PART B: ENVIRONMENTAL MANAGEMENT PROGRAMME

DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE AGRICULTURAL EXPANSION OF RIVER BEND CITRUS FARM

(DEDEAT Ref: EC06/LN2/M/12-10)

Prepared For:
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PART 2: ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

1. INTRODUCTION AND BACKGROUND

The applicant, San Miguel Fruits SA (Pty) Ltd, is proposing the expansion of existing citrus cultivation operations on the farm known as River Bend Citrus near Addo in the Sundays River Valley Municipality. The applicant initially proposed to clear a minimum of 300 ha of land for additional citrus cultivation, in a phased manner over a period of four years, however the outcome of the specialist assessments recommends that 263 ha of land is cleared for the establishment of citrus. The project is proposed to take place on three adjoining properties which form part of the existing River Bend Citrus farming operations, namely:

- Remainder of Farm 82 Wolve Kop (~908 ha),
- Portion 1 of Farm 77 Wellshaven (~22ha), and
- Portion 3 of Farm 77 Honeyvale (~128ha).

The expansion of the agricultural infrastructure of the farm will include the following project activities:

Preconstruction

The fruit proposed to be produced on the site is for international export. In order to meet the requirements of export stock, seed (block seed) is required to be booked and purchased from a certified agency, the Citrus Foundation. This is booked approximately two years in advance in order to secure the seed, as well as a financial deposit.

The seed is provided to a certified nursery for a two year grow-out period, during which the seeds are germinated and the seedlings grown to sapling stage. Meticulous coordination is required between the Citrus Foundation for the purchase of the seed, the nursery for grow-out, and the citrus producer, in order to meet contractual obligations for harvesting and export of the crop. This is an on-going process, which is carefully timed and coordinated to allow the phased development of the site to take place seamlessly over the four year development timeframe proposed by San Miguel.

The preconstruction phase for securing the block seed and growing of the saplings occurs in parallel to site preparation which is outlined below.

Construction

A period of ideally 12 months is required for site preparation. Site preparation entails the following:

- clearing of indigenous vegetation
- landscaping and levelling the site for citrus orchards
- establishment of unpaved internal roads
- installation of water reticulation and irrigation infrastructure
- construction of a balancing dam located in the existing area under cultivation on the eastern boundary of the property.
- planting of citrus orchards and establishment of windbreaks

Site preparation needs to be completed to coincide with the planting of the crop, which occurs annually in the last quarter of the year between December and January. San Miguel Fruits SA proposes a three phased crop planting period towards the end of each year, as follows:

- Phase 1 – 2013/14, approximately 88 hectares
- Phase 2 – 2014/15, approximately 88 hectares
- Phase 3 – 2015/16, approximately 87 hectares

Operation

Once suitably prepared the site is proposed to be used for the cultivation of various citrus varieties for international export. Project activities during the operational phases of the project will entail:

- Equipment required for the new operations will be stored in the storage sheds associated with the existing operations.
- Water for the development will be supplied from the Sundays River Water Users Association's canals which will be reticulated via the balancing dam located in the existing area under cultivation on the eastern boundary of the property.
- It is estimated 250 additional seasonal (8 months of the year) and 20 permanent employment opportunities will be created by the project.

The proposed agricultural expension of the River Bend Citrus Farm requires that full Scoping and Environmental Impact Assessment needs to be conducted in terms of the NEMA EIA Regulations, 2010: GN R543, 544, 545 and 546; promulgated under Chapter 5 of the National Environmental Management Act (Act 107 of 1998) ("NEMA"), and published in Government Gazette 33306 on 18 June 2010. In compliance with the said regulations an Environmental Management Programme (EMPr) based on the potential environmental impacts identified in the Environmental Impact Assessment Process, was prepared simultaneously.

Environmental Management Programmes (EMPr), or Environmental Management Frameworks (EMF), serve to ensure that environmental impacts associated with particular activities are monitored, minimised and mitigated for the duration of the project. The practical management measures that should be employed to achieve monitoring and mitigation targets are detailed in the EMPr (DEAT 2004). The EMPr is a dynamic document which should be updated and reviewed on a regular basis so that it may be adapted to changing management styles, and to include improved impact mitigation technology as well as unforeseen environmental impacts. The EMPr should also be adapted if any changes are made to the project. If such changes will result in significant environmental impacts, which differ from those for which DEDEAT has granted authorisation, such changes must be submitted to the DEDEAT for approval before they are implemented.

This EMPr includes, but is not limited to, the environmental impacts identified in the Environmental Impact Assessment Report and the proposed mitigation measures that must be employed to minimise the harmful effects that those impacts may have on the environment.

The EIA Report contains a comprehensive description of the project and the receiving environment (Chapter 2 & 3), and should be read in conjunction with this EMPr. The lead author of the EMPr is Sandy Wren of Public Process consultants. Please refer to Appendix A of the EIA Report for a CV for Sandy Wren, outlining the experience and key competencies of the lead author.

In addition to a summary of the impacts, the EMP contains more detailed information on the following:

- the manner in which mitigation will be implemented
- the scheduling of the implementation of mitigation
- responsibility and accountability for mitigation actions
- monitoring and reporting procedures

1.1 Activities and Regulations for which Application has been made:

DEDEAT Reference Number *EC06/LN2/M/12-10)*
Applicant San Miguel Fruits South Africa (Pty) Ltd
Location of Activity Remainder of Farm 82 Wolve Kop, Portion 1 of Farm 77 Wellshaven and Portion 3 of Farm 77 Honeyvale.
Activity Description The applicant, San Miguel Fruits SA (Pty) Ltd, is proposing the expansion of existing citrus cultivation operations on the farm known as River Bend Citrus near Addo in the Sundays River Valley Municipality. The applicant proposes to clear approximately 263 ha of land for additional citrus cultivation, in a phased manner over a period of four years.
Key Listed Activities **GN R545** *"15. The physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more."* **GN R546** *"14. The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation,…* *(a) In Eastern Cape...:* *i. All areas outside urban areas"*

1.2 Duration of Authorisation

Should an Environmental Authorisation be issued in respect of the project, the duration of the authorisation will be indicated in said document.

1.3 Legal Requirements

This Environmental Management Programme does not include all the legislative and regulatory requirements applicable to the development. The representative appointed by the applicant to manage the operation, and the persons responsible for the implementation of the EMPr, should also familiarise themselves with the specific legal requirements applicable to the described activities on site. These may include, but are not limited to:

- Applicable Environmental Law
- Atmospheric Pollution Prevention Act 45 of 1965
- Conditions of Employment Act, 75 of 1997
- Conservation of Agricultural Resources Act 43 of 1983
- Constitution of South Africa No 108 of 1996
- Environment Conservation Act 73 of 1989
- Extension of Security of Tenure Act 62 of 1997

- Hazardous Substances Act 15 of 1973
- Health Act No 63 of 1977
- Labour Relations Act 66 of 1995
- Land Reform (Labour Tenants) Act 3 of 1996
- National Building Regulations and Building Standards Act 103 of 1977
- National Environmental Management : Biodiversity Act 10 of 2004
- National Environmental Management Act 107 of 1998
- National Environmental Management: Air Quality Act 39 of 2004
- National Environmental Management: Waste Act 59 of 2008
- National Heritage Resources Act 25 of 1999
- National Road Traffic Act 93 of 1996 – GNR 225 of 17 May 2000
- National Veld and Forest Fire Act 101 of 1998
- National Water Act 36 of 1998
- Nature Conservation Ordinance Act 19 of 1974
- Noise Control Regulations GN R 154 in Government Gazette No. 13717 of 10 January 1992
- Occupational Health and Safety Act of 1994
- The Hazardous Substances Act 115 of 1973
- Local bylaws
- Provincial legislation

2. APPROACH TO THE EMP

The life of the development can be broadly divided into three phases:

A ***construction phase*** which includes all the surveying, land clearing, and construction activities associated with the establishment of the infrastructure (drip irrigation and access roads) and preparation of the site before it can begin operating.

An ***operational phase*** - - which constitutes the day to day operation of the site for the duration of its lifetime until it is discontinued / decommissioned. This would include the planting, cultivation and harvesting of crops on the site.

A ***decommissioning phase*** - which includes all the activities associated with the cessation of the described activity at the site. It is not anticipated that the development will be decommissioned, simply because it will be a cultivated farm land.

Environmental impacts, management practices and mitigation measures may differ for different phases of the development; however some impacts will be present in all phases of the development, resulting in some repetition in the EMPr.

Impacts and mitigation measures included in the EMPr are largely based on the findings of specialist studies conducted in the EIA phase and included in the EIA Report. However it also includes general best practice recommendations for generic impacts outside the scope of specialist input.

3. ROLES AND RESPONSIBILITIES

The ultimate responsibility for the effective implementation of the EMPr lies with the proponent (holder of Authorisation / applicant), in this case San Miguel Fruits SA (Pty) Ltd. Responsibility may be delegated to project managers, construction managers or environmental officers

appointed by the proponent during any stage of the development. The delegation of environmental responsibility will be determined by the institutional hierarchy of the organisation.

The proponent will appoint a project manager for the construction phase of the proposed development. The project manager will be responsible for the *implementation of the EMPr* during the construction phase of the development.

An independent Environmental Control Officer (ECO) should be appointed to oversee the implementation of the EMPr during the Construction phase of the project. The ECO will be responsible for overseeing the implementation of, and monitoring compliance with, the conditions set out in the Environmental Authorisation (EA), as well as the Construction Environmental Management Programme (CEMPr). This monitoring role may be supplemented by an internal Environmental Officer or Site Officer that will remain on site during the construction phase.

During the operational phase of the development the implementation of the Operational Phase Environmental Management Programme (OEMPr) and the conditions of the EA, as well as environmental compliance monitoring, will be the responsibility of an internal Environmental Officer or a Manager appointed by the Home-owners Association.

Table 1. Hierarchy of responsibility in the implementation of the EMP.

Project manager Name: Contact number:	• Overall responsibility for management of the development. • Is familiar with the contents of the Environmental Impact Assessment (EIA), Environmental Management Programme (EMP) and the conditions of the Environmental Authorisation (EA). • Ensures that policy, legislative and relevant environmental documentation is available to the construction manager. • Liaises with construction / site manager on a regular basis to address any environmental issues (compliance, mitigation, disciplinary action) that may arise.
Construction / Site Manager Name: Contact number:	• Selects and appoints contractors. • Is familiar with the institutional environmental policies and Codes of Practice. • Is familiar with the EIA, EMP, EA, and relevant legislation. • Ensures that the information in the EIA, EMP, EA, and relevant legislation is communicated to contractors. • Ensures that contractors are familiar with institutional Codes of Conduct for contractors. • Ensure that environmental policies, legislation and guidelines are adhered to. • Monitor implementation of the EMP by conducting regular site visits and meetings.
Environmental Control Officer Name: Contact number:	• Responsible for overseeing and monitoring the *implementation of the EMPr* during the construction phase. • Is familiar with the EIA, EMP, EA, and relevant legislation. • Monitors compliance with the EMP during the operational phase through annual environmental audits. • Report non-compliance or appropriate remedial action.
Site Manager / Environmental Officer Name:	• Is familiar with the EIA, EMP, EA, and relevant legislative requirements. • Ensures compliance with the EMP and EA conditions. • Is familiar with and ensure compliance with the relevant internal institutional policy, and procedural guidelines

Contact number:	• Ensures compliance with the relevant institutional policy, and procedural guidelines • Ensures compliance with the legislative requirements. • Implements the EMP during the operational phase of the development by employing prescribed mitigation and management measures. • Conducts environmental monitoring protocols at the facility. • Conducts regular inspections of the facility in order to monitor compliance with the EMP. • Takes remedial or disciplinary action where required.

Should ownership of the project change, any Environmental Authorisation granted in respect of the development should be transferred to the new owner, upon notification of the Department (DEDEAT). The EMPr, EA and Conditions of Approval remain binding on the new owner / operator of the development.

4. ENVIRONMENTAL PERFORMANCE MONITORING

Environmental Performance Monitoring has been defined as the activities implemented to measure environmental changes resulting from a particular development or activity (Davy & Paradine 1996). These include anticipated and unexpected changes in the environment. Any change from baseline conditions should initiate remedial action, or a change in mitigation or management approach. Performance monitoring could include both the collection of physical data, as well as input from potentially affected neighbours or affected parties.

4.1 Baseline data

Environmental Performance Monitoring includes the gathering of baseline data with which the future environmental conditions can be compared.

The following baseline information, where currently not available, should be obtained before vegetation clearing and site preparation commences:

- Surface water quality from the water bodies on site.
- Extent and location of alien invasive plants on site.
- Extent and location of erosion features on site.
- Extent and location of water bodies on site.
- Delineation of the No-Go Areas

It is anticipated that, following the construction phase, the person responsible for the implementation of the OEMPr (the internal Environmental Officer appointed by San Miguel Fruits SA (Pty) Ltd) will also be responsible for environmental monitoring and record keeping for the duration of the project lifetime.

4.2 Affected parties

Neighbours and parties affected by the development should be afforded opportunity to comment on problems and impacts that they may experience as a result of the development during the construction phase of the project. A complaints register should be kept of such comments, as well as the intervention initiated to address the comment or complaint, where appropriate. These comments will be used to adapt and improve existing mitigation measures.

4.3 Monitoring

During the vegetation clearing and site preparation phase the following should be monitored:

- Monthly monitoring of the compliance with the conditions of approval as given in the environmental authorisation as well as the recommendations contained in the EMPr.
- Monthly monitoring of the extent and location of alien invasive plants on the site.

- Monthly monitoring of the extent and location of erosion around the development footprints.
- Monthly conducting of environmental awareness training sessions with the labourers.

Once the houses become occupied (operational phase) the following should be monitored:
Once the facility becomes operational the following should be monitored:

- Bi-Annual monitoring of surface water quality from the water bodies on site.
- Occasional monitoring of the extent and location of alien invasive plants within the No-Go areas.
- Regular monitoring of the extent and location of erosion features on site.
- Regular monitoring for snares and hunting in the No-Go areas on site.

Information gathered during monitoring exercises, as well as the action taken, or operational adjustments made; should be recorded and these reports made available at the request of the Department.

5. LEGAL ENFORCEABILITY

This EMPr is likely to be a condition of the Environmental Authorisation, should authorisation for the activity be granted. As such it is a legally binding agreement between the applicant, as well as all his / her sub-contractors, and the Department. The EMPr should be included in the contracts (tender documents or otherwise) entered into by the owner / developer and any subcontractors. This will ensure that sub-contractors have a legal obligation to abide by the conditions set out in the EMPr.

6. IMPLEMENTATION SCHEDULE AND REPORTING

The management measures outlined for the Construction Phase of the development will take effect as soon as vegetation clearing and site preparation on the site is initiated, while the collection of baseline monitoring information should start prior to the commencement of construction activities.

The management measures outlined for the Operational Phase of the development will take effect as soon as the facility becomes operational (ie. Once the dam is built and the orchards are planted).

Water quality monitoring, erosion monitoring, alien plant management and stakeholder input reports will be kept as outlined in Section 4 above, and be made available at the request of the Department.

Environmental audit reports as well as reviewed amended EMPr reports will be kept up to date so that they can be made available at the request of the Department.

7. AUDIT PROCEDURE & EMPr REVIEW SCHEDULE

The environmental audit is systematic, objective investigation of the environmental information of a development to determine to what extent they conform to the environmental standards set out in the EMPr and Environmental Authorisation.

7.1 Construction Phase

During the construction phase the audit reports as produced by the Environmental Control Officer (ECO) after periodic site visits will serve as the auditing mechanism. A schedule for site

audits in the construction phase should be agreed upon during the appointment of the ECO. The ECO should comment on environmental impacts that are not adequately mitigated, as well as mitigation measures that are not effective, and suggest appropriate further management actions. These comments should be included in an amended CEMPr (Construction Phase EMPr) that must be made available to the Department on request.

7.2 Operational Phase

Once the facility is operational an annual environmental audit should be conducted by a suitably qualified independent environmental assessment practitioner appointed by the project proponent. These audits should assess the effectiveness of existing management and mitigation measures, and compliance with the OEMPr (Operational Phase EMPr) and conditions of the EA. The findings of the audit reports should feed into the EMPr ensuring that management and mitigation measures are adjusted and updated to ensure that impacts are managed effectively and efficiently. Audit reports should be made available to DEDEAT at the request of the Department.

8. CONSTRUCTION PHASE EMPr (CEMPr)

Impact	Mitigation
Ecology	
Destruction of habitat for plant species of special concern (SSC) within the development footprints	• Conserve intact indigenous vegetation outside the footprints as habitat for SSC. • Limit disturbance to intact natural habitat by clearly demarcating and signposting clearing areas; including access roads, haul roads and lay-down areas • Clearly demarcate the no-go areas on site prior to vegetation clearing commencing. • Undertake environmental education of workers and personnel to notify them of the need to avoid disturbance to natural vegetation on site, as well as erect informative signage.
Destruction of habitat for faunal species of special concern (SSC).	• Retain, rehabilitate and conserve the intact indigenous vegetation and proposed no-go areas as faunal habitat. • Clearly demarcate the no-go areas for development on site prior to commencement of site preparation activities. • All activities undertaken during the site preparation phase must be contained within the disturbance footprint and not encroach onto sensitive vegetation or no-go areas.
Loss of plant SSC due to vegetation clearing and disturbance	• Before development commences the development footprints should be surveyed for plant SSC by a suitably qualified botanist. • Permits for the translocation of plant species of special concern should be obtained from the appropriate authorities. • A representative proportion of plant species of special concern should be translocated to the remaining patches of intact vegetation in the no-go areas on the site, or stored in a suitably prepared nursery area during the site preparation phase and used later in rehabilitation.
Loss of faunal SSC due to construction activities	• Clearly demarcate intact natural faunal habitat on site as no-go areas for construction vehicles and personnel. • Undertake a faunal search and rescue operation before and during bush clearing phase. • Check excavations daily for trapped or injured fauna, and release these into the wild.
Disruption of ecological corridors, patterns and processes	• Employ internal road designs that will allow both surface and subsurface water flow to continue unimpeded. • Avoid any and all construction and operational disturbance in the no-go areas of the site. • Conduct routine monitoring on the site for snares and traps during the construction and operational phases. • Educate personnel with regards to not hunting or collecting plants on the site. • No-go areas are to serve as a refuge for fauna and flora which will be displaced as result of the development.
Increased erosion risk and topsoil loss due to vegetation clearing and disturbance	• Limit disturbance to vegetated areas by clearly demarcating and signposting construction areas; including access roads, lay-down areas, soil and brushwood stockpile areas and no-go areas. • Avoid blanket clearing at the site, and rather clear in a phased manner, especially on slopes. • Avoid vegetation clearing on steep slopes. • Design and implement a stormwater management system for the area, especially along access roads and internal vehicle tracks. • Initiate erosion countermeasures on the site in parallel with the construction phase. • Judicious use should be made of appropriate runoff control measures (e.g. cut-off berms, contour ploughing,

	shaping) to reduce sheet-flow and concomitant soil erosion.
Loss of fauna species of special concern as a result of poaching, hunting and trapping.	• No fauna on site may be harmed. • Monitor pathways in the indigenous habitat on site routinely for the presence of snares. • No-go areas on the site will serve as a refuge for fauna which will be displaced as result of the development.
Loss of plant species of special concern (collection for ethnobotanical use, firewood, etc.).	• Cordon off and control access to the intact indigenous vegetation areas. • Use the environmental induction process to educate employees and contractors regarding the prohibition of plant collection at the site, and erect notice boards with such information. • No-go areas on the site will serve as a refuge for flora which will be displaced as result of the development.
Increased exotic plant invasion due to disturbance of soils and vegetation.	• Eradicate weeds and invasive vegetation on the property in parallel with the site preparation phase. • Control their spread to disturbed portions of the site. • Destroy weeds and invasive plants before they reach seed formation stage. • Limit disturbance to intact indigenous vegetation on site. • Consolidate internal access routes on the site.
Destruction of exotic plants (weeds and invaders) during site clearing for construction.	• Exotic plant material removed must be removed from the site and destroyed so that seeds and propagating material does not remain at the site. • Follow-up clearing for weeds and exotics should take place.
Aquatic Features	
Destruction of riparian vegetation and associated habitat	• The water courses with the 50 meter buffer should be excluded from the area proposed for the establishment of the citrus orchards. • Clearly demarcate the no-go areas for development prior to construction commencing, i.e. wetlands and water courses.
Destruction of wetland vegetation and habitat	• It is proposed that 50 m buffers are established around the respective pans and this area is excluded from the area proposed for the establishment of the citrus orchards or any associated infrastructure. • The required Water Use License Applications will also be required, i.e. any development within 500m of a wetland area. • Clearly demarcate the no-go areas for development prior to construction commencing, i.e. wetlands and water courses
Loss of species of special concern	• A 50 m buffer is proposed around the respective pans and these areas are excluded from the development footprint. • The required Water Use License Applications will also be required, i.e. any development within 500m of a wetland area. • Clearly demarcate the no-go areas for development prior to construction commencing, i.e. wetlands and water courses. • A plant search and rescue operation is initiated prior to construction, which would then confirm if any rare or protected species do occur in the wetland areas
Heritage	
Loss or destruction of	• The construction phase of the project should be monitored by an independent Environmental Control Officer

palaeontological heritage resources (fossilised material) as a result of the development.	(ECO), who should monitor for potential fossilised material on an ongoing basis. • Should substantial fossil remains be exposed during construction, however, the ECO should safeguard these, preferably in situ, and alert SAHRA as soon as possible so that appropriate action (e.g. recording, sampling or collection) can be taken by a professional palaeontologist. • In the event that fossilised material is uncovered, construction on the affected excavation should cease until a palaeontologist has assessed the material. • Fossilised material encountered at the site may only be removed or destroyed upon authorisation from the relevant Heritage Resources Authority by the issuing of an appropriate permit.
Loss or destruction of archeological heritage resources as a result of the development.	• If any freshwater shell middens are uncovered during development, it should be reported immediately to the Albany Museum and/or the South African Heritage Resources Agency. • If any concentrations of other archaeological material are uncovered during development it should be reported immediately to the nearest archaeologist, museum and/or the South African Heritage Resources Agency. • Construction managers/foremen should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and procedures to follow when they find sites. It is suggested that a person be trained to be on site to report to the site manager if sites are found.[1]
Socio-economic	
Air Quality & Dust impacts	• Site construction area, access roads and infrastructure footprints should be clearly demarcated using chevron tape. • Avoid blanket clearing of vegetation so as not to result in large areas of unconsolidated sediment.. • A water-cart should be available on site, and unconsolidated sediment in disturbed areas, haul roads or soil stockpiles watered to prevent the generation of windborne dust on windy days. • Make sure that machinery is in good working order and does not generate excessive emissions. • The contractor or environmental officer must inform all adjacent landowners of any after-hour construction activities and any other activity that could cause a nuisance e.g. processes that generate dust or the application of chemicals.
Noise	• Construction activities should be limited to working hours (7 am to 5 pm weekdays). • No loud music should be allowed at the site. • Surrounding land owners should be notified well in advance if noisy activities, such as blasting or after hours work

[1] **Identification of Archaeological Features and Material from Inland Areas - Guidelines and Procedures for Developers**

1. Human skeletal material - Human remains, whether the complete remains of an individual buried during the past, or scattered human remains resulting from disturbance of the grave, should be reported. In general the remains are buried in a flexed position on their sides, but are also found buried in a sitting position with a flat stone capping and developers are requested to be on the alert for this.

2. Fossil bone - Fossil bones may be found embedded in deposits at the site. Any concentrations of bones, whether fossilized or not, should be reported.

3. Stone artefacts - These are difficult for the layman to identify. However, large accumulations of flaked stones which do not appear to have been distributed naturally should be reported. If the stone tools are associated with bone remains, development should be halted immediately and archaeologists notified.

4. Stone features and platforms - They come in different forms and sizes, but are easy to identify. The most common are an accumulation of roughly circular fire cracked stones tightly spaced and often filled in with charcoal. They are usually 1-2 metres in diameter and may represent cooking platforms. Others may resemble circular single row cobble stone markers. These are different sizes and may be the remains of wind breaks or cooking shelters.

5. Historical artefacts or features - These are easy to identified and include foundations of buildings or other construction features and items from domestic and military activities.

	is to take place. • A complaints register should be kept on site in order to document complaints associated with construction activities and to provide a record of the corrective action taken.
Waste	• No waste from construction or otherwise, may be disposed of on site. • No waste should be stored on site. • Waste generated at the site should be minimised by reusing and recycling, as far as possible. • All waste that cannot be reused or recycled must be sorted at site before being suitably disposed of at an appropriately licensed and registered waste disposal facility. • Hazardous waste generated at the site should be disposed of at a suitably licensed hazardous waste disposal facility. • Adequate litter drums or other suitable containers must be located on site to ensure that waste generated on site is disposed of in a suitable and timeous manner. • Suitable portable toilets must be provided and maintained on site for the duration of construction activities.
Runaway bush fires	• Exotic tree and shrub species at the site must be eradicated and the litter removed from site. • No open fires should be allowed on the site, except in a designated controlled area. • Suitable fire fighting equipment should be available on site.
Employment	• Local labour should be sourced as far as possible to maximise the economic benefits for the local community.

9. OPERATIONAL PHASE EMPr (OEMPr)

Impact	Mitigation
Ecology	
Pollution of surface and groundwater by herbicides, pesticides and fertiliser.	• Minimise the use and application of agricultural chemicals. • Apply chemicals as per the product instructions, in line with the Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, Act 36 of 1947 (As amended). • Employ appropriate runoff control measures on site to avoid runoff from the orchards onto neighbouring areas or into the watercourses on site. • Employ vegetated buffer strips along the edges of the orchards and along fences in order to trap and filter potential runoff from the orchard area.
Erosion risk and topsoil loss due to stormwater runoff and wind.	• Design and implement a stormwater management system for the site to be implemented for the operational lifespan thereof, especially along access roads and internal vehicle tracks. • Make judicious use of appropriate runoff control measures (e.g. cut-off berms, contour ploughing, shaping) to reduce sheet-flow and concomitant soil erosion. • Monitor the site for erosion on a regular basis and take corrective action immediately if detected.
Potential Visual Impacts on the Addo Elephant National Park.	• The vegetation along the road reserve as well as the windbreaks that are to be planted will minimise the visual impact. • The planting of indigenous windbreaks may help to reduce the visual impact.
Potential Herbicide Impacts on the	• The planting of windbreaks along the eastern boundary will help to limit any potential herbicide spray drift.

Vegetation on the adjacent Addo Elephant National Park.	
Loss of faunal species of special concern (poaching, domestic dogs & cats).	• Domestic animals must be controlled. • The owners or managers of the area should conduct routine monitoring for snares and feral pets.
Introduction of exotic flora and risk of alien plant invasion	• The site should be monitored routinely for alien plant invasion. • Regular clearing of weeds and invasive plants should be implemented, preferably before the plants have reached seed formation stage, especially along access road verges.
Aquatic Features	
Changes to the local hydrological regime, with possible increases in surface flows	• The water courses with the 50 meter buffer should be excluded from the area proposed for the establishment of the citrus orchards. • No run-off from storm water (rain fall) or irrigated areas should be allowed to leave the site directly. The areas should be contained using small berms or swales. These areas will then attenuate the flows, while reducing any surface water flows into the natural aquatic waterbodies downstream. • The minimum amount of water should be used for irrigation to prevent any increase in surface flows
Changes to the local sediment transport regimes with an increase in downstream erosion and sedimentation (suspended solids)	• The water courses with the 50 meter buffer should be excluded from the area proposed for the establishment of the citrus orchards. • No run-off from storm water (rain fall) or irrigated areas should be allowed to leave the site directly. The area should be contained using small berms or swales, which will then attenuate the flows, while reducing any surface water flows into the natural aquatic waterbodies downstream. • The minimum amount of water should be used for irrigation to prevent any increase in surface flows, which could result in erosion or sedimentation
Changes to the local water quality due to return agricultural run-off high in nutrients or insecticides, herbicides / pesticides	• The water courses with the 50 meter buffer should be excluded from the area proposed for the establishment of the citrus orchards. • No run-off from storm water or irrigated areas should be allowed to leave the site directly • The minimum amount of chemicals should be applied so that excess amounts don't leave the site. • All hazardous chemicals and fertlisers must be stored away from any water course within bermed / bunded areas, together with the applicable spill contingency mechanisms in place.

10. ENVIRONMENTAL AWARENESS PLAN

The key requirements of the EIR, EMP and Environmental Authorisation will be included in the material which is presented to personnel during the formal Environmental Induction process for employees at the site.

- Environmental Induction will be facilitated by the Site Environmental Officer, or Site Manager if no SEM is appointed for the site.
- No personnel will be allowed to work at the site without having passed through the environmental induction process.
- Construction personnel will be updated continually on pertinent Environmental and Safety issues during weekly Toolbox Talks by the SEM / Site Foremen / Farm Manager.
- Appropriate signage will be used to inform personnel of environmental conduct in specific areas.

11. REFERENCES

DEAT (2004) Environmental Management Plans, Integrated Environmental Management, Information Series 12, Department of Environmental Affairs and Tourism (DEAT), Pretoria.

A. Davy & Paradine, P. 1996. Environmental Performance Monitoring and Supervision. Environmental Assessment Source Book – Update. World Bank Environment Department. Pp. 8.