cleared vegetation and solid waste – smoke						
<ul style="list-style-type: none"> No plant material may be burnt on site. Plant material can be used as mulch or for compost. Thicker branches can be used for firewood by the workers and community. Open fires for cooking are only to be made at designated and safe areas. Workers must take care to dispose of cigarette butts in designated containers only. Firebreaks must be maintained to decrease the risk of accidental fires. 	Farm manager	Instruction to workers Visual checks Supply waste containers & remove weekly	Weekly	Project manager	Monthly	Visual check & disposal records

AIR QUALITY - CLEARANCE PHASE						
Impact Management Outcome: Minimise impact to the environment and people through the control/mitigation of air quality impacts						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Drift and leaching of chemicals (herbicides, pesticides, fungicides)						
<ul style="list-style-type: none"> Preparation of chemical applications must be done according to manufacturers' guidelines. 	Farm manager	Instruction to workers	Daily	Project manager	Daily	Visual check & application records
<ul style="list-style-type: none"> Spraying of herbicides, pesticides or fungicides during clearance must be done in low/no wind conditions. 	Farm manager	Instruction to workers and inspect during spraying	Daily	Project manager	Daily	Visual check & application records

NOISE - CONSTRUCTION PHASE						
Impact Management outcome: Minimise impact to animals and people through the control/mitigation of noise impacts						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Movement and operation of vehicles and machinery						
<ul style="list-style-type: none"> Construction machinery must be fitted with noise mufflers and be in good working order. 	Farm manager	Vehicle maintenance	Continuous	Project manager	Weekly	Records and noise levels
<ul style="list-style-type: none"> All employees working in a noisy environment must be given the necessary ear protection gear. 	Farm manager	Physical handout of ear plugs	Daily	Project manager	Weekly	Check use of ear protection by workers

GROUND- AND SURFACE WATER POLLUTION - CONSTRUCTION PHASE

Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of groundwater and surface water pollution

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Sanitation seepage						
<ul style="list-style-type: none"> Pit latrines must be provided on the edges of the orchards. These toilets must be sprayed weekly with Effective Micro-organisms (EM) to ensure effective biological breakdown. Care must be taken not to add chemicals (such as <i>Jayes Fluid</i>) which may destroy the EM in toilets. Use only biodegradable cleaning agents which are recommended for use with EM. 	Farm manager	Issue EM to worker responsible to dose toilets Provide appropriate cleaning products compatible with EM	Weekly	Project manager	Monthly	Records
Spillage of fuel and lubricants from construction vehicles and machinery						
<ul style="list-style-type: none"> Machinery must be maintained regularly to reduce the risk of excessive spillages of fuel and oils. Maintenance must, as far as possible, only be done at the farm maintenance workshop on Schoonuitzicht farm. 	Farm manager	Keep service records according to manufacturer's specifications, instructions to drivers and visual checks	Daily	Project Manager	Monthly	Visual check Records check
<ul style="list-style-type: none"> The storage of fuel, oils and lubricants must only take place at the farm workshop and stores. The farm manager must ensure that diesel and other liquid fuel, oil and hydraulic fluids are stored in appropriate storage tanks or in bowsers in bunded areas. 	Farm manager	Supply and erect surface tanks <30 000 litre within bunded areas at farm workshop/store	When required	Project manager	Weekly	Inspection log sheet
<ul style="list-style-type: none"> Provision must be made for refuelling at the storage area by protecting the soil with an impermeable groundcover. 	Farm manager	Supply sheeting and drip trays	Prior to any refuelling	Project manager	Weekly	Photos

GROUND- AND SURFACE WATER POLLUTION - CONSTRUCTION PHASE

Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of groundwater and surface water pollution

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
<ul style="list-style-type: none"> Where dispensing equipment is used, a drip tray must be used to ensure small spills are contained. 						
<ul style="list-style-type: none"> Where refuelling away from the dedicated refuelling station is required, a mobile refuelling unit must be used. Appropriate ground protection such as sheeting and drip trays must be used. Used sheets must be disposed of to a site licenced to accept dangerous waste (dangerous materials). 	Farm manager	Supply drip trays and sheeting Dispose of only to a licenced site/contractor licenced to accept dangerous waste.	Prior to any refuelling	Project manager	Weekly	Photos
<ul style="list-style-type: none"> When a spill incident occurs all possible measures must be taken to ensure that spilled fuel or oil do not reach any drainage line. 	Farm manager	Provide spill-kit. Clean-up according to spill-kit instructions. Instruction and demonstration to drivers.	Immediately following spill incident	Project manager	Monthly	Records
<ul style="list-style-type: none"> Spill incidents must be reported to LEDET in terms of Section 30(5) of NEMA. 	Farm manager	As soon as possible but no later than fourteen (14) days following incident	Weekly	Project manager	Weekly	Records

GROUND- AND SURFACE WATER POLLUTION - CONSTRUCTION PHASE

Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of groundwater and surface water pollution

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Solid and domestic waste removal						
<ul style="list-style-type: none"> Domestic waste must be kept in adequate wind-, water- and animal proof waste bins or storage cages and must be disposed of weekly at the Makhado Local Municipal landfill site. Waste must be sorted and recycled as far as practically possible. 	Farm manager	Provide sufficient number of waste bins/storage cages	Weekly removal	Contractor/ECO	Daily checking Weekly removal	Disposal records
Handling/use of chemicals (herbicides, pesticides, fungicides)						
<ul style="list-style-type: none"> Herbicides, pesticides and fungicides used during the clearance phase must be handled with care and stored in a safe place behind a lock. 	Farm manager	Store correctly	When applicable	Project manager	When applicable	Records
Drift and leaching of chemicals (herbicides, pesticides, fungicides)						
<ul style="list-style-type: none"> Preparation of chemical applications must be done according to manufacturers' guidelines. Spraying of herbicides, pesticides or fungicides during clearance must be done in low/no wind conditions. Monitoring of water quality to be conducted at least annually as per Appendix G.3 	Farm manager	Instruction to workers according to guidelines for use Visual checks	Daily	Project manager	Daily	Visual check & application records Water quality records
Land clearance, trenching & excavations for infrastructure						
<ul style="list-style-type: none"> Should the development be approved by authorities, environmental monitoring of environmental aspects should be implemented during and after the construction phase of the development to ensure that minimal impact is caused to the floodline or wetlands of the area. Demarcate all riparian boundaries with pegs and danger tape; Edge effects of pre-construction and construction activities, including 	Farm manager	Action as per mitigation measure	Prior to commencement of construction	Project manager	Weekly during clearance phase	Visual inspection, photographic evidence

GROUND- AND SURFACE WATER POLLUTION - CONSTRUCTION PHASE

Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of groundwater and surface water pollution

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
erosion, sedimentation and alien/weed control, need to be strictly managed in wetland areas as well as their associated buffer zones;						
<ul style="list-style-type: none"> The following general rehabilitation measures should be implemented in the disturbed riparian zone: <ul style="list-style-type: none"> All disturbed surface areas will be re-shaped to resemble the surrounding natural topography. Surfaces will be ripped / scarified, and re-vegetated with indigenous grass species. As far as is practical, implement concurrent rehabilitation processes to limit degradation of soil biota. Terrestrial invasive removal programs must be maintained throughout the proposed development as well as in the aftercare and maintenance phases; 	Farm manager	Action as per mitigation measure	As soon as possible following clearance	Project manager	Weekly during clearance phase	Visual inspection, photographic evidence
<ul style="list-style-type: none"> Ensure strict compliance that no foreign matter is deposited in trenches. Any foreign matter must be removed immediately. 	Farm manager	Inspection before closure	Continuous	Project manager	Weekly	Spot checks
Storm water across cleared areas (erosion and water pollution)						
<ul style="list-style-type: none"> Erosion and storm water control should be addressed by a hydrological engineer in a detailed storm water management plan (SWM Plan) to ensure that water runoff is diverted off the site without pooling and stagnation or erosion. Financial provision for closure will include the estimated costs for erosion control post-construction; Storm water management plan must be implemented; 	Farm manager & Hydrological engineer	Consult with an engineer and compile and implement a detailed storm water management plan	Prior to clearance phase	Project manager	Monthly	Verify stormwater system and measures after implementation against SWM plan

GROUND- AND SURFACE WATER POLLUTION - CONSTRUCTION PHASE

Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of groundwater and surface water pollution

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
<ul style="list-style-type: none"> Clearing of vegetation should be scheduled for the drier winter months and limited to areas immediately needed for construction. Vegetation stripping should occur in parallel with the progress of construction to minimise erosion and/or run-off. Large tracts of bare soil will either cause dust pollution or quickly erode and then cause sedimentation in the lower portions of the catchment. Only selected plant species must be used in the re-vegetation process. 	Farm manager	Action as per mitigation measure	As soon as possible following clearance	Project manager	Weekly during clearance phase	Visual inspection, photographic evidence
<ul style="list-style-type: none"> Minimize soil exposure around the orchards. Re-vegetate exposed areas surrounding the orchards and allow a sufficient buffer between the cropland development to prevent sedimentation into the wetlands / rivers; 	Farm manager	Action as per mitigation measure	As soon as possible following clearance	Project manager	Weekly during clearance phase	Visual inspection, photographic evidence
<ul style="list-style-type: none"> Manage water effectively on, to, within, and from this site; 	Farm manager	Action as per mitigation measure	As soon as possible following clearance	Project manager	Weekly during clearance phase	Visual inspection, photographic evidence
<ul style="list-style-type: none"> Employ sediment capture techniques and stormwater attenuation techniques. 	Farm manager	Action as per mitigation measure	As soon as possible following clearance	Project manager	Weekly during clearance phase	Visual inspection, photographic evidence
<ul style="list-style-type: none"> All development activities should be restricted to the footprint areas of the proposed development. The Environment Site Officer (ESO) should demarcate and control these areas. Storage of building equipment, fuel and other materials should be limited to demarcated areas. Layouts should be adapted to fit natural patterns rather than imposing rigid geometries. 	Farm manager	Action as per mitigation measure	As soon as possible following clearance	Project manager	Weekly during clearance phase	Visual inspection, photographic evidence

GROUND- AND SURFACE WATER POLLUTION - CONSTRUCTION PHASE

Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of groundwater and surface water pollution

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
<ul style="list-style-type: none"> Contain all dirty water in the dirty water system and contain all dirty storm water up to a 1:50 year flood event as a minimum. Ensure that all activities impacting on ground water resources of the subject property are managed according to ground water monitoring and management requirements; 	Farm manager	Action as per mitigation measure	As soon as possible following clearance	Project manager	Weekly during clearance phase	Visual inspection, photographic evidence
<ul style="list-style-type: none"> Cover disturbed soils as completely as possible, using vegetation or other materials; 	Farm manager	Action as per mitigation measure	As soon as possible following clearance	Project manager	Weekly during clearance phase	Visual inspection, photographic evidence
<ul style="list-style-type: none"> Minimize the amount of land disturbance and develop and implement stringent erosion and dust control practices. 	Farm manager	Action as per mitigation measure	During construction phase	Project manager	Weekly	Check construction against plan
<ul style="list-style-type: none"> Stringent controls must be put in place to prevent any unnecessary disturbance or compaction of alluvial soils. Compaction of soils should be limited and / or avoided as far as possible. Compaction will reduce water infiltration and will result in increased runoff and erosion. Where any disturbance of the soil takes place (have taken place in the past), these areas must be stabilized and any alien plants which establish should be cleared and follow up undertaken for at least 2 years thereafter and preferably longer. Where compaction becomes apparent, remedial measures must be taken (e.g. "ripping" the affected area). Topsoil should preferably be separated from the subsoil, and topsoil sections should be kept intact as deep as possible. 	Farm manager	Action as per mitigation measure	During construction phase	Project manager	Weekly	Visual inspection, photographic evidence
<ul style="list-style-type: none"> Reprofiling of the banks of disturbed drainage areas to a maximum gradient of 1:3 to ensure bank stability; 	Farm manager	Action as per mitigation measure	During construction phase	Project manager	Weekly	Check construction against plan

GROUND- AND SURFACE WATER POLLUTION - CONSTRUCTION PHASE

Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of groundwater and surface water pollution

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
<ul style="list-style-type: none"> Reinforce banks and drainage features where necessary with gabions, reno mattresses and geotextiles. This is especially relevant for stormwater outlet areas; 	Farm manager	Action as per mitigation measure	During construction phase	Project manager	Weekly	Check construction against plan
<ul style="list-style-type: none"> Reseed any areas where earthworks have taken place with indigenous grasses to prevent further erosion; 	Farm manager	Action as per mitigation measure	During construction phase	Project manager	Weekly	Check construction against plan
<ul style="list-style-type: none"> Erosion control mechanisms must be established as soon as possible. Further financial provision should be continued over the subsequent years to allow for maintenance of the gabions, reno mattresses, and associated structures; 	Farm manager	Action as per mitigation measure	During construction phase	Project manager	Weekly	Check construction against plan
<ul style="list-style-type: none"> If compaction occurs, rectification can be done by application and mixing of manure, vegetation mulch or any other organic material into the area. Use of well cured manure is preferable as it will not be associated with the nitrogen negative period associated with organic material that is not composted; 	Farm manager	Action as per mitigation measure	During construction phase	Project manager	Weekly	Check construction against plan
<ul style="list-style-type: none"> Vehicle traffic should not be allowed on the rehabilitated areas, except on allocated roads, must not be allowed. It will have a negative impact due to the dispersive/compaction characteristics of soils and its implications on the long term; 	Farm manager	Demarcate traffic areas	During construction phase	Project manager	Weekly	Inspection, log sheets, photographic evidence
<ul style="list-style-type: none"> Appropriate design and mitigation measures must be developed and implemented to minimise impacts on the natural flow regime of the watercourse i.e. through placement of structures/supports and to minimise turbulent flow in the watercourse; 	Farm manager	Design and construct according to plans	During construction phase	Project manager	Weekly	Check construction against plan
<ul style="list-style-type: none"> The indiscriminate use of machinery within the in-stream and riparian habitat will lead to compaction of soils and vegetation and must therefore be strictly controlled; 	Farm manager	Demarcate traffic areas	During construction phase	Project manager	Weekly	Inspection, log sheets, photographic evidence

GROUND- AND SURFACE WATER POLLUTION - CONSTRUCTION PHASE

Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of groundwater and surface water pollution

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
<ul style="list-style-type: none"> Perform scheduled maintenance to be prepared for storms. Insure that culverts have their maximum capacity, ditches are cleaned, and that channels are free of debris and brush than can plug structures. 	Farm manager	Action as per mitigation measure	During construction phase	Project manager	Weekly	Check construction against plan
<ul style="list-style-type: none"> The ridges where the trees will be planted must follow the contours. 	Farm manager	Design and construct according to plans	During construction phase	Project manager	Weekly	Check construction against plan
<ul style="list-style-type: none"> Minimize the amount of land disturbance and develop and implement stringent erosion and dust control practices. 	Farm manager	Action as per mitigation measure	Prior to clearance phase	Project manager	Weekly	Visual checks
<ul style="list-style-type: none"> Minimize clearance of vegetation. Retain natural trees, shrubbery, and grass species wherever possible to stabilise soil. Cover disturbed soils as completely as possible, using vegetation or other materials; 	Farm manager	Use vegetation debris to mulch bare areas	During clearance phase	Project manager	Monthly	Visual checks
<ul style="list-style-type: none"> Protect sloping areas that are susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and work areas; Gravel roads must be well drained to limit soil erosion. Construct sufficient outflow drains from roads. 	Farm manager	Inspection followed by compilation and actioning of a maintenance plan	During clearance phase	Project manager	Weekly	Visual checks
<ul style="list-style-type: none"> Repair all erosion damage as soon as possible to allow for sufficient rehabilitation growth; 	Farm manager	Inspection & repair damaged areas	Following rain events	Project manager	Monthly	Visual checks

WATER SUPPLY MANAGEMENT - CONSTRUCTION PHASE

Impact Management outcome: Implement responsible water usage

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Dust suppression measures and human consumption						
<ul style="list-style-type: none"> Water use must be kept to a minimum. Ensure that pipes and taps are not leaking - be aware of damages by construction machines to underground pipes. 	Farm manager	Keep records of water use	Continuous	Project manager	Monthly	Visual checks Water use records
<ul style="list-style-type: none"> Construction workers must be educated on the importance and ways to use water sparingly. 	Farm manager	Monthly training	Weekly	Project manager	Monthly	Training attendance list
<ul style="list-style-type: none"> Water use must remain within the volumes allocated by the Registered Water Use for the farms. 	Farm manager	Keep records of water abstraction	Continuous	Project manager	Monthly	Verify abstraction volumes Keep records of water use

SOIL POLLUTION AND DEGRADATION - CONSTRUCTION PHASE

Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of soil pollution and degradation

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Operation of construction vehicles and machinery						
<ul style="list-style-type: none"> All vehicles must be inspected for oil and fuel leaks on a regular basis. 	Farm manager	Regular inspection must be done after service of vehicles	According to manufacturer's specifications	Project manager	Monthly	Records

SOIL POLLUTION AND DEGRADATION - CONSTRUCTION PHASE						
Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of soil pollution and degradation						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
<ul style="list-style-type: none"> Vehicle maintenance yards on site must make provision for drip trays that will be used to capture any spills. Drip trays must be emptied into a holding tank and returned to the supplier. 	Farm manager	Provide a sufficient number of drip trays and holding tank	Prior to clearance phase	Project manager	Monthly	Records
<ul style="list-style-type: none"> Machinery must be serviced and re-fuelled at existing facilities as far as possible. 	Farm manager	Instruction to drivers, compile maintenance schedule	Service according to manufacturer's specifications	Project manager	Monthly	Records
<ul style="list-style-type: none"> Spill kits must be on-hand to deal with spills immediately. 	Farm manager	Instruction and demonstration to drivers	Weekly	Project manager	Monthly	Records
<ul style="list-style-type: none"> Any spills must be treated and removed by a qualified agent. 	Farm manager	Clean-up as per spill-kit instructions	Immediately following spill incident	Project manager	Monthly	Records
Trenching and excavations for toilets and water infrastructure						
<ul style="list-style-type: none"> Ensure that no solid or liquid waste, including building rubble end up in trenches. All backfilling to be done with original and clean material only. 	Farm manager	Check excavations before backfilling	Daily	Project manager	Monthly	Spot checks
Storm water over cleared areas - soil erosion						
<ul style="list-style-type: none"> The ridges where the trees will be planted must follow the contours. Construct sufficient outflow drains from roads. 	Farm manager	Construction according to plans	During construction phase	Project manager	Weekly	Check construction against plan
<ul style="list-style-type: none"> Monitor and repair any signs of erosion after heavy downpours. 	Farm manager	Visual checks	After rain storms	Project manager	Monthly	Visual checks
Solid waste accumulation on/in soil						

SOIL POLLUTION AND DEGRADATION - CONSTRUCTION PHASE

Impact Management outcome: Minimise impact to the environment and people through the minimisation and control of soil pollution and degradation

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
<ul style="list-style-type: none"> Solid waste must be kept in adequate wind-, water- and animal-proof waste bins or storage cages and must be disposed of weekly at a registered municipal landfill site. Waste must be sorted and recycled as far as practically possible. 	Farm manager	Continuous implementation of actions	Weekly removal	Project manager	Monthly	Records of waste disposal to be kept.
Handling/use/storage of dangerous substances (spillages)						
<ul style="list-style-type: none"> Hazardous chemicals to be stored on an impervious surface protected from rainfall and storm water run-off; 	Farm manager	Supply and erect structures and bunds	When required	Project manager	Monthly	Inspection log sheet
<ul style="list-style-type: none"> Ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks or in bowsers. 	Farm manager	Supply and erect surface tanks <30 000 litres	When required	Project manager	Monthly	Inspection log sheet
<ul style="list-style-type: none"> The tanks/ bowsers must be situated on a smooth impermeable surface (concrete) with a permanent bund. 	Farm manager	Construct bunds for tanks	When installing tanks	Project manager	Monthly	Photos
<ul style="list-style-type: none"> Provision must be made for re-fueling at the storage area by protecting the soil with an impermeable groundcover. Where dispensing equipment is used, a drip tray must be used to ensure small spills are contained; 	Farm manager	Supply drip trays and sheeting	Prior to any refuelling	Project manager	Monthly	Photos
<ul style="list-style-type: none"> Any excess or waste material or chemicals must be removed from the site and discarded in an environmentally friendly way. The ECO must enforce this rule rigorously; 	Farm manager	Usage data and arrange collection/disposal	When required	Project manager / ECO	Monthly	Inspection log sheet

ECOLOGY (FAUNA & FLORA) - CONSTRUCTION PHASE

Impact Management outcome: Minimise and control impact to the ecological aspects during construction.

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Site clearance - loss of protected plants and other vegetation						
<ul style="list-style-type: none"> No development can be done within the 1:100 year floodline zone or within 500 meters of a wetland, or within 100 meters of a river, without a Water Use Licence. 	Farm manager	Obtain Water Use License for development within buffer areas	Prior to construction phase	Project manager	Weekly	Verify license has been granted
<ul style="list-style-type: none"> Demarcate and maintain a 32-meter buffer from the edge of the riparian woodland of the smaller drainage channels. 	Farm manager	Demarcate area and mark as no-go area (buffers)	Prior to construction phase	Project manager	Weekly	Inspection to verify buffer areas are maintained
<ul style="list-style-type: none"> Drainage channels and buffer areas must be left undisturbed. 	Farm manager	Demarcate area and mark as no-go area (buffers)	Prior to construction phase	Project manager	Weekly	Inspection to verify buffer areas are maintained
<ul style="list-style-type: none"> Water quality monitoring should be conducted at least annually as per Appendix G.3. 	Farm manager	Compile a water monitoring schedule, identify sample points	Prior to construction phase	Project manager	Annually	Maintain records of analysis
<ul style="list-style-type: none"> The area referred to as the "Firebreak block" (Terrestrial Biodiversity Impact Assessment Report, Fig.2), although not directly impacted on by clearance activities, should be conserved as an important biodiversity hotspot. 	Farm manager	Demarcate area and mark as no-go area (buffers)	Prior to construction phase	Project manager	Weekly	Inspection to verify buffer areas are maintained

ECOLOGY (FAUNA & FLORA) - CONSTRUCTION PHASE

Impact Management outcome: Minimise and control impact to the ecological aspects during construction.

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
<ul style="list-style-type: none"> Strict control of access and the routes used must be exercised to prevent traffic into sensitive and buffer areas. 	Farm manager	Demarcate/fence development and no-go areas (buffers)	Prior to construction phase	Project manager	Weekly	Inspection to verify development footprint boundaries remain intact and are maintained
<ul style="list-style-type: none"> Clearly demarcate the entire development footprint prior to initial site clearance; 	Farm manager	Demarcate and mark development area clearly	Prior to each clearing phase	Project manager	Weekly/daily	Inspection
<ul style="list-style-type: none"> The removal of plant species may only occur on the footprint area of the development and not over the larger area; 	Farm manager	Provide clear instruction to workers to only clear within demarcated areas	Prior to each clearing phase	Project manager	Weekly/daily	Inspection
<ul style="list-style-type: none"> Vegetation to be removed only as it becomes necessary, and should be removed in phases to prevent undue exposure of soils; 	Farm manager	Compile schedule for phased clearance followed by planting	Prior to each clearing phase	Project manager	Weekly/daily	Inspection
<ul style="list-style-type: none"> The conservation of natural corridors such as pristine forests, dams, wetlands and riparian woodland around the development footprint, to allow fauna to move freely between the different vegetation units on the property, must be prioritized; 	Farm manager	Walk over monitoring, demarcation and marking clearly the development sites	Prior to clearance with weekly follow-up inspection	Project manager	Prior to clearance with weekly follow-up inspection	Inspection, photographic evidence (before/after)
<ul style="list-style-type: none"> All possible efforts must be made to ensure as little disturbance as possible to the sensitive habitats such as drainage channels during construction; 	Farm manager	Walk over monitoring, demarcation and marking clearly	Prior to clearance with weekly follow-up inspection	Project manager	Prior to clearance with weekly follow-up inspection	Inspection, photographic evidence (before/after)

ECOLOGY (FAUNA & FLORA) - CONSTRUCTION PHASE

Impact Management outcome: Minimise and control impact to the ecological aspects during construction.

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
		the development sites				
<ul style="list-style-type: none"> Only necessary damage must be caused and, for example, unnecessary driving around in the veld or bulldozing natural habitat must not take place; 	Farm manager	Walk over monitoring, demarcation and marking clearly the development sites	Prior to clearance with weekly follow-up inspection	Project manager	Prior to clearance with weekly follow-up inspection	Inspection, photographic evidence (before/after)
<ul style="list-style-type: none"> Construction activities must remain within defined construction areas and the road servitudes. No construction / disturbance may occur outside these areas. 	Farm manager	Demarcate/fence development and no-go areas Clear and regular instruction to workers, fine for transgressors	Prior to and during clearance	Project manager	Monthly	Inspection Photographic evidence Register of fines
<ul style="list-style-type: none"> Large indigenous trees occurring on the borders of the orchards should remain where possible. 	Farm manager	Walk over monitoring	Monthly	Project manager	Monthly	Inspection
<ul style="list-style-type: none"> Orchards must be planted as soon as possible after vegetation has been removed. 	Farm manager	Ensure trees will be available when area is ready	As required	Project manager	Monthly	Inspection
<ul style="list-style-type: none"> Drainage lines, the wetland and buffer areas must not be disturbed. 	Farm manager	Instruction to machine operators	Weekly	Project manager	Monthly	Inspection
<ul style="list-style-type: none"> The clearance of vegetation must be done in phases and concurrent rehabilitation of impacted areas surrounding the orchards could also be implemented to ensure areas are kept as natural as possible; 	Farm manager	Schedule clearance and rehabilitation roster	Prior to each clearing phase, adjust during clearance as	Project manager	Weekly/daily	Inspection

ECOLOGY (FAUNA & FLORA) - CONSTRUCTION PHASE

Impact Management outcome: Minimise and control impact to the ecological aspects during construction.

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
<ul style="list-style-type: none"> Only selected plant species (endemic plants) must be used in the re-vegetation process. 	Farm manager	Schedule rehabilitation roster	Prior to each clearing phase, adjust during clearance as required	Project manager	Weekly/daily	Inspection
<ul style="list-style-type: none"> Clearing of vegetation should be scheduled for the drier winter months and limited to areas immediately needed for construction. Vegetation stripping must occur in parallel with the progress of construction to minimise erosion and/or run-off. Large tracts of bare soil will either cause dust pollution or quickly erode and then cause sedimentation in the lower portions of the catchment. 	Farm manager	Select, demarcate and clearly mark out the entire boundary of areas to be cleared	Prior to /concurrent with construction phase	Project manager	Weekly/daily	Inspection
<ul style="list-style-type: none"> Monitoring should be implemented during the construction phase of the development to ensure that minimal impact is caused to the flora of the area; 	Farm manager	Conduct monitoring	During construction phase	Project manager	Weekly/daily	Inspection
<ul style="list-style-type: none"> Prevent construction personnel from leaving the demarcated area; 	Farm manager	Instruction to all workers, erect and maintain clear visual barriers around perimeter of development area	Prior to each construction phase	Project manager	Weekly/daily	Inspection
<ul style="list-style-type: none"> Staff should not be accommodated on site. No temporary accommodation must be erected on the site. 	Farm manager	Provide alternative accommodation or transport	Prior to each clearing phase	Project manager	Weekly/daily	Inspection
<ul style="list-style-type: none"> An adequate number of wind-, water- and animal-proof rubbish bins as well as sanitation facilities must be provided to construction workers. 	Farm manager	Provide adequate number of bins	Prior to each clearing phase	Project manager	Weekly/daily	Inspection

ECOLOGY (FAUNA & FLORA) - CONSTRUCTION PHASE

Impact Management outcome: Minimise and control impact to the ecological aspects during construction.

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
		and sanitation facilities				
<ul style="list-style-type: none"> The ECO must advise the construction team in all relevant matters to ensure minimum destruction and damage to the environment. The ECO must enforce any measures that he/she deem necessary. 	Farm manager & ECO	ECO site visits and training sessions	Prior to and ongoing during construction phase	Project manager & ECO	Monthly	Inspection & monitoring reports
<ul style="list-style-type: none"> Where trenches pose a risk to animal safety, they must be adequately cordoned off to prevent animals falling in and getting trapped and/or injured. This could be prevented by the constant excavating and backfilling of trenches during pipeline construction; Inspect such trenches on a daily basis to ensure integrity of barriers and to rescue possible trapped or injured animals. 	Farm manager	Demarcate / cordon off trenches Inspections	During construction phase	Project manager	Daily	Inspection and remedial action
<ul style="list-style-type: none"> If any construction activity must occur within the riparian areas then it must commence from upstream proceeding downstream with proper sedimentation barriers in place to prevent sediments and pollution moving downstream from the site. This includes non-perennial systems. 	Farm manager	Conduct monitoring	During construction phase	Project manager	Weekly/daily	Inspection
<ul style="list-style-type: none"> The velocity of storm water must be attenuated and spread by means of i.e. gabions or other structures as recommended in the Storm water management plan (SWM Plan). 	Farm manager & hydrological engineer	Conduct monitoring and construct storm water attenuation structures in appropriate locations, prior to onset of rainy season	During construction phase Maintain as required	Project manager	Weekly/daily	Inspection

ECOLOGY (FAUNA & FLORA) - CONSTRUCTION PHASE

Impact Management outcome: Minimise and control impact to the ecological aspects during construction.

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
<ul style="list-style-type: none"> Any pipelines that need to cross drainage lines require licensing from DWS. Pipelines should cross drainage channels at a 90 degree angle to prevent any serious erosion. 	Farm manager	Conduct monitoring	During construction phase	Project manager	Weekly/daily	Inspection
Harassing, collecting, snaring and killing of animals						
<ul style="list-style-type: none"> Regular environmental training must be provided to construction workers to ensure the protection of the habitat, fauna and flora and their sensitivity to conservation; 	Farm manager	Provide training sessions	Prior to and during construction phase	Project manager	Weekly/daily	Inspection and records/log sheets
<ul style="list-style-type: none"> Instruct employees, contractors and site visitors to avoid harassment and disturbance of wildlife, especially during reproductive (e.g. courtship, nesting) seasons. In addition, control pets to avoid harassment and disturbance of wildlife. 	Farm manager	Conduct monitoring/spot checks	During construction phase	Project manager	Weekly/daily	Inspection and records/log sheets
<ul style="list-style-type: none"> Strict rules and penalties against the snaring, killing, catching or poaching of any animals will be enforced for all personnel and temporary workers. This restriction includes collection of fauna as pets, food or muti. 	Farm manager	Fine for transgressors	During construction phase	Project manager	Daily	Incident log sheet and fines
Inappropriate use of herbicides, pesticides and fungicides						
<ul style="list-style-type: none"> Poisons for the control of problem animals should rather be avoided since the wrong use thereof can have disastrous consequences for the raptors (refer to Appendix D.1) occurring in the area. The use of poisons for the control of rats, mice or other vermin should only be used after approval from an ecologist. 	Farm manager	Appoint specialist	When applicable	Project manager	Monthly	Check poisons used
<ul style="list-style-type: none"> Limit pesticide use to non-persistent, immobile pesticides and apply in accordance with label and application permit directions and stipulations for terrestrial and aquatic applications. 	Farm manager	Apply according to label instructions	When applicable	Project manager	Monthly	Check pesticides log

ECOLOGY (FAUNA & FLORA) - CONSTRUCTION PHASE

Impact Management outcome: Minimise and control impact to the ecological aspects during construction.

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
<ul style="list-style-type: none"> The use of owl boxes and bat hotels as biological pest control measures is recommended as an alternative to poisons in this instance. Ensure that these structures are placed well away from human activities and that these animals will not be disturbed. 	Farm manager	Construct in logical positions and protect from human activities	Prior to clearance phase	Project manager	Monthly	Inspection log sheet
<ul style="list-style-type: none"> A register must be kept of all relevant details of herbicide, pesticide and fungicide usage. 	Farm manager	Compile register	When applicable	Project manager	Monthly	Inspection log sheet
Fires						
<ul style="list-style-type: none"> Staff must be educated on the dangers of fires. The necessary safety measures must be in place on site. This includes fire extinguishers, backup water tanks and the regular removal of stockpiled plant material. 	Farm manager	Training & keep site clean	Weekly	Project manager	Monthly	Training records & Inspection
<ul style="list-style-type: none"> Maintain proper firebreaks around the entire development footprint. 	Farm manager	Make fire breaks	Once-off Maintain as necessary	Project manager	Monthly	Inspection
<ul style="list-style-type: none"> Campfires at construction sites must be strictly controlled to ensure that no veld fires are caused. 	Farm manager	Daily observation	Once clearance commences	Project manager	Weekly	Inspection
Movement of construction vehicles on site						
<ul style="list-style-type: none"> Vehicles must only use existing access roads to and from the site. No new roads are allowed to be constructed. 	Farm manager	Visual checks	Once-off	Project manager	Monthly	Inspection

ECOLOGY (FAUNA & FLORA) - CONSTRUCTION PHASE

Impact Management outcome: Minimise and control impact to the ecological aspects during construction.

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Cutting and collection of firewood						
<ul style="list-style-type: none"> No trees may be cut or destroyed for firewood outside the footprint of the orchards. Removal of vegetation is to be confined to the orchards footprint areas. 	Farm manager	Visual checks	When applicable	Project manager	Monthly	Inspection
<ul style="list-style-type: none"> No indigenous trees on adjacent areas may be cut or wood be collected for firewood or any other purposes. Removal of vegetation to be confined to the site. Only the removal of vegetation that is essential is to be allowed. 	Farm manager	Visual checks	When applicable	Project manager	Monthly	Inspection
<ul style="list-style-type: none"> No plant material may be burnt on site. Plant material can be used as mulch or compost. Thicker branches can be removed for firewood by farm workers or the community. 	Farm manager	Visual checks	When applicable	Project manager	Daily	Inspection
Control of alien invaders						
<ul style="list-style-type: none"> Control involves killing the plants present, killing the seedlings which emerge, and establishing and managing an alternative plant cover to limit re-growth and re-invasion. Weeds and invader plants must be controlled in the manner prescribed for that category by the CARA or in terms of Working for Water guidelines. The control of these species must begin prior to the construction phase considering that small populations of these species was observed during the field surveys; 	Farm manager	Check area for presence of alien invader plants and materials for presence of invader animals	Daily	Project manager	Monthly	Inspection
<ul style="list-style-type: none"> Institute strict control over materials brought onto site, which must be inspected for seeds of noxious plants and steps taken to eradicate these 	Farm manager	Inspect delivery vehicles and items	Upon arrival	Project manager	Monthly	Inspection

ECOLOGY (FAUNA & FLORA) - CONSTRUCTION PHASE

Impact Management outcome: Minimise and control impact to the ecological aspects during construction.

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
<p>before transport to the site.</p> <ul style="list-style-type: none"> Routinely fumigate or spray all foreign materials with appropriate low-residual herbicides/fungicides prior to transport, or in a quarantined area on site. 		for alien invasive species and treat accordingly				
<ul style="list-style-type: none"> The contractor is responsible for the control of weeds and invader plants within the construction site for the duration of the construction phase. Alien invasive tree species listed by the CARA regulations must be eradicated; 	Farm manager	Action a pro-active, integrated pest-control strategy	According to schedule and as required	Project manager	Monthly	Inspection
<ul style="list-style-type: none"> Rehabilitate disturbed areas as quickly as possible to reduce the area where invasive species would be at a strong advantage and most easily able to establish by; 	Farm manager	Seed with/plant endemic plant species	Ongoing	Project manager	Quarterly	Regular inspection, Photographic evidence (before and after), records of rehabilitation actions and maps
<ul style="list-style-type: none"> Develop and institute a plan to control noxious weeds and invasive plants that could occur because of new surface disturbance activities at the site. The plan must address monitoring, weed identification, the way weeds spread, and methods for treating infestations 	Farm manager	Compile and action a pro-active, integrated pest-control strategy	As soon as possible with ongoing monitoring	Project manager	Quarterly	Inspection, Photographic evidence (before and after), records of rehabilitation actions and maps
<ul style="list-style-type: none"> Insist on the use of certified weed-free mulching. 	Procurement manager / administrator	Source reputable suppliers and request proof of certification	As soon as possible with ongoing monitoring	Project manager	Quarterly	Records

ECOLOGY (FAUNA & FLORA) - CONSTRUCTION PHASE

Impact Management outcome: Minimise and control impact to the ecological aspects during construction.

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
<ul style="list-style-type: none"> Prohibit the use of fill materials from areas with known invasive vegetation problems. 	Procurement manager / administrator	Source alternative suppliers	As soon as possible with ongoing monitoring	Project manager	Quarterly	Register
<ul style="list-style-type: none"> Reseed disturbed areas with endemic plant species; 	Farm manager	Re-seeding with endemic sp.	As soon as possible with ongoing monitoring	Project manager	Quarterly	Records
<ul style="list-style-type: none"> Keep vehicles and equipment clean and free from invasive plant material (their parts or their seeds). 	Farm/workshop manager	Regular inspection of delivery vehicles before entering the site	As soon as possible with ongoing monitoring	Project manager	Quarterly	Regular inspection
<ul style="list-style-type: none"> Institute a monitoring programme to detect alien invasive species early, before they become established and, in the case of weeds, before the release of seeds. Once detected, an eradication/control programme must be implemented to ensure that the species' do not spread to surrounding natural ecosystems. 	Farm manager	Walk over monitoring	6-monthly	Project manager	6-monthly	Inspection
<ul style="list-style-type: none"> Monitor for alien invasive species on a monthly basis during the rainy season. 	Farm manager	Walk over monitoring	Monthly	Project manager	Monthly	Inspection
<ul style="list-style-type: none"> Invaders must also be controlled in the drainage lines and buffer areas. 	Farm manager	Walk over monitoring	Monthly	Project manager	Monthly	Inspection

ECOLOGY (FAUNA & FLORA) - CONSTRUCTION PHASE

Impact Management outcome: Minimise and control impact to the ecological aspects during construction.

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
<ul style="list-style-type: none"> The ECO should regularly inspect the site, including storage facilities and compounds. A monitoring programme should also be implemented around these areas to detect alien invasive species early, before they become established and, in the case of weeds, before the release of seeds; 	Farm manager	Conduct monitoring	During construction phase	ECO	Monthly	Inspection

VISUAL DISTURBANCE - CONSTRUCTION PHASE

Impact Management outcome: Prevent unnecessary negative visual impact by ensuring that visual impacts are mitigated.

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Littering (domestic waste)						
<ul style="list-style-type: none"> All domestic waste must be removed to a permitted waste facility site on a weekly basis. 	Farm manager	Removal program	Weekly	Project manager	Monthly	Records
<ul style="list-style-type: none"> Wind-, water- and animal-proof refuse bins must be provided on site and contents can be emptied in a refuse cage before removal to Makhado municipal landfill site – Appendix G.4. 	Farm manager	Provide bins on site	Continuous	Project manager	Monthly	Inspection
<ul style="list-style-type: none"> No solid waste may be buried in any excavations on site. 	Farm manager	Instruction to personnel	Before closure of trenches and excavations	Project manager	Monthly	Inspection
<ul style="list-style-type: none"> No waste may be burned on site. 	Farm manager	Instruction to personnel	Daily	Project manager	Monthly	Inspection

HERITAGE RESOURCES - CONSTRUCTION PHASE

Impact Management outcome: Prevent/minimise negative impacts on heritage resources

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Earthworks and excavations						
<ul style="list-style-type: none"> The burial site (Site Exigo-SCH-BP01) is of high significance, however will not be impacted on as this area has been excluded from the proposed development. A conservation buffer of at least 30m must be preserved around the burial ground. The site should be fenced and an access gate should provide controlled access to the site. A distance of at least 2m should be maintained between the grave and fence which should be at least 1,8m high. A clear signboard should be erected indicating the heritage sensitivity of the site and contact details for visitation of the grave should be provided. 	Farm manager	Demarcate and fence buffer area, provide lockable gate and signage	Before site clearance commences	Project manager	Monthly	Visual checks
<ul style="list-style-type: none"> It is recommended that monitoring during all stages (construction and operation) of the project be conducted by an archaeologist/ECO. 	Farm manager	Appoint archaeologist/ECO Demarcate and fence buffer area	Before site clearance commences	Project manager and archaeologist	Prior to and during site clearance	Monitoring report, photographic evidence of site before and following completion of construction phase
<ul style="list-style-type: none"> As burials have been located on the project property, it is recommended that the BA public participation and social consultative process address the possibility of further graves occurring in the project area. 	Applicant	Appoint archaeologist	Before site clearance commences	Project manager and archaeologist	Once-off	Records of BA public participation and social consultative process

HERITAGE RESOURCES - CONSTRUCTION PHASE

Impact Management outcome: Prevent/minimise negative impacts on heritage resources

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
<ul style="list-style-type: none"> • The Final BAR and its appendices must be submitted to the case and once a Record of Decision from the competent authority is issued, it must also be submitted to the case. • The necessary amendments to the EMPR through monitoring by and advice obtained from the ECO. • A monitoring report must be submitted to SAHRA once vegetation clearance is completed. 	Archaeologist and Project manager	Submission of reports	At Final BAR submission to competent authority. At receipt of Environmental Authorisation. EMPr during clearance phase and at end of clearance phase.	Project manager	Following respective phases completion	Proof of submission to SAHRA
<ul style="list-style-type: none"> • In the event that fossils are uncovered during construction then construction must cease within the immediate vicinity, a buffer of 30 m must be established, and a palaeontologist called in to inspect the finds. The palaeontologist must obtain a section 35(4) permit in terms of NHRA and Chapter IV NHRA Regulations, before any fossils are collected. 	Farm manager	Halt construction Call Archaeologist	When required	Project manager	When required	Incident log sheet
<ul style="list-style-type: none"> • All geological features (rocks, exposed bedrock) and water sources such as drainage lines, fountains and pans should all be regarded as potentially sensitive. • If any new heritages resources are discovered during construction and operation phases of the proposed development, a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the findings at the expense of the developer. • If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required at the expense of the developer. Mitigation will only be carried 	Farm manager	Halt construction Call Archaeologist	When required	Project manager	When required	Incident log sheet

HERITAGE RESOURCES - CONSTRUCTION PHASE						
Impact Management outcome: Prevent/minimise negative impacts on heritage resources						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
<p>out after the archaeologist or palaeontologist obtains a permit in terms of section 35 of the NHRA (Act 25 of 1999).</p> <ul style="list-style-type: none"> SAHRA APM Unit may be contacted for further details: (Nokukhanya Khumalo/Phillip Hine 021 202 8654). If any unmarked human burials are uncovered and the archaeologist called in to inspect the finds and/or the police find them to be heritage graves, then mitigation may be necessary and the SAHRA Burial Grounds and Graves (BGG) Unit must be contacted for processes to follow (Thingahangwi Tshivase/Mimi Seetelo 072 802 1251). 						

SAFETY, SECURITY, SOCIO-ECONOMICS, AND FIRE HAZARDS - CONSTRUCTION PHASE						
Impact Management outcome: Ensuring a safe/secure construction environment, enhanced socio-economic development and prevention of fires.						
Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Construction activities - safety of employees						
<ul style="list-style-type: none"> The Safety Act, 1993 (Act No. 85 of 1993) and the Regulations are applicable. The Act requires the designation of a Health and Safety representative when more than 20 employees are employed. 	Farm manager	Apply Act	Continuous	Project manager	Monthly	Check number of employees on site
<ul style="list-style-type: none"> A person trained and accredited to administer first aid must be present on site and a first aid kit must be available at the farm office. 	Farm manager	Supply first aid kit	Daily	Project manager	Monthly	Inspection
<ul style="list-style-type: none"> All personnel must be informed of emergency procedures and contact numbers must be displayed prominently. 	Farm manager	Training talks	Weekly	Project manager	Monthly	Training records

SAFETY, SECURITY, SOCIO-ECONOMICS, AND FIRE HAZARDS - CONSTRUCTION PHASE

Impact Management outcome: Ensuring a safe/secure construction environment, enhanced socio-economic development and prevention of fires.

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
<ul style="list-style-type: none"> Personal Protective Equipment (PPE) and safety gear must be provided to all site personnel (e.g. hard hats, safety boots, masks etc.). 	Farm manager	Supply PPE	When required	Project manager	Monthly	Check if employees are using PPE
Fires						
<ul style="list-style-type: none"> An emergency plan must be in place so that any fire can be combatted in the most efficient manner. An emergency response plan that is aligned with the local Fire Department must be in place. 	Farm manager	Training on Emergency plan	Monthly	Project manager	Monthly	Training records
<ul style="list-style-type: none"> No solid waste or vegetation may be burned on the development site or surrounding areas. 	Farm manager	Instruction to employees	Weekly	Project manager	Monthly	Incident log sheet
<ul style="list-style-type: none"> Open fires for cooking are only to be made at designated and safe areas. A person must be designated to be responsible for overseeing open fires at all times. 	Farm manager	Visual checks	When applicable	Project manager	Daily	Inspection
<ul style="list-style-type: none"> All employees must be properly trained in the use of firefighting equipment and the emergency procedures in case of a fire. 	Farm manager	Training session	Monthly	Project manager	Monthly	Training records
<ul style="list-style-type: none"> Firefighting equipment must be available and must be checked regularly to ensure that it is in proper working order and easily accessible. 	Farm manager	Supply & check firefighting equipment	Weekly	Project manager	Monthly	Inspection log sheet
Construction activities - socio-economic impact						
<ul style="list-style-type: none"> Where viable, work must be executed in a labour-intensive manner to create as many jobs as possible. 	Farm manager	Design work procedures	Construction phase	Project manager	Monthly	Staff records
<ul style="list-style-type: none"> Local labour must be used wherever possible during the clearance and preparation phase. 	Farm manager	Appoint local people	Construction phase	Project manager	Monthly	Staff records
<ul style="list-style-type: none"> Construction activities must be restricted to working hours Monday to Saturday, unless otherwise approved by the appropriate competent person in consultation with the affected residents. 	Farm manager	Compile work schedule	Construction phase	Project manager	Monthly	Log sheets

SAFETY, SECURITY, SOCIO-ECONOMICS, AND FIRE HAZARDS - CONSTRUCTION PHASE

Impact Management outcome: Ensuring a safe/secure construction environment, enhanced socio-economic development and prevention of fires.

Impact Management actions (mitigation measures)	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe: implementation	Responsible person	Frequency	Evidence: compliance
Unhygienic working conditions						
<ul style="list-style-type: none"> Occupational Health and Safety standards must be implemented. 	Farm manager	Implement standards	Continuous	Project manager	Monthly	Inspection
Security Issues						
<ul style="list-style-type: none"> The electrical security perimeter fence must be maintained and regularly inspected for damage and breaches. 	Farm manager	Training sessions	Start of land clearance	Project manager	Monthly	Security log sheets