ENVIRONMENTAL IMPACT ASSESSMENT STUDY REPORTFOR THE PROPOSED ASBESTOS DISPOSAL SITE LOCATED AT MKONDONI SUB-LOCATION, LANGOBAYA LOCATION, MALINDI IN KILIFI COUNTY

PROJECT PROPONENT

GOROFANI ENT LIMITED
P.O. BOX 42550 – 80100
MOMBASA

GPS: 3°10′31.51″S 39°44′3.03″E (-3.17542, 39.73418).

CERTIFICATION

The EIA study report have been prepared with authority from the proponent for presentation to the National Environmental Management Authority (NEMA) in accordance to legal requirements stipulated in the Environmental Management and Coordination Act (EMCA CAP 387). We undersign and certify that the particulars in this Environmental Impact Assessment Project Report are true and accurate to the best of our knowledge.

Lead Expert

ELLY OBOTE (6170)

Signature.....

Date.....

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Date 24/4/2023

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Signature.....

Date: 24/4/2023

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SAMUEL TSUMA (11377)

Signature .....

Date 24.04.2023

PROPONENT:

GOROFANI ENT LIMITED

Name of Representative: JAMAL MOHAMED.

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Signature: ..... **Date:** 24/4/23

GOROFANI ENT. LIMITED
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DOCUMENT AUTHENTICATION

This document has been prepared in accordance with Environmental (Impact assessment and Audit) Regulation, 2003 Legal Notice No. 101.

PROJECT BRIEF

Title: Environmental Impact Assessment Study Report for the Proposed Asbestos Disposal Site (Land Fill) Located at Mkondoni sub-location, Langobaya Location in Malindi, Kilifi County

Nature of Development: Establishment of Hazardous Waste disposal Site/ Wastemanagement.

Status of The Site: The Land is currently occupied by shrubs and scattered patches of trees.

Neighbourhood characters: The site is in remote location and does not have settlementaround

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EXECUTIVE SUMMARY

GOROFANI ENT LIMITED, a privately registered firm which specializes in Asbestos Handling and Disposal. The firm intends to put up an asbestos disposal site facility at Mkondoni sub-location, Langobaya location in Malindi, Kilifi County. The proponent***, GOROFANI ENT LIMITED*** proposes to establish a commercial asbestos disposal site at Mkondoni Sub-Location, Langobaya location, Malindi Sub-County in Kilifi County. The parcel of land is approximately 136 Acres. The site shall be fenced off to limit any access to unauthorized persons and shall be equipped with washroom and office. The site is not for a one-off disposal but rather a site that will be used as a commercial disposal site for potential clients who wants to dispose-off their asbestos waste therefore the size/tons of asbestos to be disposed-off annually cannot be determined yet.

The proposed site having been identified ideal, it shall only be commissioned once the license for operations has been issued. Once a potential client contracts the company, ***GOROFANI ENT LIMITED*** the management will calculate the space that might be required for disposal of asbestos waste depending on the asbestos waste quantity available. Thereafter the proponent will excavate the space for that specific disposal up to a recommended below the ground but strictly guided by the hydrogeological survey report by a qualified and registered hydrologist to guide on depth.

A concrete wall/lining will then be constructed on the excavated pit to ensure that the asbestos waste leachate does not go into the underground water sources or alternatively a polythene liner can be used if the wall characteristics permit. The asbestos waste shall be placed in the pit then covered appropriately. The proponent will then ensure that the pits are well marked indicating what has been dispose, source and the warning sign indicating 'Danger'.

The proposed project will contribute towards sustainable waste management, employment creation and income generation both during construction and operation phases thereby improving the living standards, project consultants and the project proponent.

The neighbouring parcels of land are undeveloped and are used for grazing and making of charcoal. Human settlement in this area is scattered without major developments near the proposed site.

Asbestos is a naturally occurring mineral that once was lauded for its versatility, recognized for its heat resistance, tensile strength and insulating properties, and used for everything from fire- proof vests to home and commercial construction. It was woven into fabric, and mixed with cement. Asbestos was a perfect blend to make things better – except it was highly toxic, too. Today asbestos is a known cause of mesothelioma cancer, is banned in more than 50 countries Kenya being one of them and its use has been dramatically restricted in others.

The project is classified as high risk thus need for winder public consultation. The experts have

enumerated several potential positive and negative impacts of the projects and listed how the negative impacts can be mitigated. The most important negative impact is the exposure of the asbestos materials to the public and worker which will be mitigated by proper handling and provision of appropriate PPE. Potential underground contamination will be mitigated by giving an allowance of 10m above water table and disposing of the material in underground concrete confinement.

Positive impacts include availability of asbestos disposal area which will reduce the exposure of the material to larger public, mitigating climate change by removing the asbestos sheets and replacing it with the solar panels which produces clean energy and lastly the project will provide avenue for the compliance through safe disposal.

ABBREVIATIONS

ACM	Asbestos Containing Material
NEAP	National Environment Action Plan
EIA	Environmental Impact Assessment
CGK	County Government of Kilifi
NEMA	National Environment Management Authority
EMCA	Environmental Management and Co-ordination Act
OEL	Operational Exposure Limit
EMP	Environmental Management Plan

1.0 INTRODUCTION

Environmental Impact Assessment, referred to as EIA is a statutory requirement applicable to all entities which interact in one way or the other with the environment. The impacts to the environment as a result of the interaction could be positive or negative or a combination of both. The environmental Impact Assessment is a planning tool that generally acts as an integral component of sound decision-making. The purpose of Environmental Impact Assessment is to give the environment its due place in the decision-making process by clearly and precisely evaluating the environmental consequences of proposed project activities before action is taken.

The EIA is a systematic analysis of the projects, policies, plans or programmes to determine their potential environmental impacts, the significance of such impacts and to propose measures to mitigate the negative ones. It involves early identification and characterization of critical environmental impacts, allows give the opportunity to the public to present their views and concerns about the acceptability of a proposed project and also identification of appropriate mitigation measures for curbing or reducing the risks and impacts.

Asbestos is a group of six fibrous minerals that occur naturally in metamorphic deposits located around the world. Of the hydrous magnesium silicate variety, the six types include tremolite, actinolite, anthophyllite, chrysotile, amosite and crocidolite. The major producers of asbestos include Canada, Kazharkstan, Ukraine, Russia, India, South Africa and Zimbabwe. Asbestos also used to be mined in Kenya in the past but was stopped. Once mined it is processed to form very thin fibres which are normally mixed with a binding material so that they can be used in different products.

Breathing in air containing asbestos fibres can lead to asbestosis and other related diseases, mainly cancers of the lungs and chest lining. It is only a risk to health through respiratory exposure route. Past exposure to asbestos currently kills around 4,000 people a year in Great Britain. There is no cure for asbestos related diseases. There is usually a long delay between first exposure to asbestos and the onset of the disease and can vary between 15-60 years.

There is a rise on concern from improper disposal of asbestos Country wide and it is due to this, the project Proponent, proposes to establish a proper and safe asbestos disposal site (land fill) in Mkondoni Sub-Location, Langobaya location, Malindi Sub-County in Kilifi County. Prior to establishment of the site, the proponent has contracted NEMA experienced Experts to conduct an Environmental Impact Assessment Study so as to assess the suitability of the site. The study will identify the impacts of the proposed project and make appropriate recommendation thereon.

Pursuant to section 58 of the Environmental Management and Coordination Act, (EMCA) 1999, the National Environment Management Authority (NEMA) requires project proponents to carry out Environmental Impact Assessments (EIA) and prepare related reports for developments that have the potential of resulting to negative social and environmental impacts. The proposed project falls under category 2-High Risk Projects (12) Waste Disposal (k) Commercial asbestos disposal sites. It is for this reason as required by The Environmental (Impact

Assessment and Audit) (Amendment) Regulations, 2019 that Terms of Reference/guidelines have been developed.

1.1 Objective of the Environmental Impact Assessment

The objective is to carry out the Environmental Impact Assessment (EIA) study to identify, predict and evaluate potential environmental and socio-economic effects which may result from the proposed disposal facility for asbestos and to develop suitable Environmental Management Plan (EMP) to mitigate the undesirable effects.

The aim of Environmental Impact Assessment (EIA) is to enable NEMA (which is the approving authority) and the developer to properly consider the potential environmental consequences of the project and to make recommendations to reduce it.

It is important to provide sufficient information for the approving authority to make a decision on whether to approve the project and if so, under what conditions. The information provided should be clear, objective, and supported by descriptive detail.

The EIA Study will mainly aim at developing systems that shall be environmentally friendly, economically viable, socially acceptable and sustainable for the proposed project. The specific objectives of the EIA shall be:-

a) Establish the existing environmental conditions.
b) To consider all possible positive and adverse impacts to the project area and its environs.
c) Design and prepare mitigation measures and plans to address all the possible environmental impacts.
d) Develop a comprehensive Environmental Management and Monitoring Plan for the proposed Asbestos Disposal Site.
e) Development of post project environmental monitoring programme.

The EIA shall include literature review; field studies; risk assessment; impact assessment and EMP.

1.2 The EIA Process

The EIA shall be prepared by a team of registered NEMA experts with appropriate experience to the study of the different aspects of the development site. The EIA Study shall be conducted as per the applicable guidelines set out in the Environmental Management and Coordination (Environmental Impacts Assessment and Audit) (Amendment) Regulations, 2019.

The EIA process shall involve:

i. Description of the project: The type of project; its size, components, and processes expected; all stages of implementation?
ii. Screening: is an EIA required?
iii. Scoping or identification of potential environmental impacts: What has to be covered in the formal EIA and in what detail?
iv. Baseline: What are the existing environmental conditions?
v. Prediction: What environmental and socio-economic impacts will the project have?
vi. Evaluation: How will these impacts affect people and resources, and how significant are the resulting

effects?

vii. Mitigation: Can significant negative effects be avoided or made acceptable? Can benefits be enhanced?

For this EIA of the proposed Asbestos Disposal Site, relevant information shall be sought from various specialists who include:

- An environmental management specialist
- A socio-economic specialist
- Hydrogeological specialist
- Occupational Health and Safety Personnel

1.3 Stakeholders Engagement and Mapping

There is a growing consensus that timely and broad-based stakeholder involvement is a vital ingredient for effective environmental assessment, as it is for project planning, appraisal and development in general. Public participation in EIA tends to improve project design, environmental soundness and social acceptability. EIAs that successfully involved a broad range of stakeholders tended to lead to more influential environmental assessment processes and, consequently, to development that delivered more environmental and social benefits. On the other hand EIAs that fails' to be inclusive tend to have less influence over planning and implementation, and consequently resulted in higher social and environmental costs.

Placing sufficient emphasis on stakeholder involvement in the EIA process can also improve the predictive quality of environmental assessments. In contrast, assessments that involve different stakeholder groups, including those in local communities, have greater potential to access a wider information resource-base, and in some cases, generations of cumulative knowledge of their local environment.

1.3.1 The specific aims of the Public Consultation and Participation process during the ESIA will include:

- To inform the local people, leaders and other stakeholders about the proposed Project and its objective
- Obtain the main concerns and perception of the community and their representatives regarding the Project
- Obtain opinions and suggestions from the directly affected persons on the Project impacts and best suited measures to mitigate them.
- Obtain opinions and suggestions on the Project concept, designs, etc. and therefore minimize conflicts and delays in implementation
- To facilitate the development of appropriate and acceptable entitlements options
- Increase long term Project sustainability and ownership

1.3.2 Benefits of Stakeholder Involvement in EIA

- Helps the EIA address relevant issues, including those perceived as being important by other sectoral agencies, public bodies, local communities, affected groups, and others;
- Helps to harness traditional knowledge which conventional approaches often overlook;
- Helps to improve information flows between proponents and different stakeholder groups, improving the understanding and 'ownership' of a project;
- Enables project proponents to better respond to different stakeholders' needs;
- Helps identify important environmental characteristics or mitigation opportunities that might be overlooked;
- Helps ensure that the magnitude and significance of impacts has been properly assessed; and ·
- Improves the acceptability and quality of mitigation and monitoring processes.

1.3 3 Stakeholder Groups.

Key stakeholder groups in a typical EIA

1.	Regulatory	Government authorities at national, regional, County and Sub-County level;
2.	Business	Business leaders, Chambers of Commerce, trade unions, resource owners and those with tenure rights, common property resource users;
3.	Political	Members of Parliament (MPs), MCA'S, Ward Administrators, lobbying groups
4.	Cultural	Community and religious leaders, community service groups, community organizations/NGOs, traditional leaders; ·
5.	Public and community stakeholder groups	
6.	Environment	Community interest groups, international and local environmental NGOs, local experts.

1.3.4 Stakeholder identification and Mapping strategies

- Immediate neighbors
- Interested and affected residents within project area
- County Government
- Area chief office and his 'Nyumba Kumi administration
- Groups of community based Organizations such as youth , women, PWDs
- Religious groups

1.3.5 Stakeholder Engagement strategies

- Interviews
- Questionnaires
- Public Participation meetings/barazas
- Local Radio station announcements
- Posters where applicable

2.0 THE PROJECT DESCRIPTION

2.1 Project Justification and Identification

Asbestos waste is defined as Hazardous Waste. The exposure to asbestos fibres presents the health risk to people. Many studies have described a link between occupational exposure to various types of asbestos and lung cancer and associated diseases. Asbestos has therefore been designated as a known human carcinogen and hazardous substance. The carcinogenic activity is directly linked to the air pathway and ingestion of the fibres when swallowed.

The presence of asbestos within the premises poses a long term environmental and human health risk to people who operate on the/within that site. There are several persons, government departments and factories within the Country who intend to remove the asbestos but does not have land for disposal of the same. This project therefore intends to provide solution of individual companies/organizations that intend to remove the asbestos and safely dispose them off in a licensed site. This will eliminate the asbestos in the human environment thus eliminating the risk associated with the asbestos.

2.2 Project Description

The proponent***, GOROFANI ENT LIMITED*** proposes to establish a commercial asbestos disposal site at Mkondoni Sub-Location, Langobaya location, Malindi Sub-County in Kilifi County. The parcel of land is approximately 136 Acres. The site shall be fenced off to limit any access to unauthorized persons and shall be equipped with washroom and office. The site is not for a one-off disposal but rather a site that will be used as a commercial disposal site for potential clients who wants to dispose-off their asbestos waste therefore the size/tons of asbestos to be disposed-off annually cannot be determined yet.

The proposed site having been identified ideal, it shall only be commissioned once the license for operations has been issued. Once a potential client contracts the company, ***GOROFANI ENT LIMITED*** the management will calculate the space that might be required for disposal of asbestos waste depending on the asbestos waste quantity available. Thereafter the proponent will excavate the space for that specific disposal up to a recommended below the ground but strictly guided by the hydrogeological survey report by a qualified and registered hydrologist to guide on depth.

A concrete wall/lining will then be constructed on the excavated pit to ensure that the asbestos waste leachate does not go into the underground water sources or alternatively a polythene liner can be used if the wall characteristics permit. The asbestos waste shall be placed in the pit then covered appropriately. The proponent will then ensure that the pits are well marked indicating what has been dispose, source and the warning sign indicating 'Danger'.

The proposed project will contribute towards sustainable waste management, employment creation and income generation both during construction and operation phases thereby improving the living standards, project consultants and the project proponent.

2.3 Location and land use

The proposed asbestos disposal site is located at Mkondoni Sub-Location, Langobaya location, Malindi Sub-County in Kilifi County. The project site is 45 Km from Malindi town, along the Malindi-Salaget road and the area is sparsely populated. The proposed site is geo-referenced as ***3°10'31.51"S 39°44'3.03"E*** (-3.17542, 39.73418). The land is approximately 136 Acres in size and there is no any development on the said parcel of land.

The proposed project site is not neighbored by any residential, no farms or any shopping center within. The nearest homestead is 3 km away. From observation, neighbouring parcels including site are virgin land as the area is occupied with natural vegetation forming bushes with shrubs and mtola trees. There are no rivers or water body within the proposed site therefore the proposed project site is suitable for commercial asbestos disposal.

Plate 1, 2 & 3 respetively showing images of the Proposed project site.

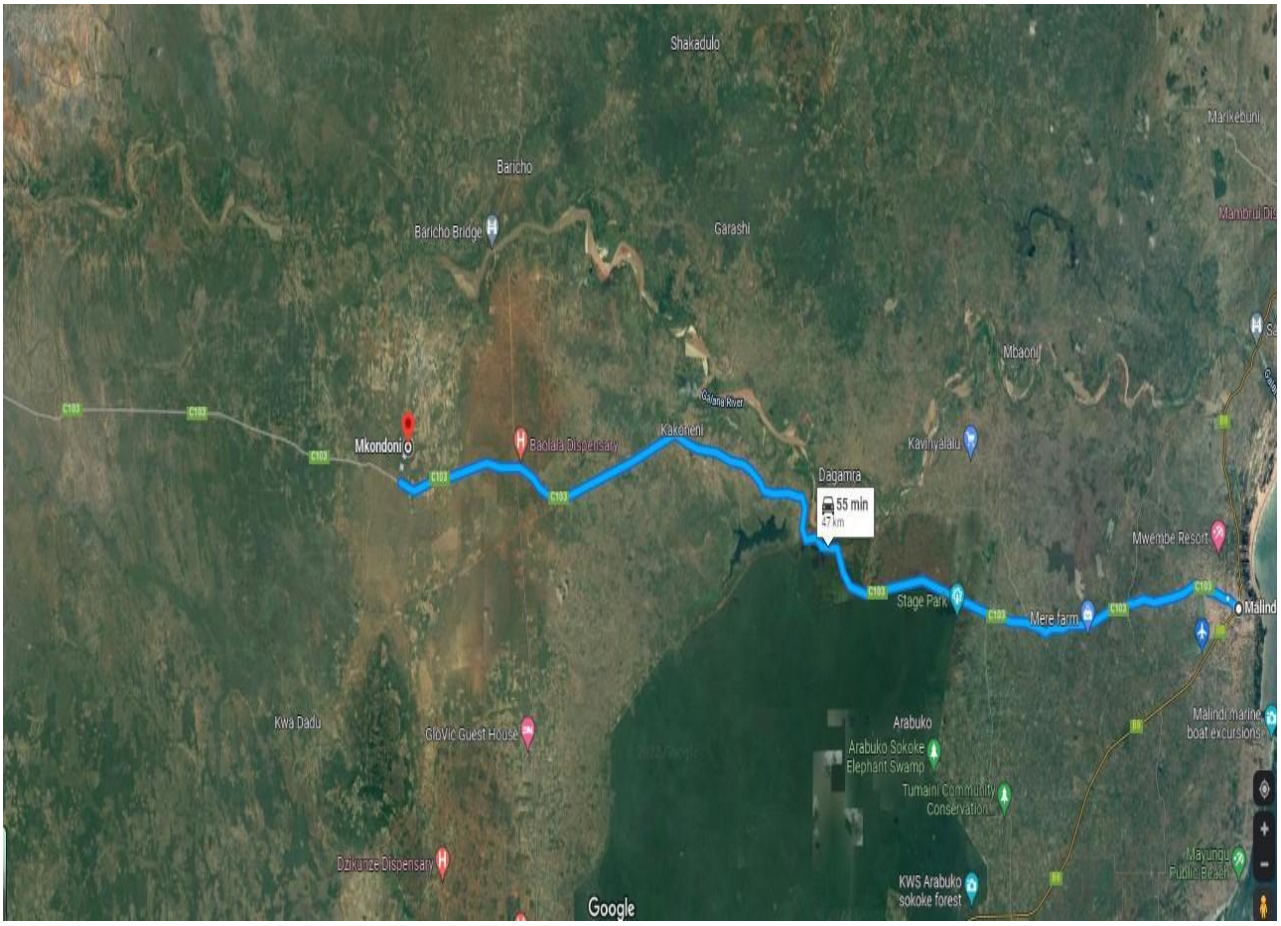

Plate 5: Google map extract showing proposed site

3.0 ENVIRONMENT AND SOCIAL SETTING OF THE PROJECT AREA

This section provides detailed information of the site where the project is undertaken. It broadly examines the physiographic factors, social and economic forces both visible and invisible as they operate and the stimuli the new project is likely to inject. All major parameters are assessed to establish their capacities and abilities. Baseline information provides a basis to ascertain the implication of the development process and determine the mitigation measures to be undertaken or suitable to ameliorate the identified impacts.

3.1 Project Location

The project is located at Mkondoni area, Langobaya location in Malindi Sub-County, Kilifi County. The GPS reading for the site is ***3°10'31.51"S 39°44'3.03"E*** (-3.17542, 39.73418). Malindi Sub County lies within Kilifi County, in the South-Eastern part of Kenya along the Indian Ocean. It lies approximately 120 km northeast of Mombasa, at the mouth of Sabaki River and between Longitudes 39° and 40° 14' East and Latitudes 2° 20' and 4° 0’ South of the Equator. The average altitude in Malindi is 10 m above sea level. Malindi Sub-County covers an area of 627 km2 and borders the following Sub-Counties of Kilifi County: Magarini Sub-County to the North, Ganze Sub-County to the West and Kilifi North Sub-County to the South.

3.2 Physical Environment

3.2.1 Climate

Malindi Sub-County is marginally semi-arid with two rainy seasons in a year. The long rains fall between April and July while the short rains occur between October and November. Due to topography and the effects of the monsoon winds, Malindi experiences varying annual rainfall of between 900 mm to 1,100 mm. There is a marked decrease in rainfall intensity to the hinterland.

It is generally hot and humid in Malindi throughout the year. The annual temperature ranges between 21° C and 30° C. The lowest temperature is experienced during the long rainy seasons (April – July). The average relative humidity along the coastal belt is 65% but with a decrease towards the hinterland.

3.2.2 Topography and Geology

Malindi Sub-County lies within the Coastal Plains which is a narrow belt, varying in width between 3 km and 20 km. It lies below 30 m above sea level. The Coastal plain is composed of Marine sediments, including coral, limestone, marble, clay stones and alluvial deposits that support agriculture. To the West of the Coastal plain lies the foot plateau characterized by slightly undulating terrain. The Plateau falls between 60 m and 150 m altitude and slopes towards the ocean. Several dry water courses traverse the surface with underlying Jurassic sediments consisting of shells, sandstones and clays. In this zone, grassland and stunted vegetation prevails.

Malindi sub-County comprises of three broad landscape units: (i) the "beach", (ii) the "coral landscape" and (iii) the "plateau". The “beach” is characterized by coral cliff, sandy soil and is an unstable new dune formation. The "coral landscape" consists of higher situated old reefs and lagoons. It is characterized by depressions with clayish soils and areas susceptible to water logging. The "plateau" is a prominent area of shallow sandy clay soils underlain by coral limestone Rock. It is located above the 4.5 m contour.

3.2.3 Soils

Generally, the soils of Malindi represent a wide range of profile characteristics. Differences in e.g. parent material, age or drainage condition have delivered an array of soils from high to low agricultural potential. Some of the characteristics that are generally recognizable are:

- Coral rag, that is developed from coral limestone with sand mixtures (reef complex)
- Red and yellow sands of the coastal strip (Kilindini formation)
- Dark red loamy sands (latosolic soils), mostly covering the soils of the Magarini formation.
- Brown clays (Grumosolic soils) covering the soils of the Mto Mkuu formation.
- Complex of dark red loamy sands (latosolic soils), dark red brown loams, brownish yellow loamy sand 9with laterite horizon brown clays (grumosolic) and shallow stony soils with rock outcrops. Part of this complex covers the soils of the Mariakani Formation.

The soils in the Malindi Sub-County differ widely in depth, texture, physical and chemical properties, mainly because of the underlying geology. The soils are poor in fertility, except where indigenous vegetation remains and a layer of fertile loam soil have developed. Malindi is made up of sedimentary rocks of Jurassic to Recent age. The geological structure of sedimentary rocks promotes rapid infiltration and percolation of rainwater to recharge groundwater aquifers.

3.3 Natural environment

The proposed site was observed to have a significant variety of second-generation plant species based on the nature of the activities that take place in the neighborhood since tree cutting has eliminated most of the tree. There are other animals such as squirrel, rodents, various bird species that roam the area.

3.4 Socio-Economic Activities

Major economic activities within the project area include livestock rearing, small scale farming and trading. Formal employment is very low apart. The project area does not have any cultural heritage site.

3.5 Infrastructure

The site is accessed via the Malindi-Salaget Road. The area does not have sewer system as people uses pit latrine for human waste disposal. The water is sourced from boreholes although there is water pipeline to some areas. Communication is mostly by mobile phones, radios and public baraza. The place however experience telecommunication network problems from main operators; Safaricom and Airtel.

4.0 POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

It is a legal requirement for any new development and existing projects to undergo EIA and EA respectively following the enactment by parliament of the Environmental Management and Co-ordination Act No. 8 of 1999 and gazetement of Legal Notice No. 101 of 2003 by the Minister of Environment.

Under this legal provision development projects are required to undergo EIA process whose report is later submitted to NEMA for approval and awarding of a license after demonstrating that the possible negative environmental impacts of a given project will be effectively mitigated. The key legislative and regulatory requirements relate to proper management of the environment as well as health and safety aspects. The legislative and legal frameworks would therefore seek to address the issues that include among others;

- Occupational Health and Safety during construction phase
- Use of environmental resources to implement the proposal
- Waste generation and disposal
- Air pollution
- Noise pollution
- Traffic increase
- Public health

4.1 Legal Framework

The following legislative provisions and regulations are considered key to management of the environmental, health and safety aspects related to the proposed development of asbestos disposal site.

4.1.1 The Constitution of Kenya, 2010

The Constitution of Kenya 2010 is the supreme law of the land. Any other law that is inconsistent with the constitution is null and void to the extent of its inconsistency. Further any action by an individual or a State organ that contravenes the Constitution is null and void.

Chapter V of the Constitution deals with Land and Environment. Specifically, Part 2 elaborates on the following components regarding the protection of the environment.

1. Obligations in respect of the environment
2. Enforcement of environmental rights
3. Agreements relating to natural resources
4. Legislation relating to the environment

Relevance to the proposed project

- *The proponent has a right to carry out the project within legal limits*
- *The proponent must ensure that the development is carried out in an ecologically, economically and socially sustainable manner*
- *The proponent is entitled to a fair administrative decision-making process from NEMA and other state organs.*

- *The proponent must ensure that all the applicable provisions of the Constitution are observed at all times.*

4.1.2The Environmental Management and Co-ordination Act, 1999

The purpose of this Act aims at improving the legal and administrative co-ordination of the ***diverse Sectored initiatives*** in the field of environment so as to enhance the national capacity for its effective ***management.*** To ***administer*** the ***Act,*** two major institutions have been established. They include the National Environmental Council (NEC) and the National Environmental Management Authority (NEMA). It has several Regulations that the proponent needs to put into consideration during the project life cycle.

EMCA Regulations

i. EIA/EA Regulations (Legal Notice No. 101 of 2003)

The EIA/EA Regulations are meant to operate under Sec. 58 of EMCA. It makes it illegal for anyone to undertake developments without an EIA license.

Relevance to the proposed project

- *The proponent will ensure to carry out an Environmental Impact Assessment Study for Acquisition of EIA license to commence project development.*
- *The Expert will ensure to follow the procedures and modalities during preparation of the EIA/EA report/study*

ii. Environmental Management and Coordination Act, 1999 section 91 (1-7)

The EMCA, 1999 requires the Authority to categorize hazardous wastes on the recommendation of Standards Enforcement and Review Committee (SERC) and to issue guidelines and regulations for the management of each category of hazardous wastes. The categorization has been done under the EMC (Waste Management) Regulations, 2006, as well as the guidelines that provide for safe management of asbestos and its wastes. *The proponent and the Expert will ensure to follow the guideline fully.*

iii. Environmental Management and Coordination (Waste Management) Regulations, 2006.

In pursuit of the provisions of EMCA 1999, the Minister for Environment in 2006 gazetted the waste management regulations focusing on management of solid, industrial and hazardous wastes, pesticides, toxic and radioactive substances.

Asbestos has been classified as hazardous waste under the Waste Management Regulations,
2006

1) Every person who generates toxic or hazardous waste shall treat or cause to be treated such hazardous waste using the classes of incinerators prescribed in the third Schedule to these regulations or any other appropriate technology approved by the Authority.
2) Any leachate or other by-products of such treated waste shall be disposed of or treated in accordance with the conditions laid down in the license or in accordance with guidelines issued by the Authority in consultation with the relevant lead agency.

3) In issuing a license for the disposal of waste, the Authority shall clearly indicate the disposal operation permitted and identified for the particular waste

Relevance to the proposal

- *The proponent proposes to establish a commercial asbestos disposal site and shall only begin/commence once the ESIA study is prepared, submitted to the Authority (NEMA) and a license to operate a waste disposal site has been issued*.
- *The proponent will ensure there exists proper contractual agreement with licensed solid waste handlers*
- *When issued with operation license the proponent will ensure hazardous wastes are disposed in the manner prescribed.*
- *The proponent to ensure when they are contracted for disposal that all asbestos waste to be transported by a licensed truck only*.

iv. Water Quality Regulations (Legal Notice No. 120 of 2006)

Water quality regulations were gazetted as a legislative supplement mainly to address the challenges of pollution of water sources and conservation. The regulation provides guides for water use and conservation as well as effluent standards for discharge.

Relevance to the proposed project

- *The proponent will contract a hydrologist to conduct and prepare hydrogeological survey report for the proposed project site so as to ascertain the underground water levels to void contamination of underground water during the disposal process*
- *The asbestos to be disposed in underground concrete confinement at a depth of 9.5m below the ground level.*
- *During the operational phase of the proposed project, Monitoring activities will follow the guide values provided in the asbestos guidelines.*

v. Noise Regulations (Legal Notice No. 61 of 2009)

These Regulations were gazetted *to manage noise* pollution to levels that do not *cause a disturbance/nuisance* to the public. The proposed construction activities will however have a potential for the production of noise *above* the *acceptable limits.* Generally, construction sites generate noise that is above 85 *dB* (A).

***Relevance to the* proposed project**

- *During the construction and operational phase, the management will ensure compliance with the set noise level limits for the site.*
- *The proponent will ensure that employees are not exposed to noise levels above 85 dB (A) and in such cases provide suitable personnel protection equipment (ear protective devices) during the whole project cycle.*

4.1.3 The Water Act, 2016

The Water Bill was gazetted in 2016 as the Water Act, and went into effect in 2017 when effective implementation of its provisions commenced. In furtherance to the Water Act 2016, the Ministry of Water and Irrigation and Water Resources Authority (WRA) in collaboration with other stakeholders has prepared a set of Regulations which have now been gazetted to give guidelines on water permit acquisition and adherence to conditions attached and also enforcement of the user fee charges.

Relevance to the proposed project

- *The proponent will ensure that water usage in all phases of the project cycle is in line with the provisions of this Act and obtain a permit from WRA if a borehole will be considered as a source of water to supply the facility. The proponent will also ensure that the activities of the site does not cause any leachate that may cause water pollution*.

4.1.4 Electricity Power Act No. 11 of 1997

The Electric Power Act No. *11* enacted in 1997 deals with generation, transmission, distribution, supply and use of electrical energy as well as the legal basis for establishing the systems associated with these purposes.

Relevance to the proposed project:

- *Electricity power installation and usage will be done in a manner that seeks to protect the health and safety of the occupiers, the local and other potentially affected communities as well as the environment*
- *Proponent will adhere to provisions of this Act in all phases of the project*.

4.1.5 Occupational Health and Safety Act No. 15 of 2007

Of particular importance to the proposed project is the requirement that all work places must be registered with the Department of Occupational Safety and Health Services. Further, there is a requirement that a Safety and Health Committee must be put in place and those employees and members of this committee must be inducted and trained on the provisions of the Act accordingly. The Act imposes various obligations on both employers and employees.

Strict provisions are made in respect of equipment containing self-acting machines, hoists and lifts and the requirement for supervision and training of inexperienced workers. Further an abstract of the premise safety and health policy should be exhibited at a conspicuous location within the property.

The OSHA stipulates that an employer shall not require or permit his employee to engage in the manual handling or transportation of a load which by reason of its nature is likely to cause the employee to suffer bodily injury without his/her consent. It also states that any person supplying, distributing, conveying or holding in chemicals or other toxic substances shall ensure that they are packaged, conveyed, handled and distributed in a safe manner so as not to cause any ill effect to any person or the immediate environment.

Relevance to the proposed project

- *Strict provisions will be made for the requirement of supervision and training of inexperienced workers during commissioning period*

- *It also involves the prevention of accidents at the workplace and provision of personal protective equipment (PPE) to all workers and ensuring their use.*

4.1.6 The Public Health Act- Laws of Kenya, Chapter 242

The Act prohibits activities that may be injurious to health. It then becomes the responsibility of the county government to maintain clean and sanitary conditions.

Relevance to the proposed project

- *Applicable during the entire project cycle in ensuring proper and hygienic methods are used within the facility.*
- *Maintain the completed building according to standards*
- *Ensure access to safe drinking water for the workers during the project life cycle*
- *The proponent will put measures to prevent activities that would be a nuisance to the public*

4.1.7 Occupiers Liability Act Cap 34

This is an Act of parliament to amend the law as to liability of occupiers and others for injury or damage resulting to persons or goods lawfully on land or property from dangers due to the state of the property or to things done or omitted to be done there.

Relevance to the proposed project

- *The proponent will ensure safety of workers during construction and possible decommissioning phases and residents upon occupation phase of the development.*

4.1.8 The Factories and Other Places of Work (Hazardous Substances) Rules, 2007

Asbestos has been listed as a hazardous substance and its threshold limit values given, therefore these rules apply to all workplaces where asbestos is present and *the proponent will ensure to fully adhere to this Act once the project commences.*

4.1.9 The Factories (Building, Operations and Work of Engineering Construction) Rules, Legal Notice No. 40 of 1984

The Factories (Building, Operations and Work of Engineering Construction) Rules, Legal Notice No 40 of 1984, rules 20 and 21 prohibit any inhalation of dust and fumes. In any building operation or work of engineering construction where dust or fumes likely to be injurious to the health of persons employed are given off, all reasonably practicable measures shall be taken to prevent the inhalation of dust or fumes by the person employed by ensuring adequate ventilation or providing suitable respirators at the place where the operation or work is carried on.

4.1.10 The Kilifi County Environmental (Regulations and Control) Act, 2016

This Act provides with respect the protection of the environment in Kilifi County as it seeks to ensure a clean and healthy environment. The Act which was enacted to give effects to various provision of the constitution of Kenya 2010, has section dealing with Air pollution, Noise pollution and Public nuisance. It prohibits acts or omission that are likely to cause air pollution, noise pollution and public nuisance. The provisions of this Act shall be in addition to other requirements under EMCA Cap 387.

The Act shall be administered by the County Department responsible for matters relating the environment. The Act requires that there be established in each Sub-County the formation of Sub-County Committee to be known as the Sub-County Environment Committee and such committees shall be responsible for the proper management of environment within the Sub-County for which it is appointed.

Relevance to this project *the proponent will ensure that all activities on the site does not cause air pollution considering that asbestos dust are potential air pollutant that not only harmful to environment, but also poses health risk to the public.*

4.2 Institutional Framework

i. National Environment Management Authority

The Authority is established to exercise general supervision and co-ordination over all matters relating to the environment and to be the principal instrument of Government in the implementation of all policies relating to the environment. Its mandate includes implementation of Legal Notice no. 121 on Environmental Management and Coordination (Waste Management) Regulations, 2006 which stipulates the disposal of Hazardous waste such as asbestos.

ii. County Government.

The county government is charged with the responsibility of providing guidance, supervisory and monitoring services of county functions in matters of infrastructure development and service delivery including solid waste management.

iii. Directorate of Occupational Safety and Health Services

The department is mandated to implement all rules pertaining to the protection and prevention of workers from occupational hazards and ensure safe working environment. The Directorate implements the OSHA, 2007 and various rules made there under.

5.0 CONSULTATION AND PUBLIC PARTICIPATION

During the EIA process, members of the affected community were approached for their views onthe proposed project. To achieve this, a meeting was held so as to inform the surrounding community of the project. The meeting was convened by the local assistant chief and village elder. The meeting was also meant to enlighten them on asbestos roofing sheets and its dangers and measures the government has put inplace to ensure safe handling and disposal of the hazardous material. Those in attendance welcomed the project but requested that extra caution be taken during its implementation.

Some of the issues raised and comments made by those present include: -

a) The site to be well fenced and security provided to restrict access as people may invade the land and dig out the buried asbestos.
b) The pit must be well concreted.
c) The materials to be well wrapped and lowered into the pits carefully so as to avoid breakages and damaging of wrapping material
d) Locals to be first priority in consideration for employment
e) The area administration to be well involved throughout the entire exercise.

Plate 5 & 6: Photos showing a section of the baraza in attendance to the meeting

Generally, community members were not against the project but insisted on the following:

i. All employment opportunities to be given to the locals.

ii. The proponent to ensure that no underground water contamination results from theoperation of the site.

iii. The proponent to act on issues that could not be foreseen at the commissioning stage.

iv. PPE to be provided to workers as well as medical check-up after every 12months

6.0 POTENTIAL ENVIRONMENTAL IMPACTS AND MITIGATIONS

6.1 Identification and Prediction of Impacts

With the knowledge of baseline conditions in the study area and proposed project activities, impact on the environment shall be discussed in detail.

An Environmental impact is any change that may occur to the existing condition of the environment caused by anthropogenic activities. Impacts may be positive (beneficial) or negative (adverse). They may also be direct or indirect, long term or short term in duration and wide spread or local in the extent of their effect.

Potential environmental impacts that may realize from the proposed asbestos disposal site would occur during site preparation, operational phase and decommissioning phase of the project cycle. During operation phase the impacts would be due to transportation and disposal of the waste (asbestos). The need to maximize the positive and mitigate the negative impacts is very crucial before a project can win community acceptability.

6.2 Siting and operational phase

The potential impacts from the project cycle are as follows;

6.2.1 Negative Impacts

a. Loss of vegetation

During excavation of the pit/landfill there are temporal potential impacts to be experienced. The cleared grass/vegetation as well as the excavated soil will form unwanted heaps at the site. This activity will inevitably lead to loss of vegetation cover. However, it was noted that there are no rare plant species or mature trees at the proposed project site.

b. Soil erosion and water logging

Soil erosion is likely to occur at the site once exposed by excavation works especially during rainy season and windy season due to the slope gradient of the proposed disposal site. Considering the land clearing, excavation and other construction processes, soil will be exposed to erosion agents leading to soil/land degradation hence impacting negatively on the environment. Water logging of the exposed site may also occur in the event of heavy rainfall hence the need to provide cut off trenches/storm water drains hence effective management of storm water.

c. Dust emission and exhaust emission

Particulate matter pollution is likely to occur during the site clearing, excavation of the top soil especially when done during dry season. Motor vehicles used at the site would cause a potentially significant air quality impact by emitting pollutants through gaseous exhaust emissions.

d. Health and Safety

There is the potential of increased chances of the public health and occupational health hazards and safety. Accidents may occur during construction, transportation and disposal of asbestos waste. Inhalation of dust, gaseous substances or aerosols from the removal and transportation of the asbestos materials can cause serious health risks to workers and nearby residents. An effective use of protective gear and adherence to safety precautions and guidelines is recommended.

e. Ground Water pollution

The risk of ground water contamination is too great. If control measures fail (lining with polythene) coupled with high water table, there is also the risk of contamination of ground water as a result of land filling.

Additional Negative impacts include;

- Land intensive
- Strict Removal, transportation procedures to safeguard human health
- Expensive

6.2.2 Positive Impacts

- Asbestos removal and disposal reduces human risk by eliminating cancer causing agents
- No on-going maintenance after disposal
- Provide longer term disposal solution
- Appropriate for hazardous waste disposal
- It creates employment opportunity throughout the project life cycle
- Source of revenue generation for the government both local and national

6.3 Mitigation Measures

This section discusses the potential impacts (both positive and negative) and proposes alternatives to the execution of the project based on the information generated by the analysis of the environmental issues above. At this stage, it is apparent that certain mitigation measures are necessary to offset the impacts from the proposed project.

a. Impact on water during asbestos disposal and clean up

There are no water resources/sources in the immediate neighborhood of the proposed asbestos disposal site. However, hydrogeological survey will be conducted so as to indicate the depth of water tables of the proposed project site. This will help in determining the depth of the pit to be excavated for disposal of the asbestos.

b. Waste generation (general waste and hazardous waste)

Waste at the site will include but not limited to the asbestos waste, contaminated soil, plastic waste etc.

Mitigation measures

The contaminated soil, materials and other hazardous wastes such as used PPEs and waste water generated by workers when they shower. General waste to be handled by NEMA licensed waste handler while hazardous waste to be disposed appropriately. The proponent should also consider construction of septic tank and soak for management of waste water from the sanitary facility.

c. Impact on soil and loss of vegetation

During the clean-up activities, the contaminated soil will be removed and disposed of at the disposal site and this will result in loss of soil and vegetation which will be replaced with either clean soil or gravel at relevant area. The proponent should consider backfilling areas which have undergone a substantial amount of excavation with stones/murram or soil.

d. Impact on Health and Safety

Asbestos containing dust is a complex mixture of fibrous structures. Not only do single fibres vary in dimensions but also such fibres may be found combined with other fibres in the form of bundles, clusters, or matrices. These are known as asbestos structures that can be inhaled. The relationship between soil and air levels of asbestos fibres is therefore considered complex. The potential for asbestos fibres to become airborne depends on the type of work activities as well as natural activities such as wind, i.e. the potential for mechanical disruption of the soil by human and/or natural activities.

Contaminated PPEs that will be discarded will become hazardous waste and if not disposed well may cause health risk to the people who come into contact with the waste.

Mitigation measures

- The proponent's policy will apply to the asbestos workers
- All employees to wear PPEs e.g. gumboots, PVC gloves, Dust mask, eye goggles, an approved unused disposal overall and high visibility vest.
- If more than 20 employees are involved the proponent will be required to form a Health and Safety Committee.
- There must be a health and safety plan that is kept onsite which must contain appropriate safety measures.
- Employees must be trained on the contents of health and safety plan
- A first Aid kit must be provided onsite
- Employees must be trained on first aid issuance.

6.4 Summary of Impacts and their mitigation measures

Possible Impact	Mitigation Measures
Destruction to Flora and Fauna	❖ In an effort to preserve the existing biodiversity, naturally occurring plants such as those used primarily for landscaping (ornamental/beautification and fencing) should be harvested during the site clearing phase and relocated to a nursery, to serve as a source of plants for replanting at a later date. ❖ Demarcate and delineate areas to be affected by the construction work. ❖ Conduct site clearing activities in stages to minimize the area of exposed soil. ❖ Control earthworks ❖ Install drainage structures properly ❖ It is important to note that there is no threated species of flora and fauna
Water quality degradation	❖ The asbestos shall be disposed in underground concrete confinement of 130mm thick. ❖ The maximum depth of the pit will be 9.5m. this will be more than 10m above water table, compared to 1m allowance recommended in the asbestos management guideline. ❖ Surface water from road, wash down and operational areas shall be directed to sediment traps then sock drains, the filter membrane, to the flash tank and finally to the settling ponds. ❖ The proponent shall install water quality monitoring device.

	❖ Asbestos is insoluble in water and alkali and as such cannot leach.
Airborne and water contamination due to Seismic events	❖ The concrete underground wall shall be constructed to withstand the seismic events. ❖ The area has not experienced seismic events in the recent past.
Fire Safety	❖ The proponent shall install firefighting devices at strategic areas. ❖ There proponent shall have fire management plan for the area. ❖ The staff shall be trained on firefighting skill.
Health and Safety Risk	❖ Inform all the relevant stakeholder and government officials prior to commencement of any work. ❖ All employees will wear protective clothing during the exercise. ❖ Provision of respirators to all persons entering the asbestos sites. ❖ Fence off the site to avoid unauthorized access. ❖ Warning & Safety signage will be placed at the strategic areas within the disposal site. ❖ All personnel involved with the asbestos disposal process will be subjected to medical surveillance. ❖ The area currently used for stockpiling of excavated material shall be lined with impermeable material. ❖ All machinery involved in an asbestos disposal process will be jet-washed prior to leaving site. ❖ Asbestos air sampling will be conducted on the sites for clean-up ❖ When there is a visible dust or winds in excess of 20 knots, any asbestos disposal and cleaning process will be stopped. ❖ Thorough, complete and up to date records should be kept of at the site. ❖ Ensure all asbestos is collected and loaded into a transportation vehicle licensed by NEMA ❖ The transporting vessel shall be labelled *'HAZARDOUS WASTE'* ❖ The proponent will follow laid down procedure for handling hazardous substances as per the waste management regulation of 2006 ❖ A first Aid kit must be provided onsite ❖ Employees must be trained on first aid issuance ❖ There must be a health and safety plan that is kept onsite which must contain appropriate safety measures.
Loss of heritage site	❖ There is no cultural site in this site.
Soil Erosion	❖ Ensure progressive rehabilitation of the site by planting local native trees. ❖ Upon permanent closure of the site, they will be initially covered to a depth of one meter beneath the final land surface.

	❖ The proponent should consider backfilling areas which have undergone a substantial amount of excavation with stones/murram or soil.
Dust Pollution	❖ First 25m of access to the entrance to be sealed. ❖ Vehicle speeds on the access road will be limited to 10km/h to minimize the possibility of wheel generated dust. ❖ A wash down area will be provided for all trucks and vehicles leaving the site. The Unloading area with drainage and treatment of water. ❖ Site jet system to be established to allow adequate wetting of operation surfaces.
Unregulated access to the site	❖ The site will be secured by a 2m high fence and entrance to be locked when not in operation. ❖ Signage will be place at the entrance and along the access road to indicate speed limits and risk, OH&S entry obligations and emergency contact details. ❖ Full time surveillance to be installed.
Deposition of unauthorized waste (asbestos)	❖ All Asbestos Containing Materials (ACM) will be recoded on the plan with GPS coordinates indicating their origin for future tracking. ❖ All operation personnel will be trained in proper management of ACM and emergency response procedure. ❖ All deliveries to the site to be registered in NEMA tracking document system. ❖ Confirmation of material properties prior to disposal. ❖ Rejection of materials that are not classified for disposal in the site.
Waste generation	❖ Inform cleaning and disposal workers of their responsibilities in terms of the EMP. ❖ Ensure that all waste removal workers comply with the Waste Regulations of 2006. ❖ Collect waste paper generated at the work site in scrap paper bins. Notify the waste paper removal worker /contractor when the temporary scrap paper storage area reaches capacity, for removal of the scrap paper to a recycling facility. ❖ Place all general / domestic waste in refuse bins

7.0 SUMMARY OF ENVIRONMENTAL MANAGEMENT PLAN

EMP is necessary to meet the requirements of the licensing Authority. The EMP consists of mitigation measures for item-wise activity to be undertaken for construction and operation of the project for its entire life cycle to minimize adverse environmental impacts. It shall also delineate the environmental management and monitoring plan for compliance of various environmental regulations.

The EMP includes but not limited to the following:

a) Delineation of mitigation measures for all the identified significant impacts;
b) Timeframe for implementation
c) Budget support
d) Responsible party

Management Aspect	Mitigation Measures	Time Frame	Responsibilities	Estimated Cost (KShs.)
General Conditions	- Notify workers about the upcoming activity - Prepare appropriate PPE complying with international good practice - Post appropriate signpost of the site that will inform the workers of key rules and regulations to follow	During Preparation for the proposed activity	GOROFANI ENT LIMITED	
Waste Management	- Inform cleaning and disposal workers of their responsibilities in terms of the EMP. - Ensure that all waste removal workers comply with the Waste Regulations of 2006. - Collect waste paper generated at the work site in scrap paper bins. Notify the waste paper removal worker /contractor when the temporary scrap paper storage area	During Disposal and cleaning process	Management	

	reaches capacity, for removal of the scrap paper to a recycling facility. - Place all general / domestic waste in refuse bins.			
Asbestos Management	- Asbestos disposal site shall be marked clearly as hazardous material - The asbestos will be appropriately contained and sealed to minimize exposure - The asbestos prior to removal should be treated with a wetting agent to minimize asbestos dust - Asbestos should be handled and disposed by skilled & experienced professionals - If asbestos material is being stored temporarily, the wastes should be securely enclosed inside closed containments and marked appropriately. Security measures will be taken against unauthorized removal from the site. - The removed asbestos will not be reused	Preparation and disposal of asbestos	Management	
Traffic and Pedestrian Safety	- Signposting, warning signs, barriers and traffic diversions: site should be clearly visible and the workers warned of all potential hazards - Provision of safe passages and crossings for pedestrians be made	During preparation stages	Management	

	- Active management by trained and visible staff at the site, if required for safe and convenient passage for the workers. - Ensuring safe and continuous access to office facilities, shops and residences during disposal and cleaning activities, if the facility is in operation during this activity			
Air Quality	- Establish air quality monitoring systems and implement operational management plans to ensure that the system is being maintained properly and that the outputs of the monitoring system are providing suitable data on air quality. - Appoint a dust monitoring system to monitor and analyze dust and air quality - Air monitoring should be done continuously in areas related to asbestos removal works.	During project preparation and disposal stages	Management	
Storm Water	-Ensure all storm water from the site is directed towards the established water drains	During the operational phase/disposal	Management	
Flora and Fauna	-Preserve as possible indigenous trees and other surrounding vegetation that need not be removed	During preparation of the site	Management	

Management of temporary waste storage sites	- Ensure management of temporary waste storage sites is in line set procedures and legal requirements. - Register and monitor waste volumes at the temporary waste storage site - Oversee the physical removal of the waste from the temporary waste storage sites	During the construction and operational phase	Management	
Underground water contamination	- Construct a concrete lining in the asbestos disposal site - Strictly comply with hydrogeological report recommendations on recommended depth of pits - Comply with NEMA asbestos disposal guidelines	Before disposing asbestos	Management	
Cleanliness of premises and plant	-Workplaces are maintained in a clean state and are free of asbestos waste	After the disposal process	Management	
Asbestos exposure (Health)	- The firm shall not permit any person to work in an environment in which he or she would be exposed to asbestos in excess of the prescribed occupational exposure limit. - Train workers on HSE and continuous enforce the need to use appropriate PPEs at all times.	At, during and after the disposal and cleaning process	Management	

8.0 ALTERNATIVES FOR DEVELOPMENT

The alternatives to the proposed project include different site and different technologies which are to be considered during the preparation of the ESIA. The above are as discussed below;

8.1 Alternative Site

This will involve looking for another project site. The disposal site is always required to be away from human settlement. This proposed project site is far from human settlement. The nearest homestead is approximately 3km away. Furthermore, the proponent does not have a suitable location other than this land.

8.2 Alternative Technology

The assessment of technology alternatives is limited due to asbestos being a hazardous substance. The preferred option for handling asbestos is to remove and dispose the asbestos in a land fill. The asbestos materials will be disposed in underground concrete confinement (asbestos pit). The confinement will have a maximum depth of 9.5m below the ground level.

8.3 No Action Alternative

This alternative will be in respect to the proposed project and it will imply that the status quo will be maintained. This cannot be adopted since whatever the proponent proposes will help in ensuring that the right to clean and healthy environment for all as enshrined in the Constitution of Kenya 2010 is achieved. Asbestos is an extremely hazardous substance and it needs to be eliminated at all cost and well-disposed in order to achieve Sustainability. Therefore, the 'No Action Alternative' will not be a viable in this case.

8.4 Proposed Project Alternative

The proponent proposes to establish a commercial asbestos disposal site /landfill which will greatly help in managing the hazardous waste which is harmful to the environment and the health of the public. This Alternative will be considered viable due to its benefits to the environment and the public at large.

9.0 TIME SCHEDULE FOR EXECUTING THE EIA

Preparation for the proposed Environmental Impact Assessment Study through to licensing will run for approximately *(90) days*. The tentative time plan for carrying out the Environmental Impact Assessment Study is as follows;

Proposed Work Plan for Carrying out the EIA Study

The EIA team propose to undertake the assignment as outlined in the table shown below:

ITEM DESCRIPTION	DURATION (No. of days)
Preparation of Terms of Reference and submission to NEMA	7
Approval of the TOR by NEMA	5
Conducting EIA Study and preperation of report	20
Review of the EIA study report by the project proponent	3
• Incorporating proponents' comments in final report • Signing of final report by proponent and consultant • Submission of EIA study report to NEMA	5
• Preparation of public notice by NEMA • Submission of public notice to government printers for incorporation in Kenya gazette by the EIA team • Submission of public notice to print media for incorporation in the newspaper with wider local circulation • Advertising in local newspaper and Kenya Gazette for 2 successive weeks • Receipt of comments from the public and key stakeholders • Response to the public and/or stakeholders comments by the EIA team in form of a report and submission of the report to NEMA as an addendum to the EIA study report • Review of the EIA study report & decision making by NEMA (Issuance of EIA license)	45
Tentative No. of days to complete EIA study Report & receive Communication from NEMA	**85**

10.0 PROJECT DECOMMISSIONING

In the event that the proposed disposal site lifetime is limited as a result of any unforeseen factors, then at some point, the asbestos containing site must be decommissioned or redeveloped to keep up with changes in land use and legislation on environmental impact.

An initial site assessment will have to be undertaken before an acquisition is made and a change of site usage is proposed. Environmental assessment is a key part of the due diligence processand ensuring that all surveys and assessments identify potential decommissioning hazards and risks and how to conserve resources and reduce the instances of environmental liability. In extreme situations, the decommissioning process may involve the safe handling and disposal of hazardous asbestos, material and waste and the cleanup of a site that has been contaminated by previous disposal operations.

Exposure to asbestos may be fatal: the fibres can lodge in the lungs, thus causing the onset of a number of types of lung cancer. This may be prevented if suitable protective clothing is worn. The site may carry more risks through the decommissioning process. The cost of the decommissioning process may be high, but the safety implications of contamination are so severe that each step of the process needs to be planned and executed to perfection.

Ultimately, the purpose of decommissioning of the site will be to reclaim the land, making it safefor people and vegetation. The introduction of vegetation to the site is less likely to have any severe impact. Environmental impact assessment will ensure that environmentally responsible decommissioning and redevelopment is a priority and that introduction of right vegetative species offsets any damage that may have been previously caused. The regeneration of this site will aim at protecting the health of the people that work on or are near the site and provide protection for the land for any other future developments with minimal negative impact.

11.0 CONCLUSIONS AND RECOMMENDATIONS

As a result of the current potential health risk posed by asbestos, it has made it necessary for the government to ban use of asbestos materials and the government through NEMA has issued notice for removal of asbestos roofing sheets from buildings. Since there exists a challenge in the disposal of the asbestos, Gorofani Ent Limited saw it necessary to go in the line of handling hazardous waste key being asbestos. The firm contracted a NEMA licensed EIA expert to carry out an Environmental assessment for the identified land to be a disposal site for asbestos.From the assessment, the site is suitable for the activity and should be licensed on condition the proponent should adhere to EMP set and international guidelines on handling of asbestos.

It is recommended that the proponent shall comply with all statutory requirements for handling and disposal of Asbestos including ensuring that all vehicles transporting asbestos are NEMA licensed.

12.0 NON-TECHNICAL SUMMARY

This Environmental Impact Assessment was conducted to determine the overall environmental impacts that the proposed asbestos material disposal site exercise is likely to have in the future. *Gorofani Ent Limited* believes that investing in environmental management is a worthwhile venture and has greater plans for land management for sustainable environmental undertakings during its activities at this site.

After consideration of all the environmental impacts that the proposed activity may cause, including public health risks; impact on soil, air and water; waste management issues; short and long term positive impacts, various mitigation measures are proposed. These measures arecontained in the Environment management Plan (EMP) and include the following: -

- Practising good waste management
- Establish the waste tracking mechanism.
- Disposal of waste in underground concrete confinement.
- The depth of the pit to be at most 9.5m below the ground.
- Control of asbestos fibre release and exposure effects
- Monitoring air and soil quality
- Medical surveillance
- Health and safety considerations
- Asbestos waste shall not be stockpiled at the landfill for disposal at a later date
- Caution should be exercised to ensure that bags or containers are not broken open before they are covered. If an asbestos container is ruptured, it should be re-packed bytrained personnel prior to burial.
- The maximum carrying capacity is approximately 2500tons. Thereafter, it should be decommissioned.
- There shall be no handling of asbestos in windy conditions.
- Detailed location and maps must be recorded and maintained to minimize the risk of exposing asbestos waste during future activities at the landfill
- The proponent shall put up an asbestos emergency response plan.

The proposed activity can be a sustainable development if all the mitigation measures advanced herein are adhered to.

13.0 CURRICULUM VITAE OF FIRM OF EXPERTS/EXPERT

The following tables presents the List and Credentials of all experts contributing to the development of the ESIA study. *(For more details see attached detailed curriculum Vitae)*

Name	**Qualification**
Elly Obote	**Lead Expert (6170)**
Jared Sawanga	**Team Leader** **Lead Expert (11574)** **Health and Safety Advisor**
Leonard Dadu	**Associate Expert (8432)**
Makokha Douglas	**Associate Expert (11889)**
Samuel Tsuma	**Associate Expert (11377)**

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APPENDICES

1. Experts Licenses and CVs
2. Legal Documents for the proponent
3. KRA PIN certificate Copy
4. Certificate of incorporation
5. Sketch drawings