PART B: DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME

SCOPING AND ENVIRONMENTAL IMPACT ASSESSMENT:

Ikamva Lethu Agricultural Development on the Remainder of Farm 653, Sunland, Sundays River Valley Municipality

DEDEAT Reference (EC/06/C/LN2/M/11-2018)

August 2018

Prepared for:
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ABBREVIATIONS

CARA	Conservation of Agricultural Resources Act
CEMPr	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
OEMPr	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 applicant, Ikamva Lethu Farms (Pty) Ltd, proposes to establish an agricultural development on the Remainder of Farm 653 (hereafter referred to as **'Farm 653'**), which measures ~1163ha in extent. It is proposed that an area of ~650ha be transformed on Farm 653, to establish ~586ha of citrus orchards and install associated infrastructure (~64ha). Associated infrastructure includes, internal roads, access roads and access points, low-level gabion crossing, laydown areas, windbreaks (if required) and dams. Existing infrastructure on Farm 653 is proposed to be renovated and used for the storage of vehicles, pesticides, herbicides and to provide administrative support to the agricultural development, as well as permanent accommodation for five individuals. Farm 653 is currently zoned Agriculture 1.

In order to provide irrigation water to the proposed agricultural development, the applicant proposes to expand an existing dam on the site, as well as construct three new irrigation dams. In addition, an area of ~5.6ha will be disturbed to accommodate the installation of irrigation pipelines (2 x 450mm diameter) and one single pipe crossing of the Sundays River (1 x 630mm diameter), over a length of ~8km, across the following properties, not located on Farm 653:

- Remainder of Farm 714
- Portion 3 of Farm 558
- Portion 39 of Farm 558
- Portion 6 of Farm 558

The proposed pipelines are also required to be installed in the reserve of a proclaimed public road (MR00470). The farm portions included in this assessment fall within the Sundays River Valley Municipal (SRVM) area and the nearest town is Sunland, which is located ~3.5km northeast of Farm 653. The nearest boundary of the Addo Elephant National Park is located ~9.7km east of Farm 653 and 8.2km east of the proposed pipeline route.

The proposed expansion of agricultural activities on Farm 653 can be divided into the following phases, namely:

- Preconstruction Phase
- Construction Phase
- Operational Phase

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
EC/06/C/LN2/M/11-2018
Applicant
Ikamva Lethu Farms (Pty) Ltd
Location of Activity
The Remainder of Farm 653, Sunland, Sundays River Valley Municipality

Activity Description

The applicant, Ikamva Lethu Farms (Pty) Ltd, proposes to establish an agricultural development on the Remainder of Farm 653 (hereafter referred to as '**Farm 653**'), which measures ~1163ha in extent. It is proposed that an area of ~650ha be transformed on Farm 653, to establish ~586ha of citrus orchards and install associated infrastructure (~64ha). Associated infrastructure includes, internal roads, access roads and access points, low-level gabion crossing, laydown areas, windbreaks (if required) and dams. Existing infrastructure on Farm 653 is proposed to be renovated and used for the storage of vehicles, pesticides, herbicides and to provide administrative support to the agricultural development, as well as accommodation for five individuals. Farm 653 is currently zoned Agriculture 1.

In order to provide irrigation water to the proposed agricultural development, the applicant proposes to expand an existing dam on the site, as well as construct three new irrigation dams. In addition, an area of ~5.6ha will be disturbed to accommodate the installation of irrigation pipelines (2 x 450mm diameter) and one single pipe crossing of the Sundays River (1 x 630mm diameter), over a length of ~8km, across the following properties, not located on Farm 653:

- Remainder of Farm 714
- Portion 3 of Farm 558
- Portion 39 of Farm 558
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The proposed pipelines are also required to be installed in the reserve of a proclaimed public road (MR00470). The farm portions included in this assessment fall within the Sundays River Valley Municipal (SRVM) area and the nearest town is Sunland, which is located ~3.5km northeast of Farm 653. The nearest boundary of the Addo Elephant National Park is located ~9.7km east of Farm 653 and 8.2km east of the proposed pipeline route.

Irrigation Infrastructure

Irrigation water for the development will be provided from the Lower Sundays River Water Users Association (LSRWUA) canal system and will be reticulated from the canal offtake point located on the Remainder of Farm 714, to Farm 653, via two uPVC pipes (⌀450mm; throughput 280 L/s) for a distance of ~578m. The two pipelines converge into a single uPVC pipe (⌀630mm; throughput 280 L/s), for a distance of ~137m across the Sundays River. It is proposed that the pipeline will be submerged through the Sundays River and anchored on either side by means of galvanised puddle pipes cast in concrete on the river banks. Following the crossing of the river, the reticulation again splits into two uPVC pipelines (⌀450mm; throughput 280 L/s) for a distance of ~7km, where it terminates at the existing dam, proposed for expansion, on Farm 653. The pipeline will be installed within the road reserve and over private land for a total distance of ~8km's. The following properties will be affected by the proposed pipeline route:

- Remainder of Farm 714;
- Portion 3 of Farm 558;
- Portion 39 of Farm 558;
- Portion 6 of Farm 558; and
- The proposed pipeline route is also required to be installed in the reserve of a proclaimed public road (MR00470).

The total footprint area that will be disturbed by the installation of the pipeline is conservatively estimated at ~5.6ha (7m width x 8000m length). A pump station will be constructed along the pipeline route, approximately 2.2km away from the boundary of Farm 653, on Portion 6 of Farm 558.

It is proposed that an existing dam (current capacity ~17 000m³) be expanded to a capacity of 45 000m³ and that three new dams, with a capacity of 45 000m³ each, be constructed in order to supply the required irrigation water for the proposed development. Therefore, the total capacity of the dams on site will be ~180 000m³. It is anticipated that the dams will have a footprint on average of ~1.5ha each and the wall heights will be ~4.5m.

Irrigation water will be reticulated within the orchards via a network of underground PVC irrigation pipes and valves, with varying internal diameters (315mm to 355mm). Water delivery to crops will be achieved with the aid of aboveground polypropylene pipes providing drip/ micro irrigation (varying between 60mm and 315mm internal diameter).

The applicant has obtained a water use licence 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 675ha of water from the LSRWUA canal system.

Existing Infrastructure

Existing buildings on site are proposed to be renovated in order to provide the necessary administrative and logistical support for the proposed citrus development. While the footprints of the existing buildings are not proposed to be expanded, existing infrastructure associated with these facilities will require upgrading and expansion, including the installation of new supporting infrastructure e.g. water reticulation, internal roads, access roads and access points.

One of the existing buildings on the farm will be renovated so as to accommodate a chemical store with a capacity to temporarily store 30m^3 of chemicals. Based on the extent of Farm 653 (~1163ha), the proposed orchard area (~586ha), the preferred cultivar to be planted (lemons), and the treatments required, the maximum weekly volume of chemical product (using a worst-case scenario for the Sundays River Valley area), has been calculated, by the SRCC's Chief Agronomist, as 21 280L. Therefore, the proposed capacity (30m^3) will be sufficient to store a full week's worth of chemical products on Farm 653.

Access

Access to the site is gained off the gravel MR00470 road (Sunland Road). There are numerous existing access points from the road which provide access to the northern and southern sections of Farm 653. However, the Traffic Specialist has indicated that the existing primary access is not be suitable for the proposed agricultural development. Thus, it is proposed that this access point be relocated to allow for better sight distances. This new access road is proposed ~95m east of the existing access point and will be utilized as the primary access to the logistical services area and the manager's residence. A portion of this access road will have to be constructed over the non-perennial watercourse which traverses Farm 653. To allow for natural flow and seepage of water during and after rainfall periods, it is proposed that a low-level gabion crossing be constructed over the non-perennial water course. The construction of the gabion crossing will further limit the transport of sediment during and after rainfall conditions. Three additional minor access points are also proposed along the MR00470.

Electrical Requirements

New electrical infrastructure will be required to assist in the distribution of the irrigation water into and out of dams. The proposed additional electrical infrastructure will comprise of transformers and line extensions with the following capacities:

- One (1) 500kVA at the pump station
- Three (3) 150kVA at the dams

Eskom has provided confirmation that the existing network is capable of supplying the additional required load of 1MVA. Email confirmation is included in Appendix G (Supporting Documentation) of this report.

Construction Phase

- Clearing of indigenous vegetation;
- Landscaping and levelling the site for citrus orchards;
- Securing the site (e.g. erecting appropriate fencing);
- Establishment of internal unpaved service roads and new access points;
- Construction of a low-level gabion crossing over the non-perennial drainage line on Farm 653;
- Installation of irrigation pipelines (~8km) from the canal, across the Sundays River to Farm 653;
- Construction of three new irrigation dams and expansion of an existing dam;
- Installation of internal water reticulation and irrigation infrastructure;
- Planting of orchards and windbreaks (if required);
- Renovation of existing structures to be utilised for administrative purposes; and
- Installation of new supporting infrastructure (e.g. water reticulation, stormwater management).

Operational Phase

Once the site is suitably prepared the area will be utilised for the establishment of citrus orchards. Equipment required for the new operations will be stored in the renovated storage sheds and workshop areas on site. The following operational phase activities are associated with the project:

- Water for the proposed agricultural development will be supplied from the LSRWUA canals which will be reticulated from the proposed three new dams, as well as the expanded balancing dam; 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)	
9. The development of infrastructure exceeding 1000 metres in length for the bulk transportation of water or storm water- *(i) with an internal diameter of 0,36 metres or more; or* *(ii) with a peak throughput of 120 litres per second or more;* *excluding where-* *(a) such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve or railway line reserve; or…*	Irrigation water for the development will be reticulated from the Lower Sundays River Water Users Association (LSRWUA) canal offtake point located on the Remainder of Farm 714, to Farm 653, via two uPVC pipes (⌀450mm; throughput 280 L/s) for a distance of ~578m. The two pipelines converge into a single uPVC pipe (⌀630mm; throughput 280 L/s), for a distance of ~137m across the Sundays River. Following the crossing of the river, the reticulation again splits into two uPVC pipelines (⌀450mm; throughput 280 L/s) for a distance of ~7km, where it terminates at the existing dam, proposed for expansion, on Farm 653. The pipeline will be installed within the road reserve and over private land for a distance of ~8km's. It is anticipated that the distance over private land will exceed 1000 metres in length, thereby triggering this listed activity, which requires Environmental Authorisation.
13. The development of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50000 cubic metres or more, unless such storage falls within the ambit of activity 16 in Listing Notice 2 of 2014.	It is proposed that an existing dam (current capacity ~17 000 cubic metres) be expanded to a capacity of 45 000 cubic metres) and that three new dams with a capacity of 45 000 cubic metres each (combined capacity of 135 000 cubic metres) be constructed in order to supply the required irrigation water for the proposed development. The total combined capacity of the four dams will therefore be ~180 000 cubic metres, thereby triggering this listed activity, which requires Environmental Authorisation.
19. 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;	The following project activities will trigger this listed activity: • In order to connect to the LSRWUA canal system, which is located north of the Sundays River, an irrigation pipe (ø630mm) will be installed through the Sundays River and will require the excavation of more than 10 cubic metres of soil or rock from the watercourse during construction; and • The installation of internal irrigation infrastructure and construction of internal vehicle tracks, including the realignment of the existing access road and associated low-level gabion crossing on Farm 653 may be required through watercourses on the site. These components of the project trigger this listed activity, which requires Environmental Authorisation.
24. The development of a road – *(ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres;*	The preferred width of the main internal distributor area should preferably be a minimum width of 8 metres near the entrance to the site. The width of the other main internal roads will vary between 8 metres and 4 metres. At the proposed primary access point to the administrative area, south of the MR00470, a bellmouth with a radius of ~30 metres is proposed. It is anticipated that the combined length of the internal access roads may exceed 1 kilometre in length.

GN R325 (Listing Notice 2 – full S&EIA)	
15. The clearance of an area of 20 hectares or more of indigenous vegetation, …	The proposed agricultural development will entail the clearance of approximately ~650 hectares of vegetation on Farm 653, most of which is anticipated to be indigenous. In addition, a further ~5.6ha is proposed to be disturbed along the pipeline corridor. This component of the project triggers this listed activity, which requires Environmental Authorisation.
GN R324 (Listing Notice 3 – Basic Assessment)	
2. The development of reservoirs, excluding dams, with a capacity of more than 250 cubic metres. ***a. Eastern Cape*** *ii. Outside urban areas, in:* *(dd) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;* *(ff) 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;…*	It is proposed that three new dams with a capacity of 45 000 cubic metres each (combined capacity of 135 000 cubic metres) be constructed in order to supply the required irrigation water for the proposed development. Farm 653 is located outside of an urban area, in the Eastern Cape and ~9.7 kilometres from the nearest boundary of the Addo Elephant National Park. The majority of the site has been identified as a Terrestrial CBA (BLMC2) and the entire site as an Aquatic CBA (ABLMC 2a) in terms of the Eastern Cape Biodiversity Conservation Plan. These components of the project trigger this listed activity, which requires Environmental Authorisation.
4. The development of a road wider than 4 metres with a reserve less than 13,5 metres. ***a. Eastern Cape*** *i. Outside urban areas:* *(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;* *(gg) 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;…*	The preferred width of the main internal distributor area should preferably be a minimum width of 8 metres near the entrance to the site. The width of the other main internal roads will vary between 8 metres and 4 metres. At the proposed primary access point to the administrative area, south of the MR00470, a bellmouth with a radius of ~30 metres is proposed. Farm 653 is located outside of an urban area, in the Eastern Cape and ~9.7 kilometres from the nearest boundary of the Addo Elephant National Park. The majority of the site has been identified as a Terrestrial CBA (BLMC2) and the entire site as an Aquatic CBA (ABLMC 2a) in terms of the Eastern Cape Biodiversity Conservation Plan. This component of the project triggers this listed activity, which requires Environmental Authorisation.
10. 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. ***a. Eastern Cape*** *i. Outside urban areas:* *(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;* *(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of*	The existing buildings on site will be renovated so as to accommodate a small chemical store, with a capacity to store approximately 30 cubic metres. This will be sufficient to accommodate the temporary storage of chemicals on site. Farm 653 is located outside of an urban area, in the Eastern Cape and ~9.7 kilometres from the nearest boundary of the Addo Elephant National Park. The majority of the site has been identified as a Terrestrial CBA (BLMC2) and the entire site as an Aquatic CBA (ABLMC 2a) in terms of the Eastern Cape Biodiversity Conservation Plan. This component of the project triggers this listed activity, which requires Environmental Authorisation.

NEMPAA or from the core areas of a biosphere reserve;…	
12. 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. ***a. Eastern Cape*** *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;*	The proposed pipeline route from the canal to Farm 653 will cross over the Sundays River. Some of the vegetation on the banks of the river, within which the pipeline will be installed, has been identified as Albany Alluvial Vegetation in terms of the NBA mapping resources and this has been confirmed by the vegetation specialist. This vegetation type has been listed as an Endangered ecosystem in terms of section 52 of the NEMBA. The width of the pipeline route which will be disturbed is anticipated to be ~7 metres. Approximately 3600 square metres (~0.36ha) of this vegetation type may be disturbed to accommodate the installation of the pipeline. This component of the project triggers this listed activity, which requires Environmental Authorisation.
14. The development of- *(i) dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 square metres; or* *(ii) infrastructure or structures with a physical footprint of 10 square metres or more;* *where such development occurs –* *(a) within a watercourse;* *(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse; …* ***a. Eastern Cape*** *i. Outside urban areas:* *(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;* *(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; …*	It is proposed that three new dams, with a capacity of 45 000 cubic metres each, be constructed in order to supply the required irrigation water for the proposed development. These dams along with their associated infrastructure (pump houses, inlet and outlet pipes, electrical lines and transformers) may be constructed within 32 metres of the water resources on Farm 653. Internal irrigation infrastructure may be established within 32 metres of the water resources on site. In addition, the proposed pipeline route from the canal to Farm 653 will be installed through the Sundays River and will pass by two artificial wetlands (farm dams), located immediately north of Portion 6 of Farm 558. The development footprint thereof is likely to exceed 10 square metres at this point. At the point where the pipeline is installed through the Sundays River a temporary dam or weir may be required which would likely exceed 10 square metres. Internal vehicle tracks may be constructed through watercourses on Farm 653. Farm 653 is located outside of an urban area, in the Eastern Cape and ~9.7 kilometres from the nearest boundary of the Addo Elephant National Park (AENP). The pipeline route is located approximately 8.2km from the AENP. The majority of the site has been identified as a Terrestrial CBA (BLMC2) and the entire site as an Aquatic CBA (ABLMC 2a) in terms of the Eastern Cape Biodiversity Conservation Plan. These components of the project trigger this listed activity, which requires Environmental Authorisation.

16. The expansion of reservoirs[1], excluding dams[2], where the capacity will be increased by more than 250 cubic metres. ***a. Eastern Cape*** *i. Outside urban areas:* *(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;* *(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; or…*	In addition to the three proposed new dams, it is proposed that an existing dam (current capacity ~17 000 cubic metres) be expanded to a capacity of 45 000 cubic metres in order to supply the required irrigation water for the proposed development. Farm 653 is located outside of an urban area, in the Eastern Cape and ~9.7 kilometres from the nearest boundary of the Addo Elephant National Park. The majority of the site has been identified as a Terrestrial CBA (BLMC2) and the entire site as an Aquatic CBA (ABLMC 2a) in terms of the Eastern Cape Biodiversity Conservation Plan. This component of the project triggers this listed activity, which requires Environmental Authorisation.

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 author of the EMPr is Sandy Wren of Public Process Consultants. A CV outlining the experience and key competencies of the lead author is 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:

[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*;"

- 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.

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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 infrastructure (water supply 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.

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)

Ikamva Lethu Agricultural Development on the Remainder of Farm 653, Sunland, Sundays River Valley Municipality

DEDEAT Reference (EC/06/C/LN2/M/11-2018)

August 2018

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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 establishment of citrus orchards, including internal roads, internal irrigation infrastructure and laydown areas. Existing infrastructure on Farm 653 is proposed to be renovated and used for the storage of vehicles, pesticides, herbicides and to provide administrative support to the agricultural development, as well as permanent accommodation for five individuals. The existing access point and associated access road will be re-aligned in line with the recommendations of the traffic specialist and civil engineer and will require the construction of a low-level gabion crossing over the non-perennial watercourse. In order to supply irrigation water to the proposed development, an irrigation pipeline is required to be installed in the road reserve and over private land for a total distance of ~8km's. Additionally, it is proposed that an existing dam (current capacity ~17 000m³) be expanded to a capacity of 45 000m³ and that three new dams be constructed, each with a capacity of 45 000m³. The approximate combined storage capacity of the four dams will thus total ~180 000m^3. 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 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 for agricultural activities	• The biodiversity target areas indicated in Chapter Six, Section 6.8.5 (**Error! Reference source not found.**16) should be retained (as per the proposed layout). The final proposed layout shall retain additional areas over and above the biodiversity no-go areas (Figure 6.17). • No Bontveld on Farm 653 is to be cleared. • Remove only the required amount of vegetation for citrus cultivation activities, including the footprint for installation of the proposed pipeline i.e. minimize the extent of bare and exposed soils. • The proposed pipeline route will follow the existing access track along the boundary of Farm 653, where clearing has occurred in the past. This should be strictly adhered to so as to limit any additional clearing. • Maintaining the other natural areas on Farm 653 into the future (**Error! Reference source not found.** and 6.15). • If windbreaks are to be planted, plant indigenous windbreaks, if possible. • Rehabilitation of disturbed areas post-establishment with indigenous species, if necessary (this should be restricted to the proposed pipeline route if bullet 3 is adhered to). Plants can be used in the 'rehabilitation' of other disturbed areas on the farm. Succulents, such as the *Aloes*, will be easier to transplant and should be used. • Stockpile topsoil separately so as to use topsoil for rehabilitation. • Control and management of alien invasive plants, such as *Opuntia ficus-indica* and *O. aurantiaca*. • Audit reporting by the Environmental Control Officer during construction/ clearing of orchard areas. • Compliance with regulations pertaining to the Conservation of Agricultural Resources Act (43 of 1983), where applicable.
Loss of Critical Biodiversity Area and Ecological Support Area due to clearing of vegetation for agricultural activities	• Implement the recommended 100m buffer around the watercourse. This avoids the CBA and some of the ESA (designated by the SRV CBA Map). • Adopt the biodiversity target/ no-go areas as indicated in **Error! Reference source not found.**16 (Section 6.8.5). These essentially become CBA and/ or ESA, mitigating the loss of the ESA (designated on the SRVCBA Map). • The Environmental Control Officer to approve orchard area demarcation (based on the no-go areas), prior to clearing and to monitor clearing within demarcated areas.
Loss of Critical Biodiversity Area and Ecological Support Area due to clearing of vegetation for the installation of the proposed pipelines	• The installation of the pipelines to follow existing access tracks, modified areas and the concrete wall, as well as installing the pipelines in the road reserve. • Limit removal of vegetation. • Where the pipelines follow the existing vehicle tracks and the road reserve, also minimize the extent of vegetation loss. • Rehabilitate the disturbance footprint with indigenous species. • Stockpile topsoil separately so as to use topsoil for rehabilitation. • The Environmental Control Officer to approve orchard area demarcation (based on the no-go areas), prior to clearing and to monitor clearing within demarcated areas.

Loss of species of conservation/ special concern due to clearing of vegetation for agricultural activities and along the proposed pipeline route	• A floral search and rescue must be carried out prior to commencement of vegetation clearing. • The recorded Endangered species should be avoided. If any new plants are observed during clearing, these should be rescued and translocated. • As many of the Least Concern species should be rescued and translocated elsewhere on the farm. Areas not proposed for cultivation do support most of these species. It should be noted that some of the species are weedy pioneers, which establish easily where disturbance has occurred, especially *Mesembryanthemum aitonis, Drosanthemum lique,* and *Delosperma* species. Focus should, therefore, be on the *Aloes*, bulbs and other vygies. • License applications to the Department of Economic Development, Environmental Affairs and Tourism for the removal of protected species. • License application to the Department of Forestry (of Department of Agriculture, Forestry & Fisheries) for the removal of *Sideroxylon inerme* 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 citrus orchards	• As per impacts above.
Faunal	
Loss of faunal Species of Special Concern due to vegetation clearing	• 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	• 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. • Long-term preservation of the Bontveld vegetation (~82ha) on the farm within the No-Go areas is considered to be a positive impact due to the threats of habitat destruction as a result of mining in this vegetation type as well as the limited extent thereof within protected areas.
Loss of faunal Species of Special Concern due to poaching	• Access to the proposed biodiversity conservation area located in the north -western corner of the farm must be restricted. • Warning signs should be strategically posted on the inner perimeter of proposed buffer zone to indicate to staff that access to this area is restricted. • Random visible security presence within all No-Go areas on the farm to be undertaken at least once a week including sweeping operations of fences for snaring and signs of human activity. • No fauna on site may be intentionally 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.

Aquatic	
Loss of CBA and ESA buffer areas along the non-perennial watercourse, due to clearing of vegetation	• Adopt the recommended 100m buffer around the non-perennial watercourse. This avoids the loss of most of the CBA and some of the designated ESA, as well as the atypical riparian habitat with associated wetland habitats. As per Chapter Seven, Section 7.7.3.2, the buffer 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. • Maintain the biodiversity no-go areas as indicated in **Error! Reference source not found.** (Section 7.7.4). These areas essentially become CBA and/ or ESA, mitigating the loss of the CBA and ESA.
Loss of wetland habitat and riparian systems along the drainage areas, due to vegetation clearing	• Adopt the recommended buffers (Figure 7.10 and 7.11). As per Section 7.7.3.2, 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. A buffer of 20m is proposed around the ephemeral drainage lines on the farm as well as the natural wetland (wetland No.1) located on the south eastern boundary. • A water use application to be processed with the Department of Water and Sanitation in terms of Section 21(c) and 21(i) of the National Water Act. • Audit reporting by the Environmental Control Officer during establishment of citrus orchards. • Compliance with regulations pertaining to the Conservation of Agricultural Resources Act (43 of 1983), which does not permit cultivation within the flood area of a watercourse or within 10m horizontally outside the flood area of a watercourse.
Loss and disturbance of wetland and riparian habitat along the Sundays River, due to vegetation clearing for the proposed pipelines	• Construction should take place during the dry season when flows are lowest to avoid high rainfall periods and flood peaks. • Ensure that the extent of the pipelines' construction footprint is as small and narrow as possible, to reduce the amount of vegetation cleared and bank excavated. Reducing the 7m wide construction footprint is encouraged. To avoid indiscriminate clearing in the sensitive wetland and riparian habitats, demarcate the extent of the construction footprint (Works Area) using non-perishable poles or other solid material for the duration of the construction work and rehabilitation phase. • Stormwater and erosion control measures should be implemented e.g. the use of bidum/hessian or other suitable materials, erosion berms and/ sediment traps. To be approved by the Engineer. • Stormwater should be diverted from the construction footprint to prevent erosion and sedimentation along the banks and into the Sundays River. • The banks must be re-shaped to their original form (shape, slope) post construction. • Disturbed bank areas should be kept to a minimum and should be vegetated as soon as construction is complete across the river (not after the entire pipeline is installed). • The relevant flood line, advised to be the 1:25 year floodline by the Engineer, was taken into consideration in determining technical requirements. • Immediate rehabilitation of disturbed areas on the river banks by indigenous species, equivalent to those removed during the construction period. It is the opinion of the assessor, that rehabilitation with *Phragmites australis* will not be necessary as these species recover very quickly post-disturbance, due to aggressive rhizomes. • Topsoil and subsoil to be stored separately and replaced in that order, for rehabilitation purposes.

	• Audit reporting by the Environmental Control Officer during the construction and laying of the pipelines. • A water use application in terms of Section 21(c) and 21(i) of the National Water Act is required for the proposed pipeline crossing.
Potential water quality degradation (chemical and sewage pollution) of the Sundays River, during installation of the pipelines	• Construction should take place during the dry season when flows are lowest to avoid high rainfall periods and flood peaks that may exacerbate the impact. • An emergency plan should be in place in the event of accidental spillages of hazardous chemicals (petrol, diesel and oil etc.). • Accidental oil and fuel spillages should be cleaned up immediately by the Contractor, placed in sealed containers and disposed of at a licensed waste disposal site. • Vehicles and construction equipment should not undergo maintenance procedures on site or near the Sundays River; unless under emergency situations. • All construction related machinery and vehicles, including materials (such as cement) should be stored at a designated construction camp (>100m from the Sundays River) or at the existing farm warehouses, not at the point of crossing at the Sundays River. • All machinery should be in good working order to prevent oil and fuel leakages. • Ablution facilities should be provided >100m from the Sundays River (or at the designated construction camp) and should be serviced timeously to maintain good working order. • Audit reporting by the Environmental Control Officer during the construction and laying of the pipelines. • A water use application in terms of Section 21(c) and 21(i) of the National Water Act is required for the proposed pipeline crossing.
Hydrological process impacts of the proposed pipeline across the Sundays River	• As per impact mitigation measures above, *including*: • Ensure that the laying of the pipeline is done as timeously and efficiently as possible, to reduce the length of time that flow is altered. • A water use application in terms of Section 21(c) and 21(i) of the National Water Act is required for the proposed pipeline crossing.
Potential loss of 'riparian' system along the drainage area, due to vegetation clearance for the proposed pipelines (on Farm 653)	• Ensure that the extent of the pipelines' construction footprint is as small and narrow as possible, to reduce the amount of vegetation cleared. Reducing the 7m wide construction footprint is encouraged. To avoid indiscriminate clearing, demarcate the extent of the construction footprint (Works Area) using non-perishable poles, sticks, or other solid material for the duration of the construction work and rehabilitation phase. • Rehabilitation with indigenous species, equivalent to those removed, as soon as construction is completed. • Audit report by the Environmental Control Officer during construction. • A water use application in terms of Section 21(c) and 21(i) of the National Water Act is required for the proposed pipeline crossing.
Potential loss of 'riparian' system along the non-perennial watercourse due to the proposed and proposed access road (on Farm 653)	• Ensure that the extent of the pipelines' construction footprint is as small and narrow as possible, to reduce the amount of vegetation cleared. Reducing the 7m wide construction footprint is encouraged. To avoid indiscriminate clearing, demarcate the extent of the construction footprint (Works Area) using non-perishable poles, sticks, or other solid material for the duration of the construction work and rehabilitation phase.

	• The Civil Engineer to design the watercourse crossing to reduce/negate potential impacts, such as sedimentation and erosion, on the watercourse and wetland habitat downstream, during high rainfall periods. • The Civil Engineer to design appropriate stormwater management controls, particularly for high rainfall periods / storm events / flash floods, given that this is a dry ephemeral system already fragmented by the MR00470, and wetland habitat is approximately 20m downstream of the crossing. For example, stormwater v-drains (side drains/surface channels) along the access road leading towards the watercourse crossing point; and perpendicular swales, riprap etc. • Rehabilitation with indigenous species, equivalent to those removed, as soon as construction is completed. • Audit report by the Environmental Control Officer during construction. • A water use application in terms of Section 21(c) and 21(i) of the National Water Act is required for the proposed pipeline crossing.
Potential loss and modification of wetland habitat due to the expansion of the existing irrigation dam (no. 11)	• The Department of Water and Sanitation has indicated that the water use application in terms of Section 21(c) and 21(i) of the National Water Act applies to the irrigation dams with wetland habitat. • Audit reporting by the Environmental Control Officer during construction. • Compliance with regulations pertaining to the Conservation of Agricultural Resources Act (43 of 1983), where applicable.
Potential sedimentation and erosional impacts (geomorphological impacts) on wetland habitat (irrigation dams) along the MR00470 due to vegetation clearing within 32m the proposed pipeline route and at the pump station	• Minimize the extent of clearing of vegetation for the proposed pump station and proposed underground pipelines. Demarcate the construction footprint to prevent indiscriminate clearing. • Stockpile soils in a manner that prevents erosion and sedimentation into irrigation dams and associated canal e.g. bidim, hessian covers, and appropriate distances from the dams with wetland habitat. • Rehabilitation with indigenous species, equivalent to those removed, as soon as construction is completed. • Audit reporting by the Environmental Control Officer during the construction and laying of the pipelines; and pump station. • The Department of Water and Sanitation has indicated that the water use application in terms of Section 21(c) and 21(i) of the National Water Act applies to the irrigation dams with wetland habitat.
Potential sedimentation and erosional impacts (geomorphological impacts) on drainage areas and associated wetland habitats, due to agricultural activities (on Farm 653)	• Implement the recommended aquatic buffer of 20m (**Error! Reference source not found.** and **Error! Reference source not found.**). As per Section 7.7.3.3, the buffer 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. • Ideally, the vehicle access track alongside the small depression wetland boundary should be allowed to re-vegetate naturally, rather than be used. • In order to reduce surface water run-off from orchard areas, establish stormwater management trenches (with indigenous grasses, not concrete lined) to allow increased infiltration. • Avoid blanket clearing; vegetation should be cleared in a phased manner to reduce large areas of bare and exposed soils. • Mulching to increase retention of soil moisture in-situ/ at tree base. • Minimizing bare and exposed soils and implementing drip irrigation (as per standard practice). • Audit reporting by the Environmental Control Officer during orchard establishment. • A water use application in terms of Section 21(c) and 21(i) of the National Water Act is required.

Potential sedimentation and erosional impacts (geomorphological impacts) on the non-perennial watercourse and associated wetland habitats, due to agricultural activities (on Farm 653)	• Implement the recommended aquatic buffer of 100m (Figure 7.10 and 7.11); and other impact mitigation measures as per Impact 10 above, where applicable. As per Section 7.3.3.2, the buffer should be measured from the edge of the watercourse and associated wetland habitats. In instances, particularly to the west (proximate to the proposed road crossing), where the channel or banks are not clearly defined, the buffer should be measured from the edge of the grassy paths (See Plate 2.4). • A water use application in terms of Section 21(c) and 21(i) of the National Water Act is required.
Stormwater management on Farm 653	• The proposed private road to the logistical area has been designed to ensure minimum interference with the natural stormwater flow conditions and not to concentrate stormwater as far as practically possible. • The low-level road crossing at the non-perennial watercourse will consist of a 1m deep non-rigid gabion structure complete with a geotextile filter cloth. Refer to Chapter Eleven, Figure 11.4. The top of the gabion crossing will as far as possible follow the natural contours of the site. The gabion structure road crossing will allow the natural flow and seepage of water during and after rain conditions but will limit the transport of sediment. • However, in areas where vertical road gradients are steeper than 1:10 or where the road lends itself to intercept the natural flow of stormwater, it is advisable to construct earthen berms. The earthen berms will divert and limit the concentration of the intercepted run-off on the road. The mentioned berms will distribute the run-off on the road to the lower-lying area to prevent the risk of excessive erosion. The mentioned berm should be 100mm to 200mm higher than the final formation level of the upgraded road surface to divert the intercepted flow effectively off the road to the natural lower-lying area adjacent to the road. • The turning facility for the heavy vehicles near the store has also been designed to distribute stormwater in a sheet flow manner. • It is recommended that indigenous drought-resistant ground cover (or grasses) be established, as dictated by the Vegetation Specialist Assessment (Chapter Six), on the disturbed cut and fill areas, as well as the verges and berm outlets of the constructed road and turning facility, to limit the transport of sediment in these affected areas by water and/ or wind and resultant erosion. • The gradient of the constructed embankments will not be steeper than 1 in 3 (preferable 1 in 4) to enhance the establishment of vegetation and soil stability under wet conditions as far as possible. • Where the embankments would be steeper than 1:3, it is recommended to design and construct non-rigid retaining structures which will consist of gabions and/ or Reno mattresses complete with filter cloth to effectively stabilize the retained soil and also limit the transport of sediment by water and/ or wind on and near the affected cut and fill areas.
Socio-economic	
Dust Generation During the Vegetation Clearing and Site Preparation Phase	• 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	• 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.
A Number of Temporary Employment and Skills Development Opportunities Will Be Created During the Site Clearing and Preparation Phase	• 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	• 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	• 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	• 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 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.
Heritage	
Palaeontological Potential Project Related Impacts on Belowground Fossils	• The Construction Manager should monitor >1m deep excavations into freshly exposed sedimentary bedrock during the construction phase of the project, in particular the dam constructions and expansion. • The Construction Manager should be informed about the possible type of fossils (shell beds, ammonites) that may be encountered within the sedimentary bedrock (see Figure 10.12 in Chapter Ten of the EIA Report).

	• If any Palaeontological Heritage is identified on site, this must be reported immediately to the ECPHRA (Mr Sello Mokhanya, Tel: 043 745 0888; smokhanya@ecphra.org.za). Ideally the fossil material should be left in situ until a Palaeontologist has provided input as to how to proceed with regard to mitigation.
Potential Impact of Vegetation Vlearing for the Proposed Agricultural Activities on Above and Below Ground Archaeology	• The graveyard must be avoided and protected by a 25m no-go buffer zone. • Middle Stone Age artefacts may occur as capped assemblages within the Quaternary Alluvial deposits flanking the Sundays River. The Construction Manager should be aware of possible accumulations of undisturbed flaked stones when >1m deep trench excavations are to be conducted into unconsolidated sediments, during the construction and installation of the irrigation pipeline. • However, the ECO (must be trained) must monitor the clearing of the vegetation and if concentrations of archaeological materials and/ or human remains are exposed then all work must stop for an Archaeologist to investigate (see below). • An Archaeologist should conduct a walkthrough of the area after the vegetation is cleared to check if any significant sites/ materials were 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.
Traffic	
Additional Traffic Volumes	• Keep construction and earth-moving vehicles on site during site preparation and construction phase.
Traffic Safety Impact due to Slow Moving Traffic	• Additional warning signage, compliance with Health and Safety requirements.
Security	
Manage and minimize all security threats during the construction phase	• Vetting of all new employees/ contractors. • Security induction meeting with all new employees/ contractors and sign-off of induction. Hard copy of Ikamva Lethu site security procedure issued to every employee/ contractor. • Random visible security presence in all no-go areas on the farm. At least once a week including sweeping operations of fence for snaring and signs of human activity. • Warning signs should be strategically posted on the inner perimeter of the proposed buffer zone to indicate to staff that access to this area is restricted.
Visual	
Visual intrusion during construction of the proposed development	• Best practice guidelines for construction; • Locate construction camps and laydown areas where sensitive visual receptors are least likely to be affected; and • Night lighting of the construction site should be minimised within safety and efficiency requirements, and work at night should be avoided where possible.
Visual intrusion of construction activities associated with the proposed pipeline	• Best practice guidelines for construction; • Locate construction camps and laydown areas where sensitive visual receptors are least likely to be affected; and • Night lighting of the construction site should be minimised within safety and efficiency requirements, and work at night should be avoided where possible.

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 Ikamva Lethu 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.

Project manager Name: Contact number:	• 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.
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, 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.
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, 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.
Site Manager /Site Environmental Officer Name: Contact number:	• 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 Department (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.
- Weekly monitoring of the irrigation pipeline installation for erosion and effectiveness of rehabilitation.
- 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, pipeline installation monitoring 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 and for the installation of the pipeline, 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 artefacts are discovered.
- Procedures to be followed if wild fauna are encountered.
- Spill Contingency Plan (for chemicals 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.

PART B: OPERATION PHASE ENVIRONMENTAL MANAGEMENT PROGRAMME (OEMPR)

Ikamva Lethu Agricultural Development on the Remainder of Farm 653, Sunland, Sundays River Valley Municipality

DEDEAT Reference (EC/06/C/LN2/M/11-2018)

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Part B OPERATIONAL PHASE ENVIRONMENTAL MANAGEMENT PROGRAMME (OEMPr)

During its Operational Phase the site will be under cultivation (citrus). This will include the planting, cultivation and harvesting of citrus.

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 Species of Special Concern due to poaching	• Access to the proposed biodiversity conservation area located in the north -western corner of the farm must be restricted. • Warning signs should be strategically posted on the inner perimeter of proposed buffer zone to indicate to staff that access to this area is restricted. • Random visible security presence within all No-Go areas on the farm to be undertaken at least once a week including sweeping operations of fences for snaring and signs of human activity. • No fauna on site may be intentionally harmed. • Monitor pathways in the indigenous habitat on site routinely for the presence of snares.
Aquatic Features	
Potential increased water levels/ saturation in the wetland habitats and the non-perennial watercourse, due to drip irrigation (on Farm 653)	• Adopt the recommended 100m buffer around the non-perennial watercourse. This avoids the loss of most of the CBA and some of the designated ESA, as well as the atypical riparian habitat with associated wetland habitats. • Maintain the 20m buffer around drainage lines and wetlands, stormwater trenches, minimizing bare and exposed soils, drip irrigation (as proposed/ standard practice) and no-go areas (Chapter Seven, Figure 7.11). • 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. • If feasible, mulching, to increase retention of soil moisture in-situ/ at tree and indigenous vegetation strips between orchards. • Ideally, the vehicle access track alongside the small depression wetland boundary should be allowed to re-vegetate naturally, rather than be used. • These buffers and mitigation measures should be maintained and monitored by the Applicant/ Farm Manager. • A water use application in terms of Section 21(c) and 21(i) of the National Water Act is required.
Changes to the local water quality of the wetland habitats and the non-perennial watercourse due to return agricultural run-off high in nutrients or insecticides, herbicides/ pesticides etc	• Maintain the recommended 20m and 100m aquatic buffers (**Error! Reference source not found.**). 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. • As per all impacts above, especially implementing the no-go areas (Figure 7.11); and limit vegetation removal during the construction/ establishment phase (Refer Specialist Vegetation Chapter). • 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 irrigation is encouraged/ supported (as is the 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. • Chemicals and hazardous waste storage areas should be in the existing storage buildings (as proposed). • Hazardous and chemical wastes (includes old containers) should be disposed of at registered landfill sites. • Audit reporting by the Environmental Control Officer during the citrus orchard establishment (to avoid buffer area). • These buffers and mitigation measures should be maintained and monitored by the Applicant/ Farm Manager. • A water use application in terms of Section 21(c) and 21(i) of the National Water Act is required.
Potential water quality degradation (domestic effluent) of the non-perennial watercourse and associated wetlands, due to use of septic tanks (on Farm 653)	• The septic tanks to be regularly maintained both from a sewage disposal and structural perspective. This should include monitoring for leakages from the pipelines connecting the tanks to the toilets. • Septic tanks to be emptied once every 5 years, or more regularly, if deemed necessary, after bi-annual inspections. • The applicant to enter into an agreement (as approved by the local authority) with a competent registered contractor for the applicable emptying of the septic tanks when needed and discharge of the mentioned raw effluent to the registered Addo Foul Sewer Treatment Works in Addo. • Once the logistical services area becomes fully operational, the water quality of downstream wetlands and the non-perennial watercourse must be tested by a suitably qualified individual annually, if surface water is available. • If the aforementioned tests reveal contamination by the domestic effluent then the existing septic tank system must be upgraded to conservancy tanks, as designed by a specialist.
<u>Road and Pipeline Maintenance</u>: Loss and disturbance of wetland and riparian habitat along the Sundays River, due to vegetation clearing for the proposed pipelines	• Construction should take place during the dry season when flows are lowest to avoid high rainfall periods and flood peaks. • Ensure that the extent of the pipelines' construction footprint is as small and narrow as possible, to reduce the amount of vegetation cleared and bank excavated. Reducing the 7m wide construction footprint is encouraged. To avoid indiscriminate clearing in the sensitive wetland and riparian habitats, demarcate the extent of the construction footprint (Works Area) using non-perishable poles or other solid material for the duration of the construction work and rehabilitation phase. • Stormwater and erosion control measures should be implemented e.g. the use of bidum/hessian or other suitable materials, erosion berms and/ sediment traps. To be approved by the Engineer. • Stormwater should be diverted from the construction footprint to prevent erosion and sedimentation along the banks and into the Sundays River. • The banks must be re-shaped to their original form (shape, slope) post construction. • Disturbed bank areas should be kept to a minimum and should be vegetated as soon as construction is complete across the river (not after the entire pipeline is installed). • The relevant flood line, advised to be the 1:25 year floodline by the Engineer, was taken into consideration in determining technical requirements.

	• Immediate rehabilitation of disturbed areas on the river banks by indigenous species, equivalent to those removed during the construction period. It is the opinion of the assessor, that rehabilitation with *Phragmites australis* will not be necessary as these species recover very quickly post-disturbance, due to aggressive rhizomes. • Topsoil and subsoil to be stored separately and replaced in that order, for rehabilitation purposes. • Audit reporting by the Environmental Control Officer during the construction and laying of the pipelines. • A water use application in terms of Section 21(c) and 21(i) of the National Water Act is required for the proposed pipeline crossing.
<u>Road and Pipeline Maintenance</u>: Potential water quality degradation (chemical and sewage pollution) of the Sundays River, during installation of the pipelines	• Construction should take place during the dry season when flows are lowest to avoid high rainfall periods and flood peaks that may exacerbate the impact. • An emergency plan should be in place in the event of accidental spillages of hazardous chemicals (petrol, diesel and oil etc.). • Accidental oil and fuel spillages should be cleaned up immediately by the Contractor, placed in sealed containers and disposed of at a licensed waste disposal site. • Vehicles and construction equipment should not undergo maintenance procedures on site or near the Sundays River; unless under emergency situations. • All construction related machinery and vehicles, including materials (such as cement) should be stored at a designated construction camp (>100m from the Sundays River) or at the existing farm warehouses, not at the point of crossing at the Sundays River. • All machinery should be in good working order to prevent oil and fuel leakages. • Ablution facilities should be provided >100m from the Sundays River (or at the designated construction camp) and should be serviced timeously to maintain good working order. • Audit reporting by the Environmental Control Officer during the construction and laying of the pipelines. • A water use application in terms of Section 21(c) and 21(i) of the National Water Act is required for the proposed pipeline crossing.
<u>Road and Pipeline Maintenance</u>: Hydrological process impacts of the proposed pipeline across the Sundays River	• As per impact mitigation measures above, *including*: • Ensure that the laying of the pipeline is done as timeously and efficiently as possible, to reduce the length of time that flow is altered. • A water use application in terms of Section 21(c) and 21(i) of the National Water Act is required for the proposed pipeline crossing.
<u>Road and Pipeline Maintenance</u>: Potential loss of 'riparian' system along the drainage area, due to vegetation clearance for the proposed pipelines (on Farm 653)	• Ensure that the extent of the pipelines' construction footprint is as small and narrow as possible, to reduce the amount of vegetation cleared. Reducing the 7m wide construction footprint is encouraged. To avoid indiscriminate clearing, demarcate the extent of the construction footprint (Works Area) using non-perishable poles, sticks, or other solid material for the duration of the construction work and rehabilitation phase. • Rehabilitation with indigenous species, equivalent to those removed, as soon as construction is completed. • Audit report by the Environmental Control Officer during construction. • A water use application in terms of Section 21(c) and 21(i) of the National Water Act is required for the proposed pipeline crossing.

<u>Road and Pipeline Maintenance</u>: Potential loss of 'riparian' system along the non-perennial watercourse due to the proposed and proposed access road (on Farm 653)	• Ensure that the extent of the pipelines' construction footprint is as small and narrow as possible, to reduce the amount of vegetation cleared. Reducing the 7m wide construction footprint is encouraged. To avoid indiscriminate clearing, demarcate the extent of the construction footprint (Works Area) using non-perishable poles, sticks, or other solid material for the duration of the construction work and rehabilitation phase. • The Civil Engineer to design the watercourse crossing to reduce/negate potential impacts, such as sedimentation and erosion, on the watercourse and wetland habitat downstream, during high rainfall periods. • The Civil Engineer to design appropriate stormwater management controls, particularly for high rainfall periods / storm events / flash floods, given that this is a dry ephemeral system already fragmented by the MR00470, and wetland habitat is approximately 20m downstream of the crossing. For example, stormwater v-drains (side drains/surface channels) along the access road leading towards the watercourse crossing point; and perpendicular swales, riprap etc. • Rehabilitation with indigenous species, equivalent to those removed, as soon as construction is completed. • Audit report by the Environmental Control Officer during construction. • A water use application in terms of Section 21(c) and 21(i) of the National Water Act is required for the proposed pipeline crossing.
Socio-Economic	
Increased Employment Opportunities	• Use local labour as far as possible.
Traffic	
Traffic Safety Impact due to Additional traffic	• Additional warning signage to be erected by the applicant.
Deterioration of Public Road Network	• Gravel loss can be negated should the road be regularly maintained by the responsible road authorities.
Generation of Dust	• Regular road maintenance to be conducted by the responsible road authorities.
Security	•
Manage and minimize all security threats during the operational phase	• All new employees to complete pre-employment security questionnaire. • Questionnaire processing and capturing on database. Filing of identity document copies. • Applicants with elevated risk profile to be identified pre- employment. • Criminal vetting • Random visible security presence in buffer zone. At least once a week including sweeping operations of fence for snaring and signs of human activity. • Enhanced/ elevated communication with security providers and plug into existing crime information systems and pre-warning alerts with regards to poaching suspect activity/ movement. • Any security breach/ compromise to be investigated swiftly and dealt with decisively. • Permanent on site – Security Supervisor with vehicle to facilitate and conduct abovementioned actions 1 – 5.
Visual	•
Potential visual intrusion due to the proposed agricultural development on	• Night lighting of the development in its operational phase, should be designed to minimize light pollution such as glare and light trespass.

the existing views of sensitive visual receptors in the surrounding landscape	

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 Ikamva Lethu 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 Ikamva Lethu 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 Department (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).

- At least once a week, random visible security presence in buffer zone, to include sweeping operations of fence for snaring and signs of human activity.
- Bi-annual inspections of septic tanks to determine maintenance requirements.
- Septic tanks to be emptied once every 5 years, or more regularly, if deemed necessary, after bi-annual inspections.

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 (i.e. once irrigation infrastructure is installed, including the new irrigation pipeline, expansion of the existing dam, construction of three new irrigation dams, and the establishment of citrus orchards).

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 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.