ENVIRONMENTAL IMPACT ASSESSMENT STUDY REPORT

FOR THE

PROPOSED EVERGREEN AVOCADOS FARM IN NDABIBI FARM, NAIVASHA, NAKURU COUNTY

GPS COORDINATES: Lat-0.757939°, Long 36.199659°

(NEMA/TOR/5/2/619)

Proponent
EVERGREEN AVOCADOS LTD
Lower Plains Road
P.O Box 1925-00502
Karen

Submitted to
NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY
Popo Road, South C
P.O. Box 67839-00200 Nairobi
Email: dgnema@nema.go.ke

OCTOBER 2023

CERTIFICATION

Lead EIA/EA Expert

This Environmental Impact Assessment Study Report for Evergreen Avocados Farm has been prepared in accordance to the Environmental Management and Coordination Act, Cap 387 and the Environmental Impact Assessment and Audit Regulations, 2003 and their respective amendments. The information contained in this report was obtained from primary and secondary sources.

Name: William Mutahi **Signature:**

WILLIAM MUTAHI
LEAD EXPERT(NEMA)
NO. 2942

Reg. No.: 2942 **Date:** 17th October 2023

Proponent

I hereby confirm that the contents of this Environmental Impact Assessment Study Report for Evergreen Avocados Farm are true to the best of my knowledge and undertake to implement the mitigation measures proposed n this report or any other instructions NEMA may deem appropriate in relation to the findings and as inspections may inform from time to time.

Name: ERAN BEN YAIR **Signature:**

"EVERGREEN AVOCADOS LTD"
17 OCT 2023
West of Ndabibi Village
P. O. Box 1925 - 00502, NAIROBI

Designation: Chief Operating Officer **Date:** 17th October 2023

EXECUTIVE SUMMARY

Overview

This report details the findings of an Environmental and Social Impact Assessment for the proposed establishment of Evergreen Avocados Farm in Ndabibi Farm, Naivasha Sub-county, Nakuru County. This Study Report has been prepared in accordance with the Environmental Management and Coordination Act, Cap 387, Environmental Impact Assessment and Audit Regulations of 2003 and their respective amendments. The proponent commissioned the Registered EIA experts to undertake an Environmental Impact Assessment and prepare a report for submission to National Environment Management Authority. The report addresses mitigation options for any potential impact and residual effects relevant to operational activities of the proposed projects, which would assist the Authority in making a decision regarding the project.

Nature of the proposed project

Evergreen Avocados Ltd intends to establish an avocado farm at Ndabibi Farm in Naivasha sub county of Nakuru County. The project will be undertaken in phases with an aim to achieve 400ha of avocado. Avocado farming presents a more profitable venture, particularly for the export market compared to other crops such as wheat, which has been the main crop under cultivation. The proponent intends to introduce varieties that are suited to the climatic conditions of the area. The project will be undertaken in phases owing to the magnitude of project activities, particularly establishment of the plantations. The project is listed as a High-Risk Project thus requiring the proponent to submit a Study Report.

Location of the proposed project

The proposed farm falls within Ndabibi Location, Maella Ward in Naivasha sub-county of Nakuru County. It is situated near the boundary of Nakuru and Narok counties. The farm can be accessed through the road to Ndabibi shopping centre. The farm is located at grid reference Lat -0.7579390, Long 36.1996590 at 2,048m a sl. The project area is predominantly an agricultural zone. The main crops cultivated in the area are wheat, potato, beans, and maize while the most common livestock breeds are sheep, poultry, and cattle. The production system is, essentially, subsistence with commercial farming being practiced by a large landholder including the proposed project site.

Project cost

The project is estimated to cost **Kshs 190,020,328 Million** as per the Bill of Quantities. The costs cover rehabilitation works, land preparation, and development of the irrigation infrastructure. The NEMA submission fee amounts to **Ksh 190,020** which is 0.1% of the project cost.

Project Alternatives

Alternatives analysis is designed to bring environmental, economic and social considerations into the “up-stream” stages of development planning-project identification and earlier-as well as the later stages of site selection, design and implementation. In the assessment of the project alternatives, this study considered several scenarios namely: Status quo or “no action” scenario, Alternative land use, and Subdivision into Small scale holdings. Analysis of alternatives determined that the proposed project remains the most suitable alternative. Essentially, it is more compatible with the prevailing ecological conditions, enhance agricultural production, as well as provide direct and indirect socio-economic benefits

Potential impacts and mitigation Measures

The analysis of impacts was based on the main project phases namely planning and design, construction, operations and decommissioning. A climate change risk and vulnerability assessment were also undertaken to enhance the proposed project's contribution to climate change mitigation and adaptation. The analysis and evaluation of potential impacts was undertaken through stakeholder consultations, a standard checklist and matrix. The identified impacts were then subjected to a criterion that was used to determine their characteristics and significance.

Some of the anticipated positive impacts will include:

- Increased job opportunities and livelihood options
- Increased agricultural production.
- Increased tree cover in the area.
- Multiplier benefits associated with CSR and leveraging for infrastructural development in the area.

Environmental concerns that are associated with this project implementation with potentially negative impacts were established and included:

- Occupational health and safety issues affecting workers undertaking various project activities
- Soil erosion as a result of the vegetation clearance during the initial stages
- Modification of local hydrology and ecology.

This ESIA Study has however recommended feasible mitigation measures contained in the Environmental Management and Monitoring Plan to avoid, reduce and eliminate these adverse impacts.

Conclusion and Recommendations

On the basis of the results of this ESIA Study, it is apparent that, with the adoption and implementation of the Environmental Management and Monitoring Plan, the adverse impacts will be adequately mitigated against. In addition, foreseeable potential impacts will be forestalled before they occur thereby considerably limiting future environmental damage and ensuring the existence of a clean and healthy environment. Accordingly, as per Section 58 (1) and (2) of the Environmental Management and Coordination Act,1999 and Environmental Management and Coordination (Amendment) Act, 2015, we recommend that the proposed project be implemented and we recommend that **Evergreen Avocados Ltd** be issued with an **Environmental Impact Assessment License** for the **Proposed Establishment of Evergreen Avocados Farm in Ndabibi, Naivasha Sub-County of Nakuru County**.

Table of Contents

ANNEXES

LIST OF TABLES, FIGURES AND PLATES

LIST OF ACRONYMS

BoQ	Bill of Quantities
Cap.	Refers to 'chapter' in the Laws of Kenya
DOHSS	Directorate of Occupational Health and Safety Services
EA	Environmental Audit
EAL	Evergreen Avocados Limited
EHS	Environmental Health and Safety
EMCA	Environmental Management and Coordination Act
EMMP	Environmental Management and Monitoring Plan
ESIA	Environmental and Social Impact Assessment
ETo	Reference evapotranspiration (standard estimate of evapotranspiration)
GPS	Global Positioning System
KEBS	Kenya Bureau of Standards
KM	Kilometre
KNBS	Kenya National Bureau of Statistics
LR	Land Reference
M a.sl	Metres above Sea Level
m	Metre
m^3	Cubic Metres
mm	Millimeter(s) (A unit of measuring length)
NEMA	National Environment Management Authority
OSHA	Occupational Health and Safety Act
P. O.	Post Office
PIN	Personal Identification Number
PPE	Personal Protective Equipment
spp.	Species
WRA	Water Resources Authority
WRUA	Water Resource Users Association

1 INTRODUCTION

1.1 Overview

This report details the findings of an Environmental and Social Impact Assessment for the proposed establishment of Evergreen Avocados Farm in Ndabibi Farm, Naivasha Sub-county, Nakuru County. This Study Report has been prepared in accordance with the Environmental Management and Coordination Act, Cap 387, Environmental Impact Assessment and Audit Regulations of 2003 and their respective amendments.

The need to pursue sustainable development guided by environmental, social, cultural and ethical considerations has been accorded a high priority worldwide. The enactment of the EMCA, Cap 387 was aimed at promoting sustainable development through the integration of environmental, economic and social aspects in the development process in Kenya. The concept of sustainable development emphasizes on efficient use of non-renewable resources, conservation of renewable resources, protection of human environment, not exceeding the lands/ecosystem carrying capacity and sharing of resources equitably.

The proponent commissioned the Registered EIA experts to undertake an Environmental Impact Assessment and prepare a report for submission to National Environment Management Authority. The report addresses mitigation options for any potential impact and residual effects relevant to operational activities of the proposed projects, which would assist the Authority in making a decision regarding the project.

1.2 Project proponent and background

The project proponent is Evergreen Avocados Ltd., which was duly registered as a Limited Company in August 2022 as per the Companies Act, 2015. The proponent has acquired 1,415ha of land from Domino Investments Ltd at Ndabibi Farm. The parcels are registered as LR. No. 20591/196, 198, 199, 201, 202, 205, 206 & 208. The proponent's registration details and land ownership documents are appended in this report.

The proposed project was informed by the proponent's investment and entrepreneurial interests and goals. The proponent identified an opportunity in avocado farming owing to the expanding market and favourable climatic conditions. This was followed by objective evaluation of the project feasibility covering the location of the proposed site, rainfall and hydrological patterns, labour, and general supply and demand dynamics. The farm is expected to engage in both rainfed and irrigated production of avocados for the export market. The global demand for avocado has been increasing at a faster rate than the annual global production, hence, the higher prices on the world market. Kenya is considered as the 6th largest producer of Avocados in the world. The fruit has also been gaining popularity in the domestic consumption market.

The strategic location will be critical to realization of the anticipated long-term benefits to the proponent and the region. The proposed project, will indeed contribute to the general socio-economic development of the area through creation of jobs and multiplier business opportunities among others.

Table 1: Avocado producers in the world

Country	Avocado export quantities (in tonnes)
Mexico	1.4 million
Peru	542,000
Chile	98,000
Kenya	95,000
South Africa	53,000

Source: Food and Agricultural Organization of the United Nations (FAO) (2021)

1.3 Specific Objectives of the

The main purpose of this Environmental and Social Impact Assessment study is to assist the proponent, NEMA and all other stakeholders in understanding potential environmental and social consequences of the proposed project and thus provide a basis for making informed decisions. The key objectives of this ESIA study included:

i.) To evaluate the local environmental and land use conditions to determine the compatibility of the proposed facility with the surroundings.
ii.) To identify and evaluate the significant environmental impacts associated with the proposed project.
iii.) To assess the environmental costs and benefits of the proposed project to the local and national economy.
iv.) To evaluate and select the best project alternative from the various options.
v.) To incorporate environmental management plans and monitoring mechanisms during implementation and operation phases of the project.

1.4 Terms of Reference

The general Terms of Reference for this report was to conduct an Environmental Impact Assessment for the proposed establishment of the farm in accordance with NEMA's Environmental (Impact Assessment and Audit) regulations, 2003 and the Environmental Management and Coordination Act (Cap 387).

The specific terms included:

- Description of the nature of the project covering description of the proposed project's operations, components and stages (design, construction and operation phases),
- Assessing by - products, waste generated and the disposal methods,
- Description of the location of the project comprising of the existing environmental conditions, land ownership, and conformity to land use planning,
- Description and analysis of the national legislative and regulatory framework, international guidelines, international conventions and treaties, related to the proposed project,
- Identifying potential environmental and social impacts and scale, both positive and negative emerging from all phases of the proposed project,
- Gathering and collating views and perceptions of the public and other stakeholders on the proposed project,
- Evaluating of the occupational health and safety issues related to the proposed project,

- Identifying and analyzing alternatives to the proposed project including project site, design, and technologies,
- Developing mitigation measures for the adverse impacts
- Developing an Environmental Management and monitoring Plan (EMMP) for the proposed project and baseline data for environmental monitoring,
- Compiling the findings into an environmental and social impact assessment study report and submission of copies of the report to the proponent and NEMA to guide the implementation decisions on the proposed project.

The ToR for the ESIA was submitted and approved by NEMA (**Annex B.**)

1.5 ESIA Process

The ESIA process commenced during the initial stage of the project cycle to allow for the integration of environmental considerations into the final project design. The stages of the ESIA process are summarised in the following sections.

1.5.1 Screening

Project screening was done in order to generate a description of the project and ascertain the possible effects on the environment and socio-economic spheres. This step was mainly guided by the prevailing legal framework and the cause-effect principle. The project is listed as a ***High-Risk Project*** thus requiring the proponent to submit a ***Study Report***.

1.5.2 Scoping

Scoping involved identification of key issues and stakeholders to be covered by the EIA process. It was mainly done through discussions with the proponent, review of legal framework, and documentation related to the project. Scoping also facilitated the selection of appropriate study methodologies and determination of data availability and data gaps.

1.5.3 Analysis of Potential Impacts and identification of mitigation measures

This stage involved determining the nature, scale, magnitude, likelihood, extent, effect as well as possibility for reversibility of possible impacts. This information was used to identify and evaluate technically feasible and appropriate mitigation as well as attribute responsibility in the mitigation plan. This was done for the four project phases namely, planning and design, construction, operations, and decommissioning.

1.5.4 Analysis of Alternatives

After the analysis of potential impacts and the identification of mitigation measures, analysis of options and alternative ways to meet the same objectives was considered. This was aimed at identifying the least damaging option in terms of alternative designs, location, technologies and operation. The process was guided by clearly articulated project objectives so that the analysis of alternatives does not digress into the consideration of irrelevant options.

1.5.5 Preparation of an Environmental Management and Monitoring Plan

The Environmental Management and Monitoring Plan (EMMP) sets out the indicators, timeframe, cost and responsibility for the management of the impacts and implementation of the mitigation measures. The EMMP is elaborated to sufficient detail to address the identified adverse impacts. Some of the areas that

have been covered in the EMMP include but are not limited to: Description of prioritized mitigation activities, timelines and resources to ensure delivery of the EMMP, estimated costs as well as monitoring strategies.

1.6 ESIA Approach

The approach of this study was structured such as to cover the requirements under the EMCA, Cap 387 as well as the EIA/EA Regulations, 2003 and Legal Notice 31 & 32 of 2019. It largely involved an understanding of the project background, preliminary designs and implementation plan as well as commissioning. The following were the main strategies employed during the study.

1.6.1 Desk Study

The ESIA team reviewed literature that was relevant to the proposed project. This included the review of the Environmental Management and Co-ordination Act, (EMCA), the Environmental Impact Assessment (EIA) Regulations, 2003, Crops Act,2013, Water Act, 2016, and Occupational Safety and Health Act, 2007 among other legislation, relevant studies and reports on similar projects. Other documents reviewed related to the baseline information of the project area including demographics, geology, climate, hydrology and socio-economic profile of the project area among other important aspects.

1.6.2 Site Visit/On-site Validation

During the field investigations, the study team collected information on the biophysical and socio-economic environment of the proposed site area and its environs. The observations covered biophysical and socio-economic environments including landscape, geology, soils, and presence of nearby sensitive receptors, flora and fauna. Photographs were also taken where necessary.

1.6.3 Stakeholder Consultations

Relevant stakeholders were contacted and their opinion sought on the proposed development. The main purpose of carrying out the stakeholder consultation is to collate and incorporate their input into the project development to safeguard the environment. Public participation involved a public baraza with the community members and opinion leaders in the project area. This was meant to collect socio-economic data that was aimed at unearthing the community perceptions and concerns on the proposed project and its likely influences on the socio-economic conditions of the project area. Key informant interviews were undertaken with the aim of gathering expert information on the operations and status of the project components. Minutes and attendance list for the stakeholder consultation are provide in **Annex C**.

1.7 Expected Outputs

The output of this study is an Environmental Impact Assessment Study Report containing:

- Executive summary of findings
- Baseline information of the project area
- Review of relevant policy and legislations
- Project activity description
- Evaluation of project activity-impact identification and formulation of recommended mitigation measures
- Environmental Management and Monitoring Plan
- Conclusion and recommendations

1.8 Study Team

This ESIA was carried out by a multi- disciplinary team of experts encompassing collation and analysis of relevant socio-economic and biophysical data. The team was comprised of:

- Socio-economist
- Environmentalist,
- Agricultural Economist
- Civil Engineer

2 REVIEW OF RELEVANT POLICY AND LEGAL FRAMEWORK

2.1 Introduction

The project proponent is expected under law and best practice to consider and exercise the principles and guidelines of environmental management as follows: -

a) Sustainability: The project proponent is expected to use resources sustainably and ensure the potential of natural resources to meet the needs of present and future generations is not compromised.
b) Intergenerational Equity: The project design should use both natural and man-made resources in a way that does not compromise current generation of resource users.
c) Prevention: The proponent should institute measures to prevent occurrence of negative environmental impacts.
d) Precaution: Uncertainty or absence of scientific evidence should not hinder the establishment of appropriate mitigation measures.
e) Polluter Pays Principle: The proponent should bear the costs or compensate for any damage caused by the project activities e.g. damage to private property or public goods such as access roads.
f) Public Participation: Involvement of the local community and environmental democracy in the project is vital as a requisite for project sustainability.
g) Cultural & Social Principal: The project design should ensure that technologies to be introduced do not conflict with the existing environmental management systems.

2.2 Policy Framework

The following are some of the policies that are relevant to the proposed project:

2.2.1 National Environment Action Plan (NEAP)

NEAP was a deliberate policy effort to integrate environmental considerations into the country's economic and social development, informed by the premise that economic and social development programmes that disregard environmental sustainability have negative impacts on ecosystems. This integration process was to be achieved through a multi-sectoral approach to develop a comprehensive framework to ensure that environmental management and the conservation of natural resources are an integral part of societal decision-making.

The project proponent has undertaken this study with the aim to ensure that the proposed project has taken due regard to relevant environmental management issues. Further in recognizing that a multi-sectoral approach is desired in identifying and solving environmental problems, the consultation process has endeavoured to engage stakeholders in identifying and recommending mitigation measure for potential environmental concerns arising from the project.

2.2.2 National Environmental Policy, 2013

The National Environmental Policy acknowledges that natural resources are under immense pressure from human activities particularly for critical ecosystems including forest, grasslands and arid and semi-arid lands and sets out important provisions on the management of ecosystems and the sustainable use of natural resources. The policy seeks to develop an integrated approach to environmental management, strengthening the legal and institutional framework for effective coordination and promoting environmental management tools. The broad objectives of policy include:

- Optimal use of natural land and water resources in improving the quality of human environment;

- Sustainable use of natural resources to meet the needs of the present generations while preserving their ability to meet the needs of future generations;
- Integration of environmental conservation and economic activities into the process of sustainable development; and
- Meet national goals and international obligations by conserving bio-diversity, arresting desertification, mitigating effects of disasters, protecting the ozone layer and maintaining an ecological balance on earth.

The various Acts and Regulations addressing environmental management seek to make provisions that enable the achievement of the National Environmental Policy objectives.

This ESIA has developed an environmental management and monitoring plan to mitigate the impacts that may result during the construction and operation phases of the proposed project.

2.2.3 National Water Policy, 2021

The goal of this Sessional Paper is to guide the achievement of sustainable management, development and use of water resources in Kenya. It provides a framework for sustainable management and financing of water resources; water harvesting and storage; and for equitable, efficient, and universal access to water supply and reasonable standards of sanitation, for domestic, economic use and ecosystem sustenance.

The Sessional Paper provides guidance for aligning the water sector to the Constitution of Kenya especially with respect to the establishment of mechanisms to guide intergovernmental and, institutional coordination for better delivery of respective functions.

The proponent will take into account the goals and objectives of this sessional paper, particularly in regard to compliance to relevant regulatory framework, enhancing water security for agricultural production, sustainable water resources use, catchment protection and conservation, and climate change mitigation.

2.2.4 National Land Policy, 2009

The National Land Policy address the critical issues of land administration, access to land, land use planning and environmental degradation. The policy recognizes the need for security of tenure for all and secures the rights over land as well as provides for sustainable growth, investment and the reduction of poverty.

As relates to environmental conservation, the policy provides actions for addressing the environmental problems such as the degradation of natural resources, soil erosion, and pollution and recommends for appropriate waste management systems and procedures. The policy goes further to advocate for environmental assessment and audit as a land management tool to ensure environmental impact assessments and audits are carried out on all land developments that may degrade the environment and take appropriate actions to correct the situation. Additionally, the policy advocates for the implementation of the polluter pays principle which ensures that polluters meet the cost of cleaning up the pollution they cause.

During project implementation, the proponent will ensure environmental protection of the subject land the project is being developed as well as ensure the proposed project aligns to key principles and guidelines on land use and environmental conservation.

2.2.5 Kenya Vision 2030

The Kenya Vision 2030 is Kenya's long term development blueprint, that aims to create a globally competitive and prosperous country providing high quality of life for all its citizens by the year 2030. The Kenya Vision 2030 identifies Kenya as a water scarce country and the economic and social developments anticipated by vision 2030 require more high-quality water supplies than at present. The country therefore aims to conserve sources and start new ways of harvesting and using rain and underground water.

The proposed project is expected to contribute towards the achievement of various aspects of the Vision 2030 blue print. These include employment creation, enhanced agricultural production and diversification, and potentially processing and manufacturing in the long run. Indeed, these outcomes are expected to have an immense contribution to poverty reduction and economic growth.

2.2.6 Agricultural Policy, 2021

This Agricultural Policy undertakes to address the identified challenges in the Agricultural Sector by providing guidelines to the National and County Governments; specifying the different roles towards ensuring household and national food and nutrition security; food safety; increasing agricultural production and productivity through the use of appropriate good quality and affordable inputs; facilitating access to premium domestic, regional and international markets and reducing post-harvest losses while promoting agribusiness, value addition and product development.

The proposed project is expected to have significant contribution in promoting agricultural production, value addition, and access to international markets. This is expected to enhance local and regional economic growth.

2.3 National legislation

2.3.1 The Constitution of Kenya (2010)

Article 42 of Bill of Rights of the Kenyan Constitution provides that every Kenyan has a right to a clean and healthy environment, which includes the right to have the environment protected for the benefit of present and future generations through legislation and other measures. Part II of Chapter 5 of the Constitution (Environment and Natural Resources), (I) the State clearly undertakes to carry out the following:

- Ensure sustainable exploitation, utilization, management and conservation of the environment and natural resources, and ensure the equitable sharing of the accruing benefits;
- Work to achieve and maintain a tree cover of at least ten per cent of the land area of Kenya;
- Protect and enhance intellectual property in, and indigenous knowledge of, biodiversity and the genetic resources of the communities;
- Encourage public participation in the management, protection and conservation of the environment; Protect genetic resources and biological diversity;
- Establish systems of environmental and social impact assessment, environmental audit and monitoring of the environment;
- Eliminate processes and activities that are likely to endanger the environment;

Part (II) “Every person has a duty to cooperate with State organs and other persons to protect and conserve the environment and ensure ecologically sustainable development and use of natural resources.

The Constitution of Kenya provides for sound management and sustainable development of all of Kenya’s projects, both public and private investments. It also calls for the duty given to the Project proponent to cooperate with State organs and other persons to protect and conserve the environment as mentioned in Part II of Chapter 5 on Land and Environment.

2.3.2 Environmental Management & Coordination Act (EMCA), Cap 387

This Environmental Impact Assessment was carried out in accordance with Sections 58 to 67 and 138. The Act requires that that all projects listed under the second schedule of the Act undertake an EIA and submit it to NEMA for licensing before commencement. With respect to the amended Second Schedule, the

proposed project activities fall *Agriculture including—(b) Large-scale agriculture exceeding one hundred hectares and (d) Large scale irrigation exceeding one hundred hectares*. Part VII on Environmental Audit and Monitoring section 68 and 69 also underscore the need to undertake Environmental Impact Assessments of all projects likely to cause negative impacts to the environment.

This ESIA study report serves as an indication of the proponent's adherence to the Act and its subsidiary regulations.

2.3.3 Occupational Safety and Health Act, 2007

This Act provides for the safety, health and welfare of workers and all persons lawfully present at workplaces where any person is at work, whether temporarily or permanently. Part II of the Act on General Duties states the following:

- Section 6 (1) that, "Every occupier shall ensure the safety, health and welfare at work of all persons working in his workplace".
- Section 6 (2) (b), "Arrangements for ensuring safety and absence of risks to health in connection with the use, handling, storage and transport of articles and substances".
- Section 6 (2) (c), "The provision of such information, instruction, training and supervision as is necessary to ensure the safety and health at work of every person employed".

Part VI, Sections 47 to 54 on Health General Provisions requires work places to be kept clean, properly ventilated, have enough lighting, have floors properly drained and have sanitary conveniences.

This ESIA has recommended that the proponent and contractors hired to undertake various activities should safeguard the safety of those employed at the site throughout the project lifecycle.

2.3.4 Public Health Act, Cap. 242

Part IX, section 115, of the Act states that no person or institution shall cause nuisance or condition liable to be injurious or dangerous to human health. As well, section 116 of the act requires local Authorities to take all lawful, necessary and reasonably practicable measures to maintain their jurisdiction clean and prevent occurrence of nuisance or condition liable to be injurious or dangerous to human health.
Further, part XII, Section136, states that all collections of water, sewage, rubbish, refuse and other fluids which permits or facilitates the breeding or multiplication of pests shall be deemed nuisances and are liable to be dealt with in a manner provided for by this Act.

The proponent shall endeavour to provide waste management for both liquid and solid wastes during the construction and operations phases of the proposed project.

2.3.5 Physical and Land Use Planning Act, 2019

The act provides guidance on the planning, use, regulation and development of land. The County Government approves various land uses within its jurisdiction as per the Development Control provisions contained in the Third Schedule. Section 5 stipulates the principles and norms of physical and land use planning as including, among others;

a) Physical and land use planning shall promote sustainable use of land and livable communities which integrates human needs in any locality;
b) Development activities shall be planned in a manner that integrates economic, social and environmental needs of present and future generations;

c) Physical and land use planning shall be comprehensive, sustainable and integrated at all levels of government, taking into consideration the interests of all parties concerned;
d) Physical and land use planning shall take into consideration long-term optimum utilization of land and conservation of scarce land resource including preservation of land with important functions;
e) Physical and land use planning shall be inclusive and must take into consideration the culture and heritage of people concerned; and
f) Physical and land use planning shall take into account new approaches such as transit-oriented development, mixed land-uses, planning for public transport and non-motorized transport among others to achieve sustainable development and more efficient use of natural resources.

In line with this Act, the proponent should obtain approval from the relevant county government agencies when undertaking various activities as it may be required during the life of the project.

2.3.6 Water Act, 2016

The act was enacted to ensure management and use of water resources is in line with the new Constitutional dispensation. It stipulates that "*Every water resource is vested in and held by the national government in trust for the people of Kenya".* The Water Act makes provision for the conservation, control, apportionment and use of water resources in Kenya, and for incidental and connected purposes. Protection of water supply is clearly a critical issue under the Act. Pollution of water is an offence.

The proponent will ensure efficient use and management of water resources at the facility in line with sound natural resources management practices.

2.3.7 Crops Act, 2013

The objective of this Act is to accelerate the growth and development of agriculture in general, enhance productivity and incomes of farmers and the rural population, improve investment climate and efficiency of agribusiness and develop agricultural crops as export crops that will augment the foreign exchange earnings of the country, through promotion of the production, processing, marketing, and distribution of crops in suitable areas of the country.

The proposed project aims to meet key objectives of this act through enhancing productivity and farming of crops for export, which will earn foreign exchange for the country.

2.3.8 Climate Change Act, 2016

This act provides that actions by government of Kenya must aim to realisation of low carbon climate resilient development. The law further provides for development of a five-year National Climate Change Action Plan (NCCAP), which identifies priority sectorial actions economy-wide and sets out the necessary inputs to mainstream both mitigation and adaptation actions.

This ESIA has undertaken a climate vulnerability assessment to enhance the proposed project's performance in terms of climate change mitigation and adaptation.

2.3.9 Agriculture, Fisheries and Food Authority Act, 2013

This act establishes Agriculture, Fisheries and Food Authority. The authority is charged with the responsibility of advising the Cabinet Secretary in consultation with the National Land Commission in making general rules for preservation, utilization and development of agricultural land and aquatic resources, either in Kenya generally or in any particular part thereof; and for the purposes of the conservation of the soil, or the prevention of the adverse effects of soil erosion on, any land.

2.3.10 Forest Conservation and Management Act, 2016

This Act makes provision for the conservation and management of public, community and private forests and areas of forest land that require special protection, defines the rights in forests and prescribes rules for the use of forest land. It also makes provision for community participation of forest lands by community forest association, the trade in forest products, the protection of indigenous forests and the protection of water resources.

The proponent should take part in protection of the nearby Eburru Forest and establish pockets of forestry within the farm.

2.3.11 Persons with Disabilities Act, 2003

Persons with disabilities are entitled to a barrier-free and disability-friendly environment to enable them to have access to buildings, roads and other social amenities; and devices to assist such persons and other equipment to promote mobility. Under this act, the council, which is an implementing agency may issue adjustment orders to owners of public buildings to provide or modify their buildings to give access to disabled persons.

The farm should consider to have requisite features that promote the principles and provisions of this Act.

2.3.12 The Traffic Act, 2012

The Traffic Act, 2012 gives provisions and guidelines that govern the Kenya roads transport sector. These guidelines are essential to private, public and commercial service vehicles in ensuring safety and sanity on the roads hence ensuring the environment; the human being a component is safeguarded.

In ensuring compliance to this Act contractors and the proponent shall ensure that all site drivers and all material suppliers to the site satisfy the provisions as stipulated in Act.

2.4 Regulatory framework

2.4.1 The Environmental (Impact Assessment and Audit) Regulations, 2003

The regulations require that ESIA and EA be conducted in accordance with the issues and general guidelines spelled out in the second and third schedules of the regulations. The amendment regulations under Legal Notice 32 of 2019 state that proponent undertaking a project specified as a High-Risk Project in the Second Schedule of the Act shall submit a Study Report of the likely environmental effects of the project.

Section 17 details the need for public consultation to seek the views of persons who may be affected by the project. The regulations also stipulate that a project report shall be prepared by an environmental impact assessment expert registered.

This ESIA Study Report has been prepared in line with the required procedures. The process also sought the views of the various stakeholders through questionnaire survey, direct interviews and short on-spot interviews.

2.4.2 Environmental Management and Coordination (Water Quality Regulations), 2006

These regulations provide for the sustainable management of wastewater resulting from various activities in Kenya. They empower NEMA in consultation with other agencies to take measures to ensure compliance

with the stipulated standards. The regulations specify discharge limits for various environmental parameters into public sewers and the environment. Non-compliance with any provision of the regulation carries a penalty.

2.4.3 Environmental Management and Coordination (Waste Management) Regulations, 2006

These regulations are comprehensive and covers the management of all kinds of waste in Kenya. it provides for the general requirement to ensure waste segregation and adopting appropriate and environmentally acceptable disposal mechanisms.

This Report identifies safer ways of waste disposal to help the project proponent in meeting requirements as per these regulations.

2.4.4 Environmental Management and Coordination (Noise and Excessive Vibration, and Pollution Control) Regulations, 2008

Section 3 (1) of these regulations prohibit the causing of loud, unreasonable, unnecessary or unusual noise which annoys, disturbs, injures or endangers the comfort, repose, health or safety of others and the environment. The regulations also state that *'No worker shall be exposed to noise level excess of the continuous equivalent of 90 dB for more than 8 hours within any 24 hours' duration'*.

Noise levels emanating from the various project's activities will be managed appropriately as per the provisions of these regulations.

2.4.5 Water Resources Regulations, 2021

The regulations were enacted to align with the Water Act, 2016 and the wider reforms in the water sector. Part VIII of the regulations provides for conditions of authorisation, permits, and approved water uses, Specifically, section 75 requires an applicant of a water resources use permit to show compliance with the provisions of the Environmental Management and Coordination Act, 1999 as well as membership to a water resources user's association.

Section 84. (1) stipulates that a person in possession of a valid water use permit or who is required to have a valid permit for water use, shall pay to the Authority water use charges on the basis of the water abstracted, diverted, obstructed or used including energy derived from a water resource at the appropriate rate as set out in the Second Schedule.

On pollution, Part VI, Section 61. (1) states that no person shall discharge or apply any poisonous, toxic, noxious or obstructing matter, radioactive waste or other pollutants or permit any person to dump or discharge such matter into a water resource unless the discharge of such poisonous, toxic, noxious or obstructing matter, radioactive waste or pollutant is authorised by the Authority and treated to permissible standards.

The proponent has made necessary application to WRA in regard to utilization of groundwater resources and development of water storage structures.

2.4.6 Hazardous Substances Rules 2007, (Legal Notice No. 60)

The rules states that every proponent shall ensure that where chemicals come into contact with employees, the exposure limits set out in the First Schedule of the Regulations are not exceeded. Where employees may be exposed to two or more chemicals in the workplace, the Proponent shall work out the combined exposure using the narrative given in the Second Schedule of the Regulations.

2.4.7 Medical Examination Rules 2005, (Legal Notice No. 24)

These rules provide for Occupiers to mandatorily undertake pre-employment, periodic and termination medical evaluations of workers whose occupations are stipulated in the Eighth Schedule of the Act and the First Schedule of the Regulation. The workers are to undergo medical evaluations by a registered medical health practitioner duly registered by the DOSHS. Because the employees of the service station attendants and mechanics may potentially be exposed to hazardous substances this regulation requires that they undergo medical evaluations regularly.

2.5 Relevant institutions

Some of the relevant institutions in implementation of environment, health and safety aspects relating to the proposed farm include;

(i.) National Environment Management Authority: The National Environment Management Authority (NEMA) is the governing body which oversees the application of the Environmental Management and Coordination Act, Cap 387 and its subsidiary regulations. It is particularly responsible for approving various developments that undertake Environmental Impact Assessments as well as Environmental Audits for on-going projects.

(ii.) National Construction Authority: National Construction Authority (NCA) is responsible for ensuring adherence to proper construction standards and practice. The authority also registers contractors for different classes of contract works including building and construction works.

(iii.) Directorate of Occupational Safety and Health Services: The Directorate of Occupational Health and Safety Services (DOSHS) is housed under the Ministry in charge of Labour Services in Kenya. It is mandated to inspect work places and occupational health and Safety issues.

(iv.) Water Resources Authority (WRA); The Water Act, 2016 allows for the establishment of the Water Resources Authority (WRA) whose functions, among others are to regulate the management and use of water resources as well as enforce the regulations and issue water permits for water abstraction, water use and recharge, enforce the conditions of those permits;

(v.) County Government of Nakuru: Through its various departments, the County Government of Nakuru is responsible for the approval of land use and building plans, ensuring compliance to public health standards and requirements; and licensing of business activities within its jurisdiction.

2.6 International Conventions and Treaties

Kenya has ratified a number of international treaties, conventions and protocols to assist in environmental protection and conservation as well as promoting sustainable development. They include;

- Sustainable Development Goals
- The World Commission on Environment (the Brundtland commission of 1987).
- Convention on Biological Diversity (CBD) 1993.
- United Nations Framework Convention on Climate Change 1992.

3 BASELINE INFORMATION OF THE PROJECT AREA

3.1 Project Location

The proposed farm is situated near the boundary of Nakuru and Narok counties. The farm can be accessed through the road to Ndabibi shopping centre. The farm is located at grid reference Lat -0.7579390, Long 36.1996590 at 2,048m a sl. Administratively, the proposed farm falls within Ndabibi Location, Maella Ward in Naivasha sub-county of Nakuru County.

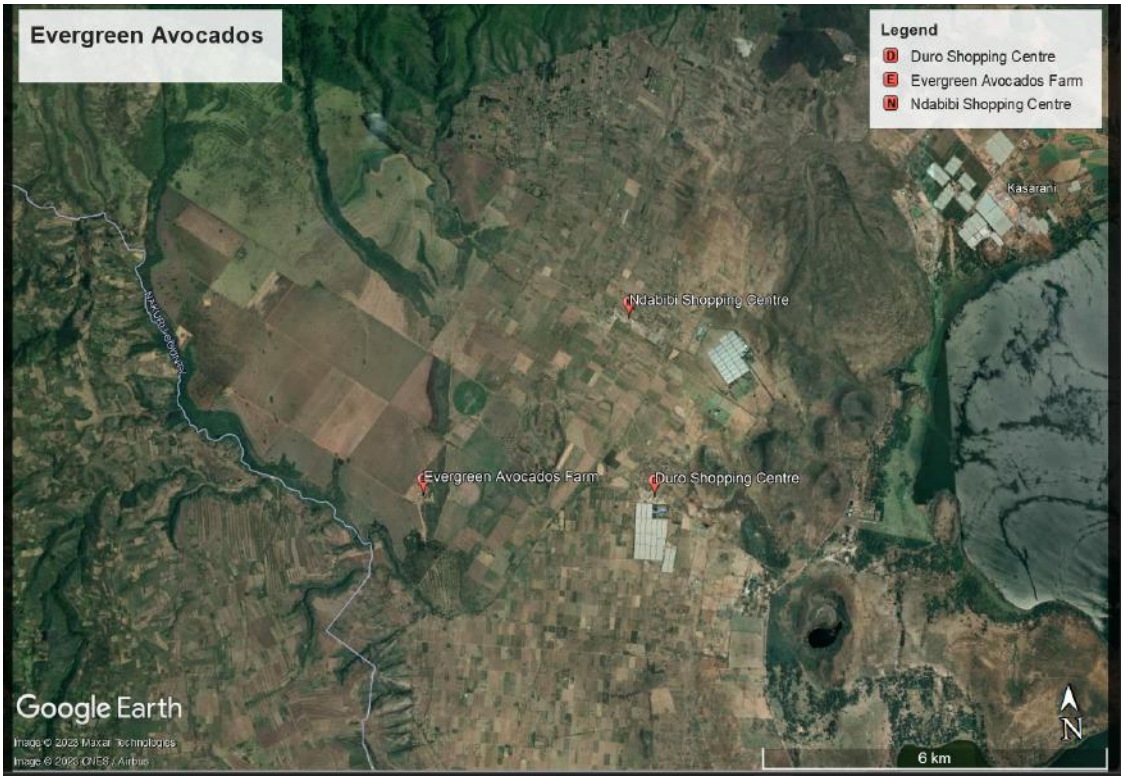


Figure 1: Location of the proposed Evergreen Avocados Farm

3.2 Biophysical Baseline Conditions

3.2.1 Climate

Nakuru County in general experiences a bimodal rainfall pattern. The short rains fall between October and December while the long rains fall between March and May. The project area is classified as a warm and temperate climate under the Köppen-Geiger system with an average annual rainfall of 646mm. It indicates that the least amount of rainfall occurs in July while the highest amount of precipitation occurs in April with an average of 103 mm.

Rainfall data from ClimWat database also shows that the Naivasha station receives an average rainfall of 636mm. It shows that 32% of the mean annual rainfall falls within the long rains while the short rains account for 22%.

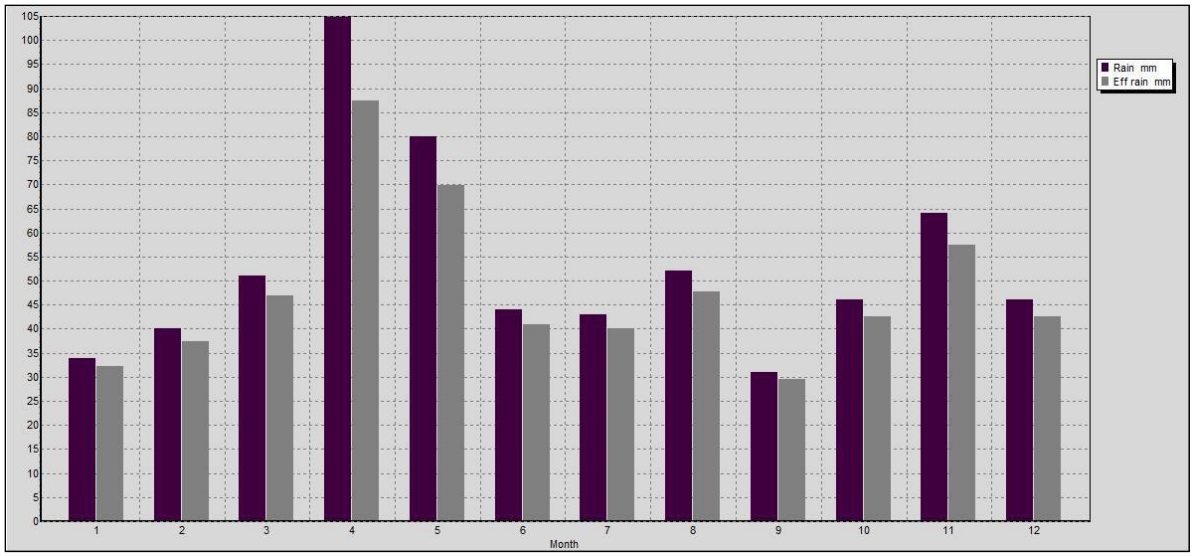


Figure 2: Naivasha Monthly Rainfall Records

Source: FAO-ClimWat

Temperatures of the project area hits an average 17.9 °C. The average temperatures are highest in February, at around 19.8 °C while the lowest average temperatures in the year occur in July, when it is around 16.1 °C. Data from ClimWat Naivasha Station indicate that the annual ETo is 1291mm/yr against an average rainfall of 636mm. Open water evaporation is estimated as 90% of ETo.

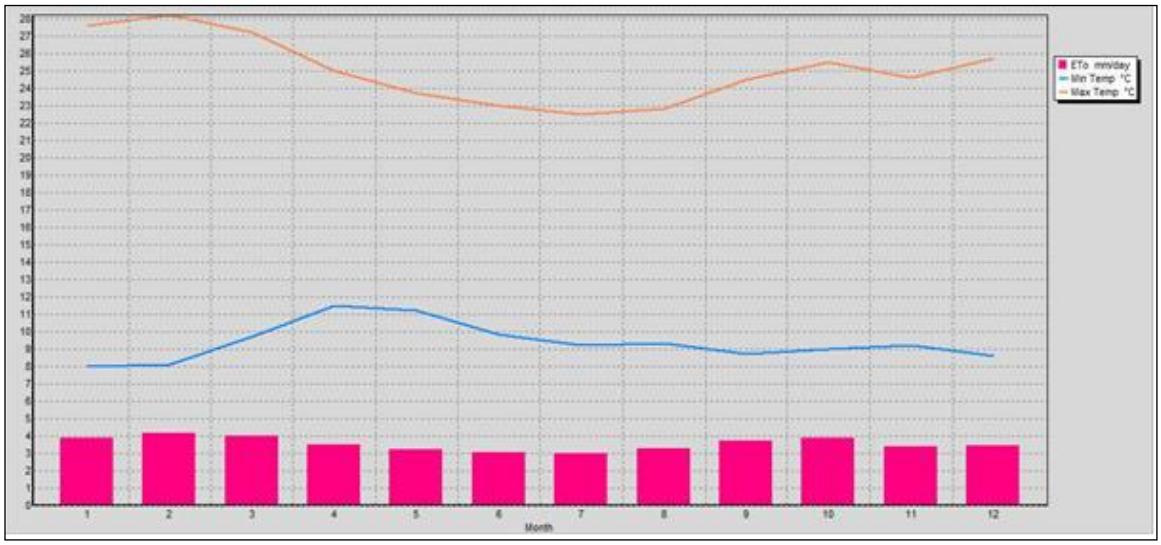


Figure 3: Temperature and Evapotranspiration Naivasha Station

Source: FAO-ClimWat

3.2.2 Topography

The topography of Nakuru county is influenced by the Rift valley and its escarpments. The general topography of Naivasha sub county is characterised by mountain ranges and lower savannah zones. The project site rises to about 2032masl with the highest points in the vicinity being Eburru forest at over 2100masl. The topography influences the drainage patterns of the area.

3.2.3 Geology

The general geology of the Naivasha area has been described by Clarke et al. (1990) as to be underlain by volcanic rocks. The project area is dominated by the Ndabibi group, which comprises of basaltic cratered volcanic cones and rhyolitic domes and lava flows on the plains west of Lake Naivasha and between the Eburru and Olkaria volcanic centres. The rhyolites include comendite and pantellerite the former consisting of alkali feldspar, a sodic amphibole, aegirine-augite and quartz, while the latter are similar but also contain aenigmatite.

3.2.4 Soils

The soil pattern in the county presents a complex distribution with three main classifications that have been influenced by climatic conditions, volcanic activities and underlying rock type. The main soil types in the project area are categorized as Latosolic soils. These are the imperfectly drained loam with dark brown subsoil covers with fertility ranging from moderate to high. The main crops supported by these soils are wheat, Maize, pyrethrum, sunflower, finger millet potatoes, pigeon peas, vegetables and beans and peas.

3.2.5 Hydrogeology

In general, the hydrogeology of the area is influenced by the geology and the significant gradient change. The aquifer in the area is characteristic of volcanic rocks. Groundwater flow and storage occur in fractures and weathered zones, often along the sub-horizontal boundaries between successive lava flows, which at one time were land surfaces. Boreholes in the volcanic aquifers are up to 125 m depth, and may encounter more than five discrete aquifer layers. These aquifer layers are often confined. Yields, depth to aquifers and rest water levels vary significantly.

Groundwater in these aquifers typically has low total dissolved solids and high bicarbonate. The volcanic deposits of the East African Rift System are rich in fluoride which leads to high groundwater fluoride concentrations. The aquifer in the project area is classified as a Strategic aquifer by the Water Resources Authority. Such aquifers supply significant amounts of water in a given area and for which there are no available alternative resources. Development of these groundwater resources is also resource intensive.

3.2.6 Hydrology

The hydrology on the project area is highly influenced by the topography and the proximity to Lake Naivasha. The drainage of the immediate surroundings of the project is dominated by the Marmonet River. The tapering stream rises from the lower western slopes of Eburru highlands and disappears underground in the lower parts of Ndabibi before reaching shores of Lake Naivasha. The proximity of the farm to Eburru forest and the undulating topography also gives rise to a number of seasonal streams or valleys conveying runoff from the upper sections. The water courses within the farm drain into the river and will serve as spill ways for the lagoons. Some of the water courses have been altered by historical land use activities in the farm.

3.2.7 Flora

The project area is dominated by cropland with indigenous vegetation mainly occurring along the riparian sections and small pockets in the farm. The small holder farms in the vicinity also host both indigenous and exotic tree species. The main indigenous tree species in the area include *Acacia spp*, *Podocarpus milanjianus, Juniperus procera, Myrsine Africana* and *Spathodea campanulata* while some of the some of the shrubs include *Tarchonanthus camphoratus* and *Acacia spp.* Eucalyptus is the most dominant exotic tree species. A higher density and diversity of indigenous vegetation is found in the nearby Eburru forest and escarpment of the rift valley to the west of the farm.

The identification of suitable sites for developments such as the lagoons and plantation design took into consideration vegetation abundance and distribution. The proposed project will thus have minimal adverse impact of the vegetation cover. The proponent is also encouraged to maintain a healthy vegetation cover around the farm comprising of appropriate tree and grass species for enhanced soil conservation.

3.2.8 Fauna

The general land use patterns in the area do not allow for existence of large wildlife species. However, a number of mammals including zebras, baboons, and antelopes were spotted within the farm during the site visits. The wildlife is essentially resident in the farm owing to the minimal disturbances and availability of forage. Their origin is traced to the nearby Eburru forest, which is a harbour of diverse and endemic wildlife species. The forest is home to over 40 species of mammals in addition to avian and insect species. It is also host to the threatened Mountain Bongo. Wildlife dispersal is generally limited by the changes in land use and habitat degradation, especially in the 1990s.

3.3 Social Economic Setting

3.3.1 Land tenure and use

Land use tenure and ownership tends to influence land use in a locality. Land ownership in the project area can broadly be categorized as private and public. Public land is mostly under the national and county governments while private land under individual entities can either be freehold or leasehold. Evergreen Avocados Ltd owns the land under a leasehold.

Most of the land in the project area is zoned for agricultural use. The main crops cultivated in the area are wheat, potato, beans, and maize while the most common livestock breeds are sheep, poultry, and cattle. The production system is, essentially, subsistence with commercial farming being practiced by a large landholder including the proposed project site. Avocado farming is also gaining precedence among the commercial farms as well as the local community. The proposed project is not expected to have adverse impacts on the land use or economic activities within and around the area. Instead, it is anticipated that it will enhance agricultural production, employment opportunities, and income levels in the long term.

Plate 1: Avocado plantation in a neighbouring farm along the eastern boundary

3.3.2 Transport Network

The farm is accessed through the road from Naivasha Municipality to Ndabibi shopping centre. Access roads within the farm are regularly maintained by the management of the farm. They also serve as boundaries between the different plots or partitions in the farm. The roads are motorable and can be used during all seasons.

3.3.3 Demographics

The project site falls within Ndabibi sub-location of Ndabibi Location. Census data from KNBS shows that the population of sub location is 9,964 people. There are about 2,866 households comprising of 2,846 conventional households and 20 group quarters. The sub location has the lowest population density within Kongoni Division at 63 people per square kilometre. The population of the larger Kongoni Division (as per the census data classification) is shown on the table below.

Table 2: Population of the Project Area

	Total	Male	Female	Households	Land Size (Km^2)	Density
Naivasha Sub-County	355,383	179,222	176,132	117,633	1,958.4	181
Kongoni Division	36,835	18,645	18,190	10,366	370.5	99
Maiella Location	14,646	7,230	7,416	3,863	131.1	112
Kongoni	4,505	2,234	2,271	1,382	57.7	78
Maiella	10,141	4,996	5,145	2,481	73.4	138
Moindabi Location	12,225	6,316	5,909	3,637	81.9	149
Kipkonyo	6,255	3,235	3,020	1,803	49.2	127
Moindabi	5,970	3,081	2,889	1,834	32.6	183
Ndabibi Location	9,964	5,099	4,865	2,866	157.5	63
Ndabibi	9,964	5,099	4,865	2,866	157.5	63

Source: 2019 Kenya Population and Housing Census: Volume II

3.3.4 Sanitation and Solid Waste Management

The project area is not served by a sewer line or a designated dump site for solid wastes. The farm has, therefore, adopted appropriate waste management techniques for both solid and liquid wastes. Liquid wastes are managed using septic tanks, soakaway pits, and water reuse practices such as watering lawns. Solid wastes comprising of biodegradable and non-degradable are managed through composting, burning, reuse, and recycling. These approaches are adequate as the amount of wastes produced is relatively small. These will also be adopted once the construction activities commence. These are not expected to have an impact on surface water sources.

3.3.5 Social amenities

The immediate vicinity is served by two primary schools, Ndabibi Central and Ndabibi Primary Schools and one secondary school namely, Ndabibi Secondary School. The main health centre is Ndabibi Health Centre run by the County Government of Nakuru.

4 DESCRIPTION OF THE PROPOSED PROJECT

4.1 Project concept and operations

Evergreen Avocados Ltd intends to establish an avocado farm at Ndabibi Farm in Naivasha sub county of Nakuru County. The project will be undertaken in phases with an aim to achieve 400ha of avocado. Avocado farming presents a more profitable venture, particularly for the export market compared to other crops such as wheat, which has been the main crop under cultivation. The proponent intends to introduce varieties that are suited to the climatic conditions of the area. There has been a sharp increase avocado production in Kenya to serve the considerably high demand in Europe, Asia and other parts of Africa.

The project will be undertaken in phases owing to the magnitude of project activities, particularly establishment of the plantations. The proponent has partitioned the farm into 10 blocks of varying sizes for avocado plantation. The plantations will be established in the open fields spreading throughout the expansive farm. Avocado tree seedlings will be propagated within greenhouses within the farm. An irrigation system will be set up to obtain the required moisture requirements. The avocado trees will be planted alongside pockets of other exotic and indigenous tree species to enhance environmental components of the farm.

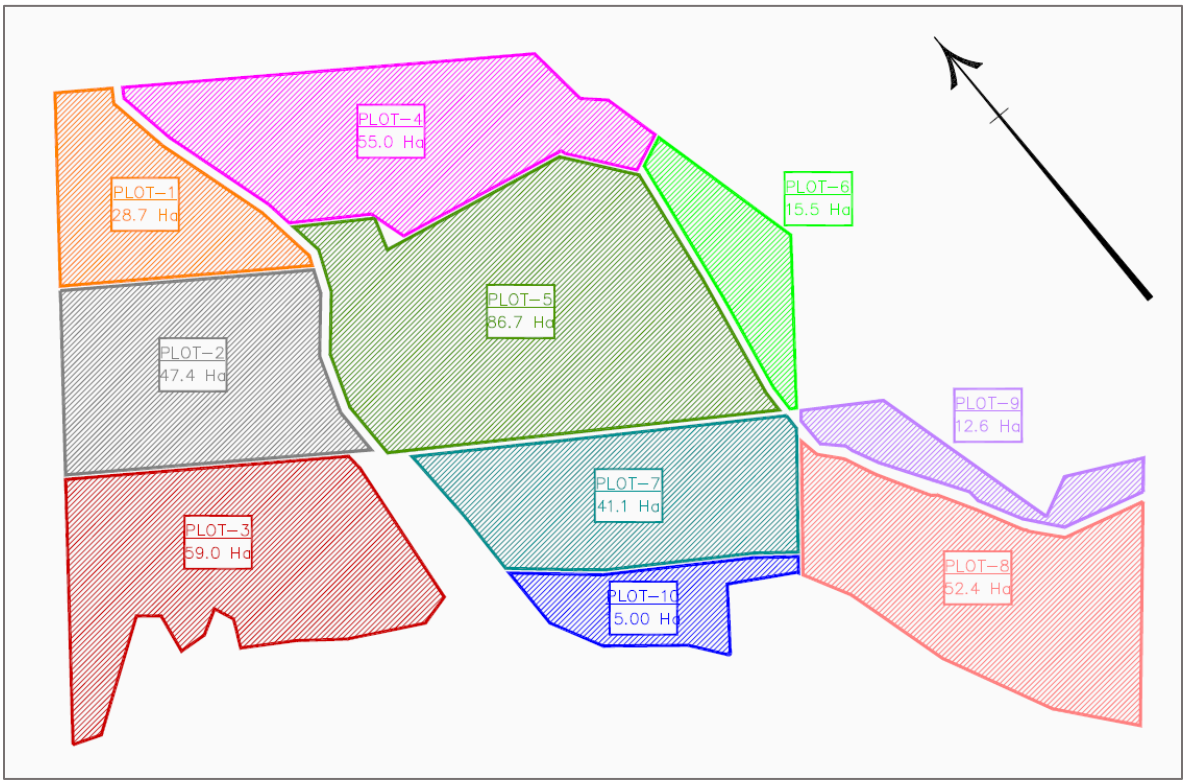


Figure 4: Partitions earmarked for avocado farming

The avocado varieties to be cultivated are expected to be highly productive with an extended harvesting period if properly cultivated. A mature tree of about 2-3 years can produce about 50 fruits with a potential to have 350 fruits in the 5th year. However, the yield of the trees will be dependent on environmental conditions, plant health and age, and management practices.

4.2 Project components

The farm is expected to have a variety of components to support smooth running of the farm activities. These include;

4.2.1 Buildings and infrastructure

The farm will have a number of buildings to house various operations such as offices, storage, workshops, and staff housing. The farm will not develop new structures as there are already existing buildings housing offices and staff within the farm. The proponent will only undertake minor adjustments on the structures to enhance their functionality. This is because the buildings and associated infrastructure were initially developed for farm operations by the previous owner. They are also expected to adequately serve the proposed farm activities. This is no exception for the road network within the farm. The proponent will only improve the road conditions to enhance access and circulation around different sections of the farm.

Plate 2: Existing buildings at the farm

This ESIA encourages the proponent to ensure that the existing buildings and infrastructure meets the required operational standards before occupation. This will forestall any future habitation related adverse impacts.

4.2.2 Energy supply

The farm is connected to the national grid; hence, this will be utilized in both construction and operation phases of the proposed farm. The proponent intends to install solar power to be power different components such as water supply for irrigation purposes. A back-up generator will also be available to supply power in times of power outages. There is an already existing generator room, thus there will be no development of another structure.

The proponent is expected to ensure the use of well serviced equipment for efficient use of energy. During operations phase, energy saving appliances within the facilities and use of natural lighting will be encouraged as much as possible. An energy conservation culture will be cultivated amongst users and occupants through continuous sensitization initiatives such as by having advisory notices within the facilities.

Plate 3: Existing generator room

4.2.3 Water supply

Introduction of avocado farming will require a more reliable water source as the rainfall patterns in the area are becoming unpredictable and unreliable. Reliance on rainfall would, indeed, affect the productivity of the project. The water demand analysis indicates that there is a maximum crop water requirement of approximately 2.5 mm/day for avocados. With an irrigation efficiency of 85 – 90% expected, the irrigation water requirement would be about 30m^3/ha/day, particularly in January and February, when there is little or no rainfall expected. Therefore, the farm is required to have storage that would sustain the farm at least for three months considering the dry season may extend to March in some instances. The farm has already obtained approval for two high yielding boreholes and two lagoons (reservoirs) for storage. Lagoon A will provide a storage of about 34,000m^3 while Lagoon B will have 20,000m^3, thus a total storage of 54,000m^3.

The EIA approvals for the two lagoons are provided in **Annex G**.

4.2.4 Waste management

During construction phase, the proponent recommends that waste management be initiated from the early stages of procuring of materials for construction. This will help avoid excess materials and ensure the acquisition of materials is in line with the design and specifications of the buildings. Handling of materials which includes storage and subsequent use will also be well managed to reduce any form of wastage that may culminate to more wastes at the site.

During operations phase, different bins should be provided for different types of wastes. Prompt collection of litter should be done after every activity undertaken around the facilities. Waste water from the washrooms will be managed through an effective septic tank system. This assessment recommends the reuse and recovery of materials and wastes generated from the demolition and any excavation activities.

4.2.5 Staffing

The farm will require both skilled and semi-skilled labour. The farm is estimated to employ about 200 direct employees in addition to casuals and other indirect opportunities to be created. Applicable employment and occupational regulations and standards will be followed strictly to ensure compliance and a conducive working environment for the staff. The proponent and any contractors working in the farm will be expected

to prevent the use of all forms of forced labour and child labour and promote the fair treatment, non-discrimination and equal opportunity of project workers.

4.2.6 Other utilities

Other utilities to be considered include;

i) Storm water management - The proponent will ensure that the storm water that is not harnessed is channeled to existing drains along the adjacent access road and natural water courses.
ii) Fire and safety management - Proper access and exits should be maintained for easy management of hazards. Appropriate sensitization should be conducted to promote proper handling of flammable substances e.g. LPG and electrical appliances.

4.3 Project phases and activities

4.3.1 Planning and design phase

This phase will essentially involve planning and designing of various farm components and operations. Survey work for the farm boundaries, plantation plots, and siting of water supply infrastructure formed the core of this phase. The Environmental Impact Assessment was also a key component of this phase.

4.3.2 Construction phase

The construction phase will encompass rehabilitation of varied infrastructure, preparation of plantation areas, installation of equipment, and development of water supply infrastructure. The specific elements will include selection of contractors and recruitment of staff to execute different tasks in the construction phase. The delivery of materials and actual undertaking of works will mark the completion of this phase.

The propagation activities will be undertaken within the farm to enhance self-sufficiency. The seedlings will grow for at least 3 months before they are transplanted. The sites earmarked for planting will be cleared to remove weeds and debris/stalks of the previously cultivated crops. The land will be cultivated and harrowed to the requited tillage. Rows will be made in the plots in readiness for planting the avocado seedlings. Transplanting is more successful when carried out during the long rains either early morning or evening Appropriate spacing will be observed, at least 6.0m x 4.0m.

4.3.3 Operations phase

Activities related to the propagation and planting of avocado tree seedlings are expected to spill over to the operations phase as the project will be undertaken in phases. The proponent will undertake other routine activities such as soil analysis and pest control. The analysis will guide soil improvement programs including quantity and type of fertilizers to be applied. Sound crop husbandry practices are highly encouraged with the aim of conserving soil properties for long term productivity. Irrigation will be done to enhance yields and spread production. In case of heavy rains or flooding, water should be drained out as avocados are very sensitive to water stagnation. Drip irrigation will be employed as it ensures water efficiency and improves the size and quality of the fruit. It also reduces harvesting time with the achievement of appropriate water supply. Harvesting and eventual sale of the produce is expected to be realized within the next 2-3 years.

Other activities within this phase will include marketing of the produce and routine maintenance of infrastructure.

Plate 4: A section of Plot 2 earmarked for avocado plantation

4.3.4 Decommissioning

The decommissioning phase involves the ceasing of the project activities or change of use of the land. Although, this phase is not foreseen in the near future, some of the activities involved may include development or rehabilitation of the land to accommodate other use or removal of various project components. This phase will be guided by a detailed decommissioning plan as highlighted in Chapter 7 of this report.

Table 3: Summary of project phases and activities

Phase	Main activities	Inputs
Planning and design	a) Budgeting and development of plans and Bills of quantities b) Obtaining approvals and other statutory obligations	• Financial resources • Community support • Consultancy services
Construction	a) Transport and storage of construction material b) Sites preparation and mobilization of construction personnel c) Construction waste Management	• Seedlings • Heavy machinery • Waste management strategy • Labour
Operation	a) Commissioning the completed building b) Occupational health and safety management c) Regular inspection, repair and maintenance of the building d) Waste management and resource use	• Regular inspection to check the integrity of the building. • Construction material for repairs
Decommissioning	a) Change of use b) Rehabilitation and/or restoration	• Labour • Transport

4.4 Project cost

The implementation of the proposed project will be based on the applicable standards in Kenya and international best practice. The proponent has committed to follow the due procedures as stipulated by the relevant government authorities and as has been designed by experts/ consultants. Environmental guidelines, health and safety measures will be at the core of the project implementation. The project is estimated to cost **Kshs 190,020,328 Million** as per the Bill of Quantities in **Annex F.** The costs cover minor rehabilitation works, land preparation, and development of the irrigation infrastructure.

The NEMA submission fee amounts to **Ksh 190,020** which is 0.1% of the project cost. Some of the costs or NEMA charges relating to the proposed farm components, specifically drilling of boreholes and development of water reservoirs have already been paid during the approval process of each of the projects.

5 STAKEHOLDER CONSULTATION

5.1 Introduction

Public consultation is an essential element of an Integrated Environmental Impact Assessment. Reference is made to Section 17 of the Environmental (Impact Assessment and Audit) Regulations, 2003, which states that the proponent shall in consultation with the authority, seek the views of persons who may be affected by the project. The role of public consultation and involvement in EIA process is to enhance the quality, comprehensiveness and effectiveness of the assessment and ensure that the public views are adequately taken into consideration in decision making process.

5.2 Impacts identified by stakeholders

Stakeholders' comments were sought through a consultative meeting held on 29th September 2023 at Ndabibi Location Chief's Office. The meeting provided a platform to inform the community on the proposed project as well as collate their opinions on the anticipated negative and positive impacts associated with the proposed project. The identified impacts are outlined below;

5.2.1 Positive impacts

The following potential positive impacts of the proposed developments were highlighted by the stakeholders during public consultation process;

- The proposed development will create both direct and indirect employment opportunities though employment workers at the farm and short-term opportunities during the construction phase.
- Enhanced utilization of the land for a more productive venture that will benefit the land owner.
- Multiplier benefits particularly in regard to development of roads and water supply infrastructure in the area through CSR and lobbying to the government.

5.2.2 Negative impacts and mitigation measures

Negative impacts identified and their mitigation measures include;

- Pollution as a result of using agro-chemicals; The application of agro-chemicals may lead to air pollution and diseases amongst staff and the larger community.
    - *To mitigate this, stakeholders proposed that proponent should adopt organic methods of soil improvement and pest control to minimize adverse impacts. Overall, the stakeholders urged the proponent to consider the local community in the direct and indirect employment opportunities in the farm.*
- Breaching of lagoons within the farm leading to loss of life and property.
    - *The proponent was encouraged to ensure high quality construction works with regular inspections and maintenance of all the infrastructure in the farm.*
- Increased traffic and possible increase in accidents
    - *The proponent should schedule activities with due regard to the activities around the area and ensure drivers observe traffic rules.*
- Occupational related issues
    - *The stakeholders advised to proponent to provide appropriate PPE and safety protocols to avert injuries to workers.*
- Clearing of trees and vegetation leading to soil erosion.

- *Owner should plant more trees especially indigenous type*

The minutes and attendance list are attached in the **Annex B.**

Plate 5: Stakeholder meeting at Ndabibi Chief's compound

6 POTENTIAL IMPACTS AND THEIR MITIGATION MEASURES

6.1 Impact Identification

The identification of impacts in the assessment generally used the following methods:

- Compilation of a comprehensive list of key environmental and social impacts such as changes in air and water quality, noise levels, wildlife habitats, biodiversity, landscape, social and economic systems, cultural heritage, settlement patterns, and employment levels.
- Identification of all the sources of impacts such as dust, spoils, vehicles emissions, water pollution, *et al*. using checklists and networks. This was followed by listing possible receptors in the environment (i.e., community, and workers) through surveying the existing environmental and socio-economic conditions and consultation with concerned parties.
- Identifying and quantifying various environmental and socio-economic impacts through the use of a standard checklist. The checklists were complemented by a matrix, which is appended in **Annex A.**

6.2 Impact Prediction

Prediction of impacts technically characterized the causes and effects of impacts, and their secondary and synergistic consequences for the environment and the local community. It involved examination of each impact within a single environmental parameter into its subsequent effects in many disciplines (e.g., deterioration of water quality, destruction or disruption of economic activities and resulting socio-cultural changes). The process is anchored on physical, biological, socioeconomic, and anthropological data and techniques. In quantifying impacts, socio cultural models, economic models, and expert judgments were employed. It is worth noting that all prediction techniques of environmental impacts, by their nature, involve some degree of uncertainty. The impacts were identified at the following four phases;

- Planning and design phase
- Construction phase
- Operation phase
- Decommissioning phase

6.3 Types of Impacts

The project activities are likely to result in social and environmental impacts. The impacts will be defined as: -

- Positive Impact: A change which improves the quality of the environment (for example by increasing species diversity; or improving the reproductive capacity of an ecosystem;
- Neutral Impact: A change which does not affect the quality of the environment.
- Negative Impact: A change which reduces the quality of the environment (for example, lessening species diversity or diminishing the reproductive capacity of an ecosystem, or damaging health or property or by causing nuisance).

The potential impacts of the project fall under two broad categories of bio-physical (natural) and socio-economic environments. A matrix table was used to analyse these impacts.

6.4 Significance of impacts

The identified impacts were then subjected to a criterion that was used to determine their characteristics and significance. The parameters used in this particular study include:

- Direction: will the impact generate a beneficial or adverse change?
- Extent: will the impact affect a small, medium or large area?
- Duration: the period over which an impact will be felt. Is it short-term or long-term?
- Reversibility: the permanence of the impact. Is the impact reversible particularly for negative ones?
- Imminence: the possibility of the impact occurring as predicted.

Impact analysis and evaluation results for both the construction and operational phases of the proposed project are presented in the table below. The legend for the table is also shown here below:

Table 4: Impact Significance Table

PROJECT PHASE	IMPACT	DIRECTION	DIRECT/INDIRECT	REVERSIBILITY	EXTENT	DURATION	IMMINENCE	SIGNIFICANCE
Planning and design phase	Integration of environmental considerations in project implementation and management	+	D	L	S	LT	H	H
	Lack of cooperation and misunderstanding amongst various key stakeholders	-	D	H	S	ST	H	L
Construction phase	Soil erosion and alteration of landscape quality.	-	D	H	S	ST	H	L
	Noise and air pollution	-	D	H	S	ST	H	L
	Boost to the local economy	+	D	H	S	L	H	L
	Possible indiscriminate clearing of vegetation	-	D	H	S	ST	H	L
	Employment creation	+	D/IND	L	M	LT	H	H
	Possible accidents and injuries to workers during the construction phase.	-	D	H	S	ST	H	L
	Increased generation of soil and debris	-	D	H	S	ST	H	L
Operations phase	Enhanced socio-economic aspects of settlements in the area	+	IND	H	S	L	H	H
	Improved food security as a result of better crop yields.	+	D	H	S	L	H	H

	Lack of proper project maintenance	-	D	H	S	L	H	H
	Possible introduction of alien/invasive plant species.	-	IND	H	S	L	L	H
	Degradation of soil quality due to use of agrochemicals.	-	IND	H	S	L	L	H
	Modification of the local hydrology	-	IND	H	S	L	L	H
	Acquisition of new farming technology and knowledge by local farmers	+	IND	H	S	L	H	L
	Income generation to small-scale farmers through contract farming/out growers' scheme	+	IND	H	S	L	H	H
LEGEND: - Adverse impact, + Beneficial impact, L=Low, M=Moderate, H=High, ST=Short term, LT=Long term, D=Direct, IND=in direct, S=Short, L=Large								

6.5 Results of the Impacts Analysis

The positive and negative impacts arising from the proposed project are outlined in the subsequent sections.

6.5.1 Positive impacts

The positive environmental, social and economic impacts associated with the various phases of the proposed project are outlined below.

During the Planning and Design phase

- Awareness creation on the proposed project through the various consultations that occur at this stage. This provides an opportunity for the various stakeholders to be informed about the project and to give their views on the project, which helps in improvement of some elements of the design, obtain support of stakeholders and in the long run ensure sustainability of the project
- Professional employment opportunities particularly for consultants e.g. Environmentalist, Hydrogeologists, Engineers and Sociologists, among others, providing a gain of fees for services rendered which has some positive impact on the economy in general.
- The phase provided an opportunity to protect the environment through recommendation of adequate mitigation measures to respond to possible adverse impacts and to enhance the anticipated positive impacts;
- Sourcing of relevant legal documentation thus ensuring compliance, and alleviating the risks of the project being stopped by relevant authorities due to non-compliance.
- Provided an opportunity for the proponent to map stakeholders in the area and regulators to facilitate future partnerships e.g. local CBOs, private companies, WRA, NEMA, county and national government administration.
- Revenue for the government during the approval processes.

During construction Phase

The following are some of the immediate benefits associated with the project:

- Provision of employment opportunities for both skilled and semi-skilled.
- Transfer of knowledge and skills and building of on-the-job skills for the locals since the artisans and casual workers will remain behind after the construction phase.
- Indirect employment opportunities to those involved in supply and delivery of various materials and services.
- Boost to local businesses as materials and services will be sourced from the immediate neighbourhood e.g. food while materials such as cement, sand, ballast, PVC pipes from major towns in the County.
- Revenue to the government through payment of taxes.

During operational phase:

The project is likely to have the following positive impacts:

- Creation of direct and indirect employment opportunities.
- Boost to local and national economy through sale of produce and supply of various commodities to the farm and its staff.
- Introduction of new crops, farming technology and knowledge to the local farmers.
- Optimal land utilization for a more productive venture.
- Revenue generation for the proponent through sale of produce.
- Government taxes throughout the operations of the farm.
- Multiplier or indirect employment benefits through partnerships and lobbying for various community projects in the area.
- Increased tree cover in the area with the planting of avocado trees within the farm.

During decommissioning

The following are possible positive impacts of the project in the event of decommissioning:

- The land will be available for alternative uses;
- Any potential hazards associated with the project components would be forestalled;
- Some of the project components maybe used for alternative activities subjected to integrity assessment to ascertain whether they meet the required standards.
- Employment creation for professionals and semi-skilled workers.
- In the event of transfer to a new owner, the costs and impacts associated with the new project will be forgone.

6.5.2 Negative impacts

Following the identification of possible negative impacts resulting from the proposed project activities, this ESIA has recommended feasible and cost-effective measures to prevent or reduce the severity of negative impacts to acceptable levels and to enhance positive impacts for the improvement of overall benefits of the project. It is imperative that the efforts proposed to provide solutions to environmental problems should have an in-built poverty alleviation component within the beneficiary communities.

The mitigation measures for specific adverse impacts under the different project phases are presented in the table below:

Planning and Design

There is a possibility of a misunderstanding between various stakeholders and heightened expectations and speculations about the proposed project. Additionally, there may be conflicts with relevant authorities if the proponent does not obtain the requisite certifications before commencement of operations.
These will be mitigated through;

- Providing all the financial and technical facts of the project to the authorities and relevant authorities.
- Document any concerns raised and address them as they occur, particularly those that directly relate to the proposed project.
- Liaise with relevant authorities and obtain requisite permits and licenses.

Construction phase

Negative impacts are most common in the construction phase. However, most of the impacts in this phase are usually temporary and resolve as soon as the construction is completed. The potential negative impacts in the construction phase are outlined in the table below;

Table 5: Potential negative impacts during construction phase

Potential negative impact	Proposed Mitigation Measure
• Loss of biodiversity, alteration of landscape quality and soil erosion during site clearing, material, movement of vehicles/ heavy machinery, and excavation	▪ Proper delineation of the project sites to avoid indiscriminate clearing of vegetation. ▪ Ensure traffic follows designated access routes or reroute access road to a less vegetated areas. ▪ Establish the construction/site camps within a less vegetated areas. ▪ Rehabilitate any borrow pits within the farm by replacing the top soil and re-establishing indigenous vegetation. ▪ Revegetate as much as possible upon completion of construction phase. ▪ Replace any vegetation damaged accidentally. ▪ Consider using suitable tree species around the lagoon areas to increase the vegetation cover and embankment affirmation.
• Generation of wastes/debris/litter from off-cuts of pipes and metal, cement bags, containers etc.	▪ Non-biodegradable wastes that cannot be reused or recycled will be disposed of at a designated waste dumpsite off the estate. ▪ Metallic pieces will be stored for reuse/ fabrication in various estate activities. ▪ The off-cuts may also be sold to recyclers/fabricators or donated to institutions. ▪ Contractor/proponent to take preventative measures though use of BoQs and purchase only what is needed to minimize possibility of waste.
• Pollution as a result of poor handling chemicals, lubricants, and fuel	▪ Ensure proper measures of storing and handling chemicals and other potentially hazardous fluids/substances, and keeping data in MSDS. ▪ Ensure prompt cleaning/ management of such spills.

	▪ Provide containers to store used oil and grease to avoid contamination at the site. ▪ Ensure any maintenance works on the equipment is undertaken at the workshop and proper conditions are maintained such as use of spill trays.
• Poor sanitation at the site camps	▪ Provide a pit latrine for use by personnel at the sites. ▪ Provide covered solid waste bins at the construction sites and ensure they are emptied regularly. ▪ Maintain a lean population at the construction sites to minimize amount of waste generated.
• Noise pollution	▪ Limit noisy activities to daytime only to avoid causing nuisance at night ▪ The Contractors will keep noise level within acceptable limits as stipulated in EMCA, Noise Regulations. ▪ Workers on site during use of machinery that generate noise should be provided with appropriate PPE. ▪ Limit equipment and vehicle idling time as much as possible to prevent unnecessary noise. ▪ Proper scheduling of materials delivery to minimize noise pollution.
• Air pollution from dust and emissions during movement of vehicles and machinery	▪ Apply dust suppression measures along access roads. ▪ Provide appropriate PPE such masks where necessary. ▪ Maintain equipment fleet in good working condition to reduce emissions.
• Possible accidents owing to the slight increase in traffic along the road to the farm and potential damage to the existing road network.	▪ Sensitize drivers to observe traffic rules and speed limits, particularly near the shopping center and schools. ▪ Loading on traffic to be controlled to comply with government regulations. ▪ Contractor to repair and maintain road condition to fair condition. ▪ Vehicles to have operational horns. ▪ Drivers to be properly vetted before engagement.
• Health and safety issues such injuries to the workers resulting from use of hand-held tools or machinery.	▪ Contractor vetting to ensure compliance with legal requirements governing suitability for the specific job. ▪ Proponent will develop and commit the contractor to site occupational health and safety rules. OSHA/DOSH. ▪ Work permit issuance to ensure work progresses only if safety and other standards are observed. ▪ The contractor to provide workers with PPEs, which include gloves, boots, goggles, aprons, ear protection, etc. ▪ Health and safety awareness creation on ESH hazard and near miss reporting, accident prevention, control and reporting. This should be done before and continuously on the job ▪ Conduct basic first aid training and provide first aid kits ▪ Ensure vehicles have functioning reversing alarm

• Increased water demand for the construction site	▪ The contractor will ensure efficient water use to prevent wastage. ▪ Explore reliable water supply alternatives to enhance sanitation. ▪ Workers will be provided with clean drinking water to avoid dehydration and drinking of water from contaminated sources.
▪ Spread of communicable diseases and other infections	▪ Provide appropriate/adequate facilities to maintain proper sanitation and personal hygiene facilities ▪ Sensitize personnel on proper sanitation and hygiene ▪ Adequate ventilation and spacing of accommodation ▪ Observance of protocols for COVID 19 prevention
▪ Possible deviation from the initial intentions and specifications or substandard works	▪ Ensure merit is major consideration in selection of contractors, suppliers, and personnel. ▪ Ensure stringent monitoring system is put in place to inform the implementing entities. ▪ Continuously sensitize workers on the project specifications and requirements.

Operations phase

The potential negative impacts and their mitigation measures are outlined below.

Table 6: Potential negative impacts during operations phase

Potential negative impact	Proposed Mitigation Measure
▪ Possible emergence of alien/invasive species.	▪ Careful selection of varieties for planting ▪ Use certified seeds to avoid introduction of undesirable species. ▪ Plant the varieties in the proposed sites only. ▪ Undertake regular monitoring of vegetation type and density around the farm to prevent spread to undesired plant species to other areas.
▪ Degradation of soil quality due to use of agrochemicals. ▪ Effects on the natural environment and humans	▪ Shift focus to emphasize on use of agro-chemicals with low human toxicities and are relatively non-persistent in the environment. ▪ Ensure full compliance with Kenyan laws and international standards on pesticides use, human safety and environmental protection ▪ Limit use of agro-chemicals in dealing with deadly pests and diseases only. ▪ Encourage the use of *Integrated Pest Management,* in particular cultural and biological methods. ▪ Undertake regular monitoring of soil properties (pH, moisture, organic matter etc.) ▪ Use organic compost/ manure to nourish the soil

▪ Leaching of nutrients from soils due to prolonged irrigation. And potential surface and ground water pollution.	▪ Ensure use of drip irrigation and misting sprinklers ▪ Efficient regulation of water application to avoid over watering through weekly soil moisture content tests
▪ Inadequacy of the security system due to insufficient maintenance activities.	▪ Put in place a performance monitoring system to continuously inform the management on its effectiveness. ▪ Assign personnel to periodically monitor the barriers and recommend adjustments/improvements. ▪ Ensure adequate resources are available for monitoring and maintenance ▪ Engage the local community and other stakeholders in detecting breaches/deficiencies for timely corrective measures
▪ Occurrence of risks associated with water reservoirs e.g. drowning and breaching leading to loss of life and property	▪ Appropriate design for the lagoon to deal with incidences of flooding and spill-over ▪ Carry out regular inspections on the health of the lagoons and undertake appropriate maintenance works. ▪ Provide safety measures e.g., floatation devices and ropes ▪ Construct a fence around the lagoons to restrict access. ▪ Train staff on emergency response and provide lifesaving jackets on site.
▪ Increased demand for water and potential inefficient water supply infrastructure leading to wastage	▪ Set up a monitoring system to ensure timely repairs and improvements. ▪ Embrace maximum rain water harvesting and reservation especially storm water. ▪ Ensure water recycling and re-use for maximum efficiency particularly for grey water. ▪ Sensitize workers on sound water use practices e.g. by placing advisory notices around the facilities.
▪ Moral decadence and possible spread of diseases e.g. HIV/AIDS	▪ Create awareness among workers on good morals ▪ Enforce rules and regulations governing the conduct and interaction amongst employees. ▪ Provide social amenities to reduce idleness outside working hours.
▪ Possible adverse health impacts to workers and guests due to inhabitation related effects	▪ Make sure that all rooms are adequate and spacious enough. ▪ Undertake periodic maintenance of buildings and infrastructure. ▪ Invest in development of well-designed offices and workstations for enhanced staff productivity. ▪ Ensure the privacy of the occupants as much as possible. ▪ Ensure proper mechanisms for disposal of liquid and solid wastes.
▪ Possible injuries and adverse health impacts to workers at the various work stations	▪ Keep a general accident inventory at the site ▪ Provide and enforce use of protective clothing and equipment such as gloves, boots, aprons, ear protection, etc. ▪ Prepare evacuation plans including provisions for emergency exits, fire alarms and First Aid kits ▪ Assign duties and use of equipment to qualified personnel only.

	▪ Ensure occupational health and safety awareness creation before and continuously on the job. ▪ Provide appropriate facilities and equipment e.g. chairs and machines to proactively prevent adverse health impacts.
▪ Poor relationship and misunderstanding between the community and the farm	▪ Provide employment opportunities to the local community. ▪ Ensure gender is a key consideration in the recruitment process. ▪ Undertake CSR activities within the community. ▪ -Engage in various community activities including joining community-based conservation groups such as CFA and WRUA.
▪ Issues/ sanctions relating to lack of adherence to relevant national and international regulatory provisions	▪ Provide for elaborate monitoring and compliance structures including assignment of a specific department for the same. ▪ Undertake regular audits in accordance with relevant legal provisions such as EA, Energy Audit, OSH etc. ▪ Develop a monitoring system for all components of the project lifecycle. ▪ Engage qualified entities where necessary. ▪ Employ holistic and appropriate approaches in project monitoring.

6.6 Climate change risk and vulnerability assessment

Approach

Climate risk assessment component focused on the projected changes in climatic conditions, aspects to be affected (e.g. biodiversity and livelihoods), likelihood of occurrence, and the resulting consequences. The impact of the project activities in aggravating or mitigating effects of climate change was also assessed. Vulnerability assessment was concerned with the understanding the exposure, sensitivity, and adaptive capacity of the project settings (natural and socio-economic components) and project activities respectively. The same approach used in the identification of potential impacts was employed. However, the following seven elements formed the core of the assessment;

Table 7: Parameters considered in climate change risk and vulnerability assessment

Risk Assessment		Vulnerability Assessment	
(i.)	Trends of climate variables *The main aspect analyzed was rainfall patterns for the project area.*	(i.)	Exposure *Amount and rate of change experienced from direct and indirect impacts of climate change e.g. changes in rainfall patterns and habitat changes respectively.*
(ii.)	Projected Impacts *The most relevant direct and indirect hazards and impacts were evaluated as well as elements that are at the most risk e.g. biodiversity, health and safety, and livelihoods.*	(ii.)	Sensitivity *The degree to which the different elements in the project area would be affected by climate change e.g. hydrology.*
(iii.)	Likelihood of occurrence *Possibility of the risks occurring to facilitate decision making based on the degree of uncertainty.*	(iii.)	Adaptive capacity *Ability of the elements to cope and persist under changing conditions.*
(iv.)	Timescale		

The projected time span of the risks; short, medium or long term.	

Identified climate change related risks

According to the Nakuru County Climate Action Plan (2022), that the county will experience an increase in temperatures with an average of between 1.0° and 2.5°C by 2060. The number of consecutive days of moisture stress are projected to more than double in the first wet season from approximately 35 days to over 70 days on average. Moisture stress in the second wet season is projected to increase from approximately 50 to 70 days. In general, climate change impacts will be fairly similar during this time frame no matter the greenhouse gas emissions that occur.

Based on the desk studies and site visits conducted during this ESIA study, the most significant climate related risks and hazards in the project area are;

- Drought
- Flash/surface floods,
- River floods,
- Waterborne diseases
- Crop and livestock pests and diseases

The impacts of these hazards are likely to intensify with climate change as temperatures are projected to rise and rainfall is likely to become more erratic.

Some of the adverse impacts associated with these hazards include:

- Increase in crop failure and malnutrition
- Depletion of aquifers
- Soil erosion and degradation
- Water pollution
- Loss of biodiversity
- Damage to infrastructure such as roads
- Landslides affecting those living on steep areas

Climate change vulnerability in the project area

A majority of the vulnerable population groups are low-income households, people with disabilities, less educated, and women and girls. For instance, low-income households are less endowed with assets that could build their long-term adaptive capacity and thus can only cope with daily (relatively moderate) climate risks, and become highly vulnerable to severe events such as floods and landslides. Women and girls are considered more vulnerable as they spend long hours on farms, in search of water or even as caregivers. This makes them prone to heat stress and more exposed to floods and malnutrition. Some of the factors increasing vulnerability in the project area include;

- Poverty levels and limited livelihood options.
- Low skill amongst the productive population.
- Increasing human population.
- Incoherent and insensitive policies in natural resources utilization.
- Loss of indigenous natural resources management knowledge and practices that protected certain areas for community benefits.
- Limited support in information dissemination for enhanced mitigation and adaptation.

Anticipated contribution of the proposed project to climate change mitigation and adaptation

The proponent is advised/ encouraged to undertake the following activities in order to guarantee a low-carbon and climate-resilient enterprise and contribute to climate change mitigation and adaptation in the area through interventions in the following areas;

- *Flood control*

The terrain of the area increases the chances of surface/flash floods and river floods in the area. The farm is situated on a relatively higher elevation compared to the human settlements. Therefore, poor agricultural practices within the farm would increase the risk of floods and slides in the lower areas thus adverse impacts on the community and property. Therefore, the proponent is expected to prevent occurrence of such risks through maintaining a healthy vegetation cover and soil conservation measures. The presence of healthy avocado plantations and trees will be critical in achieving this.

Additionally, the designs of the water storage structures have given due consideration to probability of high intensity rainfall that may lead to overflow. The design leaves adequate capacity to accommodate rain water with spill way designs ensuring any excessive flows are channelled to the Marmonet River. The proponent will also ensure controlled pumping of water into the reservoirs.

- *Soil and water conservation*

Climate change mitigation and adaptation activities should go beyond the boundaries of the farm, particularly in soil and water conservation. The proponent has been encouraged to cooperate with other stakeholders e.g. county government, WRUA, CFAs, and farmer groups etc. in establishing appropriate vegetation species to enhance soil conservation, flood control, and biodiversity protection in the area. This includes planting of appropriate indigenous trees and vegetation to enhance infiltration and reduce.

Other activities include promoting good agricultural practices within the farm and neighbouring small-scale farmers to reduce erosion and use of agro-chemicals, thus, contributing to both micro and macro-level climate change mitigation and adaptation efforts

- *Droughts*

Incidence of a drought would encompass a prolonged period of abnormally low rainfall resulting in water shortages. The project area has recorded incidences of droughts in the recent past. Events of droughts and delayed rainfall are expected to become more frequent with the increasingly irregular and unpredictable rainfall patterns. Water shortage during droughts would lead to water-borne diseases. The proponent will not abstract any surface water that could affect water availability to the community. The farm will adopt efficient irrigation systems to withstand increased temperatures and evaporation rates during prolonged dry spells.

- *Enhanced community adaptive capacity*

The operations of the farm are expected to provide direct skilled and semi-skilled jobs to the local community thus widening livelihood options. It is also anticipated that the incomes earned by the employees will have a multiplier effect through better purchasing power for goods and services in the locality. Additionally, the farmers may benefit from CSR initiatives by the farm, particularly in agricultural practices and provision of avocado tree seedlings to improve productivity and incomes. Successful implementation of this intervention would have a positive impact on household incomes and the adaptive capacity of these households to effects of climate change.

- *Increase tree cover*

Besides the avocado plantations, the proponent has committed to replace exotic trees that will be damaged during the implementation phase. Exotic and indigenous tree plantations will be established at different sections within the farm. This is expected to contribute to carbon sequestration in the long-term.

6.7 Grievance redress mechanism

This ESIA recognizes the need to have a grievance redress mechanism to address issues raised by various stakeholders. Tentatively, the personnel responsible for Environmental Health and Safety at the farm will be the focal person in receiving and reviewing any issues raised by the community and stakeholders. Further, Evergreen Avocados Farm will adopt a proactive approach to reinforce the grievance mechanism. Meaningful stakeholder engagement with local community, county, and national government official will be sustained throughout project lifecycle.

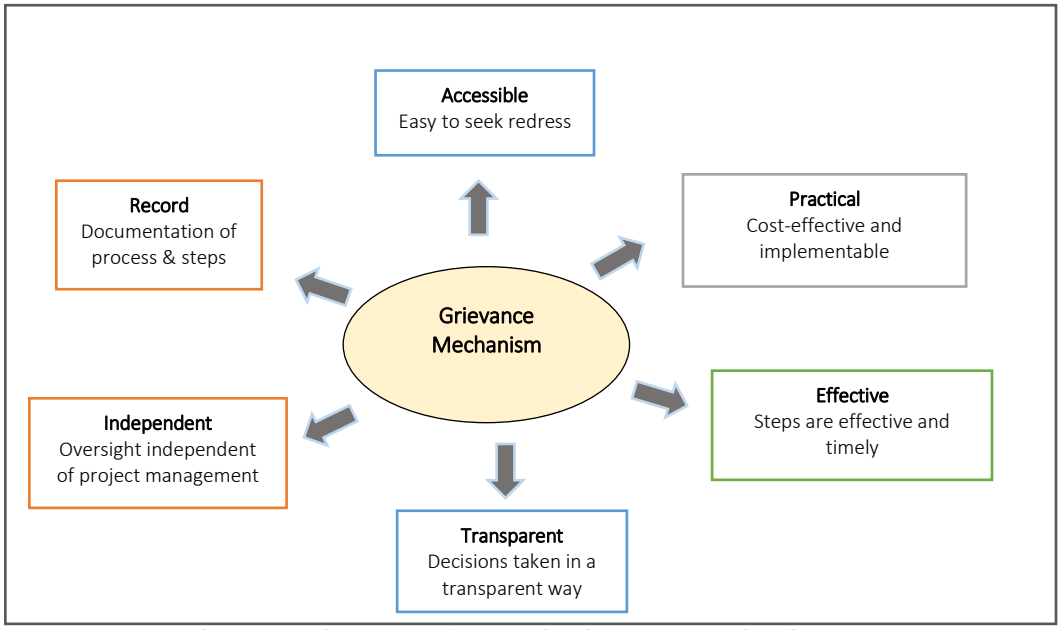


Figure 5: Elements of a good grievance mechanism

7 ANALYSIS OF ALTERNATIVES

7.1 Introduction

This section is a requirement by law and is critical in consideration of the ideal development with minimal environmental disturbance. The following feasible land-use options will be compared in terms of cost and benefit criteria: environmental impacts, social acceptability, economics (including productivity of land-use) and design feasibility. The general principle involved in identifying alternative option(s) to a proposed development is to ensure that the option chosen would result in optimal social, environmental and capital benefits not only for the developer, but also for the environment and stakeholders in the area.

Alternatives considered in this context include;

- No project alternative
- Alternative land use
    - Wheat Growing
    - Livestock production
    - Ecotourism
- Subdivision into Small scale Individual Holdings

7.2 Assessment and evaluation of alternatives

7.2.1 No project Alternative

The no-action alternative is defined by the baseline information and is useful in the assessment of impacts because other alternatives are weighed with reference to it. Under this scenario, the proposed project would not be implemented. It would be the most suitable alternative from an extreme environmental perspective as it ensures non-interference with the existing conditions. From qualitative analysis, there will not be any significant negative effect on biophysical environment of the proposed project. Without the project, the environmental situation will neither improve, nor is it certain that it will deteriorate. However, the land will not generate income to the owner yet the purpose of purchasing it was to put to productive use.

If the status quo was to be maintained, issues of quality of life, risk redistribution; environmental quality and social welfare as well as economic growth would remain a challenge. This scenario further negates the aspiration of the country to achieve livelihoods diversification, and the sustainable agricultural production as a basis for poverty alleviation and promotion of socio-economic development in areas lagging behind in development. The successful implementation of the project activities is expected to move beyond the confines of the project area to other areas in the County and Country.

Moreover, this EIA is meant to address the adverse impacts through the recommendation of viable mitigation measures while proposing ways to enhance the beneficial impacts. It has offered an ample platform for the incorporation of stakeholder concerns and environmental considerations in the final design to ensure successful implementation. Therefore, the status quo scenario will not facilitate the realization of socioeconomic and ecological benefits such as employment creation, increased development, and improved agricultural production. This scenario is thus neither tenable nor desirable and should not be considered.

7.2.2 Alternative land use

Alternative land uses that were considered in the analysis include

(i.) Wheat Growing

Under this scenario, the proponent will continue with wheat heat production as was the case with the former owner. The impact of wheat farming on the environment is minimal with little irrigation and agro-chemical lesser chemicals are required during the growing period as compared to intensive commercial farming. Additionally, wheat provides cover against soil erosion. However, continuation of wheat growing means continuous mono cropping with opportunities for tree growing being minimal. The yields have over the years been affected by rainfall variability as well as theft of the produce. The venture has also registered lesser employment opportunities compared to the prospects associated with the proposed project.

In the wake of increased need for local and foreign investments in agriculture, crucial for economic growth and employment creation, it is critical for environmentally sustainable land uses to be considered. Such land uses must be geared towards meeting the twin goals of environmental conservation and economic growth. From the above analysis, the status quo/continuation of wheat growing will not optimally contribute to these goals.

(ii.) Livestock production

The project area falls within agro-ecological zone suitable for commercial dairy production. The expansive land would provide ample space with a carrying capacity for productive dairy production. The market for dairy products is ever-increasing in the local and regional markets. However, there is need to ensure the ecological carrying capacity is not exceeded leading to adverse effects such as loss of vegetation cover and soil erosion. These would have a significant impact on the infiltration rates and overall productivity of the land. Livestock production using appropriate management principles and practices is a viable enterprise but its profitability is far much lower compared to the proposed enterprise. Nevertheless, its foreseeable environmental impacts are quite significant and as such, this enterprise should be scrutinized carefully. Under this project context this scenario is not desirable.

(iii.) Ecotourism

Ecotourism also offers a practical alternative to the proposed project owing to its proximity to Eburru Forest and Lake Naivasha. The proponent would develop an eco-tourism facility including holiday homes or a lodge and provide an environment for the existence of a number of wildlife species. Tourism is one the main activities with tremendous growth in recent years, particularly in Naivasha. The tourists are being drawn by the prospect of seeing the unusual or spectacular scenery and unique plants and animals in their native habitats, as well as any cultural and historical features found in these areas. However, this scenario would not adequately respond to the existing livelihood challenges in the project area. To a larger extent, it would only serve the economic interests of the proponent with minimal benefits to the local community. The issues of human wildlife conflicts may also arise from the existence of wildlife species in the farm.

7.2.3 Subdivision into Small scale Individual Holdings

Under this scenario, the land will be subdivided and allocated to small-scale farmers. Since independence, large-scale ranches and farms, have been bought up and subdivided into small units. Land carrying capacities have more often than not been considered. Such immigrants will start farming without knowing the ecological and economic constraints of rain fed agriculture and threats to water, soil and vegetation. Because scanty information exists on the new settlers on how to run crop and livestock farming on their holdings, the new farming enterprises run a high risk of crop failure, leading to impoverishment of the

settlers as they may lack a strong economic base. However, from an environmental and economic point of view this scenario is not desirable. It does not contribute to the Kenyan Government policy documents including Kenya Vision 2030 and the Bottom- Up Economic Transformation Agenda (BETA).

7.3 Results of the Analysis

Analysis of alternatives determined that the proposed project remains the most suitable alternative. Essentially, it is more compatible with the prevailing ecological conditions, enhance agricultural production, as well as provide direct and indirect socio-economic benefits. Under the proposed development alternative, the proponent would be issued with an EIA license upon approval of the Study Report by NEMA.

This ESIA Study Report has appraised the project to ascertain its potential impacts and practical mitigation measures. Therefore, if all measures provided are implemented, the proposed project will not have significant adverse impacts.

8 ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

8.1 Overview

The development of an Environmental Management and Monitoring Plan (EMMP) is an important process of ensuring project sustainability and environment protection. Whereas efforts are usually made to develop mitigation measures for a proposed project, it is during the operation lifespan of the project that actual impacts are noted or experienced. The EMMP is, therefore, an important element for monitoring of the progress of mitigation measures being implemented while also monitoring adverse impacts that were not earlier considered or anticipated.

The Environmental Management and Monitoring Plan will provide the basis for the implementation of the mitigation measures and provide a benchmark for the monitoring of the environmental performance of the proposed project through internal and external audits. The Environmental Management and Monitoring Plan has the important advantages of improving operational efficiency, promoting overall environmental protection, and occupational health and safety.

8.2 Monitoring approach

The EMMP involves measurement of relevant parameters and setting benchmarks, at a level of details accurate enough, to distinguish the anticipated changes. Monitoring aims at determining the effectiveness of actions to improve environmental quality; as regards the proposed project activities. The basic activities for a sound monitoring programme for the project, once it starts operating, should at least include the following parameters:

- Collection and analysis of relevant environmental data of the project site including: soil and air quality, biological diversity, hydrology and type and quantity of wastes generated.
- Identification of unexpected environmental and social impacts
- Formulation of counter-measures to mitigate the unexpected negative impacts while comparing them with actual impacts as identified during the assessment.
- Co-ordinate and do follow-up management and monitoring of the mitigation measures.

The EMMP for the proposed farm is presented in the table below.

Table 8: Environmental Management and Monitoring Plan for the proposed avocado farm

Project Activities	Negative impact	Proposed Mitigation Measure	Monitoring Indicators	Budget (*000)	Responsibility
Planning and design phase					
▪ Undertaking of resource inventory and land carrying capacity ▪ Site selection	▪ Possible failure of the project to respond to the needs of the community. ▪ Poor land use planning/ management due to inadequate information. ▪ Indiscriminate selection of the project sites.	▪ Engage qualified professionals and other stakeholders including Government Agencies in early stages of project design. ▪ Undertake comprehensive land use planning and development based on empirical data ▪ Ensure ecological and socio-economic factors are considered in project formulation and site selection.	▪ Resource inventory Carried out ▪ Stakeholders consulted	4,000	▪ EAL ▪ Consultants
▪ Seeking of approvals and permits for various activities ▪ Stakeholder engagement	▪ Lack of cooperation and understanding amongst various stakeholders on various components of the project. ▪ Conflicts with relevant authorities due to failure to comply with pertinent legal and regulatory provisions.	▪ Enhance consultations and stakeholders' scope of coverage during EIA study ▪ Provide technical and socio-economic facts about the proposed project. ▪ Set -up a preliminary grievance mechanism. ▪ Obtain all the necessary certifications and permits.	▪ Consultation approaches adopted ▪ EIA study approach ▪ Concerns raised ▪ Grievance redress mechanism	3,500	▪ EAL ▪ Consultants
Construction Phase					
▪ Survey Work, Infrastructural Assessment, and Preparation of sites	▪ Loss of biodiversity, alteration of landscape quality and soil erosion during site clearing, material, movement of vehicles/ heavy	▪ Proper delineation of the project sites to avoid indiscriminate clearing of vegetation. ▪ Ensure traffic follows designated access routes	▪ Vegetation density and diversity ▪ Location of site camp ▪ Soil conservation measures.	1,000	▪ EAL ▪ Consultants ▪ Contractors

	machinery, and excavation	or reroute access road to a less vegetated areas. ▪ Establish the construction/site camps within a less vegetated areas. ▪ Rehabilitate any borrow pits within the farm by replacing the top soil and re-establishing indigenous vegetation. ▪ Revegetate as much as possible upon completion of construction phase. ▪ Replace any vegetation damaged accidentally. ▪ Consider using suitable tree species around the lagoon areas to increase the vegetation cover and embankment affirmation.			
▪ Development of support infrastructure including water supply, energy, reticulation, and renovation works.	▪ Generation of wastes/debris/litter from off-cuts of pipes and metal, cement bags, containers etc.	▪ Non-biodegradable wastes that cannot be reused or recycled will be disposed of at a designated waste dumpsite off the estate. ▪ Metallic pieces will be stored for reuse/ fabrication in various estate activities. ▪ The off-cuts may also be sold to recyclers/fabricators or donated to institutions. ▪ Contractor/proponent to take preventative measures though use of BoQs and purchase only what is needed to minimize possibility of waste.	▪ Number and type of waste receptacles. ▪ Reuse/ Recycling activities adopted/ 5R principle. ▪ General housekeeping of the construction camp. ▪ Documentation on orders/purchase of materials	100	▪ EAL ▪ Contractors

	▪ Pollution as a result of poor handling chemicals, lubricants, and fuel	▪ Ensure proper measures of storing and handling chemicals and other potentially hazardous fluids/substances, and keeping data in MSDS. ▪ Ensure prompt cleaning/ management of such spills. ▪ Provide containers to store used oil and grease to avoid contamination at the site. ▪ Ensure any maintenance works on the equipment is undertaken at the workshop and proper conditions are maintained such as use of spill trays.	▪ Designated stores and storage containers ▪ Frequency and location of vehicle and machinery servicing. ▪ Number and extent of	30	▪ EAL ▪ Contractors
	▪ Poor sanitation at the site camps	▪ Provide a pit latrine for use by personnel at the sites. ▪ Provide covered solid waste bins at the construction sites and ensure they are emptied regularly. ▪ Maintain a lean population at the construction sites to minimize amount of waste generated.	▪ Sanitation facilities on site ▪ Number and type of waste bins/ receptacles ▪ Number of personnel living in the construction camps	150	▪ EAL ▪ Contractors
	▪ Noise pollution	▪ Limit noisy activities to daytime only to avoid causing nuisance at night ▪ The Contractors will keep noise level within acceptable limits as stipulated in EMCA, Noise Regulations. ▪ Workers on site during use of machinery that generate noise should be provided with appropriate PPE.	▪ Work schedule ▪ PPEs available ▪ Noise levels	45	▪ EAL ▪ Contractors

		▪ Limit equipment and vehicle idling time as much as possible to prevent unnecessary noise. ▪ Proper scheduling of materials delivery to minimize noise pollution.			
	▪ Air pollution from dust and emissions during movement of vehicles and machinery	▪ Apply dust suppression measures along access roads. ▪ Provide appropriate PPE such masks where necessary. ▪ Maintain equipment fleet in good working condition to reduce emissions.	▪ Dust suppression measures and frequency of application. ▪ Visual levels of vehicle/machinery and dust emissions	90	▪ EAL ▪ Contractors
	▪ Possible accidents owing to the slight increase in traffic along the road to the farm and potential damage to the existing road network.	▪ Sensitize drivers to observe traffic rules and speed limits, particularly near the shopping center and schools. ▪ Loading on traffic to be controlled to comply with government regulations. ▪ Contractor to repair and maintain road condition to fair condition. ▪ Vehicles to have operational horns. ▪ Drivers to be properly vetted before engagement.	▪ Road safety sensitization measures. ▪ No. of accidents/traffic issues reported. ▪ Speed limit mechanisms in place ▪ Code of conduct for drivers	250	▪ EAL ▪ Contractors ▪ Community
	▪ Health and safety issues such injuries to the workers resulting from use of hand-held tools or machinery.	▪ Contractor vetting to ensure compliance with legal requirements governing suitability for the specific job. ▪ Proponent will develop and commit the contractor to site occupational health and safety rules. OSHA/DOSH.	▪ PPEs availability ▪ Availability of First Aid kits ▪ EHS sensitization measures ▪ Code of conduct for personnel ▪ Competency of the contractors	110	▪ EAL ▪ Contractors

		▪ Work permit issuance to ensure work progresses only if safety and other standards are observed. ▪ The contractor to provide workers with PPEs, which include gloves, boots, goggles, aprons, ear protection, etc. ▪ Health and safety awareness creation on ESH hazard and near miss reporting, accident prevention, control and reporting. This should be done before and continuously on the job ▪ Conduct basic first aid training and provide first aid kits ▪ Ensure vehicles have functioning reversing alarm			
▪	▪ Increased water demand for the construction site	▪ The contractor will ensure efficient water use to prevent wastage. ▪ Explore reliable water supply alternatives to enhance sanitation. ▪ Workers will be provided with clean drinking water to avoid dehydration and drinking of water from contaminated sources.	▪ Water conservation measures ▪ Rate of water use ▪ Source of water	70	▪ EAL ▪ Contractors
	▪ Spread of communicable diseases and other infections	▪ Provide appropriate/adequate facilities to maintain proper sanitation and personal hygiene facilities ▪ Sensitize personnel on proper sanitation and hygiene	▪ Sanitation facilities ▪ Health and safety protocols ▪ General housekeeping ▪ No. of personnel on site	65	▪ EAL ▪ Contractors

		▪ Adequate ventilation and spacing of accommodation ▪ Observance of protocols for COVID 19 prevention	▪ Design of accommodation facilities		
	▪ Possible deviation from the initial intentions and specifications or substandard works	▪ Ensure merit is major consideration in selection of contractors, suppliers, and personnel. ▪ Ensure stringent monitoring system is put in place to inform the implementing entities. ▪ Continuously sensitize workers on the project specifications and requirements.	▪ Monitoring system ▪ Entities hired ▪ Sensitization approaches	130	▪ EAL ▪ Contractors
Operations phase					
▪ Periodic planting and harvesting of produce	▪ Possible emergence of alien/invasive species.	▪ Careful selection of varieties for planting ▪ Use certified seeds to avoid introduction of undesirable species. ▪ Plant the varieties in the proposed sites only. ▪ Undertake regular monitoring of vegetation type and density around the farm to prevent spread to undesired plant species to other areas.	▪ Presence of alien plant species. ▪ Varieties planted ▪ Monitoring reports	35,000	▪ EAL
▪ Soil management, pests and disease control	▪ Degradation of soil quality due to use of agrochemicals. ▪ Effects on the natural environment and humans	▪ Shift focus to emphasize on use of agro-chemicals with low human toxicities and are relatively non-persistent in the environment. ▪ Ensure full compliance with Kenyan laws and international standards on	▪ Pest and disease management approaches ▪ Monitoring reports ▪ Farm inputs used.	40,000	▪ EAL

		pesticides use, human safety and environmental protection ▪ Limit use of agro-chemicals in dealing with deadly pests and diseases only. ▪ Encourage the use of *Integrated Pest Management,* in particular cultural and biological methods. ▪ Undertake regular monitoring of soil properties (pH, moisture, organic matter etc.) ▪ Use organic compost/ manure to nourish the soil			
▪ Irrigation activities	▪ Leaching of nutrients from soils due to prolonged irrigation. And potential surface and ground water pollution.	▪ Ensure use of drip irrigation and misting sprinklers ▪ Efficient regulation of water application to avoid over watering through weekly soil moisture content tests	▪		▪
▪ Farm security to prevent theft and vandalization of infrastructure	▪ Inadequacy of the security system due to insufficient maintenance activities.	▪ Put in place a performance monitoring system to continuously inform the management on its effectiveness. ▪ Assign personnel to periodically monitor the barriers and recommend adjustments/improvements. ▪ Ensure adequate resources are available for monitoring and maintenance ▪ Engage the local community and other stakeholders in detecting	▪ Monitoring system in place ▪ Personnel assigned. ▪ Stakeholders engaged ▪ Resources available	2,500	▪ EAL

		breaches/deficiencies for timely corrective measures			
▪ Safety of water reservoirs at the farm	▪ Occurrence of risks associated with water reservoirs e.g. drowning and breaching leading to loss of life and property	▪ Appropriate design for the lagoon to deal with incidences of flooding and spill-over ▪ Carry out regular inspections on the health of the lagoons and undertake appropriate maintenance works. ▪ Provide safety measures e.g., floatation devices and ropes ▪ Construct a fence around the lagoons to restrict access. ▪ Train staff on emergency response and provide lifesaving jackets on site.	▪ Frequency of inspections ▪ Lagoon design ▪ Draw-off mechanisms ▪ Safety measures	950	▪ EAL
▪ Water supply	▪ Increased demand for water and potential inefficient water supply infrastructure leading to wastage	▪ Set up a monitoring system to ensure timely repairs and improvements. ▪ Embrace maximum rain water harvesting and reservation especially storm water. ▪ Ensure water recycling and re-use for maximum efficiency particularly for grey water. ▪ Sensitize workers on sound water use practices e.g. by placing advisory notices around the facilities.	▪ Water reuse and recycling ▪ Sensitization approaches ▪ Monitoring systems	6,000	▪ EAL

▪ Occupational health and safety aspects	▪ Moral decadence and possible spread of diseases e.g. HIV/AIDS	▪ Create awareness among workers on good morals ▪ Enforce rules and regulations governing the conduct and interaction amongst employees. ▪ Provide social amenities to reduce idleness outside working hours.	▪ Code of conduct ▪ Recreational amenities ▪ Stakeholders	500	▪ EAL
	▪ Possible adverse health impacts to workers and guests due to inhabitation related effects	▪ Make sure that all rooms are adequate and spacious enough. ▪ Undertake periodic maintenance of buildings and infrastructure. ▪ Invest in development of well-designed offices and workstations for enhanced staff productivity. ▪ Ensure the privacy of the occupants as much as possible. ▪ Ensure proper mechanisms for disposal of liquid and solid wastes.	▪ Building designs ▪ Frequency of maintenance. ▪ Efficacy of waste management systems	1,400	▪ EAL
	▪ Possible injuries and adverse health impacts to workers at the various work stations	▪ Keep a general accident inventory at the site ▪ Provide and enforce use of protective clothing and equipment such as gloves, boots, aprons, ear protection, etc. ▪ Prepare evacuation plans including provisions for emergency exits, fire alarms and First Aid kits ▪ Assign duties and use of equipment to qualified personnel only. ▪ Ensure occupational health and safety awareness creation before	▪ Accidents reported ▪ Presence of First Aid kit at various workstations ▪ OSH trainings held ▪ -Emergency Response Procedures (ERP) in place ▪ -Evidence of workers wearing protective equipment ▪ -Number of sensitization meetings to workers	450	▪

		and continuously on the job. ▪ Provide appropriate facilities and equipment e.g. chairs and machines to proactively prevent adverse health impacts.			
▪ Relationship with the local community	▪ Poor relationship and misunderstanding between the community and the farm	▪ Provide employment opportunities to the local community. ▪ Ensure gender is a key consideration in the recruitment process. ▪ Undertake CSR activities within the community. ▪ -Engage in various community activities including joining community-based conservation groups such as CFA and WRUA.	▪ Number of complaints recorded ▪ Communication approaches used ▪ Percentage of employees from local community		▪ EAL
▪ Farm Compliance to regulatory provisions	▪ Issues/ sanctions relating to lack of adherence to relevant national and international regulatory provisions	▪ Provide for elaborate monitoring and compliance structures including assignment of a specific department for the same. ▪ Undertake regular audits in accordance with relevant legal provisions such as EA, Energy Audit, OSH etc. ▪ Develop a monitoring system for all components of the project lifecycle. ▪ Engage qualified entities where necessary. ▪ Employ holistic and appropriate approaches in project monitoring.	▪ Organizational structure ▪ Schedule of activities ▪ Permits/Licenses		▪ EAL

9 DECOMMISSIONING PHASE

9.1 Overview

The decommissioning phase involves ceasing of the project operations. The main objective in decommission will be to make the project site equivalent or better than its original condition. The proponent has no short-term, medium-term or long-term plans for decommissioning of the Project. However, before the project decommissioning is considered, the proponent intends to carry out a regular review of the project during its operations phase In between this period, mini reviews will be done on annual basis, whose results will contribute to the final resolutions on the fate of the project. Environmental Audits shall also be relied upon to inform the process.

9.2 Rationale for decommissioning

In relation to the proposed project, decommissioning may arise due to the following reasons;

(i.) The enterprise is no longer economically viable and the proponent incurs losses. To avoid this, the proponent has developed a practical business plan which will guide the implementation of the project. In addition, incremental measures will be taken to ensure the project remains relevant under the rapidly evolving under changing socio-economic and ecological spheres.

(ii.) Recommendation from relevant government authorities and conservation-based entities. Evergreen Avocados Ltd will ensure that the project is undertaken as per the existing legal and institutional framework. This will include sourcing of requisite permits, licenses and constant consultation with relevant institutions/agencies in matters pertaining to the operations of the project.

(iii.) Another aspect of decommissioning may arise from change in farm ownership or management. In such as case, the new owner will assume all responsibilities associated with the project operations. Copies of all environmental reports, audits and NEMA correspondence will be made available to the transferee/recipient. The transferee/recipient will be expected to adhere to the environmental management plans and any other issues appended in the documentation.

9.3 Anticipated activities

In most cases, this phase is associated with the following activities;

- Notification of intent to cease operations the relevant regulatory agencies;
- Transfer of ownership or assets to new owners.
- Liaise with project consultants including engineers, and environmentalists to ascertain guidelines, anticipated de-commissioning impacts and mitigation measures.
- Inform NEMA, WRA, NCA, and County Government on any planned demolition activities.

10 CONCLUSIONS AND RECOMMENDATIONS

10.1 Conclusion

Development of new projects is now preceded by critical analysis and assessment of the proposed activities and operations as required by EMCA,1999 through conducting of Environmental Impact Assessment (EIA) to provide indications of the likely environmental consequences of the proposed activity. This EIA study has identified both negative and positive impacts of the proposed project, how it affects people, property and the general environment.

The analysis of this EIA study report has evidenced that the implementation and operation phases of the proposed project will likely have positive impacts to the affected community. The impacts will include:

- Increased job opportunities and livelihood options
- Increased agricultural production.
- Increased tree cover in the area.
- Multiplier benefits associated with CSR and leveraging for infrastructural development in the area.

Environmental concerns that are associated with this project implementation with potentially negative impacts were established and included:

- Occupational health and safety issues affecting workers undertaking various project activities
- Soil erosion as a result of the vegetation clearance during the initial stages
- Modification of local hydrology and ecology.

This EIA Study has however recommended feasible mitigation measures to avoid, reduce and eliminate these adverse impacts.

10.2 Recommendations

In alleviating the negative impacts that may emanate from the implementation of the project, the proposed mitigation measures should be incorporated during entire phases of the project. This will ensure that environmental management strategies are incorporated at every stage thus ensuring that the negative impacts are proactive identified and forestalled before they occur. The principle objective should be geared towards minimizing the occurrence of impacts that (may) have the potential to degrade the general environment. This will be effectively achieved through close monitoring and adoption of the recommended Environmental Management and Monitoring Plan (EMMP).

On the basis of the results of this EIA Study, it is apparent that, with the adoption and implementation of the Environmental Management and Monitoring Plan, the adverse impacts will be adequately mitigated against. In addition, foreseeable potential impacts will be forestalled before they occur thereby considerably limiting future environmental damage and ensuring the existence of a clean and healthy environment. Accordingly, as per Section 58 of EMCA and Part II, 10(2) of Environmental (Impact Assessment and Audit) Regulations, 2003, we recommend that the proposed project be implemented and we recommend that Evergreen Avocados Ltd be issued with an **Environmental Impact Assessment License** for the **Proposed Establishment of Evergreen Avocados Farm in Ndabibi, Naivasha Sub-County of Nakuru County**.

REFERENCES

JAETZOLD, R. ET AL., (1983) Farm Management Handbook of Kenya, Central Kenya. Vol. II

KNAUSENBERGER, W. ET AL., (1996) Environmental Guidelines for Small-Scale Design for Planning and Implementing Humanitarian and Development Activities. Technical Paper No. 18

Republic of Kenya (2005): Kenya Gazette Supplement Acts, *Environmental (Impact Assessment and Audit) Regulations 2003,* Government Printer, Nairobi

Republic of Kenya (2005): Kenya Gazette Supplement Acts, *Penal Code Act (Cap.63),* Government Printer, Nairobi

Republic of Kenya (2005): Kenya Gazette Supplement Acts, *Public Health Act (Cap. 242),* Government Printer, Nairobi

Republic of Kenya (2005); Kenya Gazette Supplement Acts 2000, *Environmental Management and Coordination Act (EMCA) No. 8 of 1999,* National Council for Law Reporting, Nairobi

Republic of Kenya (2005); Kenya Gazette Supplement Acts, *Occupational Health and Safety Act, 2007,* National Council for Law Reporting, Nairobi

Republic of Kenya (2005); Kenya Gazette Supplement Acts, *Public Health Act (Cap. 242), Revised Edition 2012,* National Council for Law Reporting, Nairobi

Republic of Kenya (2005); Kenya Gazette Supplement Acts, *Traffic Act (Cap 403),* National Council for Law Reporting, Nairobi

Republic of Kenya (2006); Kenya Gazette Supplement Acts, *Environmental Management and Coordination (Waste Management) Regulations, 2006,* National Council for Law Reporting, Nairobi

Republic of Kenya (2008); Kenya Gazette Supplement Acts, *Environmental Management and Coordination (Noise and Excessive Vibration Pollution Control) Regulations,* 2008, National Council for Law Reporting, Nairobi

Republic of Kenya (2016): Kenya Gazette Supplement Acts, *Environmental Management and Coordination (Amendment) Act 2015, Government Printer, Nairobi*

Republic of Kenya (2019): Kenya Gazette Supplement Acts, Legal Notice 31&32 of 2019*, Government Printer, Nairobi*

Republic of Kenya (2020); Kenya Gazette Supplement Acts, *Physical and Land Use Planning Act, 2019, (Cap. 286),* National Council for Law Reporting, Nairobi

WALTER I KNAUSENBERGER, GREGORY A. BOOTH, CHARLOTTE S. BINGHAM AND JOHN J. CANDET, (1996) - Environmental Guidelines for Small-Scale Activities in Africa, Environmentally Sound Design for Planning and Implementing Humanitarian and Development Activities. Technical Paper No. 19, USAID

WORLD BANK, (1996) - Environmental Assessment Source book, Sectoral Guidelines, Tech. Paper No. 140

ANNEXES

ANNEX A: IMPACT IDENTIFICATION AND EVALUATION MATRIX

IMPACT ON		Socio-economic environment						Biological Environment								Physical Environment									
PROJECT PHASE	PROJECT ACTIVITY	Conflicts	Employment	Public Health	Social responsibility	Benefit to community	Cost to community	Ecological Function	Wetlands	Migratory Species	Aquatic ecosystems	Vegetation	Alien Species	Species Diversity	Pests and Disease Vectors	Water quality	Soil Erosion	Groundwater	Siltation	Surface Run-off	Solid waste mgmt.	Aesthetic quality	Dust levels	Surface Water	Air pollution
Planning and design	Site survey & Designing	+3	+2	+1	0	+1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Application of necessary approvals e.g. EIA and Land Use	+3	+1	+3	+2	+2	+2	+3	0	0	0	+2	0	+1	0	0	+2	+2	0	+2	+2	+2	+2	+2	+2
Construction	Establishment of the farm and support infrastructure	0	+2	-1	0	+2	0	-1	0	0	0	-2	0	-1	0	0	-2	0	0	-1	-1	-2	-1	-1	-1
Operations Phase	Disease and pest control	0	+2	-1	0	-1	-2	0	0	0	0	-1	0	-2	+2	-1	0	-1	0	0	0	0	0	-1	-2
	Irrigation	0	+1	0	0	+1	0	+1	0	0	-1	+3	-1	+2	0	-1	-1	-1	-1	0	0	0	0	-1	0
	Commissioning and occupation of the facilities	+1	+2	-1	+1	+2	0	-2	0	0	0	0	0	0	0	-1	-1	0	0	-1	-2	+1	0	0	0
Decommissioning	Abandonment/ Change of Use/ Change of Ownership	0	-2	-1	-1	0	-1	+1	0	0	0	0	0	0	0	+1	-1	-1	0	-2	-3	-1	-2	0	-1
-Adverse impact +beneficial impact 1-Low significance 2-Moderate significance 3-High significance																									

ANNEX B

ESIA TERMS OF REFERENCE APPROVAL

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY

Telcom Wireless: 020-2183718, 020-2101370, 020-2103696
Mobile Line: 0724 253 398, 0723 363 010, 0735 013 046
Incident Line: 0786 101 100

P. O. Box 67839 - 00200
Popo Road, Nairobi, Kenya
Email: dgnema@nema.go.ke
Website: www.nema.go.ke

NEMA/TOR/5/2/619 **19th September, 2023**

Director
Evergreen Advocates Ltd
Lower Plains Road.
P.O. Box 1925-00502
KAREN

RE: TERMS OF REFERENCE (TOR) FOR ENVIROMENTAL IMPACT ASSESSMENT FOR THE PROPOSED EVERGREEN AVOCADOS FARM IN NDABIBI FARM NAIVASHA NAKURU COUNTY.

We acknowledge the receipt of your TOR for the above subject.

Pursuant to the Environmental Management and Coordination Act, 1999, the Environmental (Impact Assessment and Audit) Regulations 2003 and Legal notice 31 & 32 of 2019, your terms of reference for the Environmental Impact Assessment (EIA) for the **PROPOSED EVERGREEN AVOCADOS FARM IN NDABIBI FARM NAIVASHA NAKURU COUNTY** has been approved.

You shall submit ten (10) copies of the study report, upon payment of the applicable EIA processing and monitoring fees being 0.1% of the total project cost, a soft copy of the summarised ESMP in **WORD** format for preparation of public notice and one electronic copy of the report prepared by the team of experts to the Authority.

JOSEPH MAKAU
For: DIRECTOR GENERAL

ANNEX C

STAKEHOLDER CONSULTATION MINUTES

&

ATTENDANCE LIST

MINUTES FOR ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT
FOR
ESTABLISHMENT OF EVERGREEN AVOCADOS IN NDABIBI NAIVASHA SUB-COUNTY

Venue	Ndabibi Location Chief's Camp
Date	29/09/2023
Time	1100hrs – 1300hrs
Facilitators	1. Fiona Wachira 2. Maggie Wanjiku 3. William Mutahi
Rapporteur	1. Lucy Ann Wangari
Attendance	Attendance List

Purpose:

Engage with neighbouring communities to inform them about the proposed project activities. More specifically, the meeting aimed to;

1. Inform the community/stakeholders on the proposed project activities.
2. Share preliminary results of site visit and transect walks
3. Obtain feedback from community members on social, economic, and environmental goals related with the proposed project.
4. Increase community awareness on legal and regulatory framework governing environmental issues in Kenya.

Agenda

1. Introduction
2. Background to the EIA process and the progress made in the planning and design phase
3. Description of the proposed project activities.
4. Description of the potential community benefits, negative impacts and concerns.
5. A.O. B

Min: EAL- 01: Introductions

Mr. Asef Kariuki – Chief, Ndabibi Location, welcomed the stakeholders to the meeting and invited Mr. Samuel Munyui to lead in a word of prayer. Mr. Kariuki thanked the community for heeding the invitation to the meeting and for their punctuality. He informed the stakeholders that the session/meeting would be facilitated by EIA Experts contracted by Evergreen Avocados Ltd. as part of the stakeholder consultation for the proposed establishment of the farm. Mr Kariuki led the participants through the introduction session for purposes of understanding the audience and breaking the ice.

The chief informed the stakeholders about the proposed establishment of the Evergreen Avocados Farm. He urged the community to listen carefully and objectively engage the facilitators in order to obtain all the facts about the proposed project. This would be vital in understanding the impacts of the project.

Min/EAL/02: The EIA process and Progress made in initial stages

Ms Wachira took the community through what the EIA process entails and the legal basis for undertaking EIA studies. This was done in simple but logical manner to ensure the stakeholders understood the importance of the process. Specifically, she described the approaches used in stakeholder consultations and the importance of feedback in informing the final design of the project.

In regard to the proposed project planning and design, Ms Wachira explained that Evergreen Avocados to undertake an Environmental Impact Assessment for the establishment of Evergreen Avocados farm. She emphasized that the consultation process is essential in collating their opinions on addressing the adverse impacts, but also in prescribing and understanding the roles of proponent and different stakeholders. This is vital in attaining long-term benefits from the project.

She informed the community that stakeholder consultations will involve both county and national government representatives, community members, public institutions and commercial estates.

Min/ EAL/03: Description of the proposed project activities.

Ms Wanjiku provided a detailed background on the proposed project covering the key features of the farms e.g., acreage of the project, farm produces wall, water and energy supply among other auxiliary works. She provided the description of the project activities in a contextualized manner using locally understood metrics. She explained that the farm will mainly engage in commercial avocado production for the export market covering about 400ha. The farm will rely on two boreholes and two water reservoirs to cater for water demand within the farm.

The establishment of the farm will be done in phases. Hence, the previous owner will continue engaging in some farming activities as Evergreen, gradually, establishes its plantation. Ms. Wanjiku noted that the stakeholder's members should aim to understand key technical facts about the project as they would also be involved in disseminating correct information to other stakeholders and community members not present.

Min/EAL/04: Potential impacts based on transect walk/site visit

Ms. Wanjiku provided a description of the apparent positive and negative impacts arising from the project based on the transect walk. She explained that these impacts were as a result of preliminary assessment of the project activities against the baseline conditions of the project site/area. Some of the positive impacts will include;

- Direct and indirect employment opportunities from planning and design to project completion.
- Indirect opportunities arising from increased demand for labour around the avocado farm and its related activities.

Ms. Wanjiku urged the stakeholders to express their opinions objectively and without any reservations as the meeting provided the best platform to get a better understanding on the

project design and potential impacts. This opened the next phase of discussions on the stakeholder opinions on the proposed project activities.

Min: EAL/05: Discussions on the anticipated community benefits, negative impacts and concerns.

Ms Wanjiku invited the stakeholders to express their opinions and seek further clarification on the proposed project. She explained that some of the issues would be clarified or responded to immediately while others would be incorporated in the EIA Study Report. In addition, each issue was discussed in plenary by the participants. This was to ensure each issue was handled in an objective and conclusive manner.

The following main issues were discussed;

1. *Lagoon safety*

The main questions regarding the reservoirs' safety revolved around the possibility of breaching of the dam and causing havoc in the area. The EIA team provided further explanations to the community on the design of the lagoons and conditions for approval. The stakeholders acknowledged that if proper construction works are carried out, the risk of breaching would be alleviated. The water levels will be controlled and an allowance of 1 meter provided. The EIA team also highlighted that presence of river Marmonet, which the spillways are channelled to it, it would handle any excessive amount of water as experienced during heavy rainfall.

2. *How will the project benefit the local communities?*

The issue of direct and indirect benefits featured prominently in the discussions. Interestingly, most of the community members were aware that most benefits were indirect owing to the main purpose of the project as well as its location. Some of the key benefits identified were employment opportunities and benefits through experiences on growing avocadoes for local and export markets.

The stakeholders urged the company to organize field days to enhance the community's knowledge on avocado farming, which would significantly increase their returns.

The community asked the company to engage in impactful community-based projects e.g., borehole constructions, renovation of their local dam, helping the local church and school, education sponsorships to students who have passed their examinations but can't afford school fees.

3. *Environmental pollution*

The stakeholders expressed concerns on the possibility of proposed farming activities posing a risk to their environment. This would mainly through cutting down of trees which is the main attraction of rain his would impact their maize farming which is the main source of their livelihood.

The EIA Team assured the stakeholders that proper measures are already in place to ensure that the trees are replaced while also taking cognizance of the role of avocado trees in the environment. The members of the community urged the company to involve them the tree

planting process through buying of the tree seedlings from them for the replacement and also in the tree planting activities.

The stakeholders were also concerned about the use of chemicals this could bring about air pollution, soil pollution, geothermal pollution which has been noted that most residents house iron sheets are corroded and this goes without any compensation.

The EIA Team noted that the farm will be regulated by national and international laws governing use of agrochemicals. The team also noted that they would advise the farm to look into non harmful farming chemicals and fertilizers.

Min 7

A.O. B Mr. Mutahi urged the community to consistently aim to foster a better relationship with stakeholders for long term mutual benefits. He noted that the public participation meeting was not a mere legal process but an indication of the farm's regard to the community.

These remarks were reiterated by the Assistant Chief, Mr Josephat Gitero who affirmed their support to the project, which will have benefits in the long run. He urged the proponent to significantly consider helping local farmers in establishing avocado farming.

The meeting was closed with a word of prayer by Mr. James Supaiyon

EVERGREEN FARM - NDABIBI EIA

	Name	Village		ID	phone	Sign
17.	Simon Njuguna	MUTHAKWA	NYUMBA Kumi	10934636	0724549080	
18.	Martha Wanjiku	Ndereti	Nyumba Kumi	13674951	0728821787	
19.	Ben Mwangis	Manyatta	nyumba Kumi	11046841	0729024875	
20.	Samuel Munyui	Kiriman	Nyumba Kumi	5983118	0708558083	
21.	John Kamau	BAHATI	Nyumba Kumi	11154792	0705393874	
22.	Gingoi GATHEE	JOJO	NYUMBA	426877	0728972585	
23.	JAMES SUPAITON	HURUMA	NYUMBA	13378403	0721724779	
24.	PETER ESOKON EKUAM	CENTRAL	NYUMBA	14938815	0708879060	
25.	WILLIAM MBUIU NJANJA	Gathundia	nyumba Kumi	2319909	0718234731	
26.	SIMIE ZIRSEDATO MBAKA	BAHATI	Nyumba Kumi	21592495	0724[illegible]2695	
27.	JOHN Lomelo	NDereti	Nyumba Kumi	22352868	0726925542	
28.	SAMUEL NDUNGU	GATHDIA	YOUTH	27624198	0729911094	
29.	SIMON MATHERI	CENTRAL	BODA	30375694	0717690760	
30.	SAMUEL NJOROGE	CENTRAL	YOUTH	33384602	0792848735	
31.	SHARON. CHEROTICH.	Central	S.L.M.C	31641593	0700098036	
32.	ARNOLD TUNGE	Central.	S.L.M.C	31182955	0711252119	
33.	Gladys Wachira	Manyatta	Community	21578751	0726251081	
34.	JOSPHAT GITERU	NDABIBI	Ass. Chief	27100002	0724492468	
35.	ASEF K. KARIUKI	NDABIBI	SNR CHIEF	9126619	0711765352	

2

EVERGREEN FARM - NDABIBI EIA

ESIA CONSULTATION ATTENDANCE LIST

VENUE: Chief's Camp-Ndabibi Location DATE: 29/09/2023 TIME: 11:00 am

NO.	NAME	ORGANIZATION	DESIGNATION	PHONE NO.	ID NO	SIGN
1.	TERESIA NJERI	CHU	CHV	0718547869	9256076	
2.	Timothy Nampere	National government	Police	0703994970	20959769	
3.	TERESIA AKITELA	BAHATI	CHV	0715820960	127875 70	
4.	RAHAB WANGUI	CENTRAL	C.H.V.	0727328875	4666435	
5.	BEATRICE WANDIRU	K. BURUTI	Nyumba Kumi	0723874456	8040611	
6.	George KINAGA	NPS	Security	0725878831	21892757	
7.	RUFFUS MACHARIA.	GATHUNDIA	Farmer	0725697741.	8149003.	
8.	LUKA MUCHAI K	NDABIBI WEST	Business Person	0727662822	11009632	
9.	Ruth wanjiru mungai	Tumaini	Nyumba Kumi	0725067320	24861366	
10.	LUCY WAMBUI MAINA	CENTRAL	Business Person.	0768675807	35764916	
11.	Mohamed Bin Wako	Nyumba Kumi	Chairman Central	0721 892723	20319279	
12.	Joseph Mwaura Kamau	Boda Boda Chairman	Chairman	0723879975	7151382	
13.	Jane Hamaitta	Ndabibi	Women Group	0711924591	23443057	JANE
14.	HANNAH W. KURIA	CHE	CHV	0727538676	0199784	
15.	Zipporah Njoki	CENTRAL	Women Group	0703768314	26959376	
16.	HABIBA HANIT	CENTRAL	Community.	0713898557	11290519	

1

		Org	EVERGREEN FARM - NDABIBI		ID	Sign
36.	Maggie Kavuki	EIA/EA Expert.	Facilitator.	0706770189	29872468	
37.	FIONA WACHIRA	"	"	0724073665	—	
38.	Lucy Ann Wangari	"	"	0716135072	33632451	
39.	Mustafa W.	EXPERT-LEAD	EXPERT	0722332707	—	
40.	Rachael Githio	Community	Ndabibi	0795147781	14746613	
41.						
42.						
43.						
44.						
45.						
46.						
47.						
48.						
49.						
50.						
51.						
52.						
53.						
54.						

3

ANNEX D

PROPONENT'S REGISTRATION DOCUMENTS

No. **PVT-Q7U7ML8B**

CERTIFICATE OF INCORPORATION

I hereby **CERTIFY** that,

EVERGREEN AVOCADOS LTD

is on this date 17 Aug 2022 Incorporated under the Companies Act, 2015 and that the Company is a **PRIVATE LIMITED COMPANY.**

.....

Registrar Of Companies

This is a system generated certificate. To validate this document send the word **BRS** to **21546**

KENYA REVENUE AUTHORITY

www.kra.go.ke

PIN Certificate

For General Tax Questions
Contact KRA Call Centre
Tel: +254 (020) 4999 999
Cell: +254(0711)099 999
Email: callcentre@kra.go.ke

Certificate Date : 29/08/2022

Personal Identification Number
P052138370E

This is to certify that taxpayer shown herein has been registered with Revenue Authority

Taxpayer Information

Taxpayer Name	EVERGREEN AVOCADOS LTD
Email Address	BENSON.GAGI@AGRIS.GROUP

Registered Address

L.R. Number :	**Building :** Blixen Court
Street/Road : Lower Plains Road Nairobi	**City/Town :** Karen
County : Nairobi	**District :** Langata District
Tax Area : Karen	**Station :** South of Nairobi
P. O. Box : 1925	**Postal Code :** 00502

Tax Obligation(s) Registration Details

Sr. No.	Tax Obligation(s)	Effective From Date	Effective Till Date	Status
1	Income Tax - Company	17/08/2022	N.A.	Active

The above PIN must appear on all your tax invoices and correspondences with Revenue Authority. Your accounting end month is December unless a change has been approved by the Commissioner-Domestic Taxes Department. The status of Tax Obligation(s) with 'Dormant' status will automatically change to 'Active' on date mentioned in "Effective Till Date" or any transaction done during the period. This certificate shall remain in force till further updated.

Disclaimer : This is a system generated certificate and does not require signature.

ANNEX E

LAND OWNERSHIP DOCUMENTS

Main title
Letter
Subdivision

REPUBLIC OF KENYA

THE REGISTRATION OF TITLES ACT
(*Chapter* 281)

CERTIFICATE OF TITLE

TITLE NUMBER I.R. 79301

TERM: 948 YEARS FROM 1.2.1957

ANNUAL RENT SHILLINGS 1,178,700/- (*Revisable*)

I HEREBY CERTIFY that DOMINO INVESTMENTS LIMITED, a limited liability company incorporated in the Republic of Kenya of NAIROBI (Post Office Box Number 40286) in the Republic of Kenya pursuant to a Transfer registered as Number I.R. 79245/8 is/are now registered proprietor(s) as Lessee(s)

from the Government of the Republic of Kenya for the term of nine hundred forty eight (948) years for the first day of February One thousand nine hundred and fifty seven of ALL that piece of land situate Adjoining Lake Naivasha in the Nakuru District containing by measurement one five nine nought (1590) ~~hectares/acres (less road reserve of hectares/acres)~~ or thereabouts and being Land Reference Number 20591/56 (Original Number 20591/11/20) as delineated on Land Survey Plan Number 219871 annexed to the said Transfer

SUBJECT however to the revisable annual rent of Shillings ~~two~~ one million, one hundred and seventy eight thousand seven hundred (Shs. 1,178,700/-) and to the Act Special Conditions Encumbrances and other matters specified in the Memorandum hereunder written.

IN WITNESS whereof I have hereunto set my hand and seal this - 21st day of January One thousand nine hundred and ninety nine.

Registrar of Titles

MEMORANDUM

(1) The Government Lands Act (Chapter 280).
(2) The Special Conditions contained in a Grant registered as Number I.R. 65248/1

GPK 3579—3m—4/93

AND TITLES REGISTRATION OF TITLES ACT
REGISTERED AS No. I.R. 79301/1
PRESENTED 21st January 1999
TIME 12:45 Hrs
Registrar of Titles

FOLLOWING INSTRUMENT HAS BEEN REGISTERED AGAINST THE ...

2 Caveat by Registrar of Title under Section 65(1)(F)

No. 43 Date of Registration 3-2-2004

G. S. [illegible]

7843 Withdrawal of Caveat No. 2 above.
10/07 754 10-7-2007
7/07 V. A. Adhiambo 094

4 Charge to Commercial Bank of Africa Limited for Kshs 70,000,000/=.

785 10-7-2007

V. A. Adhiambo 094

I hereby certify this to be a true copy of the Original
① stamp duty shs 500/=
Copying A/c shs 20/=
shs 520/=
Date 10th July 2015

REGISTRAR OF TITLES
C. C. Ketyenya 274

REVENUE KENYA 10/-
REVENUE KENYA 10/-

DOMINO INVESTMENTS LIMITED

P.O.Box 358
Naivasha 20117.
Tel : 0733 333732

28th October 2022.

National Environment Management Authority

Dear Sir / Madam

RE – LAND SALE TO EVERGREEN AVOCADOS

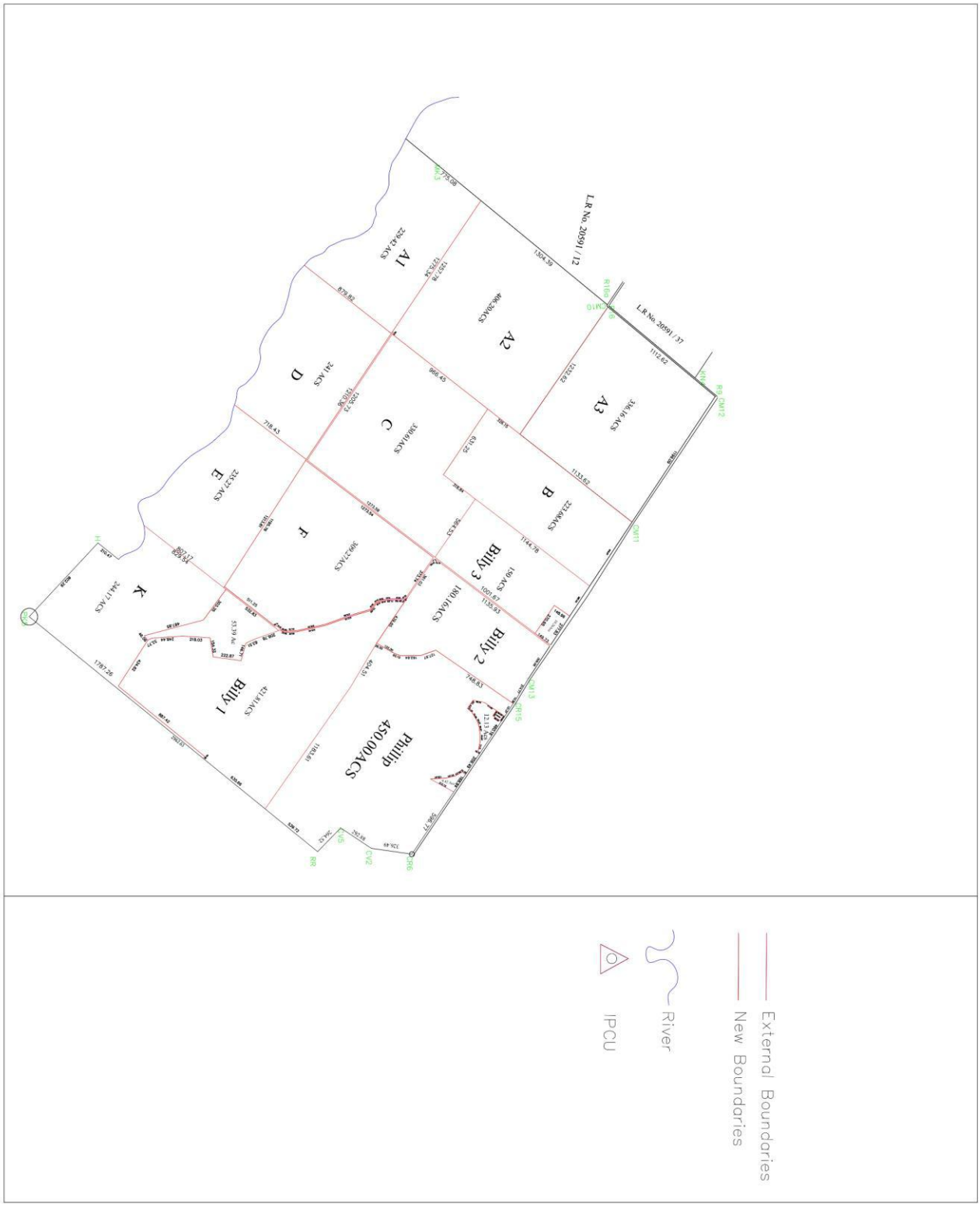
On behalf of Domino Investment Limited, I am providing this letter to inform National Environment Management Authority (NEMA) that we are selling 1,415 Hectares of Land owned by us at Ndabibi farm to Evergreen Avocados Limited, a company Registered in Kenya Number PVT-Q7U7ML8B, and its registered address at Suite CB1, Blixen Court, PO Box 1925 – 00502, Nairobi.

The sale process will be fully completed before the end of 2022 and the plot numbers are detailed below:
LR No 20591/196
LR No 20591/ 198
LR No 20591/199
LR No 20591/201
LR No 20591/ 202
LR No 20591/205
LR No 20591/ 206
LR No 20591/ 208

Please do assist Evergreen Avocados as necessary.

Yours faithfully,

R J Trundell
Director.


L.R No. 20591 / 12
L.R No. 20591 / 37
A1
239.42 ACS
A2
406.30ACS
A3
346.16ACS
B
223.66ACS
C
330.0ACS
D
241 ACS
E
235.27 ACS
F
389.27ACS
K
244.17 ACS
Billy 1
421.81ACS
Billy 2
180.16ACS
Billy 3
159 ACS
Phillip
450.00ACS
External Boundaries
New Boundaries
River
IPCU

ANNEX F

BILL OF QUANTITIES

Evergreen Avacadoes - Ndabibi Farm
BILLS OF QUANTITIES

NO.	ITEM DESCRIPTION	QUANTITY	UNITS	RATE (KSHS)	AMOUNT (KSHS)
	Bill No.1: Preliminaries				
1.1	Mobilisation and de-mobilisation to/from site; all equipment & tools	1	sum	1,000,000	1,000,000
1.2	Contractor's All Risk Insurance of Works	1	sum	400,000	400,000
1.3	Performance Bond	1	sum	750,000	750,000
1.4	Provisional sums; labour; casuals	24	wks	10,000	240,000
	TOTAL TO BE CARRIED TO GRAND SUMMARY				**2,390,000**

NO.	ITEM DESCRIPTION	QUANTITY	UNITS	RATE (KSHS)	AMOUNT (KSHS)
	Bill No.2: Excavations and Earthworks				
2.1	Clear top soil, stack for reuse or cart away as instructed, pave access ways, excavate, borrow to embankment, till the earth for Avacado ridges specific to instructions by the site manager	350	ha	175,000	61,250,000
2.2	Grade farm roads specific to instructions of site manager	25	km	750,000	18,450,000
	TOTAL TO BE CARRIED TO GRAND SUMMARY				**79,700,000**

NO.	ITEM DESCRIPTION	QUANTITY	UNITS	RATE (KSHS)	AMOUNT (KSHS)
	Bill No.3: Greenhouses				
3.1	Construction of greenhouses measuring a standard size 48m x 8m; complete with UV treated greenhouse polythene with anti-drip properties, galvanized steel bars, UV treated high density insect nets, bird nets, profiles, wiggle wires, screws and concrete to S.E approval, including eathworks and land preparation.	4	sum	250,000	1,000,000
	TOTAL TO BE CARRIED TO GRAND SUMMARY				**1,000,000**

NO.	ITEM DESCRIPTION	QUANTITY	UNITS	RATE (KSHS)	AMOUNT (KSHS)
	Bill No.4: Renovation works for staff housing, offices, and storage areas				
4.1	Renovation of pre-exisiting farm houses including; removal of damaged flooring, construction of new RC floor slabs, replacing damaged iron sheet roofing, repainting walls (interior+exterior), re-wiring, plumbing, construction of new septic tanks, bathrooms, and re-doing all pipework	1	sum	3,000,000	3,000,000
	TOTAL TO BE CARRIED TO GRAND SUMMARY				**3,000,000**

NO.	ITEM DESCRIPTION	QUANTITY	UNITS	RATE (KSHS)	AMOUNT (KSHS)
	Bill No.5: Backup Generator and Generator House				
5.1	Construction of a 5m x 6m masonry structure built as instructed by the architect and to S.E approval; complete with strong doors, proper ventilation and the requisite space for accessibility and maintenance.	1	sum	3,000,000	3,000,000
5.2	Supply and installation of a Cummins 16.5 KVA- 3phase, super silent diesel generator.	1	sum	3,750,000	3,750,000
	TOTAL TO BE CARRIED TO GRAND SUMMARY				**6,750,000**

NO.	ITEM DESCRIPTION	QUANTITY	UNITS	RATE (KSHS)	AMOUNT (KSHS)
	Bill No.6: Pump House + Pumps				
6.1	Construction of pump house	2	sum	6,350,000	12,700,000
6.2	Supply and installation of; pumps, electricals, and plumbing	2	sum	3,500,000	7,000,000
	TOTAL TO BE CARRIED TO GRAND SUMMARY				**19,700,000**

NO.	ITEM DESCRIPTION	QUANTITY	UNITS	RATE (KSHS)	AMOUNT (KSHS)
	Bill No.7: Electrical Installation & Fencing				

Page 1 of 2

Evergreen Avacadoes - Ndabibi Farm
BILLS OF QUANTITIES

7.1	Installation of electrical fittings and power to sorting house, gate house and other required power points	1	sum	3,500,000	3,500,000
7.2	Installation of high voltage electrical fencing around farm boundary. Excluding those shared with Evergreen Herbs.	6,000	m	4,098	24,590,164
	TOTAL TO BE CARRIED TO GRAND SUMMARY				28,090,164

NO.	ITEM DESCRIPTION	QUANTITY	UNITS	RATE (KSHS)	AMOUNT (KSHS)
	Bill No.8: Plumbing & Drip Irrigation Kits				
8.1	Plumbing works	1	sum	3,500,000	3,500,000
8.2	Drip Irrigation kit installation; materials to include drip pipes, main lines, submain lines(HDPE), filters, end caps, rubbers, starter and take-off connectors, Tees, Elbows, mini valves and ball valves, venturi injectors as prescribed by the farm manager	1	sum	37,500,000	37,500,000
	TOTAL TO BE CARRIED TO GRAND SUMMARY				41,000,000

	GRAND SUMMARY				
					AMOUNT (KSHS)
	Bill No.1: Preliminaries				2,390,000
	Bill No.2: Excavations and Earthworks				79,700,000
	Bill No.3: Greenhouses				1,000,000
	Bill No.4: Renovation works for staff housing, offices, and storage areas				3,000,000
	Bill No.5: Backup Generator and Generator House				6,750,000
	Bill No.6: Pump House + Pumps				28,090,164
	Bill No.7: Electrical Installation & Fencing				28,090,164
	Bill No.8: Plumbing & Drip Irrigation Kits				41,000,000
	GRAND TOTAL				190,020,328

PRACTISING CERTIFICATE FOR QUANTITY SURVEYORS

Pursuant to the Architects & Quantity Surveyors Act Cap 525

QS. CALEB AMUNABELWA (QU186)

is duly qualified as a Quantity Surveyor and is entitled to practise as such Quantity Surveyor

From 1st July 2022 *to* 30th June 2023

Registrar *Date* 9th March 2023

serial no. PCQS/2204/22-23

QS. CALEB AMUNABELWA
REG. NO: 1186
PRACTICING REG NO: 1650
12 OCT 2023
Sign.....
QUANTITY SURVEYOR

ANNEX G

NEMA APPROVALS FOR WATER SUPPLY PROJECTS

nema HQ: 0015707

nema
mazingira yetu | uhai wetu | wajibu wetu

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY(NEMA)

THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT

ENVIRONMENTAL IMPACT ASSESSMENT LICENSE

License No: NEMA/EIA/PSL/23593

Application Reference No: NEMA/EIA/PSR/37962

This is to certify that the Environmental Impact Assessment Project Report received from

EVERGREEN AVOCADO LIOMITED.

P.O. Box 1925, 00502 NAIROBI

submitted to the National Environment Management Authority in accordance with the Environmental Impact Assessment & Audit Regulations, 2003 regarding the:

Lagoon(Water Pan) A store water from two bore holes

whose objective is to carry on

Storage for water from two boreholes within the proponent's farm for irrigation purposes

located at

LR. NO. 79301, NDABINI FARM, NAIVASHA SUB COUNTY, NAKURU COUNTY

has been reviewed and a license is hereby issued for the implementation of the project, subject to attached conditions.

Issue date : **23 January, 2023**

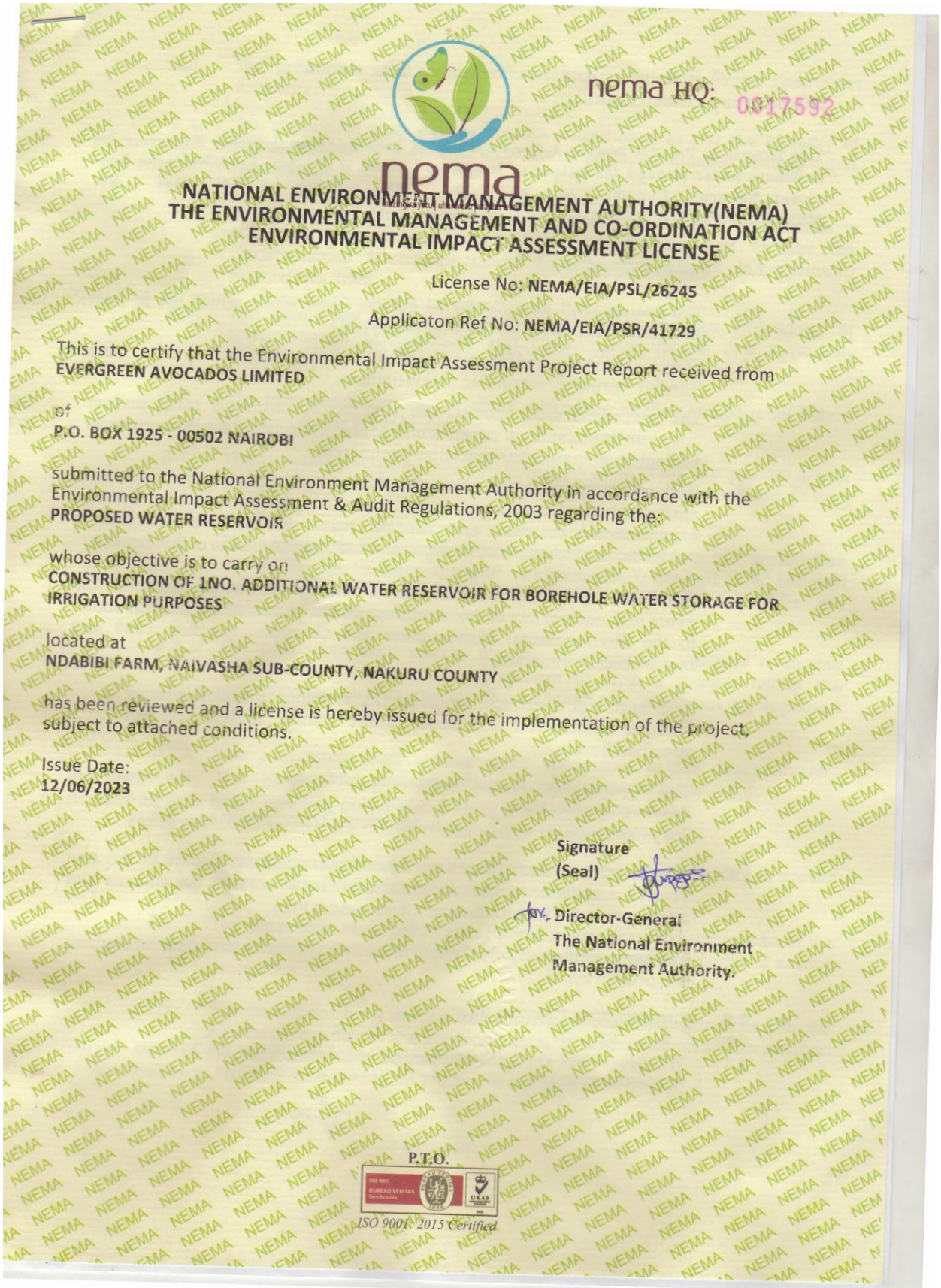
Signature

(seal)

Director-General
The National Environment Management Authority.

P.T.O.

ISO 9001: 2015 Certified



nema HQ: 0017592

nema

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY(NEMA)
THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT
ENVIRONMENTAL IMPACT ASSESSMENT LICENSE

License No: NEMA/EIA/PSL/26245

Applicaton Ref No: NEMA/EIA/PSR/41729

This is to certify that the Environmental Impact Assessment Project Report received from
EVERGREEN AVOCADOS LIMITED

of
P.O. BOX 1925 - 00502 NAIROBI

submitted to the National Environment Management Authority in accordance with the Environmental Impact Assessment & Audit Regulations, 2003 regarding the:
PROPOSED WATER RESERVOIR

whose objective is to carry on
CONSTRUCTION OF 1NO. ADDITIONAL WATER RESERVOIR FOR BOREHOLE WATER STORAGE FOR IRRIGATION PURPOSES

located at
NDABIBI FARM, NAIVASHA SUB-COUNTY, NAKURU COUNTY

has been reviewed and a license is hereby issued for the implementation of the project, subject to attached conditions.

Issue Date:
12/06/2023

Signature
(Seal)

for: Director-General
The National Environment
Management Authority.

P.T.O.

ISO 9001: 2015 Certified

ANNEX H

EIA EXPERT LICENSE

FORM 7 (r.15(2))

nema
mazingira yetu | uhai wetu | wajibu wetu

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY(NEMA)

THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT

ENVIRONMENTAL IMPACT ASSESSMENT/AUDIT (EIA/EA) PRACTICING LICENSE

License No : NEMA/EIA/ERPL/20015

Application Reference No: NEMA/EIA/EL/23972

M/S **WILLIAM MUTAHI.**
(individual or firm) of address
P.O. Box 253 Nanyuki.

is licensed to practice in the capacity of a (Lead Expert/Associate Expert/Firm of Experts) **Lead Expert General**

registration number **2942.**

in accordance with the provision of the Environmental Management and Coordination Act Cap 387.

Issued Date: **8/22/2023** Expiry Date: **12/31/2023**

Signature.....

(Seal)
Director General
The National Environment Management Authority

P.T.O.