ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT STUDY REPORT FOR THE DEVELOPMENT OF TRIBUTE FUNERAL HOME

Mitheru Location, Maara Sub-county, Tharaka Nithi County

(350767.807 E 9966325.74 N 37M)

CERTIFICATION

The Environmental and Social Impact Assessment Study for the proposed Tribute Funeral Home in Muthambi Location, Maara Sub County in Tharaka Nithi County was conducted and the project report prepared by registered Environmental Experts.

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EXECUTIVE SUMMARY

This document is an Environmental and Social Impact Assessment (ESIA) study report for the Proposed Tribute Funeral Home that is to be located at Ruguta Sub-Location, Mitheru Location along the Meru Nairobi Highway on plot number Muthambi/Gatua 1334 at 350767.807E 9966325N 37M at 1300 m asl in Tharaka Nithi County.

The home is bordered by roads, homesteads and cultivated pieces of land under various crops. This report is prepared in accordance with Section 58 to Section 67 and Section 138 of the Environmental Management and Coordination Act (EMCA), 1999 (Cap. 387) that require all projects listed under the second schedule of the Act to undertake environmental assessments and submit it to NEMA for approval and licensing before commencement. The subsidiary legislation to the Act, the Environmental (Impact Assessment and Audit) Regulations, 2003 provides the framework for carrying out ESIAs and EAs in Kenya by NEMA licensed experts. Environmental and Social Impact Assessments (ESIAs) should be followed by annual Environmental Audits (EAs) beginning 12 months from the date of commissioning of operations in order to determine the projects' compliance with regulations and set standards.

The purpose of ESIA is to identify potential positive and negative environmental and social impacts associated with the proposed project and thus provide recommendations on how to take advantage of the positive impacts and how to mitigate the negative environmental impacts.

The objective of the proposed project is to develop a modern funeral home for the storage of human corpses as they await identification and/or removal for autopsy or disposal by burial, cremation or by any other legal method. The estimated cost of the proposed project is Ksh. 4,000,000. The construction of the proposed project will employ best and modern building technologies and materials that conform to the Kenya Bureau of Standards (KEBS) and internationally accepted standards. The materials will be obtained locally through delivery contracts approved through best procurement practices.

The ESIA team carried out the assessment using a combination of methods including ground survey and questionnaires with the neighbors, project management and other interested people and parties including the area residents. From the public consultation process it was evident that the project has enough public support.

Potential beneficial and adverse environmental and social impacts associated with the proposed project were identified and discussed. The main positive contribution of the proposed project is the creation of modern funeral home. Other benefits include capital into the economy, revenue to the government, increased demand for raw materials, creation of employment opportunities, improved aesthetics, optimal use of land and development in the area.

A summary of these potential impacts and a brief description of their mitigation measures has been provided. The study report complies with the requirements of the Environmental Management and Co-ordination Act, (EMCA), 1999 and takes into consideration the Tharaka Nithi County Government (TNCG) by-laws and the applicable international standards. At the end of the report, are recommendations for construction of the proposed funeral home that will ensure that environmental impacts are identified and mitigated during all phases of the proposed project and will inform in decision making during preparation of the environmental management plan (EMP)

LIST OF ABBREVIATIONS AND ACCRONYMS

TNC – Tharaka Nithi County

TNCG –Tharaka Nithi County Government

CO2 – Carbon Dioxide

EA – Environmental Audit

EIA – Environmental Impact Assessment

EMCA – Environmental Management and Coordination Act

EMP – Environmental Management and Monitoring Plan

ESIA – Environmental and Social Impact Assessment

ft. – Foot/feet (a unit of measuring length)

GOK – Government of Kenya

Ha – Hectare (a unit of measuring land area)

Hr. (s) – Hour(s) (a unit of measuring time)

KFS – Kenya Forest Service

Km – Kilometer(s) (A unit of measuring distance)

Km2 –Square kilometer(s) (A unit of measuring area)

Ksh. – Kenya shilling(s) (a unit of measuring currency in Kenya)

KWS – Kenya Wildlife Service

m – Metre(s) (a unit of measuring length)

m3 – Cubic metre(s) (a unit of measuring volume)

mm –Millimeter(s) (A unit of measuring length)

NCA – National Construction Authority

NCLR –National Council for Law Reporting

NEAP – National Environment Action Plan

NEC – National Environmental Council

NEMA– National Environment Management Authority

NMK – National Museums of Kenya

Degrees– (A unit of measuring latitudes and longitudes)

oC – Degrees Celsius (A unit of measuring temperature)

OSHA – Occupational Health and Safety Act

P. O. – Post Office

PPE – Personal Protective Equipment

Reg No. –Registration number

spp – Species

TOR – Terms of Reference

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CHAPTER ONE:

INTRODUCTION

1.1 Background of the project

With the need to facilitate the community with an ultra-modern facility, the proposed Tribute Funeral home is aimed at addressing the need for the modern services complementing the government facility. It will provide the community with a highly hygienic and ultra-modern funeral home facility that meets international standards at an affordable rate. It will be built on an area of 50 by 100 ft. or 0.045 Ha at Kamachuku Sub-area next to Giampampo Stage along the Meru Nairobi Highway approximately 4 km from Chuka Town.

Some of the physical establishments adjacent to the project site include private residences, two primary schools, Wastin School and Kamachuku Primary School, River Tungu, a dairy milk collection and distribution joint and a market for provision of essential services such as food. It is approximately two kilometers from Chuka University offering the university students ideal residential services and is next to the busy Meru – Nairobi highway at an approximate distance of 50 meters apart.

Due to the nature of its neighbors, inclusive public participation, especially to the groups is highly appreciated in provision of a successful project report. The EIA has been provided in conjunction with the EIA experts, the community, the location administration offices, expert consultants and the project owner.

1.2 NATURE OF THE PROJECT;

Projects design and components

The proposed Tribute funeral home is designed as follows:

a) The building will have the following rooms: Machine room, cold room, attendant, embalming, lobby, verandah, washrooms, chapel and viewing, waiting lounge, reception, records, strong room, accounts ad an entry porch.

b) The working areas; cold room and body preparation and embalming areas will have concrete working tops fitted with sinks and there will be separate flush toilets and bathrooms.
c) There will be passages within the building to provide access into the rooms within the building.
d) Other structures to be constructed at the proposed site are:

i. A 3 No. car parking space;
ii. A fence with 1 gate; and
iii. An incinerator for management of solid wastes.

The Proponent will also drill a borehole at the proposed site as a back-up to the existing water supply.

Details of the design components are shown on the attached approved structural and architectural plans for the proposed building protected under the Copyright Act; appendix V

The facilities, utilities and services to serve the proposed project include the following:

a) Adequate storm drainage channels will be constructed to direct storm water into existing open storm drainage channels along the Meru-Nairobi highway. Gutters will be installed on the building to harvest rain water and thus reduce the amount of surface run-off from the site.
b) The site will be connected to piped water from NIWASCO or other water supplying companies such as Kamwene Water project that supplies water in Mitheru Location. Rain water will also be harvested from the building for use at the site. These will form major water sources in all the phases of the proposed project.
c) The site will be fenced with a perimeter wall and will be provided with a lockable gate to ensure privacy and enhance security. Security lighting will be provided at night to enhance security.
d) All effluent from the proposed mortuary will be treated in a septic tank to be constructed at the site and waste water discharged into a soak pit. Upon filling with solid effluent, the Proponent will contact and contract exhauster service providers to empty the septic tank for appropriate disposal of the wastes. Pit latrines are constructed within the institution to provide back-up to the in-house sanitary facilities.
e) Different solid wastes from the site will be collected and disposed of by appropriate methods such as incineration, decomposing and collection

by private or public recycling companies and cleaning companies/agents contracted by the Proponent for appropriate disposal.

f) Appropriate fire management equipment such as fire extinguishers, a fire hose reel, and fire alarms among others will be installed through a licensed fire officer at appropriate points inside and outside the proposed building.
g) On completion of the construction, the site will be landscaped with appropriate plants.

Description of the proposed project activities

The proposed project will have the construction, operation and decommissioning phases if approved and licensed. The Proponent is advised not to continue with any construction works relating to the proposed project until the ESIA report is reviewed and the ESIA license issued. Below is a summary of the main activities under each phase of the proposed project:

Construction

a) Site preparation and mobilization of construction personnel, equipment and construction material
b) Removal of vegetation, rubbish and unwanted and/or old structures from the construction site
c) Excavation and building development
d) Use of machinery, hand tools and equipment and employment of human labour
e) Environmental management

Conditions provided for construction are as indicated in the structural and architectural design.

Construction materials will be purchased locally.

Operation

a) Commissioning the proposed building for use as a mortuary

b) Cleaning and refrigeration of human corpses

c) Identification, postpartum; management by wrapping or clothing; displaying; viewing and removal of human corpses for autopsy or for disposal by burial, cremation or by other legal method

d) Health, hygiene, safety and environmental management and monitoring

Decommissioning

a) Demolition or change of use

b) Rehabilitation and/or restoration

All stages of development will employ modern technology.

Below is a summary of the proposed project:

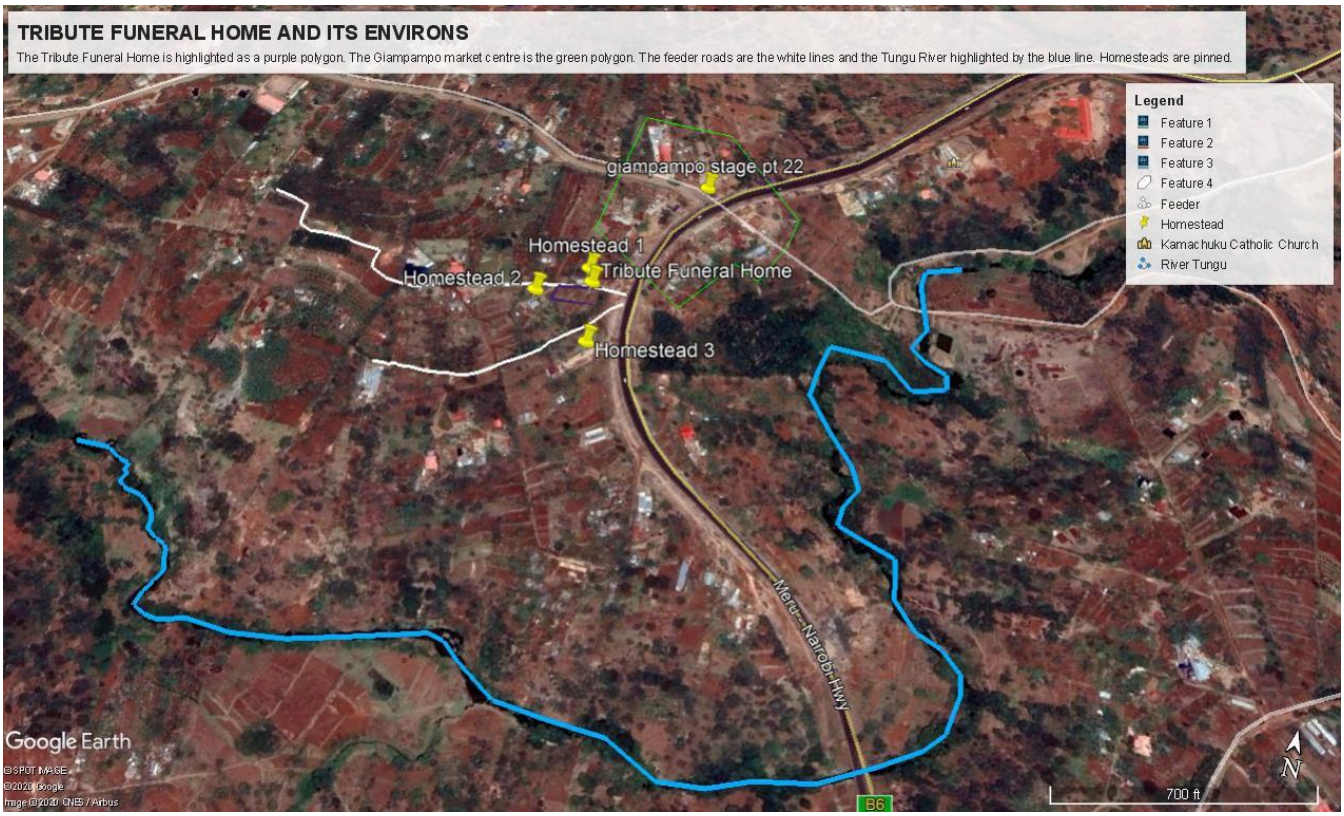
Table 1: The Proposed Project Summary

ITEM	**DESCRIPTION**
Project name	Proposed Tribute Funeral Home
Nature of development	A morgue
Objective	To develop a modern funeral home for the storage of human corpses as they await identification and/or removal for autopsy or disposal by burial, cremation or by any other legal method
Proponent	Alex Mulwa
Contact	Contact No. +254722785237 Email: amulwa@gmail.com
Location	The proposed Funeral Home is to be located at Ruguta Sub-Location, Mitheru Location along the Meru Nairobi Highway on plot number Muthambi/Gatua 1334 in Tharaka Nithi County.
Plot size	0.045 Ha
Nature of land ownership	The proposed project is owned by Alex Mulwa. He is a qualified medical doctor. A Copy of the title deed has been attached
Estimated project cost	Ksh. 4,000,000
Neighborhood	The proposed site is at Kamachuku sub-area, Ruguta Sub-location.

	Homesteads are cultivated pieces of land under various crops. It is next to the B-6 Meru-Nairobi Highway The closest market is Mitheru and Ndagani and town, Chuka town.

The description in the maps below shows the household distribution and consider observation for population density at the market area sited by the green polygon.

Figure 1: Map showing the Funeral Home and most of its surrounding environment.

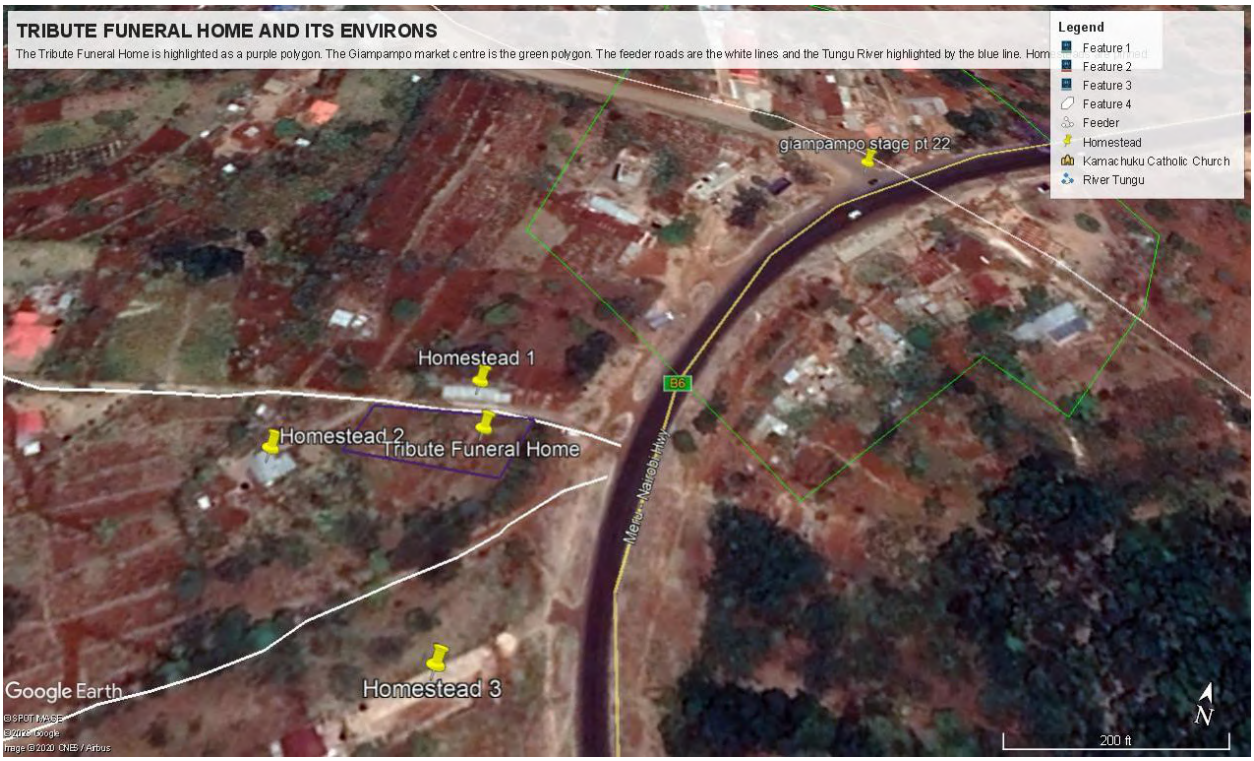


The Proposed Tribute Funeral Home is a purple Polygon while the Giampampo Market Centre a green polygon. The feeder roads are demarcated by the white lines and the Tungu River by the blue line. Homesteads close by are pinned.

As seen in the images, homes and business developments are arranged along the roads due to transport accessibility. The Tribute Funeral Home will also be constructed along the highway.

The dark spots on the map are an indication of tree cover. This shows a pre-existence of forest cover to this area that was later changed into residential homes, crop farming, business development and construction of access roads for improved connectivity.

Figure 2: The Tribute Funeral Home and its proximity surrounding.



1.2 Rationale for the EIA project

1.1.1 Purpose of the EIA

The purpose of the project report is to identify the consequences of implementing the project and help in informing decision makers.

1.2.2 Objectives

The objective is to identify the environmental and social impacts of the project and accept the positive impacts while presenting mitigation measures for the negative impacts.

1.2.3 Terms of Reference

For sustainable development, the report needs to meet the objectives of the EIA. Therefore, TOR outlining the expectations of the ESIA was documented by the Proponent and the ESIA team to provide a basis for the assessment. The following was done in order to achieve these objectives:

a) Environmental baseline conditions of the proposed project area were generated.
b) Described the proposed project by giving clear accounts of its location; design; construction and operational activities; material usage; products and by-products including wastes to be generated in all phases and the methods of their disposal; and likely environmental changes.
c) Obtained views and opinions of the interested and affected persons through consultations and through a public meeting with the local leaders, the neighbors, business operators and the larger area residents in the vicinity of the proposed project.
d) Established key areas of environmental, health and safety concerns focusing on both the positive and negative effects in relation to how they affect the biophysical, social, economic and cultural components of the environment.
e) Analyzed impacts and recommended mitigation and enhancement measures for the adverse and positive impacts respectively. The analysis of potential impacts related to the location; design; applicable technologies; and construction and operation activities of the proposed project.

1.2.4 Assessment Methodology

This is the initial EIA report for the construction of Tribute funeral home. The assessments involved:

a) Extensive site tours to physically inspect and document existing facilities at the site and natural and socio-economic features of importance.
b) Environmental screening to determine the necessity and level of the ESIA process
c) Undertaking public consultations and carrying out a public meeting with the local leaders, the neighbors, business operators and the larger area residents in the vicinity of the proposed project and
d) Desktop studies for documentary review on the nature of the activities of the proposed project, proposed project related documents, plans,

designs, policy and legislative frameworks as well as the environmental setting of the area amongst other things.

1.2.5 Limitations

a) The main limitation to this assessment is that some of the information was compiled based on responses of the owner and the stakeholders involved. There are difficulties in verification of some of this kind of information. Therefore, the information obtained has been evaluated within the limits of the established scope of work.
b) The prevailing Covid -19 pandemic prevented organizing of many public participation meetings and the one held involved application of the mitigation measures to prevent contamination and spread of the virus.

CHAPTER TWO:

PUBLIC PARTICIPATION

2.1 Introduction

Involving the community in projects has been proven to increase the possibility of their success. In such a project, the cultural beliefs in the community, levels of education and literacy, and impacts of the project to the physical environment may influence its success or failure. Therefore, the above-named components were some of the most important aspects of consideration while presenting the report which include the agricultural activities in the area such as farming for subsistence use and for commercial purposes. There is also a quarry situated at the opposite side of the road to the proposed funeral home. This quarry produces hand – made ballast rocks for commercial purposes. The area has high soil productivity and a healthy water distribution by community groups. It is also an area with a high ground water level and in cases of water harvesting; this would require digging only a few feet below the sub-surface.

With reference 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 projects. This is to ensure the quality, comprehensiveness and effectiveness of the assessment and that the public views are adequately taken into consideration in the decision-making process.

The public participation meetings were conducted in the vicinity of the proposed site. They were attended by prominent representatives such as a lawyer, the area MCA, chief, sub-chief, village elders, neighbors and business personnel in the area. Due to the Covid -19 pandemic, there were restrictions in the number of people to attend and requirements in the method of engagement such as washing hands, and wearing masks and gloves.

Figure 3: Public participation meeting at a children's home at Kamachuku Sub-Unit, Ruguta Sub-location, and Mitheru Location

Figure 4: Public participation meeting at Kamachuku Primary School at Kamachuku Sub-Unit, Ruguta Sub-location, and Mitheru Location

2.2 Findings

a) During the meetings, the locals appreciated their involvement in the project's decision-making process.
b) The chairperson explained that the site was chosen for construction of the funeral home since it is very close to the highway and very convenient for the locals since there is no such establishment in the area. This would ease the community members the expenses in storing the bodies of their loved ones in facilities far away since the nearest mortuary is in Chuka General Hospital and Embu County approximately 40 Km away.
c) It was realized that the people very much respect the dead and fear the dead. There was an objection by the very close neighbors to the site

that they would be haunted by the dead in the night and it was explained that dead people have no life and therefore, no capacity of harassing the living.

d) The locals were also concerned of the level of cleanliness and foul smell from the facility. It was explained that the proposed project is a modern facility with modern equipment and storage facilities that will ensure proper preservation of bodies. It would also employ qualified personnel to attend to the bodies ensuring no threats and foul smell.
e) Due to the close proximity to the Tungu River, the locals showed concern of waste water disposal and they were promised that all waste water would be managed at the site and no dumping would be directed to the river since it is both a source of food and water for residents downstream.
f) Due to the 'small space' as termed by the community, the proponent explained that the construction would be done vertically upwards or downwards to allow for more space. The location will also be fenced to restrict movement in and out of the premises.
g) After a lengthy discussion on the outcome of the proposed mortuary, the locals allowed the proponent to carry on with the proposed project.
h) The meetings were concluded as follows:
    i. The proponent would put up a fence 6 ft high around the site in order to enclose the site and make it less scary to the community
    ii. The proponent should give priority to the community members when offering job opportunities at the proposed site an issue that was suggested by the area leaders.
    iii. The proponent should have a tree planting initiative as a strategy to provide clean environment to the community.

The comments can be verified from the public participation minutes attached in this report.

CHAPTER THREE:

POTENTIAL NEGATIVE ENVIRONMENTAL IMPACTS AND THEIR MITIGATION MEASURES

Since there can be no development without environmental and social impacts, the following mitigation measures were suggested for the efficient and effective construction of the project. Since some may be experienced during and after the construction or implementation phase, the proposed funeral home will need to conduct an annual ESIA assessment to ensure that the suggested mitigation measures are put in place and followed to the letter.

Table 2: Potential Adverse Environmental and Social Impacts and the Proposed Mitigation Measures for the Proposed Tribute Funeral Home

Potential Adverse Environmental and social Impacts	**Proposed Mitigation Measures**
Environmental degradation due to construction activities such as vegetation clearing, excavation and compaction	Demarcate the project area to be affected by the construction works to prevent the effects of construction from spilling over into other areas. Rehabilitate all areas inadvertently affected by the proposed project construction Re-establish vegetation in some or parts of the disturbed areas through implementation of a well-designed landscaping program
Usage of construction materials	Evaluate the project to ensure that the design optimizes the use of materials and materials to be sourced locally. Construction material must be tested and approved by the relevant department at the Public Works office
Noise and Vibrations	Provide workers in noisy environments with earmuffs. Place noisy equipment in enclosures and away from sensitive environments. Keep all machinery in good condition to reduce noise generation.

	Maintain reasonable working durations whenever possible to reduce the number of complaints concerning noise. Operate shorter shift period for workers who come in direct contact with high concentrations of noise
Degradation of air quality	Suppress dust by water spraying before sweeping and on dusty grounds. Dispose waste regularly and appropriately to avoid wastes decomposing at collection areas. Embalm all bodies before storage in order to prevent them from rotting. Store only enough bodies to the capacity of the mortuary to prevent congestion. Put in place rules to prevent bodies overstaying in the mortuary in order to give room for new bodies. Follow relevant legal procedures to remove and appropriately dispose all unclaimed. Check the refrigeration system daily to detect and repair any malfunctioning which could lead to rotting of bodies. Spray the mortuary with appropriate smell deodorizers in order to counteract foul smell.
Storm water	Install gutters to harvest rainwater from the roof of the building and water tanks to store the harvested water. Construct a drainage system to direct storm water into roadside drains
Additional road traffic and safety implications	Provide adequate signage of the site. Designate a parking space for off-loading and loading of materials
Solid wastes including excavated soil	Use excavated soil in filling of site and potholes on access roads. Install dustbins for temporary holding of solid wastes. Separate solid wastes at the source into recyclable and non-recyclable. Regularly collect and dispose wastes to avoid accumulation. Cover solid waste collection areas to prevent habitation by scavenging animals
Fire and accident occurrence	Declare places with flammable materials as "NO SMOKING ZONES" and display clear notices of the same.

	Install fire extinguishers and other fire suppression equipment appropriately through a licensed fire officer. Mark 'FIRE EXITS' from the buildings and establish 'FIRE ASSEMBLY POINTS' at specific points outside the building. Regularly inspect the fire-fighting equipment and make it available on the site. Provide enough parking space for emergency vehicles
Sewerage and wastewater and sanitary conveniences	Regularly check all drainage pipes to fix leakages, remove blockages and prevent back-flooding. Treat wastewater and sewerage before they are disposed. Monitor wastewater every month to ensure that such waste is disposed in accordance with controlled discharge standards
Water usage	Provide every water supply pipe with a tap to act as a stop valve. Use water wisely. Conduct regular maintenance of pipes and taps to fix leakages. Use larger water storage tanks to cope with potential shortages. Maximize on other sources of water for some uses such as harvested rainwater. Install a water meter for monitoring water use at the sit
Excessive energy consumption	Install energy efficient lighting such as fluorescent tubes and energy saving bulbs. Switch off lighting during the day and all other electrical equipment when they are not in use. Provide a meter for monitoring energy consumption
Infectious waste	Put in place distinctive protocols for the classification and segregation of infectious diseases. Treat waste that is deemed potentially infectious prior to disposal by several different technologies that either disinfect or sterilize them
Impacts on occupational and public health and safety	Provide workers with appropriate protective gear. Ensure machines and equipment to be used at the site are periodically checked by qualified personnel

	as outlined in the Occupational Health and Safety Act (OSHA), 2007. Put in place appropriate warning signs, directions and procedures as outlined in the report. Ensure the building has ventilation openings above doors and windows to each room to prevent any chances of suffocation during the full operation of the building
Bad Odour	The proponent should apply chemical neutralizers that permanently remove all organic odors on contact.

CHAPTER FOUR:

REGULATORY REVIEW

Section 42 of the Kenya Constitution provides that every citizen has a right to a clean and healthy environment.

This chapter entails all relevant laws and regulations and their relevance to the project towards ensuring a clean and healthy environment as well as sustainable project implementation mechanism. Kenya has a policy, legal, and administrative framework for environmental management. Under the framework, NEMA is responsible for ensuring that EIAs are carried out for new projects and Environmental audits on existing facilities as per EMCA, 1999. The frameworks include:

4.1 Relevant National Policies

Table 3: Relevant National Policies

National Policy	Relevance to the project
The Constitution of Kenya 2010 CHAPTER 5 – LAND AND ENVIRONMENT, Part 1 – Land sub section 60 states that land in Kenya shall be held, used and managed in a manner that is equitable, efficient, productive and sustainable, and in accordance with the following principles— (a) equitable access to land; (b) security of land rights; (c) sustainable and productive management of land resources; (d) transparent and cost effective administration of land; (e) sound conservation and protection of ecologically sensitive areas;	The Constitution is the supreme law of the republic of Kenya.

(f) elimination of gender discrimination in law, customs and practices related to land and property in land; and (g) Encouragement of communities to settle land disputes through recognized local community initiatives consistent with this Constitution.	
National Environment Policy (Revised draft of 2013) The policy statement of environmental governance states that; the Government will: Ensure revision of EMCA to streamline it with the provisions of the Constitution and facilitate implementation of the environment policy; Ensure harmonization of sectoral laws with the Environment Management and Coordination Act and their implementation.	The goal of the policy framework is to provide a better quality of life for present and future generations through sustainable management and use of the environment and natural resources. Its relevant objectives include: Provision of a framework for an integrated approach to planning and sustainable management of Kenya's environment and natural resources; strengthen the legal and institutional framework for effective coordination and management of the environment and natural resources; ensuring sustainable management of the environment and natural resources, such as unique terrestrial and aquatic ecosystems, for national economic growth and improved livelihoods (in this case, River Tungu); promoting and supporting research and capacity development as well as use of innovative environmental management tools such as incentives, disincentives, total economic valuation, indicators of sustainable development, strategic environmental assessments (SEAs), environmental impact assessments (EIAs), Environmental Audit, and Payment for Environmental Services (PES);

	promoting and enhancing cooperation, collaboration, synergy, partnerships and participation in the protection, conservation, sustainable management of the environment and natural resources; ensuring inclusion of cross-cutting issues – such as poverty reduction, gender, disability and HIV&AIDS – in the management of environment and natural resources and promoting domestication, coordination and maximization of benefit from MEAs
The Environmental Management and Coordination Act 1999 Part II of the Environment Management & Co-ordination Act, 1999 states that every person in Kenya is entitled to a clean and healthy environment and has the duty to safeguard and enhance the environment. To achieve this, the Act in part VII section 58 directs that any proponent of any projects listed under schedule II should carry out an environmental impact assessment and prepare an appropriate assessment report for submission to NEMA, who in turn may issue a license as appropriate. Section 58 (1) of the Act states that, "Notwithstanding any approval, permit or license granted under this Act or any other law in force in Kenya, any person, being a Proponent of a project, shall before any financing, commencing, proceeding with, carrying out, executing or conducting or causing to be financed, commenced, proceeded with, carried out, executed or conducted by another person any undertaking specified in the Second Schedule to this Act, submit a project	It is an Act of Parliament that provides for the establishment of an appropriate legal and institutional framework for the management of the environment and for matters connected therewith and incidental thereto.

report to the Authority, in the prescribed form, giving the prescribed information and which shall be accompanied by the prescribed fee". (2) states that the proponent of a project shall undertake or cause to be undertaken at his own expense an environmental impact assessment study and prepare a report thereof where the Authority, being satisfied, after studying the project report submitted under subsection	
Environmental (Impact Assessment and Audit) Regulations 2003	
Environmental Management and Coordination (Noise and Excessive Vibration, and Pollution Control) Regulations, 2008 These regulations prohibits under Section 3 (1) 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 contractor, Proponent and mortuary management will put in place all applicable measures in order to manage impacts of noise, vibration and pollution.	All noise to be produced at the proposed sites in all phases shall be managed in accordance with the guidelines in this report or from other authorities in control of noise.
Environmental Management and Coordination (Waste Management) Regulations, 2006 According to part II of the regulations, a generator of waste should: Not dispose of any waste on a public highway, street, road, recreational area or in any public place except in a designated waste receptacle;	The contractor, Proponent and mortuary management will provide appropriate solid and liquid waste handling facilities. All wastes from the proposed site will be managed in accordance with the procedures outlined in this report and subsequent EA reports and/or as may be advised by the public health office and/or other authorities.

Collect, segregate and dispose or cause to be disposed-off such waste in the manner provided for under these Regulations; and Ensure that the waste is transferred to a person who is licensed to transport and dispose-off such waste in a designated waste disposal facility.	
The National Environment Action Plan (NEAP) The action plan discusses the challenges of change for Kenya and underscores the sustainability of Kenya's economic and social development which depends ultimately on proper and responsible management of the natural resource base and the environment in general.	The proponent is required as per the action plan guidelines to consider proper management of water resources, biodiversity, environmental pollution and waste management, human settlement and urbanization around his premises, public participation and environment education, environmental information systems as well as follow the proper policy, institutional, legislative framework and economic incentives.
The National Biodiversity Strategy and Action Plan (NBSAP) It is intended to define the current status of biodiversity, the threats leading to its degradation and the strategies and priority actions to ensure its conservation and sustainable use within the framework of the socio-economic development of the country.	The proponent should therefore adhere to the guidelines of protecting biodiversity around the funeral home with keen intent on the River Tungu and the homesteads and businesses around the region. The normal ecosystem balance in the area should not be altered.

4.2 Legal Frameworks

Table 4: Legal Frameworks

Act	**Relevance to the Proposed Project**
County Government Act, 2012	The Proponent according to this act should comply with the

This Act gives effect to chapter eleven of the Constitution of Kenya to provide for county governments powers, functions and responsibilities to deliver services and for connected purposes.	County Government policies and laws governing the functions of any development plan and adhere to the guidelines provided by the Constitution of Kenya.
Medical Practitioners & Dentists Act, 1977 Section 13 (1) on licensing of persons to render medical or dental services, the Act states that, "Notwithstanding any of the other provisions of this Act, the Board may, if it is satisfied that it is in the public interest to do so, confer upon any person who is not otherwise eligible to be registered as a medical practitioner or as a dentist under the provisions of this Act, by the issue, under the signature of the Director of Medical Services, of a license to do so, the right to render medical or dental services.	This is an Act of Parliament to consolidate and amend the law to make provision for the registration of medical practitioners and dentists and for purposes connected therewith and incidental thereto. The Proponent will employ licensed medical practitioners to carry out and/or supervise specialized operation at the mortuary.
Public Health Act, 1986 (Cap 242) Part IX on Sanitation and Housing, Section 115 prohibits nuisance by stating that, "No person shall cause a nuisance or shall suffer to exist on any land or premises owned or occupied by him or of which he is in charge any nuisance or other condition liable to be injurious or dangerous to health." Section 118 defines nuisance as: (e) Any noxious matter, or waste water, flowing or discharged from any premises, wherever situated, into any public street, or into the gutter or side channel of any street, or into any nullah or watercourse, irrigation channel or bed thereof not approved for the reception of such discharge; (h) Any accumulation or deposit of refuse, offal, manure or other matter whatsoever which is offensive or which is injurious or dangerous to health; and (i) Any accumulation of stones, timber or other material if such in the opinion of the	The Act advices the proponent on best practices so as to protect the health of the workers on site throughout the life cycle and provides penalties for non-compliance. It also provides for proper waste management practices to prevent environmental degradation and overexploitation.

medical officer of health is likely to harbor rats or other vermin. Section 121 (1) provides that, "Any person who fails to obey an order to comply with the requirements of the medical officer of health or otherwise to remove the nuisance shall, unless he satisfies the court that he has used all diligence to carry out such order, be guilty of an offence and liable to a fine not exceeding one thousand five hundred shillings for every day during which the default continues; …"	
Food, Drugs and Chemical Substances Act (Cap. 254) Section 24 warns against disposal or use of chemical substances in such a manner likely to cause contamination of food or water for human consumption or in a manner liable to be injurious or dangerous to the health of any person. People who contravene this rule shall be guilty of an offence.	For the proposed project, all chemicals shall be used in accordance with their manufacturers' instructions.
Water Act, 2016 The purpose of the Act is to align the water sector with the Constitution's primary objective of devolution. The act recognizes that water related functions are a shared responsibility between the national government and the county government. It also gives priority to use of abstracted water for domestic purposes over irrigation and other uses.	The proponent should however in case of any need for water abstraction acquire a water abstraction license from the Water Resource Authority.
Land Act	
Traffic Act (Cap. 403) This is an Act of Parliament to consolidate the laws relating to traffic on the roads.	The mortuary management shall control traffic at the site and at the access roads to the site during body collection days in order to prevent interference with other road users.
Occupational Safety and Health Act, 2007 Part II on general duties of occupiers states that:	This Act provides for the safety, health and welfare of workers and all persons lawfully present at workplaces where any

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. The contractors, Proponent and mortuary management will ensure the safety of employees in all phases.	person is at work, whether temporarily or permanently.
Building Code, 1953 The contractor will use the best and approved building technologies for the proposed structure in order to ensure that it does not become a health and safety hazard.	The proponent shall comply with the by-laws provided in the code in all phases of the project cycle for proper utilization of resources on land and for proper mitigation strategies.
National Construction Authority Act, 2011 Section 15 (1) of the Act states that, "A person shall not carry on the business of a contractor unless the person is registered by the Board under this Act".	The National Construction Authority (NCA) was established under an Act of parliament to oversee the construction industry and coordinate its development. The Proponent will therefore select a contractor who is registered with NCA.
Physical Planning Act, 1996 (Cap. 286) Section 25 (b) of the Act states that, "A local physical development plan shall consist of such maps and description as	This Act makes specific provisions for physical planning. It therefore requires the proponent to provide maps and

may be necessary to indicate the manner in which the land in the area may be used".	designs showing how the land will be utilized sustainably.

4.3 International Frameworks

Table 5: International Frameworks

International Frameworks	Relevance to the Project
Rio Declaration on Environment and Development (1992) Principle No. 10 of the declaration underscored that, "Environmental issues are best handled with participation of all concerned citizens at all the relevant levels.	The Proponent encouraged and facilitated public participation for the proposed project.
World Commission on Environment and Development (1987) This commission commonly referred to as "the Brundtland Commission" focuses on the environmental aspects of development, with particular, the emphasis on sustainable development that produces no lasting damage to the biosphere and to particular ecosystems	EIA is one tool that ensures sustainable development
World Bank (WB) Performance Standards on Environmental and Social Sustainability The objective of the World Bank's environmental and social safeguard policies is to prevent and mitigate undue harm to people and their environment in the development process.	The Proponent has carried out this EIA in compliance with Safeguard Policy 4.01 that deals with environmental assessment and the Safeguard Policy 4.12 that relates to Involuntary Resettlement. No persons, businesses or facilities will be displaced from the proposed site.

CHAPTER FIVE: BASELINE INFORMATION OF THE PROPOSED PROJECT AREA

5.1 Introduction

This chapter emphasizes on the proposed project area and its environs in terms of resources, vegetation, land-use patterns, socio-economic activities,

population, topography, climate and geology among others. These provide information from which the potential impacts of the proposed project can be predicted. The proposed site setting is a rural area dominated by settlement and cultivated pieces of lands along a busy B6 Meru – Nairobi highway. The area faces several environmental challenges such as:

a) The increasing population which poses pressure on the existing resources such as water, land and energy and facilities such as housing. Land fragmentation is one major problem affecting people in the area. This is due to the increasing infrastructure in the area including the Chuka University.
b) The proposed site is found in an area that is not served by a public sewer line. This calls for private management of waste.
c) Poorly maintained storm water drainage lines which are associated with silt-filled culverts and access roads that become muddy during the rainy seasons and dusty during the dry season.
d) Lack of a funeral home in the area. The nearest mortuaries are found approximately 4 Km away from the area at Chuka General Hospital. Many residents wishing to have morgue services find it quite expensive getting these services from these faraway places.

5.2 Physical Environment

The proposed site is a cultivated land that is currently under napier grass. At the time of the assessment the construction of the proposed building had not started.

Figure 5: The Proposed Funeral Home exterior environment

Figure 6: Panoramic View of the proposed site

Figure 7: The proposed site under napier grass at the time of assessment

5.2.1 Altitude and Climate

The region is in Mitheru location, Maara Constituency and experiences similar climatic conditions as the highlands of its neighboring constituency, Chuka Igambang'ombe. It lies at an altitude of 1300 asl. During the wet season, it is warm and mostly cloudy and in dry seasons, comfortable and partly cloudy. Throughout the year, the temperature varies from 18 ^{o}C to 27 ^{o}C. The hot season lies between mid-January and beginning of March and the cool season from June to August.

The perceived humidity level in the area as measured by the percentage of time in which the comfort level is muggy, oppressive, or miserable does not vary significantly over the course of the year staying at 1% throughout.

The average hourly wind speed experiences mild seasonal variation over the course of the year with the windier part of year lasting between July and October at an average speed of 7.5 miles per hour and the calmer time of the year between November and June at an average speed of 6.5 miles per hour.

5.2.2 Air Quality and noise levels

The air quality in the area is relatively good and affected mainly during the dry season due to the presence of dust particles and vehicle exhaust emissions which are caused by the busy movement of vehicle is the area. However, this is not common in the area. Noise is high due to the large number of vehicles moving along the highway.

5.2.3 Soils, geology and land formation

Maara Constituency is within the Mount Kenya Region. Mount Kenya is an extinct volcano with a Vesuvian type eruption. Majority of its eruptions are dated from the Upper Pleistocene (Ojany and Ogendo, 1973). Maara Constituency is characterized by V-shaped valleys with many tributes. The soils in the area are deep, well drained, dark brown, friable mix of the loam and sandy soils which range from Precambrian to Quaternary and are great for agriculture since they have high humus content, high water holding capacity, and high nutrient availability. The area for the proposed project is gently sloppy and is covered with vegetation that prevents erosion.

5.2.4 Water resources and water quality

The region is characterized by all year-round freshwater rivers due to the high rainfall throughout the year. Next to the project site, there is Tungu River. This is one of the many rivers in Tharaka Nithi County that source from Mount Kenya. The main aquatic lives in the rivers include mudfish. The average depth of striking water depends on the geology of an area. The water is also used to feed communities along it. This service has been taken up by the Nithi Water and Sanitary Company and some non-governmental organizations. For instance, the main water provider in Ruguta Sub-location is Kamwene Water Project which has a subscription of 2500 members and 750 households supplying an average of 147,290 litres/day and 1,935,000 litres/day for domestic use and irrigation respectively.

5.3 Biological environment

There are neither wildlife sanctuaries nor rare, endangered and endemic species at or within the radius of 3 Km from the proposed project site. The ecology of the proposed project area is however very rich in diversity and is

typical of a modified equatorial-type vegetation with both exotic and indigenous vegetation. Trees in homesteads are used mainly for shade, boundary demarcation, fencing, production of fruits, timber, fuelwood and for ornamental purposes. These trees include *Eucalyptus spp, Musa paradisicum, Mangifera indica, Carica papaya, Senna siamea, Cupressus lusitanica,* and *Persea americana.* Shrubs include *Lantana camara, Tethonia diversifolia and Solanum incanum.* The nearest forest area is the natural Mount Kenya Forest. Animals in the area are mainly domestic animals such as cattle, sheep, goats, pigs and poultry. The Mount Kenya Forest Zone is gazette as a private zone and is characterized by animal species such as elephants, hyenas, buffalos, gazelles and monkeys among other tropical zone animals. It can only be accessed as a tourist site via Chogoria.

5.4 Socio-economic environment

5.4.1 Population

Ruguta sub-location has been characterized by an increasing population growth due to the busy highway and the development of Chuka University College. Mitheru Ward No. 0296 has an approximate area of 33 sq. Km and an approximate population of 15,309 people.

5.4.2 Land – Use patterns

The major land uses in the area are primarily for agriculture and settlement although it has been prehistorically been a forested area. Other land uses include small commercial establishments, roads, and public and private offices.

5.4.3 Agriculture

People in the area cultivate a variety of crops including sugarcane, beans, sweet potatoes, cassava, maize and vegetables. Tea and coffee are the most important cash crops and are grown on small scale in in many parts of the sub-county. Animals kept include poultry, cows, sheep and goats. Farmers have put in place soil conservation measures such as agroforestry that helps to prevent soil erosion. The main challenge to agriculture in the area is land fragmentation and the increasing shift in use of land from agriculture purpose to commercial purpose.

5.4.4 Business and employment in the area

The common businesses within the neighborhood of the proposed site are retail kiosks that sell household goods. It also has small scale businesses such as food kiosks, M-pesa shop and airtel money shops, food crops market, a

dairy milk buying and selling centre and a private money lending institution. The businesses provide employment opportunities to many residents in the area. Other sources of employment in the area include academic and public institutions.

5.4.5 Physical and social infrastructure

5.4.5.1 Transport and communication

The main roads in the area are the Meru-Nairobi Highway, the Giampampo road and other feeder roads that connect to the rural areas and the main markets and town in Mitheru, Ndagani and Chuka. Some of these feeder roads are dry weather roads that become impassable during the rainy season. Communication in the area is excellent for Safaricom and average for Airtel, Orange, Telcom Kenya and Yu networks.

Figure 8: View of the Proposed Site from Chuka along the Meru - Nairobi Highway

Figure 9: View of the Proposed Site towards Mitheru/Meru along the Meru - Nairobi Highway

5.4.5.2 Electricity and fire safety

The largest supplier of electricity in the area is Kenya Power and Lighting Company. Their main operations office is situated in Chuka. However, they have a sub-station at Mitheru market. Other sources of lighting in the area include private solar panel installations or traditional oil burners in less privileged homesteads.

5.4.5.3 Medical facilities and schools

The schools in closest proximity to the proposed site are Wastin School, A privately owned school, and Kamachuku Primary School, a government owned public school. Other schools include the Ruguta Primary and Secondary schools, Chuka University College, Ndagani Primary and secondary schools and the Kenya Medical Training College within the University.

The nearest medical facilities are the St. Lucy Hospital, Chuka General Hospital among other private hospitals in Chuka Town.

5.4.5.4 Security

There is a police station in Chuka and another in Mitheru at the District Officer's office found about 4 Km each from the proposed site. Many institutions have fenced their compounds, and some have provided lockable gates and day and nighttime guards. The poor security cases in the area are however minimal as compared to those in the towns and market centres at Chuka and Mitheru.

5.4.5.5 Solid waste management

The county government is the main organization that deals with solid waste management. However, there are Community Based Organizations such as Kijani Initiative that contracts individual institutions, businesses and homes in management of their wastes. Other wastes are managed locally in homes where dust bins are dug, and waste dumped. Other institutions manage their wastes in several options including recycling, reusing, reducing, and incineration and decomposing for manure.

5.4.5.6 Sewerage and storm water management

There is no public sewer system in the area. Therefore, flash toilets, bathrooms and sinks are connected to septic tanks and soak pits that are installed by institutions and homes. Pit latrines are the common sanitary facility and public institutions. Drainage channels, culverts and cut-off drains have been constructed to discharge storm water into rivers and stream valleys. Gutters are installed on most buildings to harvest rainwater and thus reduce the amount of surface run-off from the area.

CHAPTER SIX:

PROJECT ALTERNATIVES

6.1 The proposed alternatives

This ESIA report; based on sound desktop and field studies made by the ESIA team for submission to NEMA. The findings and recommendations were suggested based on the proposed site materials and technologies to be used during the project implementation.

6.2 Alternative to site

A change of site alternative will require that the project be constructed in a different location. This will necessitate that the proponent purchase a new parcel of land. This will result in an increase in time and resources such as; unpredictability of acquiring financial resources and time; needed to complete the transactions. The proposed site was chosen as it is very convenient for construction of a funeral home and the proponent already owns the plot. Furthermore, there is no guarantee that an appropriate land will be at a reasonable cost within the project area considering the improved developments within the project area.

6.3 Alternative to technology

The proponent should consider installing solar panels as an alternative source of power throughout the project implementation.

6.4 No project alternative

This means that the status quo remains and the proponent will have to contend with the land being in no use which may lead to underutilization of the land and the proponent missing out on the good returns from the business sector being experienced presently.

6.5 Comparison of alternatives

The proposed project is the best alternative as it will work to positively impact the living standards and ethics of the community in handling of their late beloved ones, increase the government’s revenue, improve in service delivery and create employment opportunities for more people and many more advantages as discussed in this report.

CHAPTER SEVEN:

ENVIRONMENTAL MANAGEMENT PLAN

7.1 Introduction

The EMP involves risk management strategies that should be undertaken by the project proponent and the project manager to mitigate environmental degradation. This involves monitoring, control, reclamation and restoration of the environment back to a serene state. EMP will therefore provide a logical framework within which the identified issues of environmental concerns can be mitigated, monitored and evaluated.

This chapter therefore highlights the monitoring and evaluation that will be done during the construction and operation of the proposed Tribute Funeral Home. A Monitoring Plan shall be developed on the basis of these recommendations and also studies to analyze long-term impacts are also recommended.

Environmental monitoring involves measurement of relevant parameters, at a level of details accurate enough, to distinguish the anticipated changes. Monitoring aims at determining the effectiveness of actions to improve environmental quality. The environmental management and monitoring plans have been developed and outlined to bring home the key findings of the Environmental Impact Assessment of the project in mention, recommending necessary mitigation actions, defining roles, monitor able indicators and the estimated cost.

7.2 Environmental, health and safety management and monitoring plan

7.2.1 Construction phase:

Table 6: Construction Phase

Environmental /Social Impact	Proposed Mitigation Measures	Responsibility	Monitoring Plan	Approximate cost (Ksh)
Air Pollution	Control speed and operation	Contractor	Amount of dust produced	Cost vary with service extent

	of construction vehicles. Prohibit idling of vehicles. Spray water on excavated areas. Maintenance of construction plant and equipment. Sensitize construction workers. All bare areas should be landscaped after construction. Workers should be provided with dust masks if working sensitive areas The area shall be fenced to curb dust from spreading to the neighborhood. Avoid spillage of loose soil to the road where it will be disturbed and blown away by traffic.		Level of landscaping carried out	

	Stockpiles of sand and soil should be covered or surrounded with windbreakers.			
Noise Pollution	Maintain plant equipment Construction should be carried out only during day time Workers to wear ear muffs if working under noisy conditions. Management to ensure that noise from the residence is kept under reasonable levels.	Contractor Management	Amount of noise	Cost vary with service extent
Traffic and Transport	Proper signage to be put in place to notify neighbors of the activities and the presence of heavy vehicles and to direct traffic. Presence of boards directing patrons to the site. Any work	Contractor Management	Clear well-maintained sign boards along the roads	Cost vary with damage extent

	that disturbs normal traffic signal operations shall be coordinated with the relevant authorities Site adherence to traffic rules.			
Ecological Considerations (Flora and Fauna	Demarcate the project area to be affected by the construction works to prevent the effects of construction from spilling over into other areas	Proponent and the contractor	Ecological aesthetics	
	Fence the demarcated areas appropriately in accordance with the requirements of NCA for hoarding of construction sites	Contractor		To be covered in the construction phase
	The flora and fauna should be restored after construction by maintaining the introduced plants.	Management	Natural ecology in areas not in use	50,000
Soil erosion & compaction	Provide soil conservation structures on		Observation of soil aesthetics	

	the areas prone to soil erosion to reduce impact of erosion There should be designated pathways and driveways for movement within the compound to avoid unnecessary compaction. All bare areas should be well landscaped after completion.			
Solid Waste	Collect and appropriately dispose all solid wastes including excavated soil and materials that will not have been used up from the site daily or regularly as appropriate through an integrated solid waste management system that comprises of recycling, reuse, combustion,	Contractors, proponent and quantity surveyor	Monitoring of waste management	To be covered in cost of construction

	decomposition of organic matter and sanitary land filling in order to prevent accumulation at the sites			
Waste water and sewerage and sanitary conveniences	Provide lockable washrooms for the construction workers and separate them based on gender into ladies and gents		Sanitary conveniences and proper sanitary	Done
	Properly use and clean sanitary facilities daily			300 per day
Compliance with legislations	Conduct inspections and self-audits for application of relevant permits and licenses from respective authorities and renew them as required: Certificate of a Workplace of the construction site pursuant to OSHA, 2007 Document and keep records of all environmental	Contractor	Compliance with necessary guidelines and legislations	3,000 500 per month.

	and health matters in accordance with Section 68 (3) of EMCA, 1999 (Cap. 387) and OSHA, 2007			
	Register construction site with NCA in accordance with NCA requirements	Proponent		Current NCA regulations apply
Construction materials	Evaluate and plan for the proposed project including purchasing of construction materials to ensure that the design optimizes the use of these materials. Some materials can be re-used or recycled	Contractors, proponent and quantity surveyor	Use and misuse of materials	Done
Water usage	Install meters to monitor water consumption	Contractor and proponent	Over-extraction of water resources Conflicts over water-use Increased demand on water resources Wastage of water	NIWASCO or CBO rates apply
	Recycle and re-use water and use water wisely by ensuring that taps are not running when not in use	Constrictors and all workers		-
	Conduct regular checks, inspections and	Site managers		Cost vary with damage extent

	maintenance of pipes, taps and storage containers and tanks to fix leakages	and all workers		
	Construct or install bigger storage facilities (such as 5,000 litre plastic tanks) to be able to cope with potential stresses in supply	Contractors and proponent		35,000 per 5,000 litre tank
Energy consumption	Install meters to monitor energy consumption and clearly mark distribution board switches to indicate respective circuits	Contractors and proponent	Consumption rates	Kenya Power and Lighting Company rates apply
	Switch off electrical appliances including lights when they are not in use	Site managers and all workers		-
	Weather-proof all lighting and power points and install lightening arrestors and ensure there are no live electrical wires are exposed	Proponent and contractors		Covered in cost of construction

	Install alternative energy sources such as solar panels and automatic generators not only for power back-up but also to reduce dependency on electricity			10,000 per solar panel and 35,000 per generator
Fires	Prominently display 'NO SMOKING' signs at the sites especially in areas where flammable materials are stored or used and emergency telephone numbers (such as ambulance, fire tenders and police) where everybody at the site can see them	Site managers	Monitoring of fire response equipment and rooms and adherence of the workers to fire signs	1,000
	Regularly train personnel in relation to fire emergencies (Do this at least once for every employee during the construction period)	Contractors and all workers		5,000 per trainee
	Install fire suppression equipment through a	contractors and proponent		3,000 per fire blanket, 7,000 per 9

	licensed fire officer (fire extinguishers on the corridor, fire blankets in the kitchen and at least one fire hose reel on each floor or as may be appropriate)			Kg fire extinguisher
Safety, health, hygiene and sanitary conveniences	Provide workers with appropriate PPE such as aprons, ear muffs, nose masks and gloves	Contractors	OSHA guidelines	500 per worker
	Maintain First Aid Kits at the site in easily accessible areas			1,500 per kit
	Indicate dangerous spots at the sites			-
	Install and safeguard machinery, equipment, PPE, appliances and tools appropriately and carry out regular maintenance services in accordance with their manufacturer's safety data information			Cost vary with service extent

	Train workers in emergency management at least once before the construction works			50,000 per session in a group
	Make distinctions in all stores in such a way that non-food or poisonous materials are not stored together or mixed with food	Contractors and all specialty supervisors		-

7.2.2: OPERATION PHASE

Table 7: Operation Phase

Environmental/ Social Impact	**Proposed Mitigation Measures**	**Responsibility**	**Monitoring Plan**	**Approximate Cost (Ksh)**
Run-off	Cary out periodic checks and maintenance of all drainage channels to remove obstructions	Mortuary Management	Properly installed and maintained drainage systems	Vary with damage extent
air quality	Suppress dust by sprinkling water on all dusty ground surfaces	Workers	Clean and safe air	100 per day
	Provide adequate ventilation in the rooms in the facility by			-

	opening windows and using exhaust fans			
	Embalm all bodies before storage in order to prevent them from rotting	Morticians	Proper maintenance of bodies and no foul smell	100 per day
	Spray the mortuary with appropriate smell deodorizers in order to counteract foul smell from the mortuary			500 per spray
	Provide all workers in areas where air quality is compromised with appropriate PPE	Mortuary management	Properly dressed workers	500
	Inspect the refrigeration system daily to detect and repair any malfunctioning which could lead to rotting of bodies		Well maintained refrigeration system	Cost vary per damage
	Dispose wastes regularly and appropriately to prevent		Waste bins and waste management schedules	500

	wastes from decomposing at collection areas			
	Provide all workers in areas where air quality is compromised with appropriate PPE		Clean and safe air	400 per worker
	Maintain all internal roads to reduce fugitive dust and provide for the smooth movement of vehicles		Properly maintained roads	20,000
Fires	Conduct inspection of the fire-fighting equipment every three months	Mortuary Management	Clear signs that are always followed throughout the phase	50,000 per service
	Display emergency telephone numbers (such as ambulance, fire tenders and police), 'NO SMOKING' signs especially in areas where flammable materials are			1,000

	stored or used, and 'FIRE EXIT' points in the building where everybody can see them			
Energy consumption	Use only energy-saving lighting such as fluorescent tubes and energy saving bulbs	Mortuary management	Properly functional electrical appliances	400 per bulb
	Provide electrical appliances such as fridges, computers and television sets with shock guards such as fridge guards and UPS and ensure that electrical circuits are not overloaded			2,000 – 3,000 per guard/UPS
	Switch off all electrical appliances when they are not in use	All workers		-
Noise	Switch off machines and vehicles	Mortuary management	Properly maintained	-

	that are not in use		sound and noise	
	Keep all machinery in good condition to reduce noise generation			5,000 per service
	Properly tune sound systems to prevent interference with the neighbors			-
	Keep all machinery in good condition to reduce noise generation	Machine operators		Cost vary with service extent
Sanitary conveniences, waste water and sewerage	Separate sanitary rooms based on gender unless they are to be used by one person	Mortuary operators	Properly managed sanitary rooms, sewerage pipes and septic tanks to prevent spillage	-
	Conduct regular checks to detect and correct sewage pipe blockages, damages and leakages			Vary with service extent
	Empty the septic tank and/or the pit latrines whenever			10,000 per service

	they near filling-up			
	Properly use and clean sanitary facilities daily	All users		300 per day
Mortuary Disorder: Unclaimed bodies congestion	Store only enough bodies to the capacity of the mortuary in order to prevent congestion	Mortuary Management	Admission of identified bodies, clear signs for directions and proper disposal methods of unclaimed bodies	-
	Set and display and/or make known mortuary rules to ensure people collect bodies of their loved ones on time to prevent bodies overstaying in the mortuary			500
	Remove and appropriately dispose all unclaimed bodies after a specific established period and after following relevant legal procedures			10,000 per body

Solid wastes: Nuisance Environmental contamination Health hazard	Install two or more waste bins at each collection point to ensure separation of wastes into recyclable and non-recyclable wastes or other appropriate categories (covered or auto-closing bins are preferred to minimize invasion by pests and rodents or other animals and for hygienic purposes respectively)	Mortuary management	Proper solid waste handling techniques	800 – 5,000 depending on size of bin
	Collect and dispose all solid wastes from the site appropriately and regularly as appropriate in order to prevent wastes accumulating and decomposing at the site			1,000 per month

Water Use: Wastage of water Increased demand of water	Conduct regular checks, inspections and maintenance of pipes, taps and storage containers and tanks to fix leakages	Mortuary Management	Functional water drainage systems, no water spillage and clean storage tanks	5,000 per maintenance
	Recycle and re-use water where possible			-
	Ensure taps are not running when not in use	All water users		-
Material storage and usage	Store and use all materials as outlined on their manufacturers' data safety labels	Morticians	Well use and maintenance of materials	-
	Make distinctions in all stores in such a way that non-food or poisonous materials are not stored together or mixed with food			-
Safety, health and hygiene Compliance with legislation	Provide workers with appropriate PPE such as aprons, ear muffs, nose	Mortuary management	Compliance with OSHA regulations	500 per worker

	masks and gloves			
	Install and safeguard machinery, equipment, PPE, appliances and tools appropriately and carry out regular maintenance services in accordance with their manufacturer's safety data information			Cost vary with service extent
	Conduct annual trainings of employees on matters relating to emergencies such as fire management			70,000 per group session
	Clean the premises regularly			300 per day
	Maintain First Aid Kits at the site in easily accessible areas			1,500 per kit
	Store food in clean containers, preferably in covered containers			-

	Employ security personnel that will be at the facility for all hours of the day (security officers can work in shifts of 8 hrs. per day) and where financial resources are available install security alarms and/or surveillance systems			40,000 per month
	Conduct inspections and self-audits for application of relevant permits and licenses from respective authorities and renew them as required. These include the following	Mortuary management	Registration certificates	
	Certificate of Occupation in accordance with the Public Health Act (Cap.			3,000

	242, Section 117)			
	Keep records of all environmental and health concerns including those listed under sub-section 8.5 of this report and make annual reports to the Authority subject to Sub-section 68 (3) of EMCA, 1999, OSHA, 2007 and the Environmental (Impact Assessment and Audit) Regulations, 2003 as may be required			1,000 per month
	Annual Environmental Audits (EA) in compliance with Subsection 68 (3) of EMCA, 1999 (Cap. 387) and the Environmental (Impact Assessment and Audit)			50,000

	Regulations, 2003			

7.2.3: DECOMMISSIONING PHASE

Table 8: Decommissioning Phase

Environmental/ Social Impact	Proposed Mitigation Measures	Responsibility	Monitoring Plan	Approximate Cost (Ksh)
Change in aesthetics of the site	Demarcate the project area to be affected by the demolition works and hoard the area appropriately in accordance with NCA requirements to prevent impacts from spreading to other areas	Proponent and contractor	Site rehabilitation in accordance with the NCA requirements	-
	Re-establish vegetation through implementation of a well-designed landscaping Programme and rehabilitate the site	Proponent		20,000
Safety, health and hygiene	Make distinctions in all stores in such a way that non-food or poisonous materials are not stored together or	Contractors and specialty supervisors	Compliance with the OSHA regulations	

	mixed with food			
	Provide workers with appropriate PPE such as aprons, ear muffs, nose masks and gloves	Contractor		500 per worker
	Prominently display 'NO SMOKING' signs, indicate dangerous spots at the site and conspicuously display contacts of emergency service providers such as ambulance, fire tenders and police			1,000
	Train workers in emergency management at least once during the decommissioning period			50,000 per group
	Install, store, use, maintain and safeguard machinery, equipment, PPE, tools and appliances appropriately in accordance with their manufacturer's			Cost vary with service extent

	safety data information			
	Maintain First Aid Kits at the site in easily accessible areas			1,500 per kit
Interference with Traffic flow	Regularly service vehicles to ensure that they are in good condition	All drivers	Compliance with the traffic rules	Cost vary with damage extent
	Place clear signage on the road alerting the presence of the site and a parking area	Contractor and proponent		1,000
Fires	Use fire suppression equipment such as fire extinguishers and sand buckets for fire management (remove these from the site later in the decommissioning process)	Contractor	Fire response equipment and signage around the morgue	-
Noise	Keep all machinery in good condition to reduce noise generation	Machine operators	No or little noise heard from the site	Cost vary with service extent
	Advice drivers to avoid hooting vehicles unnecessarily and when passing	Contractor		-

	through noise-sensitive areas such as religious places, learning areas and hospitals and all machine operators to switch them off when they are not in use			
	Provide workers in noisy areas with ear muffs			500 per worker
Solid wastes	Collect and dispose all solid wastes from the site through an integrated waste management system that comprises of recycling, re-use, combustion, decomposition of organic matter and sanitary land filling in order to prevent accumulation at the site	Contractor	Proper waste management strategies employed	10,000
Dust and exhaust emissions	Sprinkle water on all dust-active areas to suppress dust	Contractor	Properly equipped workers, proper management of dusty areas,	100 per day
	Provide workers in dust and/or exhaust			500 per worker

	concentrated areas with nose masks		equipment and machinery	
	Properly service, maintain and tune all equipment and machinery to minimize exhaust emission	Contractor and all machine operators		Cost vary with service extent
Waste water and sewerage and sanitary conveniences	Properly use and clean sanitary facilities daily	Site manager and all workers	Clean sanitary facilities	300 per day
Compliance with legislations	Conduct an environmental assessment and prepare a decommissioning report for application of a decommissioning permit from NEMA	Contractor and proponent	Proper documentation and certification	40,000
	Document and keep records of all environmental and health matters in accordance with Section 68 (3) of EMCA, 1999 (Cap. 387) and OSHA, 2007	Contractor		500

CHAPTER SEVEN:

CONCLUSION AND RECOMMENDATIONS

7.1 Conclusion

The proposed funeral home will have numerous positive impacts as highlighted in the report. The negative impacts that will be experienced during the establishment of the home can be mitigated by implementing the suggested mitigation measures. The report concludes that if all the suggested measures and the recommendations are followed, there will be no adverse impacts on the environment. It is therefore clear that since the community has been involved in decision making and did not object to its development, the project can be implemented following the environmental mitigation measures and recommendations to prevent any challenges from the community and also adverse impacts to the environment.

7.2 Recommendations

a) Adopt high standards of construction and ensure regular maintenance practices of the proposed building in order to ensure long life for the proposed buildings.
b) Clinical information accompanying bodies should not be made available to anyone other than the responsible mortician.
c) Develop an Environmental Policy stating commitment, intentions and principles of action with respect to the environment including compliance with relevant environmental regulations. This is to form a basis upon which the management of the facility is to set its environmental objectives and targets as in the environmental management plan.
d) Ensure record keeping and documentation are appropriately carried out to assist in building of self-auditing capacity.
e) Food and chemicals to be handled with care.

f) For security purposes, the proponent can insure the premises as per statutory requirements (comprehensive, third party and workman's compensation policies).
g) High standards of construction and regular maintenance practices are strongly recommended to ensure durability of the facility.
h) Implement and follow the EMP.
i) Measures shall be put in place for proper handling of infectious wastes and labeling of bodies.
j) Proper management of water and drainage channels around the proposed project will greatly improve quality of sanitation around it.
k) The contractors, the proponent through the mortuary management are advised to maintain good relations with area residents and especially their immediate neighbors in order to make them live in harmony with the community. This includes purchasing locally produced food stuffs and other locally produced products in order to enhance local development in the area and considering the area residents when offering job opportunities at the site.
l) The management of the morgue shall ensure the occupational health of its staff in all aspects.
m) The morticians need to wash and dress all bodies and enclose them in leak proof bags.

Since the proponent is well advised in accordance with the provision of applicable laws and is will adhere to the implementation of environmental management plan and the regulatory requirements regarding the construction and operational phases of the project, the EIA license can be issued to enable project execution.

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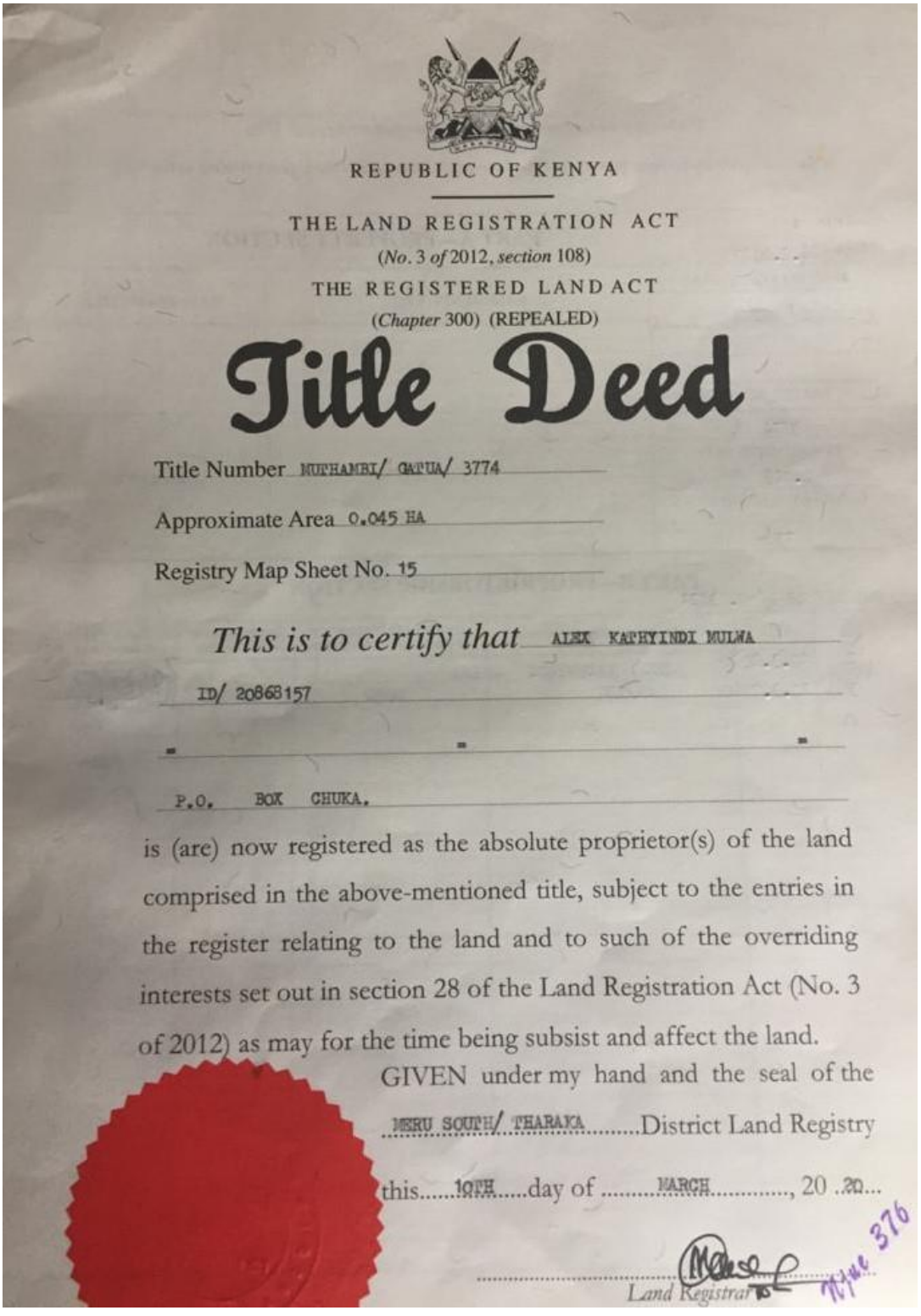
APPENDICES

Appendix I: Title deed



REPUBLIC OF KENYA

THE LAND REGISTRATION ACT

(*No.* 3 *of* 2012, *section* 108)

THE REGISTERED LAND ACT

(*Chapter* 300) (REPEALED)

Title Deed

Title Number MUTHAMBI/ GATUA/ 3774

Approximate Area 0.045 HA

Registry Map Sheet No. 15

This is to certify that ALEX KAPHYINDI MULWA

ID/ 20868157

P.O. BOX CHUKA.

is (are) now registered as the absolute proprietor(s) of the land comprised in the above-mentioned title, subject to the entries in the register relating to the land and to such of the overriding interests set out in section 28 of the Land Registration Act (No. 3 of 2012) as may for the time being subsist and affect the land.

GIVEN under my hand and the seal of the

MERU SOUTH/ THARAKA District Land Registry

this 10TH day of MARCH, 20 20

Land Registrar

MTHE 376

Appendix II: Minutes for the Public Participation Meetings

MINUTES OF THE STAKHOLDER PARTI(

MINUTE 001

Minutes for Funeral Home.docx

MINUTE 002

Appendix III: Copy of the EIA License

Lead Expert's Copy of License.

Appendix IV: Filled Questionnaires

06-16-2020-16.44.08.pdf

Appendix V: Structural and Architectural Design