

PART B: DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME

SCOPING AND ENVIRONMENTAL IMPACT ASSESSMENT: Agricultural Development of the Remainder of Portion 7 of the Farm Scheepers Vlakte No. 98, in the Sundays River Valley Municipality

(DEDEAT Reference No: EC06/C/LN2/M/47-2018)

April 2019



Prepared for:

Scheepersvlakte Farms (Pty) Ltd
PO Box 72
Kirkwood
6120

Prepared by:

Sandy Wren, Marisa Jacoby and Zandri Grobbelaar
Public Process Consultants
PO Box 27688, Greenacres, PE, 6057
120 Diaz Road, Adcockvale, PE 6001
Phone: 041 – 374 8426; Fax: 041 - 373 2002
Email: sandy@publicprocess.co.za



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ABBREVIATIONS

CARA	Conservation of Agricultural Resources Act
CEMP _r	Construction Phase Environmental Management Programme
DAFF	Department of Agriculture, Forestry and Fisheries
DEDEAT	Department of Economic Development, Environmental Affairs and Tourism
DWS	Department of Water and Sanitation
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
EA	Environmental Authorisation
OEMP _r	Operational Phase Environmental Management Programme
SEM	Site Environmental Manager

DEFINITIONS

"EIA Regulations, 2014 (as amended)" - The reference to "listed activities" in section 24 of NEMAA relates to the NEMA EIA Regulations, 2014 (as amended), which came into effect on the 8 December 2014 and were amended on the 7 April 2017 by Government Notice R326, 327, 325 and 324 published in Government Gazette 40772. The Government Notices published are collectively referred to as the NEMA EIA Regulations 2014 (as amended). Thus, the Scoping and EIA Process has been undertaken in terms of the NEMA EIA Regulations, 2014 (as amended). **This Draft EMPr** has been prepared in line with the amendments to the NEMA EIA Regulations, 2014.

"The Department" - The Department of Economic Development, Environmental Affairs and Tourism, Sarah Baartman Region.

"Commencement" - Any physical activity on site that can be viewed as associated with the vegetation clearing and site preparation phase.

1.1 INTRODUCTION AND BACKGROUND

The project applicant, Scheepersvlakte Farms (Pty) Ltd, proposes to clear ~516ha of the Remainder of Portion 7 of the Farm Scheepers Vlakte 98 (~852.12ha), Sundays River Valley Municipality (SRVM), for the cultivation of annual crops (e.g. maize) and the establishment of a variety of citrus. The farm is currently zoned Agriculture I and located within the boundary of Scheepers Vlakte Farm, is Portion 10 of Farm 98 (~31ha), within which the Scheepersvlakte Dam, belonging to the Department of Water and Sanitation (DWS) for water supply to the Nelson Mandela Bay Municipality (NMBM), is situated. Portion 10 of Farm 98 **does not** form part of this assessment process.

The applicant has obtained a Water Use Licence from DWS for the taking of water from a water resource in terms of Section 21(a) of the National Water Act which entitles them to utilise 650ha (5 850 000m³ per annum) of water from the LSRWUA canal system. In order to irrigate the proposed agricultural development, the construction of a new irrigation water storage dam (140 000m³ storage capacity; 7ha footprint), as well as the installation of irrigation pipelines of varying diameters is required.

Scheepers Vlakte Farm is located ~6km north of Sunland, in the SRVM. Access to the farm is proposed via an existing gravel road on the southern boundary of the site which links the farm with the gravel MN50077 road. The nearest boundary of the Addo Elephant National Park is located ~7km east of the farm.

The proposed Scoping and EIA Process has been undertaken in terms of the NEMA EIA Regulations, 2014 (as amended). **This Draft EMPr** has been prepared in line with the amendments to the NEMA EIA Regulations, 2014. In terms of the NEMA EIA Regulations, 2014 (as amended), the project requires full Scoping and EIA, prior to the commencement of any activities on the site.

1.1.1 Activities and Regulations for which Application has been made:

DEDEAT Reference Number	EC06/C/LN2/M/47-2018
Applicant	Scheepersvlakte Farms (Pty) Ltd
Location of Activity	Remainder of Portion 7 of the Farm Scheepers Vlakte No. 98, in the Sundays River Valley Municipality

Activity Description

The Remainder of Portion 7 of Farm 98, known as Scheepers Vlakte Farm, measures ~852.12ha in extent. Based on the outcome of the assessment process, specialist studies, technical input and consultation process, the project applicant, Scheepersvlakte Farms (Pty) Ltd, intends to clear an area of ~517ha for the cultivation of annual crops (e.g. maize) and the establishment of a variety of citrus. The following components are proposed:

- Citrus orchards: ~504ha including -
 - Trees (~468ha effective irrigation area).
 - Windbreaks (if required).
 - Laydown areas.
 - Internal roads – widths varying between 4m and 8m.
 - Internal irrigation water reticulation – varying capacities \varnothing 10mm (dripper lines) to \varnothing 200mm (main lines); pivots for annual crops, covering 25ha.
 - Canal offtake pipelines – 2 x \varnothing 450mm; ~700m length.
- Logistical services area (~6ha) including:
 - New access road (8m width) and turning circles (~36m diameter).
 - Receiving and dispatch off-loading/ loading areas
 - Pre-sort packhouse (~6500 m²).
 - Workshop and storage area.
 - Fuel storage tank (~14 000L/ 14m³).
 - Chemical store (~30m²).
 - Office/ administration area.
 - Staff housing (5 x 60m²)
 - Onsite domestic effluent reticulation and treatment system (e.g. Clearedge system).
 - Stormwater detention facilities.
 - Domestic water reticulation, storage and treatment facilities.
- New irrigation water storage dam (~7ha; ~140 000m³).

The new logistical services area is proposed to be constructed near the southern boundary of the farm in order to provide administrative and logistical support for the development.

Irrigation Infrastructure

A portion of the LSRWUA canal is located along the southern boundary of the farm. The irrigation water required for the proposed agricultural development is proposed to be accessed via a new offtake point on the canal on the southern boundary of the site.

A new dam is proposed in order to store water from the canal and irrigate the proposed agricultural development. An irrigation specialist has recommended that the proposed dam should have an effective storage capacity of ~140 000m³ and a footprint of ~7ha, in order to supply sufficient irrigation water for the proposed agricultural development. The dam is proposed to be located just north of the existing structures situated in the centre of the farm, towards the southern boundary. The location of the dam has been informed by specialist input, as well as technical irrigation requirements. The following information has been provided by the applicant's preferred dam builder regarding the proposed dam construction methodology:

- Topsoil to be removed and stored separately for use in rehabilitation.
- Plough, moisten and compact foundation to maintain impermeability.
- Place earth-fill on foundation and embankment and compact.
- The following equipment will be utilised on site for the dam construction:
 - Grader or bulldozer
 - Compaction roller
 - Water cart
- Outlet pipe to be cast in concrete, also to be compacted and earth-filled.
- Spillway to be grassed / re-vegetated to ensure erosion is prevented.

In addition, in order to reduce the potential for overflow from the dam, the following precautionary measures have been proposed by the irrigation specialist (included in Appendix G: Supporting Documentation):

- The dam to be lined with a 200mm clay layer (33% more than usual).
- Freeboard height to be increased.
- The proposed dam overflow will link in with the existing overflow of the DWS Scheepersvlakte dam.

- Dam levels to be monitored with appropriate telemetry and warnings provided when certain water levels are exceeded so as to better manage 1:100 events.

Two supply pipelines are proposed to convey irrigation water from the offtake point on the canal to the proposed irrigation water storage dam. These will have an internal diameter of $\varnothing 450\text{mm}$ each and will be installed over a distance of ~ 700 metres. A working area of ~ 3 metres is anticipated to be required for the installation of the $2 \times \varnothing 450\text{mm}$ pipes over a length of $\sim 700\text{m}$. Thus, a total $\sim 2\,100\text{m}^2$ (0.21ha) will be cleared in order to install the aforementioned offtake pipelines.

The cultivation of maize will require the installation of a pivot irrigation system, whilst the citrus orchards are proposed to be irrigated by means of a drip/ micro irrigation system. Both irrigation systems will be installed at the same time, although only the pivot irrigation will be utilised for the maize.

Additionally, the proposed development will require the installation of irrigation pipelines of varying diameters. The internal irrigation reticulation required to irrigate the proposed cultivated areas will vary in internal diameter from 10mm (dripper lines) to 200mm (main lines). It is proposed that the irrigation infrastructure include pivot irrigation for maize, as well as pipes for drip/ micro irrigation of citrus. Each pivot will cover a maximum diameter of 25ha .

Construction of the Logistical Services Area and Staff Housing

A new logistical services area is proposed to be constructed near the southern boundary of the farm in order to provide administrative and logistical support for the development. The proposed logistical services area will measure $\sim 6\text{ha}$ in extent and is proposed to consist of the following support infrastructure/ structures:

- Pre-sort packhouse ($\sim 6500\text{m}^2$).
- Tractor/ trailer off-loading and receiving slab.
- Dispatch truck loading slab.
- Access road ($\sim 8\text{m}$ wide) including turning circles ($\sim 36\text{m}$ diameter).
- Workshop and storage area (300m^2).
- Office/ administration area (150m^2).
- Other staff facilities including ablution blocks (150m^2).
- Staff housing ($5 \times 60\text{m}^2$).
- Onsite domestic effluent treatment system (e.g. Clearedge system) (641m^2).
- Domestic water storage and treatment facilities ($1\,575\text{m}^2$).
- Stormwater detention facilities ($2\,260\text{m}^2$).

A Roads and Wet Services Report has been prepared in order to ensure that the proposed logistical services area and proposed staff housing are adequately serviced. The report is included as Chapter Twelve of the Draft EIA Report and provides detailed information on the above services infrastructure.

Chemical Store

The proposed workshop and storage area will include a fully enclosed bunded, roofed facility with a capacity to store $\sim 30\text{m}^3$ of chemicals required for the proposed agricultural development. Storage and handling of chemicals on site must comply with standard Material Safety Data Sheet control measures. It is recommended that any waste packaging must be disposed of at a suitably permitted landfill site and not buried or burnt on site. See Chapter Seven, Aquatic Specialist Assessment, for impacts related to the use and disposal of chemicals. Further general guidance notes on chemical management are contained in Appendix G (Supporting Documentation) of the Draft EIA Report.

In addition, it is proposed that an outdoor aboveground diesel tank, with the capacity to store $\sim 14000\text{L}$ / 14m^3 of fuel, be constructed adjacent to the workshop area. In order to mitigate any potential risks associated with fuel tank due consideration must be given to appropriate design and construction. See Chapter Two, Project Description, for more information on the building standards for fuel tanks.

Access

Access to the farm is proposed via an $\sim 6\text{m}$ wide private road onto the gravel MN50077 road, $\sim 4\text{km}$ east of the surfaced DR01983 road and which crosses a portion of the LSRWUA canal (via an existing bridge) on the southern boundary of the farm. This existing access road is proposed to be upgraded and widened ($\sim 8\text{m}$ wide) to service the proposed agricultural development. A right of way servitude will need to be registered over the adjacent property in order to ensure access to the development in perpetuity.

Electrical Requirements

A new transformer will be installed near the packhouse in order to supply electricity to the dam, logistical services area and associated infrastructure.

Construction Phase

- Clearing of indigenous vegetation.
- Landscaping and levelling the site.
- Construction of the new irrigation dam.
- Installation of internal water reticulation and irrigation infrastructure (pivot and drip/ micro) including canal offtake pipelines.
- Planting of crops (maize), as well as a variety of citrus and windbreaks (if required).
- Establishment of internal unpaved service roads and upgrading (widening) of the existing access road.
- Construction of the new logistical services area.
- Construction of permanent staff housing.

Operational Phase

Once the site is suitably prepared, the area will be utilised for the cultivation of annual crops (e.g. maize) and the establishment of citrus orchards.

Equipment required for the new operations will be stored on site, in the proposed new storage facilities associated with the logistical services area. The following operational phase activities are associated with the project:

- Initial establishment (Phase 1) of ~150ha of citrus and ~100ha of maize.
- Thereafter (subsequent phases), cultivation of maize for a period of ~2-5 years, followed by the establishment of citrus orchards.
- Utilisation of the additional services and administration facilities, as well as accommodation.
- Water for the development will be supplied from the LSRWUA canal system which will be reticulated from the proposed new irrigation water storage dam into the orchards and to the water treatment and storage facilities associated with the logistical services area; and
- It is anticipated that a number of additional seasonal and permanent employment opportunities will be created by the project.

1.1.1.1 Listed activities according to GN R327, 325 and 324 requiring Environmental Authorisation in terms of the NEMA EIA Regulations, 2014 (as amended).

ACTIVITY NUMBER	PROJECT COMPONENT
GN R327 (Listing Notice 1 – Basic Assessment)	
<p>GN 327</p> <p>19. <i>The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;</i></p>	<p>Internal vehicle tracks with a width of between 4 and 6 metres, as well as irrigation pipelines of varying capacities are proposed to be constructed/ installed, over five crossings, through identified drainage lines on the site. This may result in the removal of more than 10 cubic meters of soil from a watercourse. This listed activity requires Environmental Authorisation.</p>
<p>GN 327</p> <p>24. <i>The development of a road—</i></p> <p><i>(ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres;</i></p>	<p>The internal radii of the circulation areas (turning circles) around and near the pre-sort packhouse shall preferably be 18 metres or wider, as far as practically possible, to accommodate the effective flow of heavy vehicle traffic. In addition, the new entrance road (from the boundary of the site) to the logistical services area, is required to be a minimum of 8 metres wide.</p> <p>It is anticipated that the combined length of the internal roads that are required to be wider than 8 metres, may exceed 1 kilometre in length. This listed activity requires Environmental Authorisation.</p>
GN R325 (Listing Notice 2 – Full S&EIA)	
<p>GN 325</p> <p>15. <i>The clearance of an area of 20 hectares or more of indigenous vegetation ...</i></p>	<p>The proposed agricultural development will entail the clearance of ~516 hectares of vegetation, most of which is anticipated to be indigenous. This listed activity requires Environmental Authorisation.</p>
<p>GN 325</p> <p>16. <i>The development of a dam where the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, is 5 metres or higher or where the highwater mark of the dam covers an area of 10 hectares or more.</i></p>	<p>In order to irrigate the proposed agricultural development, the construction of a new irrigation water storage dam is required. The proposed dam is anticipated to have a storage capacity of 140 000 cubic metres, a footprint of ~7 hectares and a wall height of ~6 metres. This listed activity requires Environmental Authorisation.</p>
GN R324 (Listing Notice 3 – Basic Assessment)	

<p>GN 324</p> <p>2. <i>The development of reservoirs¹, excluding dams², with a capacity of more than 250 cubic metres.</i></p> <p>a. Eastern Cape</p> <p>ii. <i>Outside urban areas, in:</i></p> <p>(dd) <i>Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</i></p> <p>(ff) <i>Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;</i></p>	<p>The proposed agricultural development will require the construction of a new irrigation water storage dam (reservoir), which is anticipated to have a storage capacity of 140 000 cubic metres and a footprint of ~7 hectares.</p> <p>The site is located within the Eastern Cape, outside an urban area and within ~7 kilometres of Addo Elephant National Park. The area under assessment falls within a terrestrial Critical Biodiversity Area (CBA2), in terms of the Eastern Cape Biodiversity Conservation Plan.</p> <p>This listed activity requires Environmental Authorisation.</p>
<p>GN 324</p> <p>4. <i>The development of a road wider than 4 metres with a reserve less than 13,5 metres.</i></p> <p>a. Eastern Cape</p> <p>i. <i>Outside urban areas:</i></p> <p>(ee) <i>Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</i></p> <p>(gg) <i>Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed areas;</i></p>	<p>The internal radii of the circulation areas (turning circles) around and near the pre-sort packhouse shall preferably be 18 metres or wider, as far as practically possible, to accommodate the effective flow of heavy vehicle traffic. In addition, the new entrance road (from the boundary of the site) to the logistical services area, is required to be a minimum of 8 metres wide.</p> <p>It is also anticipated that internal vehicle tracks, varying in width between 4 and 6 metres, will be required to service various sections of the proposed cultivated areas.</p> <p>The site is located within the Eastern Cape, outside an urban area and within ~7 kilometres of Addo Elephant National Park. The area under assessment falls within a terrestrial Critical Biodiversity Area (CBA2) in terms of the Eastern Cape Biodiversity Conservation Plan.</p> <p>This listed activity requires Environmental Authorisation.</p>

¹ As per the meeting with DEDEAT on 18 April 2017, the following explanation was provided for a reservoir regarding the applicability of listed activities, namely; “*Reservoir: refers to a structure constructed outside of a watercourse for the off-stream storage of water. A reservoir is not considered to be a watercourse because water does not flow naturally into and out of a reservoir; it is pumped through pipes.*”

² In terms of the EIA Regulations 2014 (as amended), the following definition is provided: ““**dam**” when used in these Regulations means any barrier dam and any other form of impoundment used for the storage of water, excluding reservoirs;”

<p>GN 324</p> <p>10. <i>The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres.</i></p> <p>a. Eastern Cape</p> <p>i. <i>Outside urban areas:</i></p> <p>(ee) <i>Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</i></p> <p>(gg) <i>Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve;</i></p>	<p>The proposed development will require the temporary storage of ~30 cubic metres of chemicals on site, as well as the above ground storage of ~14 000 litres (14m³) of fuel. It is, therefore, anticipated that the combined capacity to store dangerous goods on site will exceed 30 cubic metres.</p> <p>The site is located within the Eastern Cape, outside an urban area and within ~7 kilometres of Addo Elephant National Park. The area under assessment falls within a terrestrial Critical Biodiversity Area (CBA2) in terms of the Eastern Cape Biodiversity Conservation Plan.</p> <p>This listed activity requires Environmental Authorisation.</p>
<p>GN 324</p> <p>12. <i>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</i></p> <p>a. Eastern Cape</p> <p>i. <i>Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;</i></p>	<p>A portion of the vegetation on site has been identified as Albany Alluvial Vegetation by the NBA and VegMap mapping resources and this has been confirmed by the vegetation specialist.</p> <p>This vegetation type is listed as endangered in terms of Section 52 of NEMBA.</p> <p>Based on input from the vegetation specialist, the majority of this vegetation type has been excluded from the proposed development footprint. However, some internal vehicle tracks, as well as the installation of some irrigation pipelines will be required to cross this vegetation type at certain points along the identified drainage lines on the site and might thus require the combined clearance of 300 square metres thereof.</p> <p>This listed activity requires Environmental Authorisation.</p>
<p>GN 324</p> <p>14. <i>The development of—</i></p> <p>(ii) <i>infrastructure or structures with a physical footprint of 10 square metres or more;</i></p> <p><i>where such development occurs—</i></p> <p>(a) <i>within a watercourse;</i></p> <p>(c) <i>if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse;</i></p>	<p>Internal vehicle tracks with a width of between 4 and 6 metres, as well as irrigation pipelines of varying capacities are proposed to be constructed/ installed, over five crossings, through identified drainage lines on the site. These are likely to have a footprint which exceeds 10 square metres, within 32 metres of a watercourse.</p> <p>The site is located within the Eastern Cape, outside an urban area and within ~7 kilometres of Addo Elephant National Park. The area under assessment falls within a terrestrial Critical Biodiversity Area (CBA2) in terms of the Eastern Cape Biodiversity Conservation Plan.</p>

<p>a. Eastern Cape</p> <p><i>i. Outside urban areas:</i></p> <p><i>(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</i></p> <p><i>(hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;</i></p>	<p>This listed activity requires Environmental Authorisation.</p>
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1.2 DURATION OF AUTHORISATION

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

1.3 ENVIRONMENTAL MANAGEMENT PROGRAMMES

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 EIA 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 (Chapters Two and Three) and should be read in conjunction with this EMPr. The lead authors of the EMPr is Marisa Jacoby and Zandri Grobbelaar of Public Process Consultants. A CV outlining the experience and key competencies of the lead authors are included in Appendix A of the EIA Report.

In addition to a summary of the impacts, this EMPr 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.

The life of the agricultural 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 associated infrastructure (logistical services area, water supply infrastructure, domestic effluent infrastructure, stormwater management infrastructure, access and internal 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 citrus and maize.

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 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.

The EMPr Report must be read in conjunction with the EIA Report and EA, as these documents may contain additional, detailed information not included in this report.

1.4 LEGAL REQUIREMENTS

This EMPr does not include all the legislative and regulatory requirements applicable to this development. The representative appointed by the applicant to manage the operation, and the persons responsible for the implementation of the EMPr, must 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 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

PART A: CONSTRUCTION PHASE ENVIRONMENTAL MANAGEMENT PROGRAMME (CEMPr)

**Agricultural Development of the Remainder of Portion 7 of the Farm
Scheepers Vlakte No. 98, in the Sundays River Valley Municipality**

(DEDEAT Reference No: EC06/C/LN2/M/47-2018)

April 2019



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Part A CONSTRUCTION PHASE ENVIRONMENTAL MANAGEMENT PROGRAMME (CEMPr)

During the Construction Phase, land will be cleared of vegetation and prepared for the planting of maize and the establishment of citrus orchards, as well as the installation of associated infrastructure. This includes a logistical services area, water supply infrastructure, domestic effluent infrastructure, stormwater management infrastructure, access and internal roads, as well as laydown areas. The new logistical services area is proposed to include, amongst others, a Pre-sort Packhouse, workshop and storage area, diesel fuel storage tank, a chemical store, staff housing, and an office/ administration area. A Roads and Wet Services Report has been prepared by JJ Spies Civil Engineers and is included in Chapter Twelve of the Draft EIA Report.

This existing access road is proposed to be upgraded and widened (~8m wide) to service the proposed agricultural development. A Traffic Impact Assessment has been undertaken and is included as Chapter Nine of the Draft EIA Report.

The applicant has obtained a Water Use Licence from DWS for the taking of water from a water resource in terms of Section 21(a) of the National Water Act which entitles them to utilise 650ha (5 850 000m³ per annum) of water from the LSRWUA canal system. In order to irrigate the proposed agricultural development, the construction of a new irrigation water storage dam (140 000m³ storage capacity; 7ha footprint) is required. Additionally, two supply pipelines are proposed to convey irrigation water from the offtake point on the canal to the proposed irrigation water storage dam. These will have an internal diameter of ø450mm each and will be installed over a distance of ~700 metres. A working area of ~3 metres is anticipated to be required for the installation of the 2 x ø450mm pipes over a length of ~700m. Thus, a total ~2 100m² (0.21ha) will be cleared in order to install the aforementioned offtake pipelines.

The cultivation of maize will require the installation of a pivot irrigation system, whilst the citrus orchards are proposed to be irrigated by means of a drip/ micro irrigation system. Both irrigation systems will be installed at the same time, although only the pivot irrigation will be utilised for the maize. In addition, the proposed development will require the installation of irrigation pipelines of varying diameters. The internal irrigation reticulation required to irrigate the proposed cultivated areas will vary in internal diameter from 10mm (dripper lines) to 200mm (main lines). It is proposed that the irrigation infrastructure include pivot irrigation for maize, as well as pipes for drip/ micro irrigation of citrus. Each pivot will cover a maximum diameter of 25ha.

It will further entail the levelling and landscaping of the site to provide runoff control, as well as allow for the planting of windbreaks (if necessary). The vegetation clearing, site preparation, levelling, landscaping, and planting will be done both by hand and with the aid of suitable earth moving equipment (excavators, bulldozers, TLBs, etc.).

Environmental impacts associated with the Construction Phase of the development, as well as the appropriate mitigation actions, have been identified using specialist input for the various components of the affected environment provided in the Draft EIA Report.

A.1 MANAGEMENT ACTIONS

The management actions outlined below indicate the actions to be taken to minimise the potential negative impacts that this phase may have on the environment, as well as measures to enhance the potential benefits.

Impact	Mitigation
Ecology Loss of Vegetation due to Clearing	<ul style="list-style-type: none"> • The biodiversity target, No-Go and offset areas indicated in Section 6.8.5 (Figure 6.14) of the Alternative 2 (Preferred Layout), should be maintained, which allows for a reduced loss of vegetation. • Retain all the mapped Sundays Doringveld within the No-Go areas (as per Figure 6.14). • The biodiversity No-Go Areas should be set aside for conservation in perpetuity. • Remove only the required amount of vegetation for citrus/ crop cultivation activities i.e. minimize the extent of bare and exposed soils i.e. indiscriminate clearing should be avoided. • Maintain the Other Natural Areas on the Farm, into the future (Figure 6.13). • If windbreaks are required, plant indigenous windbreaks, if possible. • Existing crossings (across drainage areas) should be utilized as far as possible. In instances where vegetation is cleared to 'formalize' existing and new crossings, rehabilitation should be undertaken using indigenous flora. Refer to Figure 6.16, for the proposed crossings. • For all roads proposed within biodiversity No-Go areas, limit the width of the road to 4m. • For any new roads within biodiversity No-Go areas, rehabilitate the equivalent number and length of existing roads within biodiversity No-Go Areas (this equates to an area of approximately 0.3ha or 0.4ha for a 4m or 6m wide road respectively). • Rehabilitation of disturbed areas post-establishment with indigenous species, if necessary. Plants, however, can be used in the 'rehabilitation' of other disturbed areas that will be retained in the No-Go areas on the Farm. Succulents, such as the <i>Aloes</i>, will be easier to transplant and should be used. • Control and management of alien invasive plants, such as <i>Opuntia ficus-indica</i> and <i>O. aurantiaca</i>, particularly within the No-Go areas; to be viewed as an additional biodiversity offset measure. • Audit reporting by the Environmental Control Officer during construction/ clearing of cultivation areas. • Compliance with regulations pertaining to the Conservation of Agricultural Resources Act (43 of 1983), where applicable. • Applicant/ Landowner/ Farm Manager to monitor strict compliance with the biodiversity no-go areas.
Loss of Critical Biodiversity Area and Ecological Support Area due to Clearing	<ul style="list-style-type: none"> • The biodiversity target, No-Go and offset areas indicated in Section 6.8.5 (Figure 6.14) of the Alternative 2 (Preferred Layout), should be maintained, which allows for a reduced loss of vegetation. • Retain all the mapped Sundays Doringveld within the No-Go areas (as per Figure 6.14). • The biodiversity No-Go Areas should be set aside for conservation in perpetuity. • Remove only the required amount of vegetation for citrus/ crop cultivation activities i.e. minimize the extent of bare and exposed soils i.e. indiscriminate clearing should be avoided. • Maintain the Other Natural Areas on the Farm, into the future (Figure 6.13). • If windbreaks are required, plant indigenous windbreaks, if possible. • Existing crossings (across drainage areas) should be utilized as far as possible. In instances where vegetation is cleared to 'formalize' existing and new crossings, rehabilitation should be undertaken using indigenous flora. Refer to Figure 6.16, for the proposed crossings. • For all roads proposed within biodiversity No-Go areas, limit the width of the road to 4m.

	<ul style="list-style-type: none"> • For any new roads within biodiversity No-Go areas, rehabilitate the equivalent number and length of existing roads within biodiversity No-Go Areas (this equates to an area of approximately 0.3ha or 0.4ha for a 4m or 6m wide road respectively). • Rehabilitation of disturbed areas post-establishment with indigenous species, if necessary. Plants, however, can be used in the 'rehabilitation' of other disturbed areas that will be retained in the No-Go areas on the Farm. Succulents, such as the <i>Aloes</i>, will be easier to transplant and should be used. • Control and management of alien invasive plants, such as <i>Opuntia ficus-indica</i> and <i>O. aurantiaca</i>, particularly within the No-Go areas; to be viewed as an additional biodiversity offset measure. • Audit reporting by the Environmental Control Officer during construction/ clearing of cultivation areas. • Compliance with regulations pertaining to the Conservation of Agricultural Resources Act (43 of 1983), where applicable. • Applicant/ Landowner/ Farm Manager to monitor strict compliance with the biodiversity no-go areas.
Loss of Species of Special Concern due to Clearing	<ul style="list-style-type: none"> • Rescue and translocation programme to be implemented. • As many of the species should be rescued and then translocated elsewhere on the farm, noting that other areas outside the proposed agricultural area do support most of these species. It should be acknowledged that some of the species are weedy, pioneer species, which establish easily where disturbance has occurred, especially <i>Mesembryanthemum aitonis</i>, <i>Drosanthemum hispidum</i>, and <i>Delosperma</i> species. Focus should thus be on the <i>Aloes</i>, bulbs and other vygies. • Permit applications to the Department of Economic Development, Environmental Affairs and Tourism for the protected species. • Permit application to the Department of Forestry (of Department of Agriculture, Forestry and Fisheries) for the removal of <i>Sideroxylon inerme</i> trees. • Rehabilitation of disturbed areas with these species, as soon as possible. • Audit reporting by the Environmental Control Officer during establishment and rehabilitation.
Fragmentation of Natural Habitat due to Clearing	<ul style="list-style-type: none"> • As per impacts above. • Provide fencing that is more permeable to smaller fauna, thus increasing movement through the Farm. • Implement regular inspections for signs of poaching / illegal harvesting activities on the Farm, e.g. wire snares. All poaching materials to be removed from the property. • Access to No-Go areas to be restricted to authorised personnel only. Signage to this effect to be erected and a fine system implemented for personnel found to be trespassing.
Faunal	
Loss of Faunal Species of Special Concern due to Vegetation Clearing	<ul style="list-style-type: none"> • 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 each bush clearing phase.
Destruction of Faunal Habitat	<ul style="list-style-type: none"> • 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 Faunal Species of Special Concern due to Poaching	<ul style="list-style-type: none"> • Access to the proposed No-Go areas must be restricted. • Sweeping operations of fences for snaring and signs of human activity within all No-Go areas on the farm to be undertaken at least once a week. • No fauna on site may be intentionally harmed. • A professional animal handler needs to be contacted to remove dangerous fauna when in conflict with the workers. • 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.
Aquatic	
Potential Loss of Artificial Wetland Habitat and Drainage Systems (vegetation along the 1:50 000 drainage areas) due to Orchards	<ul style="list-style-type: none"> • Adopt the recommended 20m aquatic buffers around the dams with artificial wetland habitat and the drainage areas (Figure 7.10 and 7.11). As per Section 7.7.3.3, the buffers should be measured from the centre line in cases where no defined channel or banks occur (e.g. in the transformed areas). Where discernible grass or eroded paths are present, and if erosion channels or banks occur, the buffer should start from the top of the edge of the grass or eroded paths. • Adopt the biodiversity No-Go areas (Figure 6.14, Section 6.8.5). This increases the extent of undeveloped land around the main north-south drainage area. • Minimise the loss of vegetation along drainage areas for crossings by utilizing existing crossings / vehicular access roads i.e. two of the five proposed crossings are along existing vehicle access tracks – refer impact 2 below. <p>Where the 20m buffer may not or will not apply:</p> <ul style="list-style-type: none"> • Dam no. 5 (not classified as an artificial wetland) does not require a 20m buffer, as no rare, unique or threatened species or large populations are supported and it is not a natural wetland. The proposed orchard layout avoids this dam. <p>Other additional mitigation measures:</p> <ul style="list-style-type: none"> • Dam no. 5 (not classified as an artificial wetland) could act as a monitoring site, to monitor potential impacts e.g. increased water/saturation and pollution impacts. • The remaining artificial wetlands (created due to the formation of small livestock dams), to act as monitoring sites, to monitor potential impacts e.g. increased water/saturation and pollution impacts. • Where existing crossings are utilized and some vegetation is cleared to 'formalize' the access roads, rehabilitate these areas with indigenous flora on site. In addition, limit the width of these crossings to a maximum of 4m. • A water use application should not be required in terms of Section 21(c) and 21(i) of the National Water Act, as it relates to the orchards as the orchards are beyond the mapped 1:50 000 drainage areas. • Audit reporting by the Environmental Control Officer during establishment of citrus orchards and associated infrastructure. • Compliance with regulations pertaining to the Conservation of Agricultural Resources Act (43 of 1983), which <i>does not permit cultivation within the flood area of a watercourse or within 10m horizontally outside the flood area of a watercourse.</i> • Monitor the buffers during operations to ensure ongoing compliance.
Loss and Fragmentation of Drainage Systems (vegetation along the 1:50 000	<ul style="list-style-type: none"> • Minimise the loss of vegetation along drainage areas by utilizing existing crossings / vehicular access roads, and avoid indiscriminate clearing at new proposed crossings.

<p>drainage areas) due to Crossings and Associated Increase in Run-off</p>	<ul style="list-style-type: none"> • Rehabilitate post construction with indigenous flora that is supported on site. • Limit the width of these crossings to a maximum of 4m. • Rehabilitate the equivalent number of existing crossings as new crossings within the biodiversity No-Go areas i.e. 3 existing crossings in the biodiversity No-Go areas should be rehabilitated. • A water use application to be processed with the DWS in terms of Section 21(c) and 21(i) of the National Water Act, where crossings are proposed. • Audit reporting by the Environmental Control Officer during establishment of citrus orchards and associated infrastructure. • Compliance with regulations pertaining to the Conservation of Agricultural Resources Act (43 of 1983), which <i>does not permit cultivation within the flood area of a watercourse or within 10m horizontally outside the flood area of a watercourse.</i> • The Applicant/ Farm Manager to monitor the crossings during operations to remediate any erosion.
<p>Potential Hydrological Process Impacts on the Artificial Wetland Habitat and Drainage Systems due to Increased Surface Run-off from Orchard Areas and Associated Access Roads</p>	<ul style="list-style-type: none"> • As per impact 1, including: • An agricultural stormwater and erosion control plan should be developed. This could include: <ul style="list-style-type: none"> ○ Infiltration swales or narrow linear and shallow trenches (within indigenous grasses or plants) along orchards to minimize impacts on the dams with artificial wetland habitat. ○ Where existing crossings of the drainage areas occur, adequate measures should be implemented, where necessary. ○ Mulching, to increase retention of soil moisture in-situ/ at tree; and if feasible, narrow, indigenous vegetation strips between orchards. ○ Any other mitigation measures for the Scheepersvlakte Dam, as required by the Department of Water and Sanitation, should be adopted.
<p>Stormwater management</p>	<ul style="list-style-type: none"> • Design and construct the proposed main access road from the LSRWUA canal crossing to the loading area so as not to concentrate stormwater but rather to accommodate stormwater sheet flow in accordance with the natural topography, as far as practically possible. • Design and construct the roads within the logistical services area, as well as the loading and off-loading area to convey stormwater to the piped stormwater system which will drain to the three (3) proposed detention ponds SR1, SR2 and SR3, located along the southern boundary of the logistical services area. The stormwater pipe diameters will not exceed 375mm. • In order to reduce the volume of stormwater, intercept stormwater from the roofed areas and convey it to rainwater storage tanks near the buildings. The surplus stormwater from the roofs will be conveyed by means of the proposed storm water system to the aforementioned detention ponds. • Intercept and convey the stormwater from all the open hardstand areas associated with the logistical services area and convey it to the storm water detention ponds SR1, SR2 and SR3, as far as practically possible. • Detain and/ or discharge the stormwater from the primary stormwater ponds in accordance with the applicable regulations and design guidelines. • Subject to the detailed design of earthworks, operational areas/ roads and the stormwater system, the formed surface areas on and near the logistical services area shall be designed to also act as shallow stormwater channels under minor storms and emergency overland flow routes during or after major storm conditions, where necessary. • The general resultant longitudinal gradients of the formed surface areas on and near the logistical services area shall be designed to direct the surface stormwater flow to the stormwater detention ponds, as far as practically possible.

	<ul style="list-style-type: none"> • The stormwater detention ponds SR1, SR2 and SR3 will mainly detain the intercepted stormwater from the hardstand and roofed areas of the site in order to ensure that the post-development flow leaving the site will be similar or less than the pre-development flows and simultaneously replenish the underground water sources. • The stormwater detention ponds SR1, SR2 and SR3 shall be designed to retain post-development major design storm intercepted flows up to a maximum 1 in 100-year recurrence intervals and release up to a maximum of a 1 in 5-year recurrence interval run-off near the southern edge of the logistical services area. • In accordance with our design considerations and preliminary calculations, the stormwater detention ponds SR1, SR2 and SR3 will have effective storage capacities of 760m³, 640m³ and 682m³ respectively and approximate footprints of 800m², 700m² and 760m² respectively. • Due to the partial sedimentation process that occurs under lower flow velocities in the detention ponds, as well as the biological breakdown of contaminants by sun energy and oxidation, the quality of the intercepted run-off can be improved prior to discharge. • It is also recommended to establish indigenous drought-resistant ground cover in the detention pond areas, the disturbed cut and fill areas and the verges of the constructed hard stand and road areas to limit the transportation of sediment in these affected areas by water or wind (and associated erosion). • The gradient of constructed embankments shall not be steeper than 1 in 3 (preferable 1 in 4) to enable the establishment of vegetation and soil stability under wet conditions, as far as practically possible. • Rehabilitate all open areas with indigenous groundcover and vegetation, subject to the input of a specialist. First priority shall be given to areas adjacent to and near the proposed access road and hardstand area of the logistical services area. • Erosion protection measures consisting of semi-rigid Gabion/ Reno mattress/ geo-textile structures and the establishment of effective groundcover should be used, subject to practical design considerations in areas where concentrated storm water could cause erosion.
Socio-economic	
Dust Generation During the Vegetation Clearing and Site Preparation Phase	<ul style="list-style-type: none"> • Vegetation must be cleared in a phased manner to avoid large areas of unconsolidated soils. • Topsoil and soil stockpiles must be covered, wetted or otherwise stabilised to prevent wind erosion and dust generation. • A water cart or sufficient watering equipment must be available to wet soils during windy days if wind-blown sand and dust becomes a problem.
Noise and Disturbance During the Vegetation Clearing and Site Preparation Phase	<ul style="list-style-type: none"> • Limit activities, as far as possible, to working hours (i.e. 7am-6pm weekdays). • Encourage labourers to not make unnecessary noise. • Signage with the contact details of the responsible person must be provided at the site, for residents with complaints in this regard. • A complaints register must be kept to document complaints and the corrective action taken. • No loud music to be allowed on site.
Temporary Employment and Skills Development Opportunities Will Be Created During the Site Clearing and Preparation Phase	<ul style="list-style-type: none"> • Local labour must be sourced as far as possible, to maximise the economic benefits for the local community.

Risk to Human Health and Safety due to Open Excavations and Earth Moving Machinery	<ul style="list-style-type: none"> • Footprints, including site offices, excavations, storage areas, materials lay-down areas, stockpile area, and labourers rest areas must be clearly demarcated or fenced off before site preparation and vegetation clearing commences. • All activities must be limited to the demarcated area. • Open excavations must be kept free of water. • Access to the site must be controlled. • Entry points and access routes to the site must be clearly marked and traffic limited to those areas as far as possible. • Speed travelled by vehicles on the farm must be kept to a minimum and speed limits enforced. • Ensure that there is a first aid facility and trained first aiders permanently on site.
Runaway Bush Fires	<ul style="list-style-type: none"> • 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 firefighting equipment should be available on site.
Waste	
Generation of Waste During the Vegetation Clearing and Site Preparation Phase	<ul style="list-style-type: none"> • No waste from construction or otherwise, may be disposed of on site. • No waste should be permanently 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 temporarily 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 potable sanitation facilities must be provided and maintained for the labourers during the vegetation clearing and site preparation phase.
Palaeontological	
The Discovery or Exposure of any Substantial Fossil Remains (e.g. Vertebrate Bones and Teeth, Large Blocks of Petrified Wood, Fossil Plant-Rich Horizons, Buried Laminated Shales) During the Construction Phase	<ul style="list-style-type: none"> • The ECO responsible for overseeing the development should be alerted to the possibility of important fossil remains being found either on the surface or exposed by fresh excavations during construction. • Should fossil remains including, but not limited to, bones, shells or petrified wood be discovered during construction, these should be safeguarded (preferably in situ) and the ECO should alert the Eastern Cape Provincial Heritage Resources Authority (ECPHRA). Contact details: Mr Sello Mokhanya, 74 Alexander Road, King Williams Town 5600; Email: smokhanya@ecphra.org.za). This is so that appropriate mitigation (e.g. recording, sampling or collection) can be taken by a professional palaeontologist (<i>A tabulated Chance Fossil Finds protocol is appended to this CEMPr Report as Appendix Two</i>). • The specialist involved would require a collection permit from ECPHRA.
Archaeological	

<p>The Potential Impact of the Clearing of Vegetation for the Proposed Agricultural Development on Above- and Below-Ground Archaeology</p>	<ul style="list-style-type: none"> • Manager/ foreman or ECO should be informed before construction starts on the possible types of sites and material they may encounter and the procedures to follow when they find said sites. • The ECO should monitor the clearing of vegetation and if concentrations of archaeological materials and/ or human remains are exposed, then all work must stop for an archaeologist to investigate. • An archaeologist should conduct a walkthrough of the area after the vegetation has been cleared, to check if any significant sites/ materials have been exposed. Further recommendations will follow after the investigation. • If any human remains (or any other concentrations of archaeological heritage material) are exposed during construction, all work must cease in the immediate area of the finds and it must be reported immediately to the archaeologist at the Albany Museum (Tel. 046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (Tel. 043 6422811). Sufficient time should be allowed to investigate and to remove/ collect such material. Recommendations will follow from the investigation (<i>Possible archaeological sites that maybe found in the area is appended to this CEMPr as Appendix One</i>).
<p>Traffic</p>	
<p>Additional Traffic Volumes</p>	<ul style="list-style-type: none"> • Signage warning of construction vehicle presence. • Keep construction phase as short as possible. • Keep construction vehicles on the farm during the construction phase (construction camp).
<p>Traffic Safety Impact due to Slow Moving Traffic</p>	<ul style="list-style-type: none"> • Additional warning signage, compliance with Health and Safety requirements.
<p>Visual</p>	
<p>Visual Intrusion Along the DR01983 Road, as well as the DR02006 (Enon) Road During Construction of the Proposed Development</p>	<ul style="list-style-type: none"> • Possible vegetation screening along sections of the DR01983 road, as well as the DR02006 (Enon) Road, frequented by impacted individuals. • The orchards which have recently been planted on the adjacent farm, along the DR02006 (Enon) Road, are likely to reduce the visual impact of the proposed development during the construction phase.

A.2 ROLES AND RESPONSIBILITIES

The ultimate responsibility for the effective implementation of the EMPr lies with the applicant (holder of Environmental Authorisation (EA)), in this case Scheepersvlakte Farms (Pty) Ltd. Responsibility may be delegated to project managers, construction managers or environmental officers appointed by the applicant, during any stage of the development. The delegation of environmental responsibility will be determined by the institutional hierarchy of the organisation.

The applicant 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 *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 EA, as well as the Construction Environmental Management Programme (CEMPr). This monitoring role may be supplemented by an internal Site Environmental Officer (SEM) or Site Officer, that will remain on site during the construction phase.

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

<p>Project manager</p> <p>Name:</p> <p>Contact number:</p>	<ul style="list-style-type: none"> • Overall responsibility for management of the development. • Is familiar with the contents of the EIA, EMPr and the conditions of the 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.
<p>Construction/ Site Manager</p> <p>Name:</p> <p>Contact number:</p>	<ul style="list-style-type: none"> • Selects and appoints contractors. • Is familiar with the institutional environmental policies and Codes of Practice. • Is familiar with the EIA, EMPr, EA, and relevant legislation. • Ensures that the information in the EIA, EMPr, 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 EMPr by conducting regular site visits and meetings.
<p>Environmental Control Officer</p> <p>Name:</p> <p>Contact number:</p>	<ul style="list-style-type: none"> • Responsible for <i>overseeing and monitoring the implementation of the EMPr</i> during the construction phase. • Is familiar with the EIA, EMPr, EA, and relevant legislation. • Monitors compliance with the EMPr during the operational phase through annual environmental audits. • Report non-compliance or appropriate remedial action.
<p>Site Manager /Site Environmental Officer</p> <p>Name:</p> <p>Contact number:</p>	<ul style="list-style-type: none"> • Is familiar with the EIA, EMPr, EA, and relevant legislative requirements. • Ensures compliance with the EMPr and EA conditions. • Is familiar with and ensure compliance with the relevant internal institutional policy, and procedural guidelines • Ensures compliance with the relevant institutional policy, and procedural guidelines • Ensures compliance with the legislative requirements. • Implements the EMPr 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 EMPr. • Takes remedial or disciplinary action where required.

Should ownership of the project change, any EA granted in respect of the development must be transferred to the new owner, upon notification of the competent authority, DEDEAT. The EMPr, EA and Conditions of Approval remain binding on the new owner/ operator of the development.

A.3 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 must 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 interested and affected parties (I&APs).

A.3.1 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, must be obtained before vegetation clearing and site preparation commences:

- Extent and location of water bodies on site.
- Surface water quality from the water bodies on site, if surface water is available.
- Extent and location of alien invasive plants on site.
- Extent and location of erosion features on site.
- Delineation of the No-Go Areas (including aquatic buffers, sensitive vegetation, biodiversity conservation areas, unsuitable soils and slopes etc.).

Collection of baseline information will ultimately be the responsibility of the applicant. However, these tasks can be delegated to the SEM or Site Officer.

A.3.2 Interested and affected parties

Neighbours and parties affected by the development must 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 must be kept which details 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.

A.3.3 Monitoring

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

- Monthly monitoring of the compliance with the conditions of approval as given in the EA, 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 monitoring of the surface water quality of waterbodies on site or when surface water is available.
- Monthly conducting of environmental awareness training sessions with the labourers.
- Monthly monitoring of intact natural areas for snares.

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

A.4 LEGAL ENFORCEABILITY

This EMPr is likely to be a condition of the EA, 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 DEDEAT. The EMPr must 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. Should it be found that additional codes of conduct for contractors need to be included in this EMPr, this must be done at the first review opportunity.

A.5 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 must start prior to the commencement of construction activities.

Water quality monitoring, erosion monitoring, alien plant management and stakeholder input reports will be kept as outlined in Section A.3.3 above and be made available at the request of the DEDEAT.

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 DEDEAT.

A.6 AUDIT PROCEDURE AND 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 EA.

During the construction phase the audit reports, as produced by the ECO after periodic (monthly) site visits, will serve as the auditing mechanism. A schedule for site audits in the Construction Phase must be agreed upon during the appointment of the ECO. The ECO must 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 must be included in an amended CEMPr (Construction Phase EMPr) that must be made available to the DEDEAT on request.

A.7 ENVIRONMENTAL EDUCATION

Environmental education must be provided as part of the environmental induction process for the construction workers and farm employees that will be employed on the farm, prior to the commencement of the vegetation clearing and site preparation processes. The key requirements of the EIR, EMPr and EA will be included in the material which is presented to personnel during the formal environmental induction process.

- Environmental induction will be facilitated by the SEM, or Site Manager/ Farm 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.
- Labourers will be updated continually on pertinent environmental and safety issues during weekly Toolbox Talks by the SEM or Site Manager/ Farm Manager.
- Appropriate signage will be used to inform personnel of environmental conduct in specific areas.

Environmental induction training must include at a minimum:

- Designation of No-Go areas, workers rest areas, and sanitation facilities.
- Clarification of the meanings of warning signage used at the site.
- Explanation of designated restricted areas.
- Appropriate sanitation and waste disposal practices.
- Procedures to be followed if heritage (palaeontological and archaeological) artefacts are discovered.
- Procedures to be followed if wild fauna are encountered.
- Spill Contingency Plan (for chemicals, fuel (diesel) and sewerage).
- No poaching of fauna or flora will be tolerated.
- A fine system to be established for deliberate contraventions of the EMPr.

A.8 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.

APPENDIX ONE:

Identification of Archaeological Features and Material from Inland Areas: Guidelines and Procedures for Developers**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, human remains are buried in a flexed position on their side but are also found buried in a sitting position with a flat stone capping. Developers are requested to be on alert for the possibility of uncovering such remains.

Freshwater Mussel Middens

Freshwater mussels are found in the muddy banks of rivers and streams and were collected by people in the past as a food resource. Freshwater mussel shell middens are accumulations of mussel shell and are usually found close to rivers and streams. These shell middens frequently contain stone tools, pottery, bone, and occasionally human remains. Shell middens may be of various sizes and depths, but an accumulation which exceeds 1 m² in extent, should be reported to an archaeologist.

Large Stone Cairns

They come in different forms and sizes but are easy to identify. The most common are roughly circular stone walls (mostly collapsed) and may represent stock enclosures, remains of wind breaks or cooking shelters. Others consist of large piles of stones of different sizes and heights and are known as *isisivane*. They are usually near river and mountain crossings. Their purpose and meaning is not fully understood, however, some are thought to represent burial cairns while others may have symbolic value.

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.

Fossil Bone

Fossil bones may be found embedded in geological deposits. Any concentrations of bones, whether fossilized or not, should be reported.

Historical Artefacts or Features

These are easy to identify and include foundations of buildings or other construction features and items from domestic and military activities.

APPENDIX TWO:

CHANCE FOSSIL FINDS PROCEDURE: Farm Scheepers Vlakte 98 near Addo	
Province & region:	Eastern Cape, Sundays River Valley Municipality.
Responsible Heritage Management Authority	ECPHRA (Contact details: Mr Sello Mokhanya, 74 Alexander Road, King Williams Town 5600; Email: smokhanya@ecphra.org.za).
Rock unit(s)	Sundays River & Kirkwood Formations.
Potential fossils	Shelly invertebrates, petrified wood, rare dinosaur bones and teeth.
ECO protocol	1. Once alerted to fossil occurrence(s): alert site foreman, stop work in area immediately (<i>N.B.</i> safety first!), safeguard site with security tape / fence / sand bags if necessary.
	2. Record key data while fossil remains are still <i>in situ</i> : <ul style="list-style-type: none"> • Accurate geographic location – describe and mark on site map / 1: 50 000 map / satellite image / aerial photo • Context – describe position of fossils within stratigraphy (rock layering), depth below surface • Photograph fossil(s) <i>in situ</i> with scale, from different angles, including images showing context (e.g. rock layering)
	3. If feasible to leave fossils <i>in situ</i> : <ul style="list-style-type: none"> • Alert Heritage Resources Authority and project palaeontologist (if any) who will advise on any necessary mitigation • Ensure fossil site remains safeguarded until clearance is given by the Heritage Resources Authority for work to resume
	3. If <i>not</i> feasible to leave fossils <i>in situ</i> (emergency procedure only): <ul style="list-style-type: none"> • <i>Carefully</i> remove fossils, as far as possible still enclosed within the original sedimentary matrix (e.g. entire block of fossiliferous rock) • Photograph fossils against a plain, level background, with scale • Carefully wrap fossils in several layers of newspaper / tissue paper / plastic bags • Safeguard fossils together with locality and collection data (including collector and date) in a box in a safe place for examination by a palaeontologist • Alert Heritage Resources Authority and project palaeontologist (if any) who will advise on any necessary mitigation
	4. If required by Heritage Resources Authority, ensure that a suitably-qualified specialist palaeontologist is appointed as soon as possible by the developer.
	5. Implement any further mitigation measures proposed by the palaeontologist and Heritage Resources Authority.
Specialist palaeontologist	Record, describe and judiciously sample fossil remains together with relevant contextual data (stratigraphy / sedimentology / taphonomy). Ensure that fossils are curated in an approved repository (e.g. museum / university / Council for Geoscience collection) together with full collection data. Submit Palaeontological Mitigation report to Heritage Resources Authority. Adhere to best international practice for palaeontological fieldwork and Heritage Resources Authority minimum standards.

PART B: OPERATION PHASE ENVIRONMENTAL MANAGEMENT PROGRAMME (OEMPR)

**Agricultural Development of the Remainder of Portion 7 of the Farm
Scheepers Vlakte No. 98, in the Sundays River Valley Municipality**

(DEDEAT Reference No: EC06/C/LN2/M/47-2018)

April 2019



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Part B OPERATIONAL PHASE ENVIRONMENTAL MANAGEMENT PROGRAMME (OEMPr)

During its Operational Phase the site will be under cultivation (maize and citrus). This will include the planting, cultivation and harvesting of maize and citrus. *Maize* is proposed to be harvested mechanically, with the use of a combine harvester. Maize will be harvested directly onto a tractor-trailer, wherefrom it will be taken to the collection area at the logistical services area and directly transported by truck to silos for further processing (e.g. maize silos in Paterson). Harvested fruit will be transported to the proposed Pre-sort Packhouse, where it will be sorted into crates and transported to an existing packhouse for processing and packaging (e.g. Sunny Bank and San Miguel Packhouse).

Potential negative impacts associated with the Operational Phase are limited mainly to impacts on the local resources and infrastructure associated therewith, as well as the natural resources (vegetation and soil). Given that the development will take place in phases of several years, the operational phase will commence upon completion of the first phase of vegetation clearing and orchard establishment and will continue in parallel with and after the subsequent phases.

Environmental impacts associated with the Operational Phase of the development, as well as the appropriate mitigation actions, have been identified using specialist input for the various components of the affected environment provided in the Environmental Impact Assessment Report.

B.1 MANAGEMENT ACTIONS

The management actions outlined below, indicate the actions to be taken to minimise the potential negative impacts that the operation of the development may have on the environment, as well as measures to enhance the potential benefits.

Impact	Mitigation
Faunal	
Loss of Faunal Species of Special Concern due to Poaching	<ul style="list-style-type: none"> • Access to the proposed No-Go areas must be restricted. • Sweeping operations of fences for snaring and signs of human activity within all No-Go areas on the farm to be undertaken at least once a week. • No fauna on site may be intentionally harmed. • A professional animal handler needs to be contacted to remove dangerous fauna when in conflict with the workers. • 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.
Aquatic Features	
Potential Hydrological Process Impacts on Artificial Wetland Habitat and Drainage Systems due to Increased Surface Run-off from Orchard Areas and Associated Access Roads	<ul style="list-style-type: none"> • Implementing the recommended 20m aquatic buffers and No-Go areas, stormwater trenches, minimizing bare and exposed soils, and utilizing drip / micro irrigation (as proposed/ standard practice, which reduces the volume of water used). • The new proposed dam should be designed to prevent the capture of natural run-off from the catchment.
Potential Hydrological Impacts on Drainage Systems (vegetation along the 1:50 000 drainage areas) due to Crossings and Associated Increase in Run-off	<ul style="list-style-type: none"> • Design road crossings accordingly for 1:50 000 drainage areas to allow for natural, free flow during high rainfall periods (Note: These are largely undefined systems – without defined channel morphology and riparian obligates - that are only likely to present with sheet flow/ stormwater run-off during high rainfall periods). • Monitor the crossings during operations to remediate any erosion and associated impacts on vegetation cover. • A water use application to be processed with the DWS in terms of Section 21(c) and 21(i) of the National Water Act, where crossings are proposed. • Compliance with regulations pertaining to the Conservation of Agricultural Resources Act (43 of 1983), which <i>does not permit cultivation within the flood area of a watercourse or within 10m horizontally outside the flood area of a watercourse.</i>
Potential Increased Water Levels/ Saturation in the Artificial Wetland Habitats and Drainage Systems due to Irrigation	<ul style="list-style-type: none"> • Implementing the recommended 20m aquatic buffers and No-Go areas, stormwater trenches, minimizing bare and exposed soils, and utilizing drip / micro irrigation (as proposed/ standard practice, which reduces the volume of water used). • An agricultural stormwater and erosion control plan should be developed. This could include: • Infiltration swales or narrow linear and shallow trenches (within indigenous grasses or plants) along orchards to minimize impacts on the artificial wetland habitats. • Where existing crossings of the 1:50 000 undefined drainage lines occur, adequate measures should be implemented, where necessary. • Mulching, to increase retention of soil moisture in-situ/ at tree; and if feasible, narrow, indigenous vegetation strips between orchards. • Any other mitigation measures for the Scheepersvlakte Dam, as required by the DWS, should be adopted.
Water Quality Degradation of the Artificial Wetland Habitat and	<ul style="list-style-type: none"> • As per all impacts above, especially implementing the recommended 20m aquatic buffers and No-Go areas (Figure 6.14, Chapter Six); and limit vegetation removal during the construction/ establishment phase (Refer Vegetation Specialist Assessment (Chapter Six)).

<p>Drainage Systems due to Agricultural Run-off High in Pollutants</p>	<ul style="list-style-type: none"> • As an additional precautionary measure, a shallow trench could be placed strategically, to trap surface run-off (with fertilizer and herbicide substances). To be approved/ determined by the irrigation specialist. Ideally these should be grassed (indigenous) for absorption of chemicals. • Fertilizer applications should be used at the right time and at the required rates. • Use of slow release nitrogen fertilizers are encouraged as this can improve nitrogen efficiency and reduce leaching of nitrogen. • Avoid over irrigation. Drip / micro irrigation is encouraged/ supported (as is proposed/ standard practice). • The use of organic fertilizers and mulching is encouraged, as much as possible. • Strict use and management of potential sources of chemical pollution (e.g. pesticides, fertilizers, hydrocarbons from vehicles and machinery, etc.) i.e. waste management procedures. • Chemical pesticides and insecticides used should be the safest and least harmful to the environment. Biodegradable products should be used as far as possible. • International standards to be complied with at all times. • Chemicals and hazardous waste storage areas to be incorporated into the design of the new workshop building to prevent the pollution of aquatic resources. • Hazardous and chemical wastes (includes old containers) should be disposed of at registered landfill sites. • The use of indigenous windbreaks as far as possible, if proposed, to capture airborne pesticide spray. • Audit reporting by the Environmental Control Officer during the citrus orchard establishment, as well as the installation of associated infrastructure (to avoid buffer areas). • The recommended 20m aquatic buffers, No-Go areas and mitigation measures should be maintained and monitored by the Applicant/ Farm Manager. • The Applicant/ Farm Manager to monitor surface water quality. It should be noted that surface water is only likely to collect in the artificially created wetlands (small livestock dams) during high rainfall periods, whereas the overflow dam (with artificially created wetland) is likely to be permanently inundated. The latter is thus likely to be the main sample point. • A water use application in terms of Section 21(c) and 21(i) of the National Water Act is required.
<p>Loss of Vegetation Along Drainage Areas due to Maintenance Repairs on the Underground Water Supply Pipelines and Access Roads at Crossings</p>	<ul style="list-style-type: none"> • Maintenance activities to remain within the road footprint, as far as possible. • Ensure rehabilitation of disturbed areas with the same species removed, immediately after maintenance is complete, where necessary. • Audit reporting by the Farm Manager and Applicant during maintenance work to ensure workers remain within the road footprint, as far as possible.
<p>Socio-Economic</p>	
<p>Increased Employment Opportunities</p>	<ul style="list-style-type: none"> • Use local labour as far as possible.
<p>Traffic</p>	
<p>Traffic Safety Impact due to Additional Traffic</p>	<ul style="list-style-type: none"> • Additional warning signage to be erected.

Deterioration of Public Road Network	<ul style="list-style-type: none"> • Regular maintenance, particularly after harvest season.
Generation of Dust	<ul style="list-style-type: none"> • Regular maintenance.
Visual	<ul style="list-style-type: none"> •
Visual Intrusion Along the DR01983 Road, as well as the DR02006 (Enon) Road During Construction of the Proposed Development	<ul style="list-style-type: none"> • Possible vegetation screening along sections of the DR01983 road, as well as the DR02006 (Enon) Road, frequented by impacted individuals. • The orchards which have recently been planted on the adjacent farm, along the DR02006 (Enon) Road, are likely to reduce the visual impact of the proposed development during the construction phase.
Light Intrusion	<ul style="list-style-type: none"> • LSA and other permanent structures should, where practical, be situated off ridgelines so as to minimise the view catchment of the lighting, especially during nighttime; • All lighting should be fitted with deflectors to avoid light spillage and minimise visual impact of lights at night. The developer should specifically plan the type, placement and direction of lighting to ensure that light pollution is minimized, especially toward the east. • Timer switches or motion detectors should be used to control lighting in areas that are not occupied continuously.

B.2 ROLES AND RESPONSIBILITIES

The ultimate responsibility for the effective implementation of the EMPr lies with the applicant (owner/ developer) of the property at the time of the initiation of development, who, in this case would be Scheepersvlakte Farms (Pty) Ltd. Responsibility may be delegated to Environmental Officers, or Farm/ Project Managers, representing contractors or the applicant on the site during any stage of the development. The delegation of environmental responsibility will be determined by the institutional hierarchy of the organisation.

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 Site/ Farm Manager appointed by Scheepersvlakte Farms (Pty) Ltd.

Should ownership of the project change, any EA granted in respect of the development must be transferred to the new owner, upon notification of the competent authority, DEDEAT. The EMPr, EA and Conditions of Approval remain binding on the new owner/ operator of the development.

B.3 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 must 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.

B.3.1 Baseline data

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

Baseline data gathered prior to commencement of the Construction Phase, will be used to compare environmental conditions on the site during the Operational Phase of the development, to past (predevelopment) conditions.

B.3.2 Interested and Affected parties

Neighbours and parties affected by the development must be afforded opportunity to comment on problems and impacts that they may experience as a result of the development, during the Operational Phase of the project. A complaints register must be kept which details 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.

B.3.3 Monitoring

Once the facility becomes operational the following must be monitored:

- Bi-Annual monitoring of surface water quality from the water bodies on site, if available.
- Annual monitoring of the extent and location of alien invasive plants within the intact vegetation on site.
- Quarterly monitoring of the extent and location of erosion features on site (or after heavy rainfall events).
- Domestic effluent (Cleardge System):

- In order to address the concern about the required levels of free chlorine residual in the final effluent, it is recommended that the applicable chlorine test in the final effluent from the contact tank should be done initially on a daily basis and to adjust the flow over the inline chlorinator accordingly if necessary.
- In order to monitor the effective working of the Clearedge System in combination with the maturation pond (also designed to act as an irrigation/ emergency retention pond), it is recommended to have samples of the final treated water tested on a bi-weekly basis by the laboratory of the Nelson Mandela Bay Municipality: Port Elizabeth over the first 3 months, or other independent laboratory as dictated by the Sundays River Valley Municipality.

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

It is anticipated that the person responsible for the implementation of the OEMPr will also be responsible for environmental monitoring and record keeping for the duration of the project lifetime.

B.4 LEGAL ENFORCEABILITY

This EMPr is likely to be a condition of the EA, 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 DEDEAT. The EMPr must 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. Should it be found that additional codes of conduct for contractors need to be included in this EMPr, this must be done at the first review opportunity.

B.5 IMPLEMENTATION SCHEDULE AND REPORTING

The management measures outlined for the Operational Phase of the development will take effect as soon as the facility becomes operational.

Water quality monitoring, erosion monitoring, alien plant management and stakeholder input reports will be kept as outlined in Section B.3.3 above and be made available at the request of the DEDEAT.

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 DEDEAT.

B.6 AUDIT PROCEDURE AND EMPR REVIEW SCHEDULE

Once the land is under cultivation, the landowner must comply with all statutory legislation, as well as all of the recommendations as set out in the EIA. An annual audit must be conducted by a suitably qualified independent ECO, appointed by the landowner during the Operational Phase. These audits must assess the effectiveness of existing management and mitigation measures, and compliance with the OEMPr and conditions of the EA. The findings of the audit reports must 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 must be made available to DEDEAT, at their request.

B.7 ENVIRONMENTAL EDUCATION

Environmental education must be provided as part of the environmental induction process for the labourers that will be employed on site during the Operational Phase of the development.

- Environmental induction will be facilitated by the SEM 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.
- Labourers will be updated continually on pertinent Environmental and Safety issues during weekly Toolbox Talks by the SEM or Site Manager/ Farm Manager.
- Appropriate signage will be used to inform personnel of environmental conduct in specific areas.

Environmental induction training must include the relevant requirements of the EIA, EMPr and EA, and must include at a minimum:

- Explanation of No-Go areas, workers rest areas, and sanitation facilities.
- Clarification of the meanings of warning signage used at the site.
- Explanation of designated restricted areas.
- Appropriate sanitation and waste disposal practices.
- Procedures to be followed if wild fauna are encountered.
- Spill Contingency Plan (for chemicals, fuel (diesel) and sewerage)
- No poaching of fauna or flora will be tolerated.
- A fine system to be established for deliberate contraventions of the EMPr.

Weekly toolbox talks must comment on environmental issues on which non-compliance has been noted during periodic audits.

B.8 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