COUNTY GOVERNMENT OF KIAMBU

ENVIRONMENTAL IMPACT ASSESSMENT PROJECT REPORT FOR THE PROPOSED IMPROVEMENT OF MUKURU AND LIMURU TOWN ACCESS ROADS TO BITUMINOUS STANDARDS AND LIGHTING IN LIMURU MUNICIPALITY, KIAMBU COUNTY

PROPONENT
County Government of Kiambu,
P.O. Box 2344- 00900,
Kiambu, Kenya

SUBMITTED BY
Samuel Wakangu Kiarie
Lead Expert No. 6750
P.O Box 416-00217, Limuru

April 2020

DECLARATION

This Environmental and Social Impact Assessment (ESIA) project Report for the Proposed Improvement of Mukuru and Limuru town access roads to bituminous standards and lighting in Limuru Municipality has been done by registered and licensed EIA /EA lead and Associate Expert with reasonable skills, care and diligence in accordance with the Environmental Management and Co-ordination (Amendment) Act, 2015 and the Environmental Impact Assessment and Audit Regulations, 2003.

We the undersigned, confirm that the contents of this ESIA project report are correct to the best of our knowledge. This report is issued without prejudice.

Samuel Wakangu Kiarie	Peterson Wamae Gicheru
EIA/EA Lead Expert Reg No. 6750	EIA/EA Associate Expert Reg No. 9616
P.O Box 416-00217, Limuru	P.O. Box 173-00515 Nairobi
Signature……..……Date……..……	Signature……..……Date……..……

PROPONENT

I, John M Mutie On Behalf of the **COUNTY GOVERNMENT OF KIAMBU,** declare that all the information contained in this ESIA Project report is an accurate and truthful representation of all findings as relating to the proposed project.

Signature: ……

Date and stamp: …….

Designation: Chief Officer- Municipal Administration and Urban Development

LIST OF ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
BoQs	Bills of Quantities
CGK	County Government of Kiambu
CIDP	County Integrated Development Plan
CoK	Constitution of Kenya
EIA	Environmental Impact Assessment
EMCA	Environmental Management and Coordination Act
EMP	Environmental Management Plan
KUSP	Kenya Urban Support Program
NEMA	National Environment Management Authority
NMT	Non Motorable Transport
OP	Operational Policy
PSV	Public Service Vehicles
TOR	Terms of Reference
WB	World Bank

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EXECUTIVE SUMMARY

Introduction

The County Government of Kiambu through the department of Land, Housing, Physical Planning, Municipal Administration and Urban Development, has been funded by World bank through Kenya Urban Support Program. The funds will be used to improve the Mukuru and Limuru town access roads to bituminous standards (inclusive of Non-Motorized Transport and drainage system) and lighting in Limuru Municipality. This project is intended to support the primary growth of businesses, improve transport network and security.

This project report was conducted in accordance to the requirements as stipulated in the Environmental Management and Co-ordination (Amendment) Act, 2015 and the Environmental Impact Assessment and Audit Regulations, 2003. The Study Process leading to this Project Report was further designed to address the proponent's expectations as stipulated in the Terms of References (TORs). The purpose of the study is to identify the negative and positive impacts that would be generated by the proposed project (during the construction, operational and decommissioning phase). Means to mitigate the identified negative impacts and enhance the positive ones are dwelt with as appropriately as possible.

Objectives of the Environmental and Social Impact Assessment (ESIA)

The main objective of the study was to identify environmental and social impacts related with the proposed improvement of the Mukuru and Limuru town access roads to bituminous standards (inclusive of Non-Motorized Transport and drainage system) and lighting in Limuru Municipality and advice on an appropriate environmental management strategy. One of the major outcomes of this study is an Environmental and Social Management Plan (ESMP).

Study Approach and Methodology

This study was guided by the Legal Notice 101 of Environmental Management and Co-ordination Act (EMCA) 1999, Amendment of 2015. This exercise involved reviewing of project documentation and holding discussions with the proponent, this helped in generating the baseline data. The opinions formed were validated through field work that entailed physical investigation of the project site areas, interviews with potentially affected people and key informant, photography and discussions with secondary stakeholders.

The following were various study methods and tools employed. These included questionnaires, observations, expert opinion and checklists. These assisted in the identification, prediction, analysis and evaluation of potential impacts that may emanate from the proposed project.

Policy, Legal and Regulatory Framework

The ESIA was carried out and a report prepared to ensure that the proposed improvement of Mukuru and Limuru town access roads to bituminous standards (inclusive of Non-Motorized Transport and drainage system) and lighting in Limuru Municipality comply with Environmental Management and Co-ordination (Amendment) Act, 2015, Kenya's supreme environmental law and the National Constitution. It is also developed to ensure compliance with the national policy aspirations towards achieving sustainable development. On the other hand, Environmental Management and Co-ordination (Amendment) Act, 2015 and the Environmental Impact Assessment and Audit Regulations, 2003 (Second Schedule and Legal Notice 101), clear indicate that any proposed development in Kenya should be subjected to ESIA. The entire Study process has been designed to conform to the regulatory framework stipulated by the National Environmental Management Authority (NEMA).

Description of the Project

The proposed project area is located about 35 kilometers from Nairobi City in Limuru Sub-County, Limuru Municipality, Kiambu County. The selected site is located on latitude 1°6′40.67″S and longitude 36° 38′31.28″E and Latitude 1°6′52.36″S and longitude 36° 38′21.68″E on approximate elevation of 7433ft and Altitude of 3127 above sea level.

Justification of the Project

The proposed Mukuru and Limuru town access roads are currently graveled and in bad status. These roads lack drainage and as a result become inaccessible during the rainy season due to storm water that flood the whole area. This make the residents unable to access their homes, schools, churches and businesses. During the night these roads become very dark resulting to high insecurity. Therefore, improvement of the proposed access roads will enhance accessibility. The project itself justifies its need for existence as it will adequately address the concerns related to flooding, accessibility and security.

Public Participation and Consultation

Meetings were held with the project proponent during which, comments on the content, quality and focus of the environmental reports were made. The proceedings of the discussions were incorporated in this report. Consultative meetings with Kenya Urban Support Program (KUSP) coordination team and user departments senior staff from Kiambu County were held. The aim was to agree on the modalities that would inform the project design process. Key Informant Interviews were also conducted with various key stakeholders. The stakeholders helped in the

drafting of the checklists used to predict the impacts for this study. Questionnaires were also used to collect opinions from the residents of Mukuru and Limuru town area in Limuru Municipality and those neighboring the project area.

Summary of Positive and Negative Impacts and the proposed Mitigation Measures

i) Positive impacts from the proposed project include;

- Increased accessibility to the residential areas, businesses and public institutions
- Reduction in health hazards associated with dusty road surfaces
- Creation of employment during the construction process
- Reduced vehicle operation and maintenance costs
- Reduced travel time
- Improved security
- Reduced human- vehicle conflicts due to provision of Non- Motorable Transport (NMT) facilities
- Improved drainage along the road

ii) Negative impacts anticipated from the proposed project include;

- Emission of dust and air pollution
- Increased noise and vibration during construction phase
- Exploitation of water resources
- Increased storm water/ run off
- The health and safety of workers and immediate residents and neighbors may be compromised due to accidents, pollution and disturbance
- Potential traffic accidents
- Increased waste generation (both solid and liquid) during construction
- Soil erosion during construction

Proposed Mitigation Measures

To minimize the occurrence and magnitude of the negative impacts, mitigation measures have been proposed against each of the anticipated impacts. Other measures have been integrated in the project designs with a view to ensuring compliance with applicable environmental laws and guidelines. To ensure project sustainability and environmental enhancement, the study recommends the following mitigation measures to be integrated into the project:

- Careful sitting, planning and design of the development to ensure that it is compatible with the environment e.g. not out of scale.

- Erection of warning / informative signs (billboards) at the site during the construction phase, and traffic control along the connecting roads.
- Soil compaction and watering of loose soils on all unpaved access sections, to minimize air pollution and erosion by the agents of soil erosion.
- Sensitization of workers on the need to switch off engines whenever possible to reduce noise pollution.
- Ensuring that the machinery is well maintained to inhibit frictional noise.
- To cater for storm water drainage, well-designed concrete inverted channel drains shall be provided to harmonize management of the resulting surface water within the site. The drains will be regularly maintained to unclog them and reduce the chances of flooding.
- Workers shall be provided with full protective gear to beef up their health and safety standards and they should be sensitized on health, safety and environmental conservation aspects
- During the construction phase, the contractor shall put in place effective and efficient waste disposal systems. Wastes such excavated soil and debris will be recycled or properly disposed of by backfilling or dumping in approved grounds.
- The contractor shall adapt and implement all the recommendations in the EMP during the project cycle.

Environmental and Social Management Plan (ESMP)

ESMP is one of the main outcomes of this ESIA project report that aim at improving the overall net effect of the proposed project and avoid or minimize the potential negative impacts of the project activities. This report observes that most of the adverse impacts will manifest at the construction phase, therefore, more focus will be put in this phase to ensure maximum mitigation of the proposed impact. This report, therefore, proposes that the ESMP be integrated into the design report with appropriate allocation of funds in the Bills of Quantities (BOQs) to mitigate against adverse environmental and social impacts. The contract for construction should bear clauses binding the contractor to implement impact mitigation as part of the civil works.

Conclusions and Recommendations of the proposed project

This ESIA project report conclude that the proposed project is important for economic development of the project area and has balanced environmental and social considerations and benefits. The report has given adequate measures to mitigate the negative impacts and a management plan proposed which the proponent should adhere to. Further the proponent has complied with and is within the guidelines of the existing legislative and regulatory requirements in relation to the proposed development. In the view of this study, the project as currently proposed is environmentally sound. An ESMP has been outlined to guide resolution of potential adverse impacts while enhancing the positive ones. Further, all negative impacts need to be mitigated and it is recommended that this project is granted NEMA licensing and other clearances to pave way for implementation.

Project Budget and Timeframe

The improvement of the proposed Mukuru and Limuru access roads project is estimated to cost KES. 162,662,048.87M (One hundred and sixty two Million six hundred and sixty two thousand and forty eight shilling and eighty seven cent) and is expected to be implemented within a period of twelve months from the award of contract.

CHAPTER ONE: INTRODUCTION

1.1 Background and Rationale for the Environmental Impact Assessment

Introduction

The Government of Kenya has recognized the need to manage urbanization as part of its overall development strategy. Kenya Vision 2030 highlights rapid urbanization as one of four key challenges facing the country. Within the over-arching framework of vision 2030, the urbanization component of the Second Medium Term Plan (MTP2) 2013-17 aims to facilitate a sustainable urbanization process through an integrated urban and regional planning management framework of Kenyan urban centers and towns. Aligned to that goal, the MTP identifies a series of investment programs to enhance infrastructure, connectivity and accessibility, safety and security. Developing the basic institutions required for effective urban management is critical to deliver these investments and for urbanization to contribute to sustainable growth in Kenya.

Most urban centers in the country are faced with acute infrastructural challenges either in terms of quality or quantity. The high rates of population growth and urbanization have not matched with increase in infrastructural and utilities provision. Crises have therefore resulted which includes transport and accessibility. The proposed project matches the National Government's "Big 4 Agenda" which includes infrastructural provision and improvement or upgrade.

More recently the development, spurred on by regulators in Kenya and in deed globally, has recognized the need for change in order to safeguard the environment. In relation to this, Environmental concerns have now been integrated in the planning and implementation processes of any proposed project (in Kenya). The key objective is to mitigate conflicts with the environment at the vicinity, during implementation and operational phases.

This proposed project is funded by World Bank through KUSP and implemented by the department of Land, Housing, Physical Planning, Municipal Administration and Urban Development. KUSP aim at improving the services in towns which are critical in spurring economic development including transport systems, storm water management, landscaping, solid waste management, security and street lighting among others. The project also supports the strengthening of the public sector management and accountability and is part of the ongoing

public sector reform agenda towards achievement of the Sustainable Development Goals (SDGs) and Kenya Vision 2030.

Kenya's framework environmental law, entitled The Environmental Management and Coordination Act (EMCA), Cap 387 is a product of a new methodology for the development of environmental law in the history of the country. Views and aspirations of a wide range of stakeholders both at national as well as at local levels were solicited and incorporated in the Act. This is a major shift from the traditional centralized mode of policy formulation that did not involve the public. The Act is thus designed to promote greater public participation in the management of natural resources and the environment in general. It is through this that Kiambu county has proposed to undertake the Environmental and Social Impact Assessment (ESIA) for all the proposed projects improvement of several urban areas within her boundaries.

1.2 Objectives of the EIA

The purpose of this Environmental and Social Impact Assessment (ESIA) process is to identify potential negative and positive impacts of the proposed road project, propose mitigation measures and formulate an Environmental and Social Management Plan (ESMP) articulating envisaged impacts. On the other hand, he main objective of this study is to ensure that all environmental concerns are integrated in the development activities in order to contribute to sustainable development.

The specific Objectives of this EIA are:

i) To identify and evaluate potential environmental impacts of the proposed project and their significance.

ii) To propose workable mitigation measures for the significant negative impacts of the proposed project on the environment.

iii) To consider the environmental, social, economic, cultural and legal considerations regarding the proposed project.

iv) To facilitate consultative public participation and incorporate expressed views into the project report.

v) To present the results of the EIA in a format that can guide informed decision making.

vi) Compare available alternatives for the proposed project and determine the optimal mix of environmental and economic costs and benefits.

vii) To prepare a detailed Environmental Monitoring Plan for the proposed project.

viii) To prepare a detailed Environmental and Social Management Plan (ESMP) for the proposed project.

1.3 Environmental Screening

Screening was conducted through legal review and desktop studies to assess whether there will be a need for an environmental and social impact assessment, and what level of assessment is required. This was done using a screening checklist in accordance to requirements of the Environmental Management and Co-ordination (Amendment) Act, 2015 and the Environmental Impact Assessment and Audit Regulations, 2003 (Second Schedule).

Issues considered included the physical location, sensitive receptors near the site and the nature of anticipated impacts. In pursuant with Environmental Management and Coordination Act (EMCA) 1999, (Amendment 2015), the proposed project is classified under low risk project that require the project to undergo Environmental Impact Assessment.

1.4 Scope of the EIA Study and the Scoping Process

The scoping process, through an ESIA scoping checklist, was conducted to help narrow down onto the most critical issues requiring attention during the assessment. Environmental issues were categorized into physical, natural/ecological and social, economic and cultural aspects. It also included discussions with key stakeholders, managers and design engineers as well as interviews with local communities.

In line with the Second Schedule of EMCA 1999 (amended in 2015) that specifies projects that require to be subjected to EIA studies, the proposed improvement of the Mukuru and Limuru town access roads project was screened and found to be without any concerns warranting a full cycle ESIA. Therefore, an environmental assessment process resulting to a Project Report was adopted.

In this case, the ESIA was conducted at the proposed project site of the development and the neighborhood (Mukuru and Limuru town access Roads in Limuru Municipality). This ESIA was done through physical assessment, interviews with local people, neighbors, relevant stakeholders and government agencies. The process included a systematic examination of the

proposed activities such as planning, transportation, construction, decommissioning and operation phases.

During the preparation of this project report, the screening procedure, was adopted as specified in NEMA's Legal Notice 101 of June 2003. This project report therefore incorporates the following:

i) The nature of the project;

ii) The Division of the project including the physical area that may be affected by the project's activities;

iii) The activities that shall be undertaken during the project construction, operation and decommissioning phases;

iv) The design of the project;

v) The materials to be used, products, by-products, including waste to be generated by the project and the methods of disposal;

vi) The potential environmental impacts of the project and the mitigation measures to be taken during and after implementation;

vii) An action plan for the prevention and management of possible accidents during the project cycle;

viii) A plan to ensure the health and safety of the workers and neighboring communities;

ix) The economic and socio-cultural impacts to the local community and the nation in general;

x) The project budget;

xi) Any other information that NEMA may require.

In order to achieve all the above, a systematic approach was followed by the consultants who included the general steps outlined below:

- Environmental screening;
- Environmental scoping which provided the key environmental issues;
- Desktop studies;
- Interviews with the Project Proponent;
- Physical inspection of the site and surrounding areas;
- EIA Public participation; and
- Reporting including the preparation of an Environmental and Social Management Plan.

All these aspects were considered accordingly. This report also seeks to ensure that all the potential environmental impacts are identified and that workable mitigation measures are adopted. The report also seeks to ensure compliance with the provision of the EMCA 1999, (amended in 2015), and Environmental (Impact Assessment and Audit) Regulations 2003 as well as World Bank safeguard policies.

The report lays emphasis on the duties of the proponent and contractor during the installation phase as well as the operation phase of this project.

1.5 Study Approach and Methodology

The study adopted an investigative and reporting methodology for conducting Project Report Studies (Legal Notice 101 of EMCA, 1999).

1.5.1 Data Collection Procedure

This project report applied both primary and secondary data. Primary data was collected through consultation with the proponent, site visits and public consultations. The Study key informant interviews, semi-structured interviews and observations. Secondary data was obtained through literature review and desk study.

Data collection involved a review of available project documents with a view to understanding the scope and focus of the proposed Mukuru and Limuru access roads improvement project. On the other hand, planning reports, baseline reports and other documents from Kiambu County were reviewed to provide an insight into the socio-environmental baseline of the project area. Observations and preliminary opinions formed from such literature review were re-validated during fieldwork undertaken on the project site.

1.5.2 Data Collection Tools

During the field investigations, a survey was conducted in order to collect information on biophysical and socio-economic environment of the project development site and its environs. The following steps were involved;

- Environment screening;
- Environmental scooping;
- Physical inspection of the site and its environs;

- Desktop study;
- Questionnaires;
- Public participation and consultation;
- Reporting.

1.5.3 Project site assessment

Field visits were made for physical inspections of the areas around the project site and the environmental status of the surrounding areas to determine the anticipated impacts.

1.5.4 Public Participation and consultations

To ensure adequate public participation in the ESIA process, questionnaires were administered to the local communities, leaders, and the information gathered was subsequently synthesized and incorporated into the ESIA project Report. consultation was also done with randomly selected people within the neighborhood of the proposed site and involved use of a semi-structured interview. The consultant incorporated the concerns and views of all stakeholders and the affected people.

1.5.5 Desktop Study

Desktop study included document review on the nature of the proposed activities, project documents, designs, policy and legislative framework as well as the environmental setting of the area among others.

1.5.6 Data Analysis and Prediction of Impacts

An analysis on the data collection tools and expert opinions was conducted to predict potential environmental impacts (both positive and negative). The magnitude, significance, and acceptability of predicted impacts were evaluated with a view to determining whether observed adverse impacts are significant enough to warrant mitigation. The stakeholder consultation, predicted impacts, probable mitigation measures and an Environmental and Social Management Plan form part of this report.

1.6 Terms of Reference (TOR)

The EIA study as stipulated under the EMCA, 1999 (amended 2015) was commissioned by the County Government of Kiambu for the improvement of Mukuru and Limuru town access roads

to bituminous standards (inclusive of Non-Motorized Transport and drainage system) and lighting in Limuru Municipality. Further, prepare a project report for further examination by the National Environmental Management Authority (NEMA) and subsequent licensing to implement the proposed project. This EIA considered the following aspects and others that proved of significance during the study.

- Provision of background and baseline information
- The effects of the development on biodiversity diversity both within and outside the project development site i.e. effects on flora and fauna, habitat quality and issue of habitat disruption.
- Surface water run-off, containment and flood control
- Sustainable use of resources and ecosystem maintenance and enhancement
- Economic implications of the development, employment and livelihoods
- Security – threats, risks and enhancement
- Public health implications
- Social cohesion, culture, emigration and communication
- Demand and development of infrastructure and social amenities
- Assessment of the effects on scenery modification
- Analysis of the compatibility of the development with the surrounding land uses.
- Development of an environmental management plan with mechanisms for monitoring and evaluating the compliance and environmental performance.

1.7 EIA Guiding Principles

The guiding principles for Environmental Impact Assessment are:

- It requires that all environmental concerns must be accounted for in all development activities;
- It also encourages public participation in all stages of proposed project development. It increases the ownership and sustainability;
- It also recognizes the role of social and cultural principles traditionally used in the management of the environment and natural resources;
- International cooperation in the use and wise management of shared resources;
- Intra-generation and inter-generation equality;

- Polluter-pays principle; and
- The precautionary principle.

1.8 Justification of the Project

The rapid population growth and urbanization has put immense pressure on the road infrastructure in many urban centers and town in Kenya. This is compounded by inadequate resources and poor planning coupled with competing infrastructural needs which in most cases are always prioritized over road infrastructure. The importance of road infrastructure and utilities cannot be overemphasized. Other than improving the quality of life of the people, good roads enhance accessibility and ease connectivity while at the same time improving the ambience and alter the landscape positively.

Mukuru and Limuru town roads are currently graveled in bad status making it inaccessible especially during the rainy season. The design of the road was not meant to handle the huge amount of traffic going through it. This road lack drainage and as a result become inaccessible during the rainy season due to storm water that flood the whole area. This make the residents unable to access their homes, schools, churches and businesses. During the night these roads become very dark resulting to high insecurity. Therefore, improvement of the proposed roads will enhance accessibility. The project itself justifies its need for existence as it will adequately address the concerns related to flooding, accessibility and security.

1.9 EIA Criteria

The Environmental Impact Assessment was carried out considering the environmental management; statutory and regulatory requirements in Kenya as outlined in section 3 of this report, the Environmental (Impact Assessment and Audit) Regulations 2003 and best practice guidelines on safety and health as per the Occupational Safety and Health Act of 2007.

1.10 Project Cost

The proposed project is estimated to cost approximately One hundred and sixty two Million six hundred and sixty two thousand and forty eight shilling and eighty seven cents (KES. 162,662,048.87M).

BoQ Summary: Roads, Civil and Electrical Works		
Bill No.	**Description**	**Tender Amount**
1	General	23,455,000.00
4	Site clearance	1,560,000.00
5	Earthworks	9,755,000.00
7	Excavation and filling for structures	4,610,000.00
8	Culvert and drainage works	14,735,000.00
9	Passage of traffic	1,200,000.00
12	Natural Material Base and Sub-base	10,440,000.00
15	Bituminous surface treatment	3,900,000.00
16	Bituminous mix bases, binder courses and wearing courses	31,902,000.00
20	Road furniture	7,895,000.00
25	HIV/AIDS	**844,000.00**
A	**Sub Total 1**	**110,296,000.00**
B	Add 2% Contingencies	2,205,920.00
C	Add 2% Variations	**2,205,920.00**
D	**Sub Total 2**	114,707,840.00
E	**Add 16% V.A.T**	**18,353,254.40**
	Total A	**133,061,094.40**
	Supply, installation, testing & commissioning of integrated solar streetlights (ISSL)	**29,600,954.47**
	Total B	**29,600,954.47**
	GRAND TOTAL (A+B)	**162,662,048.87**

1.11 Report Outline and Presentation

The main outcome of this ESIA study was this report, which was designed to ensure that the proposed development complies with the Environmental Management and Coordination Act (EMCA), 1999 (amended in 2015). The report is organized in chapters as outlined below:

Chapter 1: Background and Rationale for the ESIA.

Chapter 2: Description of the proposed project

Chapter 3: Baseline conditions

Chapter 4: Policy, Legal and Institutional Framework

Chapter 5: Public consultation and Participation.

Chapter 6: Potential environmental and Social Impacts.

Chapter 7: Mitigation measures

Chapter 8: Analysis of project alternatives.

Chapter 9: Environmental and Social Management Plan and Monitoring plan

Chapter 10: Conclusion and Recommendations.

CHAPTER TWO: DESCRIPTION OF THE PROPOSED PROJECT

2.1 Introduction

The proposed project is owned by the County Government of Kiambu (CGK) under Limuru Municipal Board. It is part of the projects within Kiambu County meant to upgrade various towns to Municipal status. The project is funded by the World Bank under KUSP.

2.2 Nature, Design and Description of the Proposed Project

The proposed project involves the improvement of the Mukuru and Limuru town access roads to bituminous standards (inclusive of Non-Motorized Transport and drainage system) and lighting in Limuru Municipality.

Like many other similar projects, the proposed project is designed and expected to go through various phases (pre-construction, construction, decommissioning and operation) with various activities being conducted at every phase. The works shall include but not limited to: -

2.2.1 Description of pre- construction and construction Activities

- Site clearance and topsoil striping
- Excavation and cutting away
- Earthworks and filling
- Culvert and drainage works
- Passage of traffic
- Construction of pavement and walkways
- Pothole trimming and patching
- Bituminous surface treatment and surface dressing
- Filling of structures and construction of gabions
- 50mm thick Asphalt Concrete type 1 to surface of carriageway pavement
- 25mm thick Asphalt Concrete type 1 overlay
- 25mm thick Asphalt Concrete type 1 to surface of walkway pavement
- Road furniture i.e. speed bumps, road signs, road marking, Kerbs and channels
- HIV/AIDS sensitization campaigns
- Street Lighting
- Beautification works along the road

- Maintenance of the works during and after construction for specified periods.
- Any other works as instructed by the engineer and/or as specified in the Project specifications
- Maintenance of the works during construction. The defects liability period shall be 24 months.

2.2.2 Specific Project Activities

i) Site Clearance and Earth Works

- Removal of trees, hedges, bushes and uprooting of tree stumps. Site clearance of all overburden on road shoulders
- Topsoil stripping along shoulders to be widened.
- Excavation for the road carriageway where widening is necessary
- Re-use of stored material, for material that cannot be reused to be cut to spoil.
- Filling in soft material including benching of shoulders and embankments and compaction

ii) Drainage Works

- Excavation for open & closed drains, backfilling and compaction
- Construction of 450mm and 600mm, diameter cross and access culverts
- De-silting and improvement of outfall
- Stone pitching of the side drains
- Construction of masonry Scour Checks to side drains

iii) Passage of Traffic

- Passage of traffic through the works for the duration of the contract

iv) Pavement Works

- Provision of 225mm thick natural gravel as subbase in two layers
- Provision of 150mm hand packed stones as base layer (including filling of voids)
- Priming the hand packed surface with MC 30 bitumen and a tack coat of K1-60
- Laying of 50mm thick Asphalt Concrete Type I overlay
- Surface dressing

v) Road Furniture and Ancillary Works

- Provision and installation of standard and non-standard road signs.
- Application of road markings as appropriate.
- Construction of kerbs along the road edge, traffic island, junctions, drainage and non-motorized transport.
- Improvement of accesses on feeder roads and business premises where applicable.
- Installation of traffic signs.
- Installation of guard rails where applicable
- Installation of marker posts
- Construction of bumps to control vehicle speed.

vi) Street Lighting

- Supply, Install, Test & Commission of Integrated Solar Street Lights (ISSL)

vii) Other Works

- Provision of NMT
- HIV/AIDS campaign

2.2.3 Project Activities during Project Decommissioning

i) Demolition works

Upon decommissioning (unlikely), the project components including pavements and drainage systems will be demolished. This will produce a lot of solid waste, which will be reused for other construction works or if not reusable, disposed of appropriately by a licensed waste disposal company.

ii) Dismantling of Equipment and Fixtures

All equipment including road surface, electrical installations, furniture partitions, pipework and sinks among others will be dismantled and removed from the site on decommissioning of the camp site, the road and other project components. Priority will be given to reuse of this equipment in other projects.

iii) Site restoration

Once all the waste resulting from demolition and dismantling works is removed from the site, the site will be restored through replenishment of the topsoil.

iv) Solid Waste Generation

Large amounts of solid waste will be generated during decommissioning of the project. These will include metal cuttings, rejected materials, surplus materials, surplus spoil, excavated

materials, paper bags, empty cartons, empty paint and solvent containers, broken glass among others. The proponent is advised to take steps to minimize the generation of such waste and to ensure proper disposal procedures or recycling/ generated wastes.

v) Aesthetics

The proponent should ensure high hygiene standards within the premises and surrounding areas during construction and during the operation stages of the project. More so via the prescribed ESMP, the proponent shall put in place several measures aimed at ensuring high standards of hygiene and housekeeping within the premises and surrounding areas.

2.3 Description of Construction Inputs (Products and by-Products)

The proposed road improvement project will utilize as much as possible materials from within the area and imported. The project inputs will include but not limited to the following:

- Construction raw materials i.e. sand, cement, stones, crushed rock gravel, Murrum, steel metals and metal products, plastic and PVC pipes and materials, timber and timber products, precast and in situ concrete products, iron sheets and iron products, electric cables and conduits, painting materials among others. All these will be obtained from licensed dealers and especially those that have complied with the environmental management guidelines and policies. It is worthwhile noting that most of the construction materials are locally available.
- Construction machines including machinery such as excavators, graders, mixers, and bulldozers and other tools and equipment. These will be used for the transportation of materials, clearing of the vegetation and debris, and in the construction of the project. Such machinery will use petroleum products to provide energy.
- A construction labour force of both skilled and non-skilled workers. These will require services such as energy, water supply and sanitation facilities.
- Large volumes of water for construction purposes. It will be supplied from the area's mains water supply.
- Power from the mains grid or provided by generator.

2.4 Location of the Project

The project is in Limuru town which is located on the eastern edge of the Great Rift Valley about 35kilometers, by road, northwest of Nairobi, the capital and largest city in Kenya. The geographical coordinates of Limuru town are: Latitude1°6′25.02″S and longitude 36° 38′35.26″E. The project involves improvement of the Mukuru and Limuru town access roads

to bituminous standards (inclusive of Non-Motorized Transport and drainage system) and lighting in Limuru Municipality. The GPS coordinates for the project area are

Latitude1°6′40.67″S and longitude 36° 38′31.28″E and Latitude 1°6′52.36″S and longitude 36° 38′21.68″E on approximate elevation of 7433ft and Altitude of 3127 above sea level.

The project roads traverses through a relatively flat area serving business premises in Limuru town, churches and other institutions as well as residential houses.

2.5 Site Ownership, Zoning and Land Use

The proposed project is owned by the County Government of Kiambu under the Department of Roads, Transport, Public Works and Utilities and is overseen by the Limuru Municipal Board Manager. The proposed roads improvement project is located on public land.

The area in which the project is sited is a mixed use though the predominant use is residential. The proposed plans fall in line with the CGK zoning regulations and were prepared by the CGK staff under the supervision of the County Engineers.

2.6 Project Budget

The project is estimated to cost approximately One hundred and sixty two Million six hundred and sixty two thousand and forty eight shilling and eighty seven cents (KES. 162,662,048.87M) and is to be financed by the World Bank through the Kenya Urban Support Program (KUSP).

CHAPTER THREE: BASELINE CONDITIONS

3.1 Overview and Location of the project

Overview

This section presents the geographic characteristics, baseline environmental conditions including the socio-economic conditions within 2km^2 of the project site. For convenience, the description of the larger Kiambu area is provided followed by presentation of details that are more specific to the project site. It should however be noted that the comprehensiveness of the descriptions of the general geographic and environmental characteristics of the assessment area is variable being governed by availability of relevant data and information.

Location of the project

The proposed project is in Limuru town in Limuru Municipality, Kiambu County. Limuru town is located within Kiambu County, which is one of the 47 counties of Kenya, the overall population of the county estimated at 1,623,282 populations according the 2009 census report from the Ministry of Planning and National Development and an annual growth rate of 2.3% per annum. The County has a total Square Kilometer of 2543.4 km^2 major towns in the county include Kiambu, Thika, Kikuyu, Limuru, Githunguri and Gatundu which is the target project area. Kiambu County borders Nairobi and Kajiado Counties to the South, Machakos to the East, Murang'a to the North and North East, Nyandarua to the North West, and Nakuru to the West. The County lies between latitudes 0° 25'and 1° 20'South of the Equator and Longitude 36° 3 Land 37° 15'East.

3.2 Physical Environment

The physical environment of Limuru is presented in the sub chapters below, the sub-sections below briefly describe the physical, biophysical, social and cultural environment of the Project area.

3.2.1 Climate

The climate of the area can be classified as semi-humid to semi-arid warm temperate climate. Rainfall over the greater part of this area is favorable, with regular periods of precipitation. The annual mean rainfall varies from 1070mm to 1750mm per annum. The area displays a bi-modal rainfall with two rainfall patterns with two rainy seasons, which are concentrated in the months

March to May and October to December. The hottest part of the year is from January to March; the wettest month being in April, at other times the temperatures are moderate. Mean annual temperature is 18^0C–20^0C and mean minimum temperature is 12^0C–14^0C, which is described as warm temperate climate. The average annual potential evaporation is between 1550mm and 2200 mm.

3.2.2 Hydrology

The project area is not well drained and therefore cases of flooding are very common during the rainy season. Planting of trees in both horizontal of the road is highly encouraged to control surface water runoff that dominate the project site. Most of the water resource comprises of both surface water and ground water potential. Generally, Limuru Town is endowed with numerous springs, streams and marshland. The river provides the main source of water to the residents of Limuru who use the water either directly for irrigating farmlands, most of the abstraction points identified area unauthorized by the Water Resource Management Authority. The main sources of water in the region are the 17no boreholes with an approximate combined production of 3,000 m3/day, Bathi Water Supply Scheme is supplied by water from Bathi dam with an average production of 1,150m^3/day and Thigio Rural Scheme with an average production of 600 m^3/day. As a county, there about 16 permanent rivers that provide water across the county. These include Riara, Kiu, Ruiru, Bathi, Thiririka, Theta, Chania, Kariminu Rivers etc. However, there are no rivers within the project area.

3.2.3 Topography and Drainage

The regional Physiography is characterized by undulating topography. Undulating hills and steep valleys generally sloping towards the east characterize the topography of the investigated site. The project road traverses through a relatively flat area serving a wide range of businesses premises churches and other institutions as well as residential houses. The site is covered by poorly drained and dominated by red soils.

3.2.4 Geology and Soils

The geology of the area is part of the Eastern Border Zone of the Rift Valley, filled with kainozonic volcanic and sediments underlying the upper Athi generating good aquifers. The area is characterized by gentle slopes and is built up as well. The soils are mainly loam with no rocky outcrops. The soils along the road route are mainly red loam soils which are suitable for road construction. These soils are of varying fertility levels with soils from high-level uplands,

which are from volcanic rocks being very fertile. Limuru is categorized as the lower midland zone. The area lies between 1,200-1,360 metres above sea level.

3.3 Biological Environment

3.3.1 Fauna

Human habitation and agricultural activities have significantly interfered with both terrestrial and aquatic habitats in the Project areas. There is no terrestrial wildlife observed in the Project areas since most land is under agricultural use for many years pushing the animals into the Southern Aberdare Forest. Animals in the area are mainly domestic animals such as cattle, sheep, goats, pigs and poultry.

3.3.2 Vegetation and Flora

Biodiversity of the Limuru area is highly influenced by human activities, the area lies within Agro-Eco-zone III and IV where agriculture is the main economic activity practiced by people, tea and coffee farming is the main cash crop grown, other crops include cabbages, irish potatoes and dairy farming. Trees are used mainly for shade, boundary demarcation, fencing, and production of fruits, timber, and fuel wood and for ornamental purposes. Common trees in Limuru include: Cupressus lusitanica, Eucalyptus spp, Markhamia lutea, Croton megalocarpus, Pinus *patula*, Juniperus *procera* just to mention a few. Common fruit trees include plums, ovacando and pairs. However, the fact that Limuru is 30km away from Nairobi central business District, population and housing demand pressure has resulted to landowners changing land use from original agricultural use to real estate and housing units. This pressure has resulted to change of land use from agricultural land to commercial to provide land for establishment of housing units.

3.4 Social economic Setup

3.4.1 Target Population

Limuru is located within Kiambu County which is one of the 47 counties; Kiambu County had a population of 1,623,282 according the 2009 census report from the Ministry of Planning and National Development. The County has a total Square Kilometer of 2543.4 km^2 major towns within the County include; Kiambu, Thika, Kikuyu, Limuru, Githunguri and Gatundu. According to the Kenya National Bureau of Statistics (KNBS) Report, the total population for the Project area (Limuru and Satellite centers) was 16,400 in 2015 and projected to increase to

35,486 in 2038 at a population grow rate of 2.3% per annum. In terms of gender, the sex ratio of male to female is approximately 1:1.02. Population is a major driver of environmental change in the area and as such is a determinant of other parameters such as land-use patterns, settlement and other social amenities.

3.4.2 Settlement Patterns

The settlement patterns in Limuru and environs are influenced by rural to urban migration, good infrastructure and proximity to Nairobi. Majority of the population reside within Limuru Township which is the main market centre. The project area is densely populated, and land is subdivided into small sizes. Currently, there is a high rate of change of user of land from agricultural to residential due to high housing pressure from Kiambu and Nairobi towns.

3.4.3. Land Use Patterns

Land tenure is majorly free hold; land near the urban centres has been subdivided in plots while land size away from the urban centres has minimum subdivisions. Majority of the land within the outskirts of the town belong to coffee and tea companies and societies which are still utilizing for agricultural purposes.

The area supports both large- and small-scale agriculture. The Northern and Western parts of the town receive the highest amount of rainfall, and tea, coffee and dairy farming are common. Some irrigated farming is also undertaken in the drier eastern areas of Limuru. It also consists of the urban area, surrounded by a mix of industrial, commercial and agricultural land-use, major companies within the project area are; Bata Shoe Company, Limuru milk processors and Polypipes.

3.4.4 Administrative Units

The County is divided into twelve (12) sub-counties namely Limuru, Kikuyu, Kabete Lari, Gatundu South, Gatundu North, Githunguri, Kiambu, Kiambaa, Ruiru, Juja and Thika Town. These are further divided into 60 wards. The proposed project lies within Limuru central ward in Limuru Sub-county.

3.5 Public Social Services

3.5.1 Road and Rail Network

The County has a good road network. It has a total of 2,033.8 km of roads under bitumen standards, 1,480.2 km under gravel surface and 430.1 km under earth surface. There is a great need in improving the condition of the roads since during the rainy season, most of the roads become impassable. However, the terrain poses a great challenge for road maintenance. There has been a lot of improvement in the road's subsector with the example of Limuru-Tigoni-Ruaka road, Southern by-pass, Thika-Nairobi highway, on progress western by-pass among others. It also has 131 km of railway line and four railway stations in Ruiru, Thika, Kikuyu and Limuru towns. The rail is not fully utilized in the County and only passenger trains operate in the morning and evenings between the City of Nairobi and the four stations. However, there is a great potential in the sector and hence efforts need to be put in place to ensure the infrastructure is improved which will encourage introduction of modem efficient trains.

3.5.2 Communications Services

Kiambu County is well covered by mobile network which is estimated at 98 percent even though landline coverage is very poor with only 214 connections in the entire County. This might be attributed to the fact that landlines are becoming obsolete and have a high maintenance cost. There are 19 post offices and 14 sub-post offices which are fairly distributed within the County. Distances to the nearest post office vary from one part of the County to another. Most of the residents (70.4 percent) are within the range of 5 Km and above while 22.5 percent of the population are in the range of 1.1-4.9 Km and only 7.2 percent of the residents are within the range of 0-1 Km. There are 149 cyber cafes and eight private courier services operating within the County which are mostly located in the urban centres of Thika, Ruiru, Karuri, Kiambu, Limuru and Kikuyu.

3.5.3 Energy Access

The main source of cooking energy in the County is firewood which accounts for about 47.3 percent, while paraffin is the major source of lighting fuel. This poses a great challenge to the realization of 10 percent forest cover within the County. Connection to the national grid is good with 98 percent of all trading centers connected and only 4 percent of public institutions not connected. However, connection to individual homes is low and there is need for up-scaling of

the rural electrification programme. Kiambu County is endowed with several big rivers which can be exploited for power generation.

3.5.4 Housing

According to 2009, Kenya Population and Housing Census. 48.3 percent of all homes in the County are stone -walled, 4.9 percent are brick/block, and 4.8 percent are mud/wood. There are 74.6 percent of the houses that have cemented floors and 87.5 percent have corrugated iron sheets. Only 0.1 percent has used other forms of roofing materials. The proximity of the County to the city of Nairobi has seen transformation of large pieces of land into residential houses. The presence of good all weathered roads have given an opportunity to those working in Nairobi to reside within the County. This has led to the establishment of residential estates with the spring valley, Tatu city being some of the major housing projects under implementation.

3.5.5 Markets and Urban Centres

The County has a total of 2,517 trading centres with 6,634 registered retail traders and 750 registered wholesale traders. There are also several urban centres with the largest being Thika Town which is one of the largest industrial towns in the country. Other urban centres include Kiambu, Karuri, Kikuyu, Limuru, Gatundu and Ruiru.

3.6 Sensitive Ecosystems or Places of Cultural Importance

There are no sensitive ecosystems or places of cultural importance within the project site or in the environs.

CHAPTER FOUR: POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

4.1 Introduction

Kenya has a policy, legal and administrative framework for environmental management. The Government's policy on road transport is to provide efficient and reliable road network to spur socio-economic development and improve security. Under the administrative framework, the National Environment Management Authority (NEMA) is responsible for ensuring that environmental and social impact assessments (ESIA) are carried out for new projects and environmental audits on existing facilities as per the requirements of the Environmental Management and Coordination Act (EMCA) 1999 Amended 2015. Projects subject to this requirement are specified in the Second Schedule of the EMCA, 1999.

The financing institutions such as the World Bank through its IFC branch has also developed a policy on Social and Environmental Sustainability that strives for positive development outcomes in the private and public sector. In order to achieve this, it has set up Performance Standards as well as General and Industry specific Environmental Health Safety guidelines against which projects are reviewed. These guiding principles are referred to as the Equator Principles. The thrust of the Equator Principles is to ensure that projects under financing are developed in a manner that is socially responsible and reflect sound environmental management practices.

According to EMCA, 1999 (Amendment, 2015), ESIAs are carried out in order to identify both potential positive and negative impacts associated with the proposed project. This aim at developing the positive impacts and develop mitigation measures for the negative impacts. The ESIA also ensures that baseline environmental and socio-economic data for the proposed project is collected and used in the design of projects financed by the financial institution. The data generated is also used for monitoring and evaluating project impacts during the project cycle. It is also a requirement by both NEMA and World bank that a clear management plan and action plan that describe and prioritize the actions needed to implement mitigation measures are put in place. In this Chapter, a review of regulations that guide an ESIA on a road project will be done.

The Environmental and Social Impact Assessment (ESIA) is a legal requirement in Kenya for all proposed development projects. Therefore, the government of Kenya has established

regulations to facilitate ESIAs and environmental audits processes. These requirements are stipulated in the EMCA, 1999 (Amended, 2015) and EIA/EA Regulations 2003. This section outlines the Policy, Legal and Institutional framework pertaining to the proposed roads development project.

4.2 National Policy Framework

The Kenyan Government has a policy, legal and administrative framework for environmental management. The broad objectives of the national environmental policy in Kenya are to:

- Integrate environmental conservation and socio-economic aspects in the development process.
- Conserve natural resources such that the resources meet the needs of the present without jeopardizing future generations in enjoying the same.
- Ensure optimal use of natural resources while improving environmental quality.
- Develop awareness that inculcates environmental stewardship among the citizenship of the country.
- Ensure that national environmental goals contribute to international obligations on environmental management and social integrity.

To achieve this policy objectives, it is a policy directive that appropriate reviews and evaluations of all forms of developmental project plans and operations are carried out to ensure compliance with the environmental policy and legal frameworks. The following section provides details on the relevant policies in the country.

4.2.1 The Constitution of Kenya (2010)

The Constitution is the supreme law of the Republic and binds all persons and all State organs at all levels of government. Article 42 of Bill of Rights of the Kenyan Constitution provides that every Kenyan has a right to a clean and healthy environment, which includes the right to have the environment protected for the benefit of present and future generations through legislation and other measures. Chapter 5 of the Constitution focus on land and the environment. The constitution requires that land be used and managed in a manner that is equitable, efficient, productive and sustainable. Part 2 of Chapter 5 of the constitution is dedicated to Environment and Natural Resources. Article 69 in Part 2 provides that the state shall provide encourages efforts towards sustainable of natural resources, increasing of the national forest cover public participation in the management, protection and conservation of

the environment, protection of genetic resources and biodiversity, environmental impact assessment, environmental audit and monitoring of the environment, etc. The proposed project should ensure compliance with the constitutional requirements in as far as equitable sharing of the resources between various stakeholders is concerned on matters of sustainability of livelihoods and biological resources public participation among others.

The Kenyan constitution also gives prominence to public participation; as a general national value in environmental protection. Article 69(1) states that the State shall encourage public participation in the management, protection, and conservation of the environment.

Therefore, the constitution of Kenya provides for sound management and sustainable development of all of Kenya's projects, both public and private investments. It also calls for the duty given to the Project proponent to cooperate with State organs and other persons to protect and conserve the environment as mentioned in Part II.

4.2.2 The Kenya Vision 2030

Sessional Paper Number 10 of 2012 on Kenya Vision 2030 is the National Policy Economic Blueprint that entrenches Kenya Vision 2030 as the long-term development strategy for Kenya towards achieving a "globally competitive and prosperous country with a high quality of life by 2030. Specifically, Vision 2030 aims at transforming Kenya into "a newly industrializing, middle income country providing a high quality of life to all its citizens in a clean and secure environment as anticipated in the Millennium Development Goals and is anchored on 3 pillars1:

- The Economic Pillar aims to achieve a sustained annual growth rate of 10% to 2030,
- The Social Pillar seeks to create a just, cohesive and equitable social development, and;
- The Political Pillar envisions a democratic system that is issue based, people centered, results oriented and is accountable to the public.

The Kenya Vision 2030 is being implemented in five-year successive Medium-Term Plans (MTP). The first plan covered the period 2008-2012. The Medium-Term Plan (MTP 2013-17) is the second in a series of successive 5-year plans. The second MTP 2013-2017 draws on lessons learnt in implementing the first MTP. It seeks to implement the flagship projects identified under Vision 2030 over the five-year period together with incomplete flagship and other projects and programs in the previous Medium-Term plan. It will also take due

cognizance of the devolved structure of government following promulgation of the Constitution of Kenya 2010 and recent discovery of oil and mineral resources. Therefore, this project touches on the main pillars that form the Kenya Vision 2030 and thus very relevant for this study.

4.2.3 National Environment Policy (NEP)

The Sessional Paper No. 6 of 1999 focus on Environment and Sustainable Development and its key objectives include;

- To ensure that from the onset, all development policies, programmes and projects take environmental considerations into account,
- To ensure that an independent environmental impact assessment (EIA) report is prepared for any development before implementation,

Under this paper, broad categories of development issues have been covered that require sustainable approaches. These issues include the waste management and human settlement sectors. The policy recommends the need for enhanced re-use/recycling of residues including wastewater and increased public awareness raising and appreciation of clean environment as well as the participation of stakeholders in the management of wastes within their localities. Regarding human settlement, the paper encourages better planning in both rural and urban areas and provision of basic needs such as water, drainage and waste disposal facilities among others.

Therefore, the proposed Project shall implement the Environmental and Social Management and Monitoring Plan (ESMMP) to mitigate the impacts of the resulting impacts during the construction and operational phases of the proposed project, this will ensure that the sensitive ecosystems are not destabilized by the subsequent Project activities.

4.2.4 The National Poverty Eradication Plan

The main objective of National Poverty Eradication Plan is to

- Reduce the incidence of poverty in both rural and urban areas by 50 percent by the year 2015;
- Strengthen the capabilities of the poor and vulnerable groups to earn income.
- Narrow gender and geographical disparities and create a healthy, better-educated and more productive population.

This plan has been prepared in line with the goals and commitments of the World Summit for the Social Development (WSSD) of 1995. The plan focuses on the four WSSD themes of the

poverty eradication; reduction of unemployment; social integration of the disadvantaged people and the creation of an enabling economic, political, and cultural environment. This plan is to be implemented by the Poverty Eradication Commission (PEC) formed in collaboration with Government Ministries, community-based organizations and private sector. Therefore, the proposed project aims at creating a conducive economic environment for the residents of Limuru town and creates employment either directly or indirectly. This improves the quality of life of the residents and thus relevant or applicable for this assessment.

4.2.5 The Poverty Reduction Strategy Paper of 2000

The general objective of Poverty Reduction Strategy Paper (PRSP) for Kenya is to reduce poverty and promoting economic growth. This policy articulates Kenya's commitment and approach to tackling endemic poverty through involvement of the poor communities in both rural and urban areas in various socio-economic development activities. The proposed project, during and after implementation will offer various employment opportunities to people in Limuru municipality and will therefore contribute directly towards the realization of the broad national goal of reducing poverty in the country. In addition, the proposed project would stimulate economic development by creating an enabling environment for other key sectors of the economy to thrive.

4.2.6 The National Biodiversity Strategy of 2000

This was developed to enable Kenya address national and international commitments defined in Article 6 of the Convention on Biological Diversity (CBD). The strategy is a national framework of action for ensuring that the present rate of biodiversity loss is reversed, and present levels of biological resources are maintained at sustainable levels for posterity. The broad objectives of this strategy are to:

- Conserve Kenya's biodiversity;
- Sustainably use its components;
- Fairly and equitably share the benefits arising from the utilization of biological resources among the stakeholders; and
- Enhance technical and scientific cooperation nationally and internationally, including the exchange of information in support of biological conservation.

The proposed road project will need to comply with the requirements of this strategy.

4.3 Legal Framework

Kenya has legal framework that guides environmental management and conservation in the country. Most of these are sector specific and cover a wide range of issues including public health, soil conservation, protected areas conservation, endangered species, public participation, water rights, water quality, air quality, excessive noise control, vibration control, land use, among others. The relevant legislations are described in the following sections.

4.3.1 Environmental Management and Coordination Act, 1999, amended in 2015

EMCA, 1999 provides for the establishment of a Legal and Institutional Framework for the management of the environment and for matters connected therewith and incidental thereto. Just as in the new constitution, Part II of EMCA confers to every person the right to a clean and healthy environment and to its judicial enforcement. The new Constitution, 2010 and EMCA, 1999, therefore obligates the project's Executing Agency and Contractor to work in a clean environment and not to contravene the right of any person within its zone of influence, to this entitlement.

This act applies to the proposed project at one stage or the other and therefore the project proponent is required to understand and conform with the Act accordingly. One such area is Environmental Impact Assessment. This is expressly stated in section 58(2) of the Act. "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 under sub-section (1), that the intended project may or is likely to have or will have a significant impact on the environment, so directs."

EMCA, 1999 (amended 2015) has provided for the development of several subsidiary legislations and guidelines which govern environmental management and are relevant to the Project implementation. These regulations include the following:

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

These regulations provide guidelines for conducting Environmental Impact Assessments and Audits. The regulations provide details on the parameters to be evaluated when undertaking an EIA study. It also provides guidelines on the conduct of environmental audits and development of project monitoring plans. The regulation further explains the legal consequences of partial or non-compliance to the provisions of the Act. In the second schedule, the proposed road project is listed among the projects that require an ESIA before commencement. Therefore,

this proposed project must comply with the requirements of the regulations that also include conducting continuous monitoring and annual audits on the proposed project.

ii) Environmental Management and Co-ordination (Waste Management) Regulations, 2006

In Legal Notice No. 121 of the Kenya Gazette Supplement No. 69 of September 2006, the regulations guiding waste management are well described. These regulations offer legal provisions on handling of a variety of wastes emanating from various projects and activities. The waste categories covered by the regulations include: Industrial wastes, Hazardous and toxic wastes, Pesticides and toxic substances, Biomedical wastes and Radio-active substances.

These regulations also outline the requirements for handling, storing, transporting, and treatment /disposal of all waste categories as provided therein. The proposed project may involve use of materials that release hazardous waste during construction including bitumen/ tar, cement, oil spillage from vehicles. Therefore, it is very vital for the proponent to adhere to the provisions of this regulation.

iii) EMCA (Water Quality) Regulations, 2006

These regulations provide guidelines on the use and management of water sources in order to safeguard quality of water for domestic use and irrigation, among others. The proposed project will need to comply with the requirements of this regulation in order to ensure water sources along the route are protected from pollution and over abstraction. The project will also need to comply with the regulations that prohibit undertaking of development within a minimum of 6m from the highest ever recorded flood level of a river system. Section 4(2), 6 and Section 24 of the regulation prohibits pollution of water bodies and requires that all substances discharged into the water bodies should meet the standards set under the Third Schedule of the regulation. Any person undertaking a development project is required desist from any actions, which directly or indirectly cause water pollution, whether or not the water resource was polluted before the enactment of the EMCA Gazetted in 1999. It is an offence to contravene the provisions of these regulations with a fine not exceeding five hundred thousand shillings.

In response to the above, the project design team should be advised on the requirements of this regulation and appropriately incorporate the regulations in the project design document.

iv) EMCA (Fossil Fuel Emission Control) Regulations 2006

These regulations aim at eliminating or reducing emissions emitted from internal combustion engines to acceptable levels. This is described in Legal Notice No. 131 of the Kenya Gazette Supplement No. 74 of October 2006. The regulation provides guidelines on use of clean fuels, use of catalysts and inspection procedures for engines and generators. This regulation is applicable to the proposed project since there will be using vehicles, machineries and equipment that depend on fossil fuel as their source of energy e.g. petrol, engine oil and diesel. The requirements of the regulation must be implemented in order to eliminate or reduce air quality degradation. Sections of the regulation citing the standards of recommended emission levels will be given to the contractor and or pinned at strategic points in the contractor's field offices.

v) Environmental Management and Coordination (Noise and Excessive Vibration Pollution) Control Regulations, 2009

These regulations prohibit excessive noise and vibration. The regulations states that no person shall make or cause to be made any loud, unreasonable, unnecessary or unusual noise which annoys disturbs, injures or endangers the comfort, repose, health or safety of others and the environment. Therefore, the contactor of the proposed project will have to ensure that no excessive noise and vibrations are made during the construction of the road. This is important since the construction of the proposed road will involve use of heavy earthmoving equipment and trucks which can generate excessive noise and vibrations. Vehicles used during the construction of the proposed road should also adhere to the regulations which prohibit excessive noise. The provision of the act on motor vehicle states that no person shall operate a motor vehicle which produces any loud and unusual sound exceeding 84 dB(A) when accelerating. The Act also states that no person shall at any time sound the horn or other warning device of a vehicle except when necessary to prevent an accident or an incident. Any person carrying out construction, demolition, mining or quarrying work should ensure that the vibration levels do not exceed 0.5 centimeters per second beyond any source property boundary or 30metres from any moving source.

vi) **EMCA (Conservation of Biological Diversity and Resources, Access to Genetic Resources and Benefit Sharing) Regulations, 2006**

These regulations provide that no person shall engage in any activity that may have an adverse impact on any ecosystem; may lead to the introduction of any exotic species or to unsustainable use of natural resources, without an Environmental Impact Assessment License issued by the Authority under the Act. The regulation requires NEMA in consultation with the relevant lead agencies, to impose bans, restrictions or similar measures on the access and use of any threatened species in order to ensure its regeneration and maximum sustainable yield. The proposed road construction should conform to the said regulation.

4.3.2 The County Governments Act 2012

This is an Act of parliament to give effect to Chapter Eleven of the Kenyan Constitution; to provide for County government's powers, functions and responsibilities to deliver services and for connected purposes. Section 113 of the Act makes public participation in County planning processes compulsory. Therefore, the proposed project will according to the County Government act of 2012 ensure that the project activities conform to the Act.

4.3.3 The Urban Areas and Cities Act 2011

This Act provides legal basis for classification of urban areas (City when the population exceeds 500,000; a municipality when it exceeds 250,000; and a town when it exceeds 10,000) and requires the city and municipality to formulate County Integrated Development Plan (Article 36 of the Act). Under Article 36, the integrated development plan so developed is required to be the central pillar in public administration of the city or municipality this forming the basis for: i) the preparation of environmental management; ii) preparation of valuation rolls for property taxation plans; iii) provision of physical and social infrastructure and transportation; iv) preparation of annual strategic plans for a city or municipality; v) disaster preparedness and response; vi) overall delivery of service including provision of water, electricity, health, telecommunications and solid waste management; and vii) the preparation of a geographic information system for a city or municipality. The strategy plan as stated in 4) above denotes an annual plan to be adopted in the county assembly following the integrated development plan, and the Act requires the board of town committee to formulate the strategy plan soon after the adoption of the integrated development plan (Article 39). The integrated development plan as stipulated in the Act has to reflect;- i) vision for the long term development

of the city or urban area; ii) an assessment of the existing level of development; iii) any affirmative action measures to be applied; iv) development priorities and objectives; v) development strategies which shall be aligned with any national or county sectoral plans and planning requirements; vi) a spatial development framework; vii) operational strategies; and viii) applicable disaster management plans; ix) a regulated city and municipal agricultural plan; x) a financial plan; and xi) the key performance indicators and performance targets (Article 40). The integrated development plan thus formulated must be submitted to the county executive committee, and the committee must submit the plan to the county assembly with an opinion within 30 days (Article 41). The Urban Areas and Cities Act is thus a powerful strategic tool designed to inject order into the planning and management of urban areas. The Kiambu CIDP identifies infrastructural / road development and upgrading as a high priority investment towards unlocking the County's economic potential. Therefore, the proposed project is geared towards maintaining the Municipal status of the town and therefore the stipulations in the Act are quite important.

4.3.4 Public Private Partnership (PPP) Act, 2013

The PPP Act, 2013 is an Act of Parliament that was signed into law in February 2013. It provide for the participation of the private sector in the financing, construction, development, operation, or maintenance of infrastructure or development projects of the Government through concession or other contractual arrangements; the establishment of the institutions to regulate, monitor and supervise the implementation of project agreements on infrastructure or development projects and for connected purposes. The Act also established a PPP unit committee whose powers and functions are provided in section 7 of the Act. This project is conducted under the PPP initiative.

4.3.5 The Physical Planning Act (Cap 286)

This Act provides for the preparation and implementation of physical development plans for connected purposes. The Act (Section 36) provides for environmental impact assessments and states that 'if in connection with a development application a local authority is of the opinion that proposals for industrial location, dumping sites, sewerage treatment, quarries or any other development activity will have injurious impact on the environment, the applicant shall be required to submit together with the application an environmental impact assessment report'.

The Act promotes public participation in the preparation of plans and requires that in

preparation of plans proper consideration be given to the potential for economic and social development. Therefore, the proponent and contractors of the proposed road will need to comply with the requirements of this Act.

4.3.6 The Land Registration Act, 2012

This is an Act of Parliament that revises, consolidates and rationalizes the registration of titles to land, to give effect to the principles and objects of devolved government in land registration, and for connected purposes. This Act requires that proper marking and maintenance of boundaries. An interested person who has made an application to the Registrar for his/her boundaries to be ascertained, the Registrar shall give notice to the owners and occupiers of the land adjoining the boundaries in question of the intention to ascertain and fix the boundaries. Regarding the maintenance of boundaries, the Act requires every proprietor of land to maintain in good order the fences, hedges, stones, pillars, beacons, walls and other features that demarcate the boundaries, pursuant to the requirements of any written law.

4.3.7 The National Land Commission (NLC) Act, 2012

The constitution of Kenya 2010 provided the establishment of the National Land Commission of Kenya which is an independent government commission. The main mandate is to, manage public land on behalf of the national and county governments, initiate investigations into present or historical land injustices, recommend appropriate redress, monitor and have oversight responsibilities over land use planning throughout the country. The NLC was established under The National Land Commission Act, 2012 and its mandate is drawn from the National Land Policy of 2009, Constitution of Kenya 2010, National Land Commission Act, 2012, the Land Act 2012 and the Land Registration Act of 2012. Under the National Land Commission Act, the Commission shall among other duties monitor the registration of all rights and interests in land and ensure that public land and land under the management of designated state agencies are sustainably managed for their intended purpose and for future generations. The NLC is also required to manage and administer all unregistered trust land and unregistered community land on behalf of the county government and develop and encourage alternative dispute resolution mechanisms in land dispute handling and management. The Commission is also required in consultation and cooperation with the national and county governments, to establish county land management boards for the purposes of managing public land.

4.3.8 Occupational Health and Safety Act (OSHA), 2007

OSHA, 2007 provides for the safety, health and welfare of workers and all persons lawfully present at workplace, as well as the establishment of the National Council for Occupational Safety and Health and for connected purposes. Section 19 of the Act provides that an occupier of any premises likely to emit poisonous, harmful, injurious or offensive substances, into the atmosphere shall use the best practicable means to prevent such emissions into the atmosphere and render harmless and inoffensive the substances which may be emitted. Section 16 provides that no person shall engage in any improper activity or behavior at the workplace, which might create or constitute a hazard to that person or any other person. The contractors of the proposed road will need to fully comply with the requirements of the Occupational Safety and Health Act 2007. Therefore, the project will require a significant amount of manpower during construction resulting in quite a number of people being employed either permanently or as casual workers. The security and the welfare of the workers on site and other people near the project site from related risks is thus of essence and will be protected under this Act.

Other relevant stipulations in this Act include:

Sub-sections	Details
Subsection 17: Drainage of floors.	Where any process is carried on which renders the floor liable to be wet to such an extent that the wet is capable of being removed by drainage, effective means shall be provided and maintained for draining off the wet.
Subsection 18: Sanitary conveniences.	Enough and suitable sanitary conveniences for persons employed in the workplaces shall be provided, maintained and kept clean, and effective provision shall be made for lighting the conveniences and where persons of both sexes are, such conveniences shall afford proper separate accommodation for persons of each sex
Subsection 21: Prime movers	Every flywheel directly connected to any prime mover and every moving part of any prime mover, shall be securely fenced, whether the flywheel or prime mover is to be situated in an engine –house or not. Head and tailrace of every water wheel and of every water turbine shall be securely fenced. Every part of electric generators, motors and rotary converters and every flywheel directly connected thereto shall be securely fenced unless it is in such a position or of such construction as to be safe to every person employed or working in the premises as it would be if securely fenced.
Subsection 22: Transmission Machinery	This sub-section requires that; (1) Every part of transmission machinery shall be securely fenced unless it is in such a position or of such construction as to be safe to every person employed or working in the premises, as it would be if securely fenced. Efficient devices or appliances shall be provided and maintained in every room or place where work is carried on by which the power can promptly be cut-off from transmission machinery in that room or place. (3) Every machine intended to be driven by

	mechanical power shall be provided with an efficient starting and stopping appliance, the control of which shall be in such a position as to be readily and conveniently operated by the person operating the machine.
Subsection 25: Construction and maintenance of fencing	All fencing or other safeguards provided in pursuance of the a foregoing provisions shall be of substantial construction, constantly maintained, and kept in position while the parts required to be fenced or safe guarded are in motion or in use except when any such parts are necessarily exposed for examination and for any lubrication or adjustments shown by such examination to be immediately necessary.
Subsection 13: Cleanliness	Every workplace shall be kept in a clean state and free from effluent arising from any drain, sanitary convenience or nuisance.
Subsection 14: Overcrowding	A workplace shall not while work is carried on be so overcrowded as to cause risk of injury to the health of the persons employed therein. Standard cubic space allowed for every person in a workroom should not be less than three hundred and fifty cubic feet.
Section 51: Air pollution	Preventive measures shall be put in place during operation of the project to prevent fumes and exhaust gases from entering to the atmosphere.

4.3.9 The Public Health Act (Chapter 242) of Revised Edition 2012

This is an Act of Parliament that provides for securing and maintaining good health of citizens. Part III and IV of the Act focuses on notification, prevention and suppression of infectious diseases, including inspection, disinfection and provision of medical aid to affected parties in case of outbreaks of infectious diseases. Part IX section 115 of the Act states that no person/institution shall cause nuisance or condition liable to be injurious or dangerous to human health. Section 116 requires Local Authorities to take all lawful, necessary and reasonably practicable measures to maintain their jurisdiction clean and sanitary to prevent occurrence of nuisance or condition liable for injurious or dangerous to human health. Sanitation, housing, disease outbreaks and communal resource sharing are obvious issues in construction projects. The Public Health Act provides the necessary legal guidelines regulating measures aimed at effective control and management of the said issues.

The improvement of the proposed road has potential pollution risks related to water and air. Therefore, the contractor will need to ensure that air and water pollution is controlled and does not affect people living along the road and even workers residing in construction site established at the project area. The contractor shall ensure that the food that is provided to the workers during construction of the Project meets the safety requirements as stipulated in the Act.

4.3.10 HIV / AIDS Act, 2006

This Act, Section 3 stated the purpose of the legislation including public awareness and rights to people living with HIV/AIDS. It also indicated that Public awareness shall be achieved through education, public campaigns even at workplaces. HIV/AIDS Act, 2006 provide guidelines unto which the project shall follow in educating workers and staff and providing of incentives to combat HIV/AIDs. Since construction activities influences social behavior in a manner that may perpetuate the spread of HIV/AIDs, therefore, a budgetary allocation should be made to complement sensitization and management efforts of agencies dealing with HIV/AIDs issues in the project area.

4.3.11 The Penal Code (Cap. 63)

The Penal Code (Cap. 63) chapter on "Offences against Health and Conveniences" strictly prohibits the release of foul air into the environment, which affects the health of other persons. Any person who voluntarily violates the atmosphere at any place, to make it noxious to health of persons in general dwelling or carrying out business in the neighborhood or passing along public ways is guilty of misdemeanor and shall be subjected to imprisonment not exceeding two years with no option of fine. Under this code, any person who for the purpose of trade or otherwise makes loud noise or offensive awful smell in such places and circumstances as to annoy any considerable number of persons in the exercise of their rights, commits an offence, and is liable to be punished for a common nuisance, i.e. imprisonment not exceeding one year with no option of fine. The contractor of the proposed road will therefore need to ensure that all emissions are controlled during the construction phase of the project to avoid interference on health of the local communities and the workers.

4.3.12 Work Injury Compensation Benefit Act (WICBA) 2007

When the workers experience works related injuries and diseases contacted in the course of employment, the WICBA, 2007 provides guidelines on how they should be compensated. According to the WICBA, 2007, all employees to be provided with compulsory insurance. It further indicates that an employee is any worker on contract of service with employer. Therefore, it will be important for the Contractor of the proposed project to ensure that all workers contracted during the project implementation phase are provided with appropriate insurance covers so that they can be compensated in case they get injured while working.

4.3.13 The Employment At, 2007

The fundamental rights of employees including the basic conditions of employment of workers are well defined in the Employment Act 2007. The Act also regulates employment of children. The following are specific things that the contractor needs to do on project site;

- To employ casual labourers probably from the community in the project area.
- To Observe the basic conditions of employees to avoid unnecessary conflicts during the construction works.
- To pay the entire amount of the wages earned by or payable to the workers and this should be done at the end of a working day at or near the place of work.
- To ensure that all statutory deductions are submitted without delay to appropriate government agencies e.g. Kenya Revenue Authority, NSSF, NHIF, among others.

4.3.14 The Traffic Act Cap 403 of 2013

This Act reserves the use of the road corridor for road facilities only. The Act clear spell out that the vegetation grown to protect the road edges should not cause problems during maintenance. Further state that, encroachment along the road corridor will have to be checked especially during the operational phase of the project. The Act also spells out conditions for use of roads by motorists, among others.

4.3.15 The Kenya Roads Board Act, 1999

This is the one of the legal instruments that governs management of road network in the country. The Act is very vital as it offers a platform for consultation and cooperation with the road's authorities.

4.3.16 Persons with Disability Act, Revised Edition 2012 (2003) Chapter 133

This Act provide for the rights and rehabilitation of persons with disabilities; to achieve equalization of opportunities for persons with disabilities; to establish the National Council for Persons with Disabilities; and for connected purposes. It protects the rights of people with disabilities by ensuring they are not marginalized and that they enjoy all the necessities of life without discrimination.

The act guarantees that;

- No person shall deny a person with a disability access to opportunities for suitable employment.

- A qualified employee with a disability shall be subject to the same terms and conditions of employment and the same compensation, privileges, benefits, fringe benefits, incentives or allowances as qualified able-bodied employees.
- An employee with a disability shall be entitled to exemption from tax on all income accruing from his employment.

A person with disability is entitled to exemptions which apply with respect to exemptions and deductions as described in Schedule 42 subsection (2) of the act, among other provisions within this act that should be complied with all parties involved.

4.3.17 The National Gender and Equality Commission Act, 2011

NGEC derives its mandate from Articles 27, 43, and Chapter Fifteen of the Constitution; and section 8 of NGEC Act (Cap. 15) of 2011, with the objectives of promoting gender equality and freedom from discrimination. Gender mainstreaming in road projects ensures that the concerns of women and men form an integral dimension of the project design, implementation, operation and the monitoring and evaluation ensures that women and men benefit equally, and that inequality is not perpetuated.

4.3.18 The Sexual Offences Act, 2006 (amendment 2012)

This is an Act of Parliament that make provision about sexual offences, their definition, prevention and the protection of all persons from harm from unlawful sexual acts, and for connected purposes. Optimum standard work ethic is recommended to ensure persons from both genders are not subjected to sexual offences. Conducive working environment should prevail in workplace in the project, to be enhanced through implementation of a Sexual Misconduct Policy.

4.3.19 Security Laws (Amendment) Act, 2014

This act entails a legal framework and jurisdiction on security matters. It is a constitutional entitlement to live and feel secure from agents that may compromise ones' life and safety. The contractor shall ensure that all workers are safe and secure. It is recommended that the government also takes keen in providing adequate support to enhance the security of persons involved in this project and the community at large.

4.3.20 The Factory and Other Places of Work (Medical Examination) Rules, 2005

This supplementary legislation covers workers who are exposed to specific occupational hazards for the purpose of preventing or controlling occurrence of occupational diseases. In the

first schedule of the legislation, works involving risks to healthcare are listed and recommended examinations and their respective intervals are indicated for adherence by employers. Sample requisite certifications are also provided for employers.

4.3.21 The Factory and Other Places of Work (Noise Prevention and Control) Rules, 2005

The Permissible levels of noise in a workplace are provided in section 1-4 of the legislation. While sections 5 and 6 elaborate on the recommended noise prevention program as well as measurement and records to be undertaken by the contracted company during construction and even operational phases of the project.

4.3.22 Land Planning Act Cap 303

This Act make provision for planning the use and development of land. Sub-section 9 of the subsidiary legislation (the development and use of land Regulations 1961) under which it requires that before the local authority submits any plans to the minister for approval, steps should be taken as may be necessary to acquire the owners of any land affected by such plans. Therefore, Particulars of the comments and objections made by the landowners should be submitted, which intends to reduce conflict of interest with other socio-economic activities. This Act provides the requisite redress mechanisms.

4.3.23 The Lands Act No. 6 of 2012

This is an Act of Parliament that give effect to Article 68 of the Constitution, to revise, consolidate and rationalize land laws; to provide for the sustainable administration and management of land and land-based resources, and for connected purposes. The Act applies to all land declared as:

- Public land under Article 62 of the Constitution;
- Private land under Article 64 of the Constitution; and
- Community land under Article 63 of the Constitution and any other written law relating to community land.

The Land Act guarantees security of tenure for land under (a) freehold; (b) leasehold; (c) such forms of partial interest as may be defined under the Act and other law, including but not limited to easements; and (d) customary land rights, where consistent with the Constitution and guarantees equal recognition and enforcement of land rights arising under all tenure systems and non-discrimination in ownership of, and access to land under all tenure systems. Under the

Lands Act 2012, The Way leaves Act, Cap 292 and The Land Acquisition Act, Cap. 295 have been revoked but Sections 8 and 9 allow for Compulsory Acquisition as an option in acquiring land for public utility. This Act gives the necessary legal and regulatory framework on land acquisition, ownership and tenure issues and as such important for this project.

4.4 International Policy Framework

The republic of Kenya is a party and signatory to international conventions, treaties and protocols relating to the environment which aims at achieving sustainable development. There are 216 treaties, 29 of which are of interest to Kenya (UNEP 1999). Kenya is a signatory to 16 such agreements, which range from use of oil, protection of natural resources and protection of the atmosphere. The agreements are both regional and international and became legally binding on Kenya upon ratification thereof by the rightfully designated Kenyan Authority. The agreements of interest to Kenya can be categorized as those for protecting natural resources, atmosphere and social wellbeing of man.

4.5 World Bank Policies

4.5.1 Operational Policy (OP) 4.01: Environmental Assessment, 2001

World Bank have been in forefront in matters to do with environment and social safeguard. The bank use, Environmental Assessment to identify, avoid, and mitigate the potential negative environmental associated with Bank lending operations. The main purpose of this is to improve decision making, to ensure that project options under consideration are sound and sustainable and that potentially affected people have been properly consulted.

World Bank has already developed environmental assessment procedures, which apply to its lending activities and to the projects undertaken by borrowing countries, in order to ensure that development projects are sustainable and environmentally sound. Although its operational policies and requirements vary in certain respects, the World Bank follows a relatively standard procedure for the preparation and approval of an environmental assessment study. These include:

- Identifies and assesses potential risks and benefits based on proposed activities, relevant site features, consideration of natural/human environment, social and transboundary issues;
- Compares environmental pros and cons of feasible alternatives;
- Recommends measures to eliminate, offset, or reduce adverse environmental impacts to acceptable levels (sitting, design, technology offsets);

- Proposes monitoring indicators to implement mitigation measures; and
- Describes institutional framework for environmental management and proposes relevant capacity building needs.

4.5.2 Operational Policy 4.12: Involuntary Resettlement

The World Bank policy on involuntary resettlement emphasizes that any development project should avoid or minimize involuntary resettlement and where this is not feasible, it should compensate for lost assets at full replacement cost and assist the displaced persons in improving or at least restoring their livelihoods and standards of living in real terms relative to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher. The proposed project involves improving an existing road and therefore does not require any resettlement of people.

4.5.3 Operational Policy 4.04: Natural Habitats

This policy aims at promoting environmentally sustainable development by supporting the protection, conservation, maintenance and rehabilitation of natural habitats and their functions. The policy seeks to ensure that World Bank-supported infrastructure and other development projects consider the conservation of biodiversity, as well as the numerous environmental services and products that natural habitats provide to human society. The policy strictly limits the circumstances under which any Bank-supported project can damage natural habitats (land and water area where most of the native plant and animal species are still present). This project has no significant interaction with natural habitats. The project doesn't fall within areas considered as natural habitats and therefore this policy is not activated.

4.5.4 Operational Policy 4.11: Physical Cultural Resources

The purpose of this policy is to preserve physical cultural resources including the movable or immovable (above or below ground, or under water) objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance including sites and unique natural values. These physical cultural resources are important as sources of valuable scientific and historical information, as assets for economic and social development, and as integral parts of a people's cultural identity and practices. The main purpose of this policy is to avoid or mitigate adverse impacts on physical cultural resources for development projects. The proposed project does not fall within any cultural sites or resources that are likely to be interfered with during the construction process and therefore this policy will not be triggered.

4.5.5 Operational Policy 4.36: Forests protection

This policy aims at achieving the potential of forests to reduce poverty in sustainable manner, integrate forests effectively into sustainable economic development and protect the vital local and global environmental services and values of forests. The main principles of this policy is to screen as early as possible for potential impacts on forest health and quality and on the rights and welfare of the people who depend on them. The proposed project area is dominated with socio-economic activities and therefore no forest resources will be affected or interfered with.

4.5.5 Operational Policy 4.10: Indigenous Peoples

This policy contributes to the Bank's mission of poverty and sustainable development by ensuring that the development process fully respects the dignity, human rights, economies and cultures of indigenous peoples. For all projects that are proposed for Bank financing and affect indigenous peoples, the Bank requires the borrower to engage in a process of free, prior, and informed consultation. The project area has no indigenous peoples identified.

4.6 Institutional Framework

In Kenya, there are a number of institutions that are important in matters related to environmental management. The following are sections that are relevant to the proposed project.

4.6.1 County Government of Kiambu

County Government of Kiambu is the principle lead agency on matters pertaining to planning within the proposed area. The County Governments' Act (Cap 265) clearly defines the functions of this key institution. Section 166 empowers the count to be responsible for local planning and development control in the region. The Physical Planning Act (Cap 286) also confers upon local authorities the powers to control development in their areas of legal jurisdiction.

The County Environmental Committees contribute to decentralization of activities undertaken by National Environment Management Authority (NEMA). This has enabled local communities to have greater access to environmental management information. It has also enabled the County to conduct quick site visits and review of reports of proposed projects. Since the proposed project is within Kiambu County, the review of the report will be done at the county level for the purpose of issuance of EIA license.

4.6.2 Ministry of Environment and Forestry

This ministry is supposed to monitor, protect, conserve and manage environment and natural resources in Kenya. This shall be achieved through sustainable exploitation of natural resources for socio-economic development geared towards eradication of poverty, improving living standards and maintaining a clean environment for present and future generations. The proposed project will promote the same.

4.6.3 The National Environment Management Authority (NEMA)

NEMA is established under the Environmental Management and Co-ordination Act No. 8 of 1999 (EMCA) as the principal instrument of Government for the implementation of all policies relating to environment. The authority also exercises general supervision and, co-ordination of all matters relating to the environment. NEMA reviews all ESIA project and study reports for the proposed projects, visits the project sites to verify information provided in the report. They then issue ESIA licenses if it considers that all the issues relevant to proposed projects have been identified and mitigation measures to manage them have been proposed.

4.6.4 The National Environment Council

NEC is established by Section 4(1) of the Environmental Management and Coordination Act no. 8 of 1999. NEC is mandated with the following responsibilities;

i) Policy formulation and direction for the purposes of EMCA

- Set national goals and objectives and determine policies and priorities for the protection of the environment; and
- Promote cooperation among public departments, local authorities, private sector, non-governmental organizations and such other organizations engaged in environmental protection programmes.

4.6.5 The Standards and Enforcement Review Committee (SERC)

SERC is mandated to advice NEMA on the cancellation, revocation and suspension of any EIA license for a period not exceeding 24 months where the licensee has contravened the provisions of the license, e.g. violation of conditions attached to the license. (Section 67 (1), EMCA). The committee through the compliance and enforcement department of NEMA monitors the compliance level of various projects to ensure pollution control standards are implemented. The committee also follows up on pollution complaints reported by the public.

CHAPTER FIVE: PUBLIC CONSULTATION AND PARTICIPATION

5.1 Introduction

Public Participation is a policy requirement by the Government of Kenya and a mandatory procedure as stipulated on the Legal Notice 101 of EMCA 1999 (revised 2015) (The Environmental Regulations, 2003). Stakeholder engagement and public participation process particularly with local resident affected by the proposed development, is frequently interpreted as an integral aspect of successful decision making in the ESIA processes. The essence of public consultation is to ensure that all stakeholder interests are identified and incorporated in project development, implementation and operation. Stakeholder consultations should take place alongside project design and implementation to ensure that the project puts in place measures to cater for stakeholder concerns in all project phases.

5.2 Objectives of the Public Consultation

This section is based upon the principle that local communities have a right to participate in making decisions on matters that have significant effect on the environment. The information obtained from both field visits and public consultations formed the basis for incorporation of public views into this report. The broad objectives of the consultation and public participation are to:

- Identify the social, bio-physical, economic and environmental concerns as perceived by the public.
- Identify the positive and negative impacts that the project should consider.
- Obtain local input into the design of the project, alternatives and mitigation measures of negative impacts of any nature.
- Disseminate and inform the stakeholders about the project with special reference to its key components and location.
- Create awareness among the public on the need for the ESIA for the proposed project.
- Gather comments, suggestions and concerns of the interested and affected parties.
- Incorporate the information collected in the ESIA study.

Further, the process enabled the establishment of a communication channel between the general public and the team of consultants, the project proponents and the Government; and the concerns of the stakeholders to be known to the decision-making bodies at an early phase of project development.

5.2.1 Outcome of the Public Consultation Process

Some of the issues raised during the public consultation process include:

i) How long the project would take to be completed.

ii) If the road reconstruction and upgrade will include drainage and NMT facilities.

iii) If there would be diversions or alternatives to access the project area during the construction.

iv) If the road upgrade would cause resettlement of the people.

v) Stakeholders were optimistic that the project would create numerous employment opportunities for both the skilled and the unskilled from the construction phase to the operational phase.

The proposed project doesn't involve any relocation or displacement of the people and if any cases of encroachment are identified, the County Government of Kiambu will use the available legal channels to address them. The study observes that the stakeholders are in support of the project. The questionnaires and interview schedules used during the public consultation process are attached in the annex section of this report.

5.3 Methodology

Various methods of consultation according to target audience were used. This include; interviews with key people, questionnaires, direct interviews and public meetings/fora. The preparatory meeting was held by ESIA team to define and plan how the study will be carried out. Further, a site reconnaissance was held to familiarizes with and appreciate the proposed project area. The following are the detailed public consultation methodology used:

5.3.1 Site Reconnaissance

A Site reconnaissance visit was done by the environmentalist (ESIA/EA lead expert), engineer, sociologist, surveyor, municipal manager and the area chief on 8th October, 2019 so as to make preliminary decisions required as to whether or not to proceed with the proposed project to the next stage of investigations**.**

5.3.2 Direct interview

This was used to get responses from the proponent, opinion leaders within the community, local politicians, county and national government officers representing various departments e.g. land, physical planning, water, environment, gender, culture and social services among

others. Their comments were sought through engaging them in discussions about the proposed project and the impacts likely to occur as a result of its implementation.

5.3.3 Administration of Questionnaires

Questionnaires were developed and administered randomly to avoid bias to affected parties and local people residing along the proposed road project, (filled questionnaires attached)

Plate 1: Engaging people living along the proposed project area

5.3.4 Social economic survey

Social-economic information of the proposed project area and the affected persons was carried out using the questionnaires. This was conducted by visiting each of the randomly sampled stakeholders.

5.3.5 Public meeting/fora

Public participation Meeting/fora was held on 15th April 2019, At Limuru Subcounty grounds at 10:00 a.m. (attached minutes, Photos and attendance sheet. Further, Limuru municipal board and the engineer held a meeting was held on 25th April 2019 to review the projects that were proposed during the Public participation forum to prioritize on the projects to be done in 2019/2020 (minutes attached).

5.4 Positive and Negative Comments made by the Stakeholders

The following section provides details on both positive and negative impacts of the proposed project as expressed by the stakeholders who were interviewed:

Environmental Impacts			
Phase	**Positive**	**Negative**	**Mitigation measures**
Construction	□ Employment creation	□ Dust generation □ Implementation may cause devegetation □ Likelihood of water pollution □ Interference with water catchments □ There will be soil erosion □ Dumping sites for waste soil are unsightly □ There will be noise generation	□ Sprinkling water when dusty conditions set in □ Conducting a revegetation activity to replace hedges and may trees □ Construction of gabions on eroded areas □ Designate waste disposal sites that are licensed □ Diversion roads should be properly sited □ Drilling of boreholes to augment available river supply □ The contractor should provide seedlings for planting to the community for free
Operation	□ There will be reduced generation of dust unlike the current situation □ Waste generation from road repair activities will be minimized i.e. soils	□ Oil spills from vehicles that are not well maintained □ Air pollution from exhaust fumes □ Noise pollution from vehicles □ It may cause water scarcity in the areas where the roads pass through. □ It may cause water borne diseases due to pollution	□ Drainage channels should not be directed to the rivers □ Reuse of excavated soils □ Compensation to the affected people if any

Socio-Economic Impacts			
Phase	**Positive**	**Negative**	**Mitigation measures**
Construction	□ Employment creation □ It helps in increasing market prices for agricultural goods □ There will be increase in business rental houses which will spur development □ Secondary businesses like food vendors will benefit	□ There might be increase in social vices due to new workers coming to the area with increased disposable income □ It may lead to spread of diseases i.e. HIV/AID'S □ There might be displacement of people □ It may cause destruction of property □ It may lead to drug abuse i.e. bhang by workers □ Social conflicts may arise due to skewed employment □ It may lead to destruction of cultural sites □ It may cause school children to drop out in search of easy road works jobs	□ Youths should be employed in the project □ Government intervention when conflicts arise □ Contractor should set up a community liaison office in collaboration with the local Chief
Operation	□ There will be ease of access to transport services □ Improved communication between towns □ There will be expansion of market for agricultural goods □ Transport costs will be lowered □ Land values will increase □ Pregnant women will access maternity services with ease as well as other community members' health services □ Security will improve	□ There will be increase in road accidents i.e. from over speeding □ There will be increased competition for local resources from outsiders □ There will be population increase in local towns which will constrain resources i.e. water	□ There should be construction of road bumps on risky places □ Installation of speed bumps on risky places □ Feeder roads should be constructed to ease transport on the new road □ Awareness creation initiatives for community members to reduce conflicts □ Pedestrian crossings should be marked

CHAPTER SIX: POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS

6.1 Introduction

The proposed project will have environmental and social impacts in all phases. This chapter summarizes the likely potential impact both positive and negative at different project cycle stages (construction, operation and decommissioning) and identify potential mitigation measures.

6.2 Negative Impacts during the Construction Phase

The likely negative environmental and social impacts during the construction phase of the proposed project are:

a) Air pollution as result of dust and exhaust emissions

The activities such as excavations and transportation of construction materials will result in the emissions of large amounts of dust within the project site and surrounding areas. During this phase, the contractor will carry out proper and efficient measures wherever and as often as necessary to reduce the dust nuisance resulting from his operations. This will be done through sprinkling water on daily basis on the areas that transport trucks use and excavated areas. The contractor will also provide dust masks to all workers in the project site and ensure more protective gears are available just in case there are visitors.

b) Noise and Vibrations

Noise and vibration will be generated during excavation and construction from heavy machinery in the project area. However, the proponent is expected to take appropriate steps to minimize noise pollution through provision of appropriate personal protective equipment (PPE) to construction workers and visitors, minimizing the frequency of transport of construction materials and ensuring that all construction machinery is well maintained. All work will be carried out with reasonable noise. This effect will also be localized and temporary in duration.

c) Loss of Vegetation Cover

There will be clearance of vegetation along the proposed road. Since the proposed project is an existing road, then there will be minimal or no clearance of vegetation. The proponent is going to ensure that any bare land along the road is covered with vegetation e.g. flowers, grass and trees.

d) Possible water Pollution

There will be increase generation of wastewaters during the construction phase of the project. This will be contributed by oil spillage, disposal practices of used oil, oil filters due to regular maintenance of heavy trucks and equipment during the construction of the project. Therefore, the contractor needs to carefully handle this type of waste and ensure that the waste is well disposed to avoid any harm to the environment and people residing within the project area.

e) Soil Erosion

Excavation works during the road construction may lead to increased soil erosion at the project site and release of sediments into the drainage systems. Also, where the surface runoff is channeled directly to bare steep slopes with loose soil, it can lead to soil erosion problem. Sediment and erosion from construction activities and storm water runoff may also increase turbidity of surface waters. Uncontrolled soil erosion can have adverse effects on any local water bodies. Therefore, these impacts will be moderated in view of the gentle nature of the landscape through which the road will pass. A well-designed drainage will be constructed to accommodate all the storm water and bare land covered with vegetation e.g. by planting of grass.

f) Extraction and Use of Construction Materials

The project will consume materials such as sand, rough stone, ballast and bitumen. These materials will be obtained from quarries and bitumen dealers respectively. The availability and sustainability of such materials or resources will thus be negatively affected, as they are not renewable in the short term. The sites from which these materials are extracted may be significantly affected in various ways including dereliction, landscape changes, destruction of vegetation, poor visual quality and opening of depressions on the surface leading to human health impacts. These impacts shall be addressed as recommended in ESMP.

g) Solid Waste Generation

Solid waste will be generated at the site during construction of the road and related infrastructure. Such waste will consist of excavated materials, vegetation waste from the clearance of road reserves, sludge from storm-water drainage system, metal drums, rejected materials, surplus materials, surplus spoils, empty cartons, waste oil, and waste bitumen, among others. This may be emphasized by the fact that some of the waste materials contain hazardous substances such as waste oil, solvents, while some of the waste materials including metal cuttings and plastic containers are not biodegradable and can have long-term and cumulative effects on the environment. Stored materials may also generate waste in form of oil spills from

storage tanks, filling platforms and transfer tanks. Therefore, the proponent would need to ensure that all solid wastes are collected and disposed appropriately in order to promote a clean and healthy environment along the project area, a storm-water management plan that has been provided in this report should be adhered to. The contractor shall comply with recommendations provided in the ESMP.

h) Increased Water Use

The construction activities will require large quantities of water mainly be used for concrete mixing, dust suppression and sanitary and washing purposes. Excessive water use may negatively impact on the water source and its sustainability.

i) Generation of storm water and impact on drainage

The proposed road project will increase the amount of impermeable surface area that will end up increasing the rate of surface water runoff. The increased runoff could overwhelm local drainage system with potential for flooding, damage to property and crops. Flooding downstream can also become a health hazard by providing breeding ground for mosquitos. Therefore, good drainage design and construction in the development of roads is critical to the success of road construction. Also, storm water generated on the road may be contaminated with oil and grease, metals (e.g. lead, zinc, copper, cadmium, chromium, and nickel), particulate matter and other pollutants released by vehicles on the highway. Storm water may also contain nutrients and herbicides used for management of vegetation in the rights-of-way. This impact will be moderate to avoid any damage or harm within and around the project.

j) Road Safety

It is envisaged that with the improvement of the project road, the traffic volumes and speeds will increase, and composition will change. This will cause increased frequency and severity of accidents. In order to reduce accidents, appropriate road signs and road markings to be put in locations where standards are compromised to warn drivers of safety hazards especially while approaching bends, junctions, schools and churches.

6.3 Negative Socio- Economic Impacts during Construction Phase

i) Community Health and Safety

The proposed project will have impact on the community health and safety. This include dust, noise, and vibration from construction vehicles, and communicable disease associated with the influx of temporary construction labor. Key issues associated with this road project will include pedestrian and traffic safety, and emergency preparedness.

Pedestrians, motor cyclists and children are at greatest risk of serious injury from collisions with moving vehicles. Some of the factors that contribute to traffic accidents include; poor driving skills, vehicle that not road worth, poor road design, among other issues. The proponent shall ensure the right road designs are developed, road signs are well place, quality vehicles are in place and skilled drives are recruited.

ii) Disruption of Businesses

There will be temporary economic disruption to the residents during construction phase. Some of them own small-scale shops while others are small scale farmers. They will not be displaced but their customers may reduce in numbers due to accessibility issues. To address this, the contractor will provide alternative access route and source of income i.e. employment.

iii) Temporary Employment issues

The road improvement project will require large numbers of casual labour. However, if the locals feel that the contractor has not considered them for these jobs, they might antagonize the project leading to delays in completion.

iv) Occupational Health Safety Hazards

The construction and operation phase of the proposed road will lead to various OHS hazards. During road construction, operations, and maintenance activities workers will be exposed to chemical hazards associated with exposures to road construction materials, dust during construction; exhaust emissions from heavy equipment and motor vehicles. On the other hand, workers may also be exposed to physical hazard from operating machinery and moving vehicles, exposure to weather elements, noise, work in confined spaces, trenching, contact with overhead power lines, falls from machinery or structures, and risk of falling objects.

v) Insecurity

There were concerns that due to an influx of many people as construction workers at the project, insecurity is likely to increase. This is a low risk which shall be addressed by the security agencies both from county and national government. The contractor will also engage a security firm to take care of the machinery at any given time.

vi) Interference to road use activities due to diversions and closures

During construction, there will be instances where diversions/ closures/ barriers will have to be put in place to allow construction work to continue with minimum interference by other road users**.** The closures/ barricades may obstruct access routes to people's homes, businesses etc.

The contractor will ensure prompt road signs with the right information is put in place

appropriately. Alternative road will be provided to ensure residents access their homes, businesses, schools and any other social amenity.

vii) Spread HIV and AIDS

There is risk of spread of sexually transmitted diseases e.g. HIV/AIDS to workers and other persons during project implementation. This is as result of increased incomes of workers as well as some of the contractor workers being away from their homes. The project proponent will need to work jointly with appropriate county and national government health agencies in order to come with a comprehensive STD, HIV and AIDs control programme during the construction and operational phases of the project.

6.4 Positive Impacts during the Construction Phase

a) Creation of Employment Opportunities

The road project is labour intensive especially during the construction phase. The project will provide employment opportunity to both skilled and unskilled people. This is a significant impact given that the rate of unemployment in Limuru municipality and the surrounding areas is quite high. These jobs are expected to improve the economy of the area and improve the livelihoods of the local people.

b) Market Opportunities in Procurement and Supply of Materials

The proposed road project requires a lot of materials ranging from cement, quarry chips, sand etc. The contractor will be encouraged to purchase most of these materials from the local suppliers and only when necessary without the project area. This will promote the economy of the project area.

c) Improved Security

The proposed road project will lead to an improvement of security. There will good security mechanisms employed during construction. The street lighting put along the proposed road will also improve visibility at night. Road patrols will also be conducted frequently thereby improving the security of the area.

d) Increased Business Opportunities

The large number of project workers required will provide ready market for various goods and services, leading to several business opportunities for small-scale traders such as food vendors around the construction site.

e) Transfer of Skills

This road project will employ many people from within and without the area to provide different services. As such, the local people will learn new skills from the civil engineers, welders, masons and other employees that come from outside.

6.5 Negative Impacts during the Operational Phase

i) Increased Storm Water Flow

The paved areas will likely lead to an increase in volume and velocity of storm water or run-off flowing across the area covered by the roads. This will lead to increased amounts of storm water entering the drainage systems, resulting in overflow and damage to such systems in addition to increased erosion or water logging in the neighboring areas if not adequately mitigated.

ii) Generation of Solid Waste

Operation and maintenance activities are expected to generate waste from road litter, illegally dumped waste, vegetation waste from the clearance of road reserves and sediment and sludge from storm water drainage system. The proponent would need to ensure that all solid wastes are collected and disposed appropriately in order to promote a clean and healthy environment along the road**.**

iii) Possible Risks of Road Accidents

It is expected that vehicles using this road will tend to move at high speed due to improved road from gravel to bituminous standards. Present of pedestrians, children and other road users within the project area may lead to increased accidents. Road bumps, rumble strips and signage need to be provided throughout the road length and especially near public institutions.

iv) Increased Population and Congestion

The upgrade of the road to bituminous standard is likely to attract more people into the area either as tenants or business people. This is likely to cause congestion and increase demand for resources such as water, sewerage and drainage facilities.

v) Noise Pollution and Excessive Vibrations

Noise will be experienced during this operation stage of the project due to high speed and raving of motor vehicles along the roads.

vi) Storm Water and Impact on Drainage

Tarmacked road increases the amount of impermeable surface area, which increases the rate of surface water runoff flow. The project will also impact on the drainage during the operational phase of the road. There will be increased generation of surface runoff on the road. The increased

or excess runoff could overwhelm local drainage system including streams with potential for increasing downstream flooding, damage to properties. Good drainage design and construction in the development of roads is critical to the success of road construction. The storm-water management plan specified in this report should be observed.

6.6 Positive Impacts during Operational Phase

a. Efficient and reliable Means of Transport

During the data field visit, most stakeholders were positive that the proposed road project will provide a faster and cheaper means of transport within and from Limuru town to the neighbouring town center and villages. During the rainy season the road is rendered impassable due to floods hence improving it up to bituminous standards will address this problem.

b. Reduction in Dust Emissions

By improving the proposed gravel road to bituminous standards will help reduce dust emissions especially during the dry weather conditions. This will reduce dust related health issues.

c. Enhanced Socio-Economy

Stakeholders who were interviewed acknowledged that the proposed road will contribute immensely to the development of business at the Limuru town and nearby trading centers around the project area. The implementation of the project will result in the improvements of the living conditions of population living within the project area thus contributing to poverty reduction. The land value within the project area will appreciate due to improve infrastructure.

d. Creation of Employment Opportunities

During the operation phase, employment opportunities will emerge. Some people will be employed for the normal and continuous road maintenance whereas others will establish new businesses as well as expand the existing one within the project area.

e. Increased Security

Street lighting powered by solar panel will be put along the roads. This will enhance the security in the project area.

f. Improved Road Safety

By provision of Non-Motorized Transport (NMT) Facilities, well-marked road with right signage will make the road user friendly to both human and vehicles.

6.7 Negative Impacts during Decommissioning Phase

i. Noise and vibration

Noise and vibration will be experienced from vehicles and machines that will be used during the decommissioning phase.

ii. Solid waste generation

Waste generated during this phase includes materials used during construction including concrete, tarmac, metal, KERBS, bitumen, stones and ballast. Decommissioning may also involve demolition works which generates large amounts of solid waste.

iii. Reduced or loss of positive impacts to the project

Most of the people who were employer during the construction and operation stage will lose employment during decommissioning stage. Other positive impacts that will be accrued during the operation phase like fast movement of goods and services, cheaper transportation etc. will also be reduced.

iv. Dust emission

Dust will be emitted by moving vehicles and from the decommissioning works through digging and excavating of the tarmac surface.

6.8 Positive Impacts during Decommissioning Phase

i) Creation of Temporary Employment

The employment opportunities that will be created during decommissioning will benefit the local people.

CHAPTER SEVEN: MITIGATION MEASURES

7.1 Introduction

The improvement of the proposed roads project will have various impacts on biophysical environmental, health and safety of employees and members of public, and socio-economic well-being of the local communities and households. It is usually impossible to mitigate all the expected negative environmental and social impacts. Therefore, this section highlights the requisite mitigation measures that should be adopted to prevent or minimize significant negative environmental, health and safety impacts associated with the activities of the project during its construction, operation and decommissioning phases. It further ensures that, positive benefits of the project are maximized.

The mitigation measures will be presented in the Environmental and Social Management Plan (ESMP), that is intended to assist the proponent in the management of the adverse environmental impacts associated with the life cycle of the project.

7.2 Mitigation Measures for Impacts during Construction Phase

Mitigating air pollution as result of dust and exhaust emissions

- Sprinkling of water on dry and dusty surfaces regularly including the access roads and diversion routes.
- Add suitable soil stabilizers on access roads or pave access roads to control dust.
- Collecting storm water and use to de-dust the construction site and the all-weather access roads if volumes stored are enough.
- Comply with personal protective equipment requirement for dusty areas such as dust masks and protective glasses.
- Re-vegetating exposed areas during the operation phase of the project.
- Slowing the speed of traffic by using bumps and/ or clearly marked road signs may contribute to reducing dust levels. Also enforce onsite speed limit regulations.
- Dust control mechanisms at the gravel borrow sites through extraction in wet conditions and transport in covered trucks.
- Covering heaps and berms of soil.
- Adhere to the Environmental Management and Co-ordination (Air Quality) Regulations, 2014.

- Procure machines, equipment and vehicles which are environmentally friendly
- Ensure machines and vehicles are properly and regularly maintained and have the requisite inspection certificate.
- Limit construction traffic movement and operations to the most necessary activities through adequate planning.
- Adhere to the Environmental Management and Co-ordination, Fossil Fuel Emission Control Regulations 2006.

Mitigating Noise and Vibrations

- Sensitize drivers of construction vehicles and machinery operators to switch off engines or machinery that are not being used.
- Ensure that all vehicles and construction machinery are kept in good condition throughout to avoid excessive noise generation.
- Ensure that all workers wear earmuffs and other personal protective gear/equipment when working in noisy sections.
- Undertake loud noise and vibration level activities during off-peak hours during the day (i.e. between 8.00 am and 5.00 pm).
- Acquire Noise and Excessive Vibrations Pollution Control Permit and comply with conditions provided by the EMCA (Noise and Excessive Vibrations Pollution Control) Regulations 2009.
- Support facilities such as hard rock quarries should adopt controlled blasting techniques, preventing flying rock debris and high intensity vibrations.
- Blasting within the road project site should be done during the day and the public should be properly informed of the activity in time. Should adopt controlled blasting techniques, preventing flying rock debris and high intensity vibrations. The management should equally observe relevant explosives use and blasting permits provided by the Inspector of Mines and Geology.

Mitigating Loss of Vegetation Cover

- Minimize clearing and disruption of existing vegetation.
- Provide adequate protection against scour and erosion and consider the onset of the rainy season with respect to construction schedules.

- Employ vegetation rehabilitation techniques to recover lost plant cover such as tree, grass and flowers planting.

Mitigating Possible water Pollution from Waste Oils and Spares Parts

- The contractor should have a machinery and vehicle maintenance area as well as sealed area for the storage of pollutants to avoid any accidental discharge that would pollute water resources.
- Oil-water interceptors or sumps should be constructed to capture discharge of oils and other polluting liquids from maintenance workshop, vehicle and equipment washing bays.
- Measures should be taken to ensure proper storage of fuel, oil and bitumen.
- Oil pollution should be prevented by ensuring proper storage, handling and disposal of oil and oil wastes.
- The Contractor must as well adhere to Water Quality Regulations, 2006.

Minimizing increased Soil Erosion

- Ensure surface runoff generated on impervious surface is not channeled directly to steep slopes.
- Construct flow breaks on roadside drainage channels.
- Promote harvesting of surface runoff.

Minimizing Extraction and Use of Construction Materials

- The contractor is expected to comply with the National Sand Harvesting guidelines provided by NEMA and the County Governments.
- The contractor should only order for what will be required through accurate budgeting and estimation of actual construction requirements.
- The contractor should ensure that wastage, damage or loss (through run-off, wind, etc.) of materials at the construction site is kept minimal.
- The contractor shall consider reuse of construction materials and use of recyclable materials.

Minimizing Solid Waste Generation

- Maximizing the rate of recycling of road resurfacing waste either in the aggregate or as a base;
- Incorporating recyclable materials (e.g. glass, scrap tires, certain types of slag and ashes) to reduce the volume and cost of new asphalt and concrete mixes;

- Collecting road litter or illegally dumped waste and managing it according to the recommendations in the General EHS Guidelines and Waste Management Regulations, 2006;
- Obsolete products should be managed as a hazardous waste as described in the General EHS Guidelines;
- Composting of vegetation waste for reuse as a landscaping fertilizer;
- Managing sediment and sludge removed from storm drainage systems maintenance activities as a hazardous or non-hazardous waste based on an assessment of its characteristics;
- Develop and implement a Construction Waste Management Plan before start of the project;
- Drainage outfalls should be properly constructed to reduce the erosion from surface runoff and storm water; and
- Comply with provisions of the EMCA, Waste Management Regulations 2006.

Minimizing Increased Water Use

- Harvest surface runoff for use to suppress dust.
- Comply with Water Resources Authority Requirements as stipulated in the Water Act, 2016.

Minimizing Generation of storm water and impact on drainage

- Use of storm water management practices that slow peak runoff flow, reduce sediment load, and increase infiltration.
- Regular inspection and maintenance of permanent erosion and runoff control features.
- Paving in dry weather to minimize runoff of asphalt or cement materials.

Minimizing Increased Loss of Human Life due to Road Accidents

- Construct pedestrian crossing points in certain key areas.
- Inclusion of road bumps and signage in certain key areas.
- Adopt strict policing to ensure that there is no over speeding along the road.

Mitigating Socio- Economic Impacts during Construction Phase

Minimizing negative Community Health and Safety impacts

- Implement pedestrian safety management strategies such as provision of safe side road along the road alignment and construction areas both during construction and operation.

- Installation of barriers (e.g. guardrails, fencing, plantings) to deter pedestrian access to the roadway except at designated crossing points.
- Installation and maintenance of speed control and traffic calming devices at pedestrian crossing areas.
- Installation and maintenance of all signs, signals, markings, and other devices used to regulate traffic, including posted speed limits, warnings of sharp turns, or other special road conditions.
- Targeting elimination of accidents rail crossings by use of a real-time warning system with signage to warn drivers of congestion, accidents, adverse weather or road conditions, and other potential hazards ahead.
- Prepare an emergency preparedness and response plan in coordination with the local community and local emergency responders to provide timely first aid response in the event of accidents and hazardous materials response in the event of spills.
- Ensure there is adequate wastewater disposal system to avoid breeding of malaria parasite transmitting mosquitos. Proper disposal of wastewater to minimize contamination of water supplies with typhoid causing organisms.
- Ensure health and safety measures as proposed in the ESMP apply to the letter for quarrying and earth borrowing activities.

Mitigating Disruption of Businesses

- Provide comprehensive health and safety education to residents in the project area.
- Provision of employment in the project for the local people where possible.
- Put in place a grievance redress mechanism

Minimizing Temporary Employment issues

- Provision of employment in the project for the local people where possible.

Mitigating Occupational Health Safety Hazards

- Develop and enforce a fleet management plan for road construction that includes measures to ensure work zone safety for construction workers and the public members.
- Establishment of work zones to separate pedestrians walking from vehicular traffic and equipment by routing of traffic to alternative roads where possible.

- Use protective barriers to shield pedestrians from traffic vehicles, regulation of traffic flow by warning lights, or flaggers, design of the workspace to eliminate or decrease blind spots and ensure reduction of maximum vehicle speeds in work zones.
- Training of workers in safety issues related to their activities, such as the hazards of working on foot around equipment and vehicles.
- Ensure safe practices for work at night and in other low-visibility conditions, including use of high-visibility safety apparel and proper illumination for the workspace (while controlling glare so as not to blind workers and passing motorists).
- Barricade the area around which elevated work is taking place to prevent unauthorized access.
- Hoisting and lifting equipment should be rated and properly maintained, and operators trained in their use.
- Elevating platforms should be maintained and operated according to established safety procedures including use of fall protection measures (e.g. railings).
- Use of the correct asphalt product for each specific application and ensuring application at the correct temperature to reduce the fuming of bitumen during normal handling.
- Maintenance of work vehicles and machinery to minimize air emissions.
- Reduction of engine idling time in construction sites; Use of extenders or other means to direct diesel exhaust away from the operator.

Minimizing Insecurity

- Thoroughly screen of workers, suppliers and distributors.
- Ensure 24-hour surveillance by engaging the security firm during the day and night.
- Ensure close liaison with the local Police Department.

Mitigating Interference to road use activities due to diversions and closures

- Provide opening or crossing points in road barriers to allow crossing of pedestrians
- Provide access roads linking key places in affected area.
- Erect road signs with clear information especially for diversion

Mitigating Spread HIV and AIDS

- Develop a comprehensive STDS, HIV and AIDs awareness and control programmes such as provision of condoms to workers both male and female.
- Provision of STDs, HIV and AIDS prevention measures to workers.

- Creation of awareness of STDs, HIV/AIDS in workers through trainings and installation of posters.
- Adhere to and implement the Sexual Offences Act, 2006 and its amendment 2012.

7.3 Mitigation of Impacts during the Operation Phase

Minimizing Increased Storm Water Flow

- Use of storm water management practices that slow peak runoff flow, reduce sediment load and increase infiltration.
- Regular inspection and maintenance of permanent erosion and runoff control features.

Minimizing Generation of Solid Waste

- Ensure that all solid wastes are collected and disposed appropriately in order to promote a clean and healthy environment within the project area**.**

Mitigating Possible Risks of Road Accidents

- Provide Road bumps, rumble strips and signage throughout the road length and especially near public institutions.

Mitigating Increased Population and Congestion related issues

- Establish well designed drainage system that will ensure all storm water is collected to avoid flooding.
- Water and sewerage systems should be established in the project area to accommodate the new migrants.

Mitigating Noise Pollution and Excessive Vibrations

- Enforcement of Traffic Act regulations to ensure that all vehicles using the road are in good condition all the time to avoid excessive noise generation.
- Install speed control measures such as bumps and ramble strips in the areas there are institutions e.g. school, churches etc.
- Install no hooting signs in sensitive areas i.e. near schools etc.

7.4 Mitigation of Impacts during the Decommissioning Phase

Minimizing Noise and vibration

- Significant impacts on the acoustic environment will be mitigated as described above.

Minimizing Solid waste generation

- Solid waste resulting from demolition or dismantling works will be managed as described above.

Mitigating Dust emission

- High levels of dust concentration resulting from demolition or dismantling works will be minimized as described earlier.

CHAPTER EIGHT: ANALYSIS OF PROJECT ALTERNATIVES

8.1 Introduction

This section analyses the project alternatives in terms of site and technology scale options.

8.2 Alternative Location

The location for the project is the best suited as it only involves an improvement. During the stakeholder's consultation and field visit, it was noted that no alternative route is preferred to the existing proposed route. Relocating the project to another area would require lots of planning, resources to compensate those that might be relocated, and a lot of time might be spent in the planning and acquisition of alternative land. The proposed location is thus the best suited for the project.

8.3 Solid Waste Management Alternatives

There will be generation of solid waste from the proposed project. An integrated solid waste management system is recommendable. First, the proponent will give priority to reduction at source of the waste materials. This option will demand a solid waste management awareness programme in the management and the workers. Notices for proper waste management/handling may be posted at strategic places for the sake of visitors in the project site. Secondly, Recycling, Reuse and compositing of the waste will be the second alternative in priority. This will call for a source separation programme to be put in place. The recyclables will be sold to waste buyers within County. The third priority in the hierarchy of options is combustion of the waste that is not recyclable. Finally, sanitary land filling will be the last option for the proponent to consider.

8.4 The No Project Alternative

The **No Project Alternative** with respect to the proposed project implies that the status quo is maintained. This option is the most suitable alternative from an extreme environmental perspective as it ensures non-interference with the existing conditions. This option will, however, involve several losses both to the county and the community at large. Transport, access and connectivity into Limuru town will continue to be hampered. The **No Project Option** is the least preferred from the socio-economic and partly environmental perspective due to the following factors:

- Provide services to the residents of Limuru town and neighbouring villages will continue to be inefficient.

- Access and connectivity to the project area and to Limuru town as well as to the neighbouring villages will continue to be a challenge due to the poor nature of the roads.
- The economic status of the users and the local people would remain unchanged.
- The project area will continue to be appealing.
- There will be no employment opportunities created for Kenyans who will work in the project area and along the proposed road.
- Increased urban poverty and crime in Kenya.
- Discouragement for investors and loaners
- Development of infrastructural facilities will not be undertaken.

8.5 Analysis of Alternative Construction Materials and Technology

The proposed road project will be constructed using modern, locally and internationally accepted materials to achieve public health, safety, security and environmental aesthetic requirements. Equipment that saves energy and water will be given priority without compromising on cost or availability factors. The road will be upgraded using locally sourced stones, cement and bitumen that meets the requirements of the Kenya Bureau of Standards (KEBS). The alternative technologies available include the conventional concrete, prefabricated concrete panels, or even temporary structures. These may not be desirable from a cost and durability perspective. The technology to be adopted will be the most economical and one sensitive to the environment.

CHAPTER NINE: ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONTORING PLAN

9.1 Introduction

The ESMP for the proposed projects is used to provide a logical framework within which identified negative environmental and social impacts can be avoided, mitigated and monitored. The ESMP assigns responsibilities of actions to various actors and provides a timeframe within which mitigation measures and monitoring can be done. The ESMP is a crucial output of an ESIA as it provides a checklist for project monitoring and evaluation. The ESMP outlined below will address the identified potential negative impacts and mitigation measures of the Project based on the chapters on Environmental and Social Impacts and Mitigation Measures of the Negative Impacts.

9.2 Mandate of the Proponent

The mandate of the proponent will be to ensure that all legal requirements as pertaining to the development are met as specified by the law, including World Bank Safeguards and specifically OP4.01 (Environmental Assessment).

Proponent responsibilities;

- Shall hand over the site to the Contractor for implementation of the project.
- Will fund the project.
- Will acquire the NEMA license.
- Will supervise the project and will also ensure its satisfactory implementation.
- Shall ensure that there is a functional stakeholder engagement plan and grievance redress mechanism.
- Shall define the area of the site, which may be occupied by the contractor for use as storage, on the site.
- Shall include all recommendations from EIA into the contract.

9.3 Mandate of the Contractor

These will include but not limited to;

- Prepare and maintain an approved time and progress work-plan, indicating clearly the period allowed for each section of the work.
- Shall comply with all regulations and by-laws of the local authority including serving of notices and paying of the fees.

- Shall provide at his own risk, and cost all water required for use in connection with the works
- Shall take all possible precautions to prevent nuisance, inconvenience or injury to the neighboring properties and to the public generally, and shall use proper precaution to ensure the safety of wheeled traffic and pedestrian
- All work operations which may generate noise, dust, vibrations, or any other discomfort to the workers and/or guests of the client and the neighbors must be undertaken with care, with all necessary safety precautions taken.
- Shall upon completion of working, remove and clear away all plant, rubbish and unused materials and shall leave the whole site in a clean and tidy state to the satisfaction of the Proponent. He shall also remove from the site all rubbish and dirt as it is produced to maintain the tidiness of the premises and its immediate environs.
- The standard of workmanship shall not be inferior to the Kenya Bureau of Standards and/or codes of practice where existing.
- Shall maintain good working relationship with the community and implement the stakeholder engagement plan and the grievance redress mechanism.

All these responsibilities shall be reviewed carefully against the contract documentation to ensure that they are included in the contract documentation.

The ESMP for all project phases has been outlined to cover; Design and construction Phase, Operation Phase and Decommissioning Phase.

The following ESMP tables forms the core of this ESMP for the construction, operational and decommissioning phases of the proposed road project. The following tables details all necessary mitigation measures as well as the person responsible for implementing and monitoring such measures. The tables should be used as checklist on site. Due to the magnitude of the project, compliance with the ESMP must be monitored periodically and reports prepared and provided at monthly site meetings during the construction phase and quarterly during the operations and maintenance period as required in EMCA 1999. Annual audits will be conducted during both the construction, operation and maintenance phases.

ESMP for the Improvement of Mukuru Road to Bituminous Standards and Lighting from Law Courts to Highway in Kamandura

POTENTIAL IMPACTS	MITIGATION MEASURES	RESPONSIBILITY	MONITORING FREQUENCY	BUDGET
NEGATIVE IMPACTS DURING CONSTRUCTION PHASE				
Air pollution as result of dust and exhaust emissions	□Sprinkling of water on dry and dusty surfaces regularly including the access roads and diversion routes. □Add suitable soil stabilizers on access roads or pave access roads to control dust. □Collecting storm water and use to de-dust the construction site and the all-weather access roads if volumes stored are enough. □Comply with personal protective Equipment requirement for dusty areas such as dust masks and protective glasses. □Re-vegetating exposed areas during the operation phase of the project. □Slowing the speed of traffic by using bumps and/ or clearly marked road signs may contribute to reducing dust levels. Also enforce onsite speed limit regulations. □Dust control mechanisms at the gravel borrow sites through extraction in wet conditions and transport in covered trucks. □Covering heaps and berms of soil. □Adhere to the Environmental Management and Co-ordination (Air Quality) Regulations, 2014.	Contractor/Proponent	Continuous	150,000

	- Procure machines, equipment and vehicles which are environmentally friendly - Ensure machines and vehicles are properly and regularly maintained and have the requisite inspection certificate. - Limit construction traffic movement and operations to the most necessary activities through adequate planning. - Adhere to the Environmental Management and Co-ordination, Fossil Fuel Emission Control Regulations 2006.			
Noise and Vibrations	- Sensitize drivers of construction vehicles and machinery operators to switch off engines or machinery that are not being used. - Ensure that all vehicles and construction machinery are kept in good condition throughout to avoid excessive noise generation. - Ensure that all workers wear earmuffs and other personal protective gear/equipment when working in noisy sections. - Undertake loud noise and vibration level activities during off-peak hours during the day (i.e. between 8.00 am and 5.00 pm). - Acquire Noise and Excessive Vibrations Pollution Control Permit and comply with conditions provided by the EMCA (Noise and Excessive Vibrations Pollution Control) Regulations 2009.	Contractor/Proponent	Continuous	45,000

	Support facilities such as hard rock quarries should adopt controlled blasting techniques, preventing flying rock debris and high intensity vibrations.			
Loss of Vegetation Cover	Minimize clearing and disruption of existing vegetation. Provide adequate protection against scour and erosion; and consider the onset of the rainy season with respect to construction schedules. Employ vegetation rehabilitation techniques to recover lost plant cover such as tree, grass and flowers planting.	Contractor/Proponent	Continuous	55,000
Possible water Pollution	The contractor should have a machinery and vehicle maintenance area as well as sealed area for the storage of pollutants to avoid any accidental discharge that would pollute water resources. Oil-water interceptors or sumps should be constructed to capture discharge of oils and other polluting liquids from maintenance workshop, vehicle and equipment washing bays. Measures should be taken to ensure proper storage of fuel, oil and bitumen. Oil pollution should be prevented by ensuring proper storage, handling and disposal of oil and oil wastes. The Contractor must as well adhere to Water Quality Regulations, 2006.	Contractor/Proponent	Continuous	50,000

Soil Erosion	□ Ensure surface runoff generated on impervious surface is not channeled directly to steep slopes. □ Construct flow breaks on roadside drainage channels. □ Promote harvesting of surface runoff.	Contractor	Continuous	75,000
Extraction and Use of Construction Materials	□ The contractor is expected to comply with the National Sand Harvesting guidelines provided by NEMA and the County Governments. □ The contractor should only order for what will be required through accurate budgeting and estimation of actual construction requirements. □ The contractor should ensure that wastage, damage or loss (through run-off, wind, etc.) of materials at the construction site is kept minimal. □ The contractor shall consider reuse of construction materials and use of recyclable materials.	Contractor/Proponent/NEMA	Continuous	65,000
Solid Waste Generation	□ Maximizing the rate of recycling of road resurfacing waste either in the aggregate or as a base; □ Incorporating recyclable materials (e.g. glass, scrap tires, certain types of slag and ashes) to reduce the volume and cost of new asphalt and concrete mixes. □ Collecting road litter or illegally dumped waste and managing it according to the recommendations in the General EHS	Contractor/Proponent	Continuous	40,000

	Guidelines and Waste Management Regulations, 2006. - Obsolete products should be managed as a hazardous waste as described in the General EHS Guidelines. - Composting of vegetation waste for reuse as a landscaping fertilizer. - Managing sediment and sludge removed from storm drainage systems maintenance activities as a hazardous or non-hazardous waste based on an assessment of its characteristics. - Develop and implement a Construction Waste Management Plan before start of the project. - Drainage outfalls should be properly constructed to reduce the erosion from surface runoff and storm water. - Comply with provisions of the EMCA, Waste Management Regulations 2006.			
Increased Water Use	- Harvest surface runoff for use to suppress dust. - Comply with Water Resources Authority Requirements as stipulated in the Water Act, 2016.	Contractor/Proponent/WRA	Continuous	35,000
Generation of storm water and impact on drainage	- Use of storm water management practices that slow peak runoff flow, reduce sediment load, and increase infiltration. - Regular inspection and maintenance of permanent erosion and runoff control features. - Paving in dry weather to minimize runoff of asphalt or cement materials.	Contractor/Proponent	Continuous	75,000

Road Safety	Construct pedestrian crossing points in certain key areas. Inclusion of road bumps and signage in certain key areas. Adopt strict policing to ensure that there is no over speeding along the road.	Contractor	Continuous	45,000
Community Health and Safety	Implement pedestrian safety management strategies such as provision of safe side road along the road alignment and construction areas both during construction and operation. Installation and maintenance of speed control and traffic calming devices at pedestrian crossing areas. Installation and maintenance of all signs, signals, markings, and other devices used to regulate traffic, including posted speed limits, warnings of sharp turns, or other special road conditions. Targeting elimination of accidents rail crossings by use of a real-time warning system with signage to warn drivers of congestion, accidents, adverse weather or road conditions, and other potential hazards ahead. Prepare an emergency preparedness and response plan in coordination with the local community and local emergency responders to provide timely first aid response in the event of accidents and hazardous materials response in the event of spills.	Contractor/Proponent	Continuous	55,000

	□ Ensure there is adequate wastewater disposal system to avoid breeding of malaria parasite transmitting mosquitos. Proper disposal of wastewater to minimize contamination of water supplies with typhoid causing organisms. □ Ensure health and safety measures as proposed in the ESMP apply to the letter for quarrying and earth borrowing activities.			
Disruption of Businesses	□ Provide comprehensive health and safety education to residents in the project area. □ Provision of employment in the project for the local people where possible. □ Put in place a grievance redress mechanism	Contractor/Proponent	Continuous	As per BOQ
Temporary Employment issues	□ Provision of employment in the project for the local people where possible.	Contractor	Continuous	As per BOQ
Occupational Health Safety Hazards	□ Develop and enforce a fleet management plan for road construction that includes measures to ensure work zone safety for construction workers and the public members. □ Establishment of work zones to separate pedestrians walking from vehicular traffic and equipment by routing of traffic to alternative roads where possible. □ Use protective barriers to shield pedestrians from traffic vehicles, regulation of traffic flow by warning lights, or flaggers, design of the workspace to eliminate or decrease blind spots and ensure reduction of maximum vehicle speeds in work zones.	Contractor/Proponent	Continuous	40,000

	- Training of workers in safety issues related to their activities, such as the hazards of working on foot around equipment and vehicles. - Ensure safe practices for work at night and in other low-visibility conditions, including use of high-visibility safety apparel and proper illumination for the workspace (while controlling glare so as not to blind workers and passing motorists). - Barricade the area around which elevated work is taking place to prevent unauthorized access. - Hoisting and lifting equipment should be rated and properly maintained, and operators trained in their use. - Elevating platforms should be maintained and operated according to established safety procedures including use of fall protection measures (e.g. railings). - Use of the correct asphalt product for each specific application and ensuring application at the correct temperature to reduce the fuming of bitumen during normal handling. - Maintenance of work vehicles and machinery to minimize air emissions. - Reduction of engine idling time in construction sites; Use of extenders or other means to direct diesel exhaust away from the operator.			

Insecurity	Thoroughly screen of workers, suppliers and distributors. Ensure 24-hour surveillance by engaging the security firm during the day and night. Ensure close liaison with the local Police Department.	Contractor/Proponent/Police department/ security agencies	Continuous	120,000
Interference to road use activities due to diversions and closures	Provide opening or crossing points in road barriers to allow crossing of pedestrians Provide access roads linking key places in affected area. Erect road signs with clear information especially for diversion	Contractor	Continuous	150,000
Spread HIV and AIDS	Develop a comprehensive STDS, HIV and AIDs awareness and control programmes such as provision of condoms to workers both male and female. Provision of STDs, HIV and AIDS prevention measures to workers. Creation of awareness of STDs, HIV/AIDS in workers through trainings and installation of posters. Adhere to and implement the Sexual Offences Act, 2006 and its amendment 2012.	Contractor/Proponent	Continuous	75,000
NEGATIVE IMPACTS DURING THE OPERATIONAL PHASE				
Increased Storm Water Flow	Use of storm water management practices that slow peak runoff flow, reduce sediment load and increase infiltration. Regular inspection and maintenance of permanent erosion and runoff control features.	Proponent	Continuous	45,000

Generation of Solid Waste	Ensure that all solid wastes are collected and disposed appropriately in order to promote a clean and healthy environment along the road**.**	Proponent	Continuous	40,000
Possible Risks of Road Accidents	Provide Road bumps, rumble strips and signage throughout the road length and especially near public institutions.	Proponent	Continuous	As per BOQ
Increased Population and Congestion	Establish well designed drainage system that will ensure all storm water is collected to avoid flooding. Water and sewerage systems should be established in the project area to accommodate the new migrants.	Proponent	Continuous	As per BOQ
Noise Pollution and Excessive Vibrations	Enforcement of Traffic Act regulations to ensure that all vehicles using the road are in good condition all the time to avoid excessive noise generation. Install speed control measures such as bumps and ramble strips in the areas there are institutions e.g. school, churches etc. Install no hooting signs in sensitive areas i.e. near schools etc.	Proponent	Continuous	45,000
NEGATIVE IMPACTS DURING DECOMMISSIONING PHASE				
Noise and vibration	Significant impacts on the acoustic environment will be mitigated as described above.	Contractor/Proponent	One off	50,000

Solid waste generation	Solid waste resulting from demolition or dismantling works will be managed as described above.	Contractor/Proponent	One off	35,000
Dust emission	High levels of dust concentration resulting from demolition or dismantling works will be minimized as described earlier.	Contractor/Proponent	One off	55,000

9.4 Environmental Monitoring

Monitoring of noise, vibration, dust and water quality would be carried out in accordance with the specialist and environmental procedures and environmental commitments made.

Environmental Inspection and Reporting during the Construction phase

The Contractors Environmental officer would carry out an assessment of the Project's environmental performance, based upon the reports from the environmental management representatives during the period; reports from the environmental specialists and from his/her own site inspections. This would be carried out in monthly intervals but could be held more regularly depending on the nature of the construction activity. An assessment of the performance over the month would be made and quantified. A monthly report detailing performance for the period would be provided to the Engineer and would include a summary of environmental inspections completed, audits undertaken, complaints and incidents.

Environmental Monitoring during operation and decommissioning phase

The proponent is advised to draw a monitoring plan according to decision made with all the stakeholders. Technical advice can be sort from National Environment Management Authority as well as other stakeholders.

CHAPTER TEN: CONCLUSIONS AND RECOMMENDATIONS

10.1 Conclusions

The proposed project is unlikely to generate irreversible or permanent negative impact, or have serious implications on physical, biological, cultural and socio-economic features of concern at/or near the proposed site of the project, this means improvement of Mukuru and Limuru town roads do not pose any serious threat to the environment. The findings of the ESIA has also established that the proposed development project by proponent is a worthy investment and broadly with no doubt will contribute significantly to the economic development of the Limuru town as well as Limuru municipality and Kiambu County at large. This will be achieved through the prior discussed positive impacts.

The studies conducted on the proposed Improvement of Mukuru and Limuru town access roads to bituminous standards (inclusive of Non-Motorized Transport and drainage system) and lighting in Limuru Municipality shows that indeed the project will promote development in Kiambu County. Therefore, there is need for all the responsible stakeholders to implement the recommendations given in the ESMP to ensure sustainability of the project. The contactor shall update Environmental and Social Management Plan in order to identify emerging and sequence environmental activities that are needed in order to complete the required construction process.

10.2 Recommendations

- ESIA project report recommends proponent, contractor and the financier take all reasonable measures to mitigate any undesirable effects contemplated or not contemplated in this report.
- During the handover of the road project to the proponent the supervising engineer should prepare a Road Completion Report and hand it over to the proponent and financier.
- The proponent is expected to conduct environmental audit so as to evaluate all the activities and processes of an ongoing project to determine how far these activities conforms with the approved environmental and social management plan of the project and sound environmental management practices; prepare and submit an environmental audit report on those measures to the NEMA annually or as the Authority may require.

- The proponent must adhere and implement in full the proposed Environmental and Social Management Plan. The proponent must observe adherence to the legislations discussed under Legal and Regulatory Chapter of this report.
- Only inevitable disturbance of flora and fauna should occur. Replanting of cleared vegetation should be done to replace the cleared vegetation. The project contractor should only use serviceable equipment and machinery during construction phase.
- All the employees should be provided with the right working tools and safety gear to protect them when executing their duties including an equipped First Aid Kit.
- The contractor should conduct an ESIA for the borrow pits or quarry sites and a license should be acquired from NEMA before starting to extract construction materials.
- Bumps should be installed at all sharp corners.
- The road improvement works should not block access to properties and where it has happened, then the contractor should provide access and where there is a deep cut, then an access lane or staircases should be provided.
- The contractor should designate pedestrian crossing points, guard rails and adequate signage at appropriate places to improve on road safety.
- During site decommissioning, all the waste and unused building materials should be removed safely from the site.
- Mobile toilets should be provided to workers for managing septic waste.
- Overall, the experts conclude that the project is environmentally, socially and economically feasible and should be allowed to be implemented or as per NEMA discretion.

REFERENCES

1. Government of Kenya (2002): *Kenya gazette supplement Acts Water Act*, Government Printers, Nairobi, Kenya.

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3. Government of Kenya (2006): *Kenya gazette supplement number 68, Environmental Management and Coordination (Water Quality) Regulations,* Government printer, Nairobi

4. Government of Kenya (2006): *Kenya gazette supplement number 69, Environmental Management and Coordination (Waste management) Regulations,* Government printer, Nairobi, Kenya.

5. Government of Kenya (2007): *The Occupational Safety and Health Act*, Government Printers, Nairobi, Kenya.

6. Government of Kenya (2009): *Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations*, Government printer, Nairobi, Kenya.

7. Government of Kenya (2011): *The National Gender and Equality Commission Act,* 2011. Government Printer, Nairobi, Kenya.

8. Government of Kenya (2012): *The Land Act*, Government Printer, Nairobi, Kenya.

9. International Finance Corporation/World Bank Group (2012): *Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts*

10. International Finance Corporation/World Bank Group (2012): *Performance Standard 3: Resource Efficiency and Pollution Prevention.*

11. International Finance Corporation/World Bank Group (2012): *Performance Standard 4: Community Health, Safety, and Security.*

12. Kenya gazette supplement Acts *Physical Planning Act, 1999 government printer, Nairobi*

13. Kenya gazette supplement Acts *Public Health Act (Cap. 242) government printer, Nairobi*

14. Kenya gazette supplement, Environmental Management and Coordination Act Number 8 of 2015. *Government printer, Nairobi*

15. World Bank Safeguards Documents (Environmental Assessment (OP 4.01) Safeguard

LIST OF ANNEXURES

Annex 1: EIA/EA LEAD Expert License

FORM 7 (r.15(2))

nema
mazingira yetu | nhai weitu | wajibu weitu

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY(NEMA)

THE ENVIRONMENTAL MANAGEMENT AND CO-ORDINATION ACT

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

License No : NEMA/EIA/ERPL/11462

Application Reference No: NEMA/EIA/EL/15468

M/S **Samuel Wakangu Kiarie**
(individual or firm) of address

P.O. Box 416-00217, Limuru

is licensed to practice in the

capacity of a (Lead Expert/Associate Expert/Firm of Experts) **Lead Expert**
registration number **6750**

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

Issued Date: **1/2/2020** Expiry Date: **12/31/2020**

Signature.....

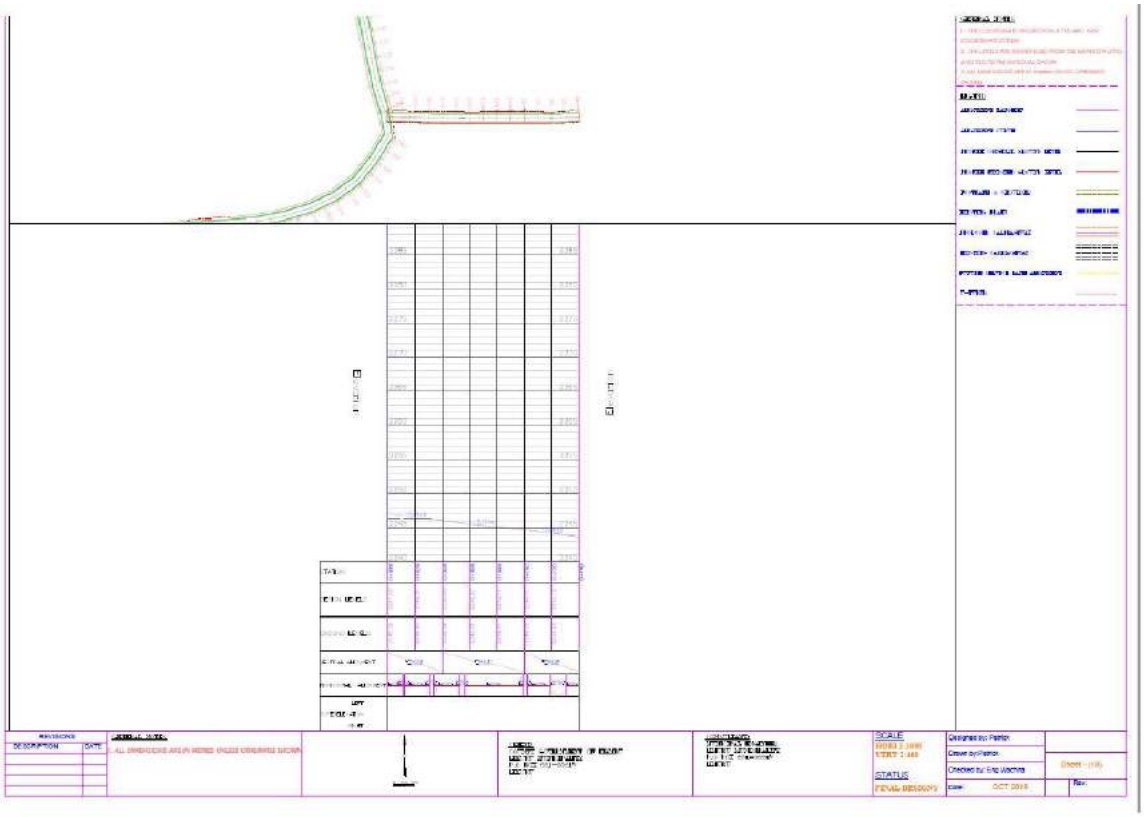
(Seal)
Director General
The National Environment Management Authority

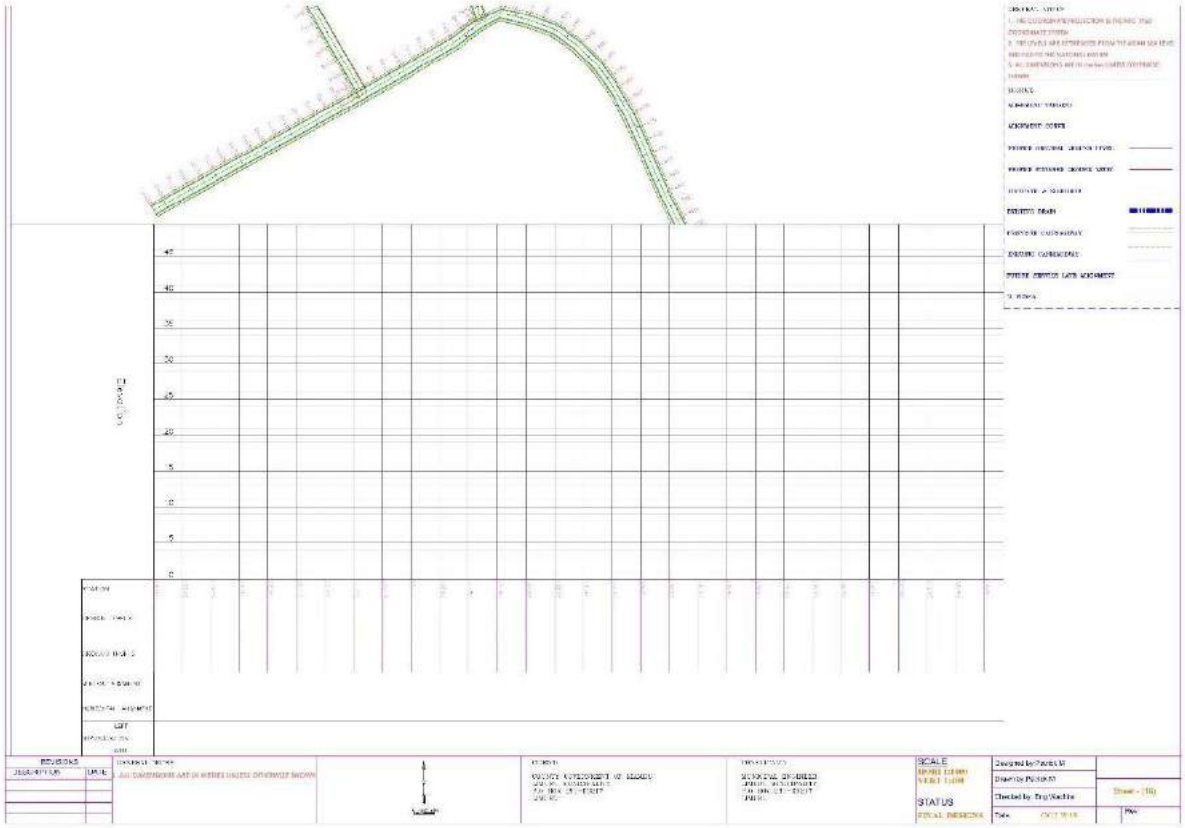
MUKURU AND LIMURU TOWN ACCESS ROADS PROJECT

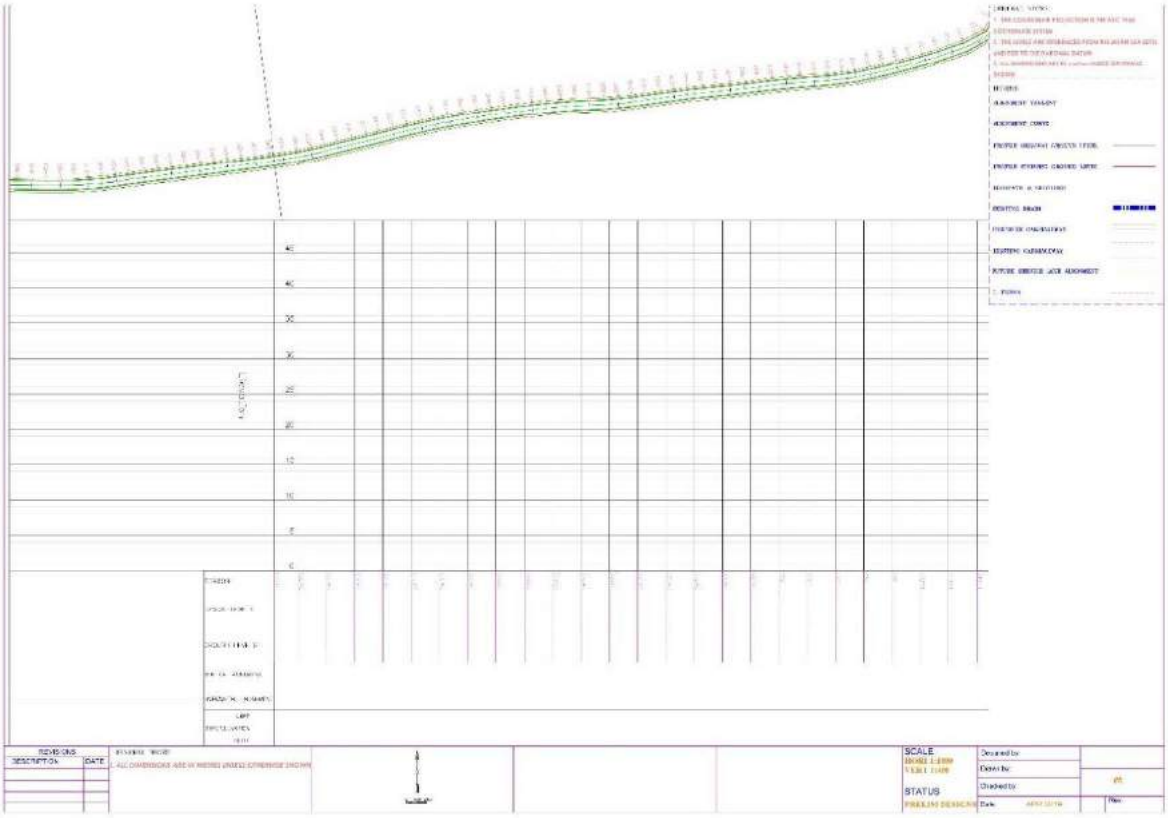
P.T.O.

ISO 9001: 2008 Certified

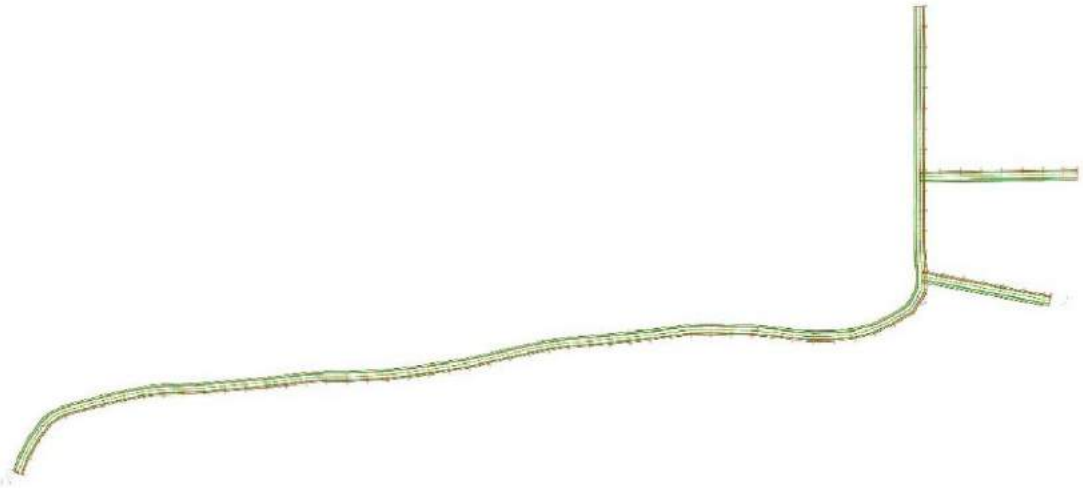
Annex 2: Road Designs

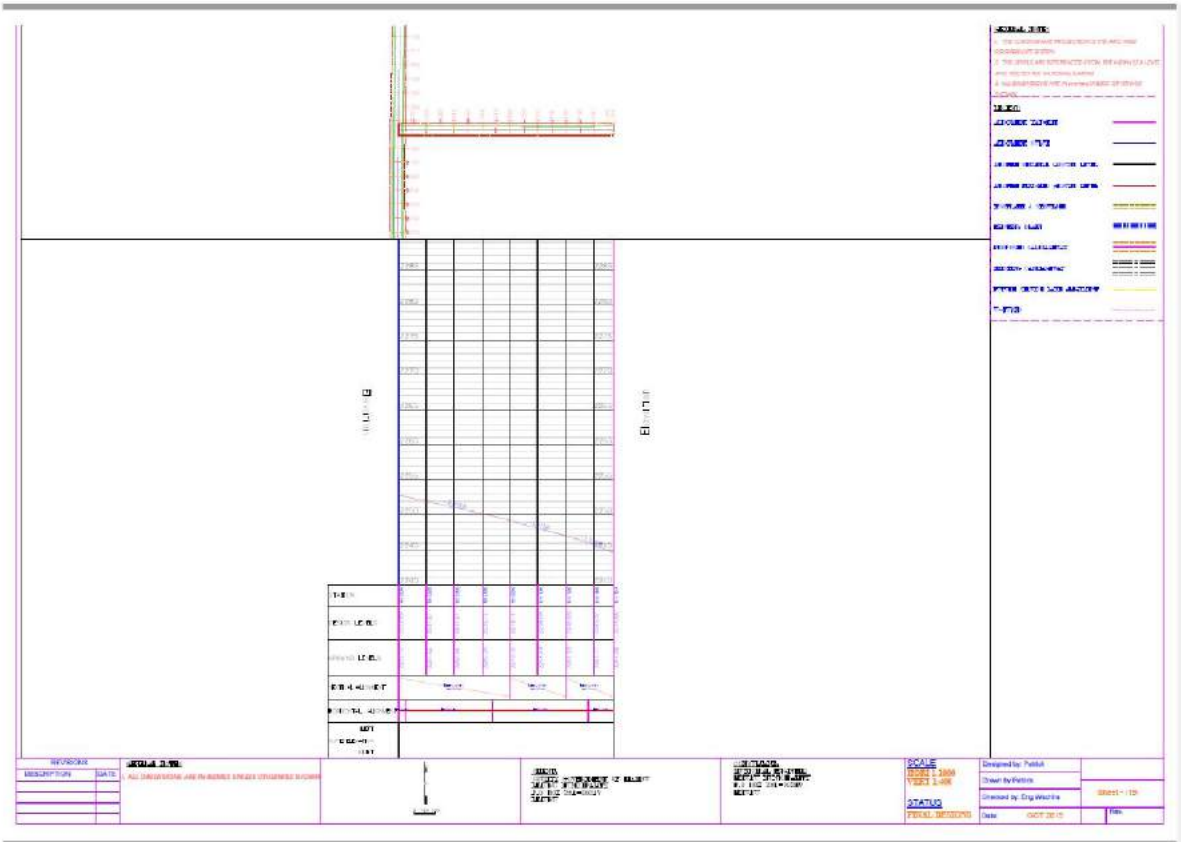


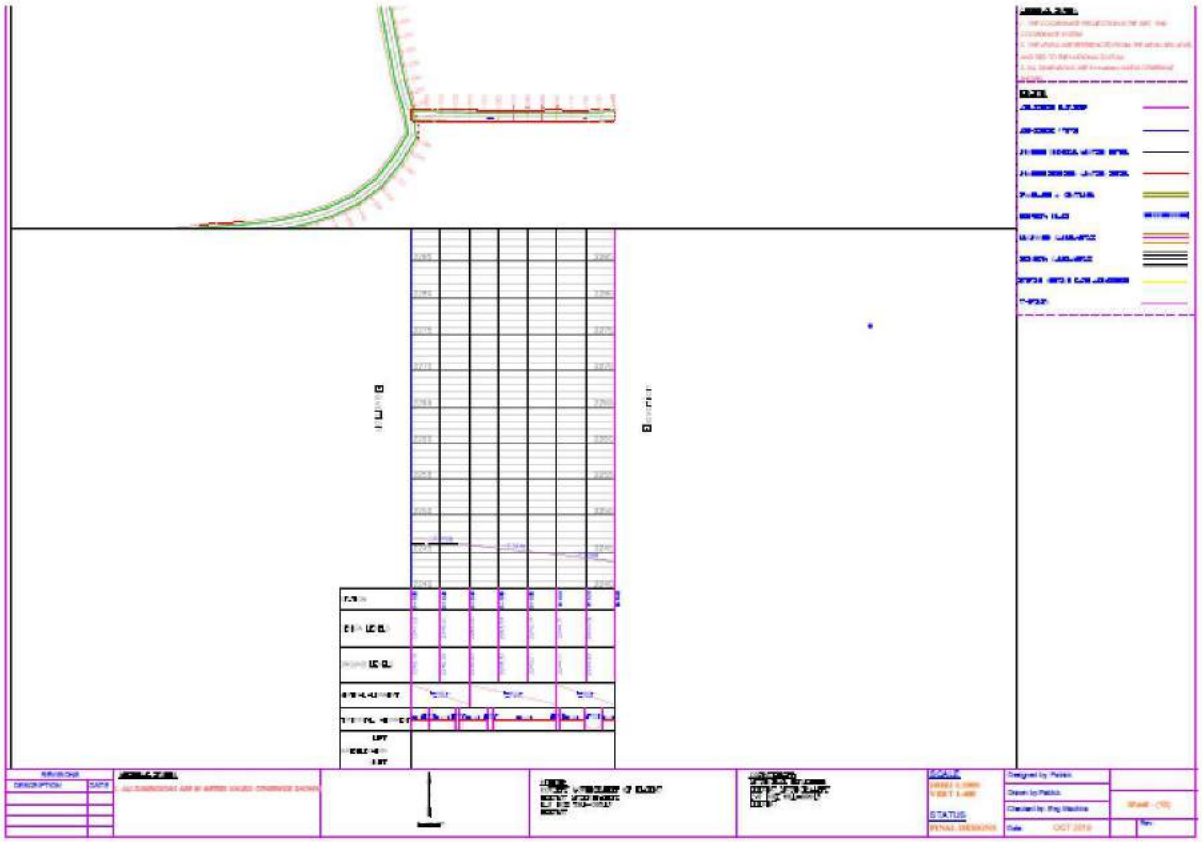





GENERAL NOTES
LEGEND
E.G. LEVELS
E.G. OFFSETS
P.R. LEVELS
P.R. OFFSETS
SEGMENT C/FALL
FORMATION LEVELS
FORMATION OFFSETS
ROAD MUKURU MAIN_ CH 620.00
CLIENT
LIMURU MUNICIPALITY
P.O BOX 28140217
LIMURU
CONSULTANT
MUNICIPAL ENGINEER
LIMURU MUNICIPALITY
P.O. BOX 281-00217
LIMURU
PROJECT:
PROPOSED UPGRADING OF MUKURU ROAD FROM LIMURU LAW COURTS TO HIGHWAY TO BITUMINOUS STANDARDS
SCALE:
ROAD SECTIONS
PATRICK
OCT 2019
Final Designs
Rev
Date
Description







Annex 3: Questionnaires

COUNTY GOVERNMENT OF KIAMBU

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT QUESTIONNAIRE FOR THE IMPROVEMENT OF MUKURU AND LIMURU TOWN ACCESS ROADS TO BITUMINOUS STANDARDS AND LIGHTING IN LIMURU MUNICIPALITY

County Government of Kiambu is proposing to undertake the above project in Limuru municipality. AS stipulated in Environmental Management and Coordination Act (EMCA), 1999-CAP 387 and Environmental Impact Assessment regulations 2003, this project require an Environmental Impact Assessment project report. Public consultation is an important exercise for achieving the fundamental principle of sustainable development.

Therefore, as one of the local community member interested/ affected party, we kindly request you to fill this questionnaire and give us your comments/opinions on the proposed project.

Your participation in answering this questionnaire will be much appreciated and will be ***handled with utmost confidentiality.***

1. **PART A: ENVIRONMENTAL ASPECTS** ***(Please tick appropriately).***

a) Are you aware of the proposed project? Yes [ ] No [✓]

b) Do you expect the proposed project to have any **Environmental impacts?**

Positive impacts

1: Improved Drainage

Negative impacts

1: Dust Emission during Construction

c) Make suggestions on the measures required to mitigate against the foreseen negative impacts.

- To Sprinkle water

2. **PART B: SOCIAL ECONOMIC ASPECTS** (*Please tick appropriately).*

a. Will the proposed project involve loss of land/involuntary resettlement of people?

Yes [ ] No [✓]

If yes, state the location where people will be affected? .....

b. Do you support the proposed project?

Yes [✓] No [ ]

If Yes/No please why? .....

3. **PART C: HISTORICAL/CULTURAL RESOURCES** (*Please tick appropriately).*

1. Is there a possibility that the project will damage the local archaeological, historical, cultural, and religious heritage sites in the proposed project area?

Yes [ ] No [✓]

If yes, please name the place or site..... N/A .....

4. **PART D: ANY OTHER INFORMATION**

Do you have any other Opinion/Suggestion/Recommendations about the project?

..... None .....

.....

.....

Name of Respondent: Scolastica Mumbi Telephone: 0731275557

Signature ..... Date: 19/12/019 .....

Thank You for Your Participation and Cooperation

COUNTY GOVERNMENT OF KIAMBU

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT QUESTIONNAIRE FOR THE IMPROVEMENT OF MUKURU AND LIMURU TOWN ACCESS ROADS TO BITUMINOUS STANDARDS AND LIGHTING IN LIMURU MUNICIPALITY

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Your participation in answering this questionnaire will be much appreciated and will be ***handled with utmost confidentiality.***

1. **PART A: ENVIRONMENTAL ASPECTS** ***(Please tick appropriately).***

a) Are you aware of the proposed project? Yes [✓] No [ ]

b) Do you expect the proposed project to have any **Environmental impacts?**

Positive impacts

1. Good drainage

Negative impacts

2. dust emission during Construction

c) Make suggestions on the measures required to mitigate against the foreseen negative impacts.

- To Sprinkle water during Construction

2. **PART B: SOCIAL ECONOMIC ASPECTS** *(Please tick appropriately).*

a. Will the proposed project involve loss of land/involuntary resettlement of people?

Yes [ ] No [✓]

If yes, state the location where people will be affected? ....

b. Do you support the proposed project?

Yes [✓] No [ ]

If Yes/No please why? ....IMproved Business environment..........

3. **PART C: HISTORICAL/CULTURAL RESOURCES** *(Please tick appropriately).*

1. Is there a possibility that the project will damage the local archaeological, historical, cultural, and religious heritage sites in the proposed project area?

Yes [ ] No [✓]

If yes, please name the place or site...

4. **PART D: ANY OTHER INFORMATION**

Do you have any other Opinion/Suggestion/Recommendations about the project?

None..

....

....

Name of Respondent: MUKU MUNGAI............................ Telephone: 0723093731...........

Signature: .... Date: 19TH DEC 2019. 19/12/2019.

Thank You for Your Participation and Cooperation

COUNTY GOVERNMENT OF KIAMBU

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT QUESTIONNAIRE FOR THE IMPROVEMENT OF MUKURU AND LIMURU TOWN ACCESS ROADS TO BITUMINOUS STANDARDS AND LIGHTING IN LIMURU MUNICIPALITY

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Your participation in answering this questionnaire will be much appreciated and will be ***handled with utmost confidentiality.***

1. **PART A: ENVIRONMENTAL ASPECTS** ***(Please tick appropriately).***

a) Are you aware of the proposed project? Yes [✓] No [ ]

b) Do you expect the proposed project to have any **Environmental impacts?**

Positive impacts

Good Service

Negative impacts

None

c) Make suggestions on the measures required to mitigate against the foreseen negative impacts.

Nil

2. **PART B: SOCIAL ECONOMIC ASPECTS (*Please tick appropriately*).**

a. Will the proposed project involve loss of land/involuntary resettlement of people?

Yes [ ] No [✓]

If yes, state the location where people will be affected? .....

b. Do you support the proposed project?

Yes [✓] No [ ]

If Yes/No please why? .....

3. **PART C: HISTORICAL/CULTURAL RESOURCES (*Please tick appropriately*).**

1. Is there a possibility that the project will damage the local archaeological, historical, cultural, and religious heritage sites in the proposed project area?

Yes [ ] No [✓]

If yes, please name the place or site..... Na .....

4. **PART D: ANY OTHER INFORMATION**

Do you have any other Opinion/Suggestion/Recommendations about the project?

.....

.....

.....

Name of Respondent: ..JOSEPH MAINA NGUGUNA.. Telephone: ..0720 230997..

Signature ..... Date: ..19/12/2019..

Thank You for Your Participation and Cooperation

COUNTY GOVERNMENT OF KIAMBU

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT QUESTIONNAIRE FOR THE IMPROVEMENT OF MUKURU AND LIMURU TOWN ACCESS ROADS TO BITUMINOUS STANDARDS AND LIGHTING IN LIMURU MUNICIPALITY

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Therefore, as one of the local community member interested/ affected party, we kindly request you to fill this questionnaire and give us your comments/opinions on the proposed project.

Your participation in answering this questionnaire will be much appreciated and will be ***handled with utmost confidentiality.***

1. **PART A: ENVIRONMENTAL ASPECTS** ***(Please tick appropriately).***

a) Are you aware of the proposed project? Yes [✓] No [ ]

b) Do you expect the proposed project to have any **Environmental impacts?**

Positive impacts

- Mud [illegible]
- Good drainage
- Prevent Water Stagnation

....

Negative impacts

- None.

....

....

....

c) Make suggestions on the measures required to mitigate against the foreseen negative impacts. N/a

....

....

2. PART B: SOCIAL ECONOMIC ASPECTS ***(Please tick appropriately).***

a. Will the proposed project involve loss of land/involuntary resettlement of people?

Yes [✓] No [ ]

If yes, state the location where people will be affected? Near Emida Hse, and along the [illegible]

b. Do you support the proposed project?

Yes [✓] No [ ]

If Yes/No please why? Kiu Ease transport

3. PART C: HISTORICAL/CULTURAL RESOURCES ***(Please tick appropriately).***

1. Is there a possibility that the project will damage the local archaeological, historical, cultural, and religious heritage sites in the proposed project area?

Yes [ ] No [✓]

If yes, please name the place or site n/a

4. PART D: ANY OTHER INFORMATION

Do you have any other Opinion/Suggestion/Recommendations about the project?

1. The Project where it starts to [illegible] Shop.
2. TO minimize Business disruption

Name of Respondent: Grace Kuguni Telephone: 0717353394

Signature [signature] Date: 19/12/2019

Thank You for Your Participation and Cooperation

COUNTY GOVERNMENT OF KIAMBU

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT QUESTIONNAIRE FOR THE IMPROVEMENT OF MUKURU AND LIMURU TOWN ACCESS ROADS TO BITUMINOUS STANDARDS AND LIGHTING IN LIMURU MUNICIPALITY

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Therefore, as one of the local community member interested/ affected party, we kindly request you to fill this questionnaire and give us your comments/opinions on the proposed project.

Your participation in answering this questionnaire will be much appreciated and will be ***handled with utmost confidentiality.***

1. **PART A: ENVIRONMENTAL ASPECTS** ***(Please tick appropriately).***

a) Are you aware of the proposed project? Yes [ ] No [✓]

b) Do you expect the proposed project to have any **Environmental impacts?**

Positive impacts

Storm water will be handled well.

Negative impacts

1. Noise Pollution
2. Dust Pollution

c) Make suggestions on the measures required to mitigate against the foreseen negative impacts. To sprinkle water during Construction

2. PART B: SOCIAL ECONOMIC ASPECTS (*Please tick appropriately*).

a. Will the proposed project involve loss of land/involuntary resettlement of people?

Yes [ ] No [✓]

If yes, state the location where people will be affected? .....

b. Do you support the proposed project?

Yes [✓] No [ ]

If Yes/No please why? :- Improved Business Environment

3. PART C: HISTORICAL/CULTURAL RESOURCES (*Please tick appropriately*).

1. Is there a possibility that the project will damage the local archaeological, historical, cultural, and religious heritage sites in the proposed project area?

Yes [ ] No [✓]

If yes, please name the place or site..... N/A.

4. PART D: ANY OTHER INFORMATION

Do you have any other Opinion/Suggestion/Recommendations about the project?

1. The quality of the works should be Leveled

2. The project should be delayed when it starts

Name of Respondent: Joseph Kamuki Telephone: 0701558235

Signature ..... Date: 19/12/2019

Thank You for Your Participation and Cooperation

COUNTY GOVERNMENT OF KIAMBU

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT QUESTIONNAIRE FOR THE IMPROVEMENT OF MUKURU AND LIMURU TOWN ACCESS ROADS TO BITUMINOUS STANDARDS AND LIGHTING IN LIMURU MUNICIPALITY

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Therefore, as one of the local community member interested/ affected party, we kindly request you to fill this questionnaire and give us your comments/opinions on the proposed project.

Your participation in answering this questionnaire will be much appreciated and will be ***handled with utmost confidentiality.***

1. **PART A: ENVIRONMENTAL ASPECTS *(Please tick appropriately).***

a) Are you aware of the proposed project? Yes [ ] No [✓]

b) Do you expect the proposed project to have any **Environmental impacts?**

Positive impacts

- Ease communication.
- Open up the area.

Negative impacts

N/A

c) Make suggestions on the measures required to mitigate against the foreseen negative impacts.

Maybe minimise noise or work during Holidays so as not to interfere with our learning as a school.

2. **PART B: SOCIAL ECONOMIC ASPECTS** *(Please tick appropriately).*

a. Will the proposed project involve loss of land/involuntary resettlement of people?

Yes [ ] No [ ]

If yes, state the location where people will be affected? Unsure

b. Do you support the proposed project?

Yes [✓] No [ ]

If Yes/No please why? ....

3. **PART C: HISTORICAL/CULTURAL RESOURCES** *(Please tick appropriately).*

1. Is there a possibility that the project will damage the local archaeological, historical, cultural, and religious heritage sites in the proposed project area?

Yes [ ] No [✓]

If yes, please name the place or site Not aware

4. **PART D: ANY OTHER INFORMATION**

Do you have any other Opinion/Suggestion/Recommendations about the project?

NO

Name of Respondent: Mary Kamithi

Contact: address/Tel: 0722231937 Location/ward: Limuru

Signature [signature] Date: 8/10/19

LIMURU MODEL PRIMARY
TEL: +254 (0)722-78
08 OCT 2019
P. O. BOX 231 - ...
LIMURU, KENYA

Thank You for Your Participation and Cooperation

COUNTY GOVERNMENT OF KIAMBU

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT QUESTIONNAIRE FOR THE IMPROVEMENT OF MUKURU AND LIMURU TOWN ACCESS ROADS TO BITUMINOUS STANDARDS AND LIGHTING IN LIMURU MUNICIPALITY

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Therefore, as one of the local community member interested/ affected party, we kindly request you to fill this questionnaire and give us your comments/opinions on the proposed project.

Your participation in answering this questionnaire will be much appreciated and will be ***handled with utmost confidentiality.***

1. **PART A: ENVIRONMENTAL ASPECTS *(Please tick appropriately).***

a) Are you aware of the proposed project? Yes [ ] No [✓]

b) Do you expect the proposed project to have any **Environmental impacts?**

Positive impacts

1. Increased Customers
2. Reduced dust Pollution
3. Reduced ~~the~~ Storm water Stagnant water

Negative impacts

1. Noise pollution
2. Increased Dust pollution

c) Make suggestions on the measures required to mitigate against the foreseen negative impacts.

1. To improve drainage by lowering Culverts
2. To install Street lights

2. **PART B: SOCIAL ECONOMIC ASPECTS** *(Please tick appropriately).*

a. Will the proposed project involve loss of land/involuntary resettlement of people?

Yes [ ] No [✓]

If yes, state the location where people will be affected? N/A

b. Do you support the proposed project?

Yes [✓] No [ ]

If Yes/No please why? N/A

3. **PART C: HISTORICAL/CULTURAL RESOURCES** *(Please tick appropriately).*

1. Is there a possibility that the project will damage the local archaeological, historical, cultural, and religious heritage sites in the proposed project area?

Yes [ ] No [ ]

If yes, please name the place or site N/A

4. **PART D: ANY OTHER INFORMATION**

Do you have any other Opinion/Suggestion/Recommendations about the project?

1. To make provision to protect the school going children

Name of Respondent: Mary Wangui

Contact: address/Tel: 0798705387 Location/ward: LIMURU CENTRAL

Signature .... Date: 05/10/2019

Thank You for Your Participation and Cooperation

COUNTY GOVERNMENT OF KIAMBU

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT QUESTIONNAIRE FOR THE IMPROVEMENT OF MUKURU AND LIMURU TOWN ACCESS ROADS TO BITUMINOUS STANDARDS AND LIGHTING IN LIMURU MUNICIPALITY

County Government of Kiambu is proposing to undertake the above project in Limuru municipality. AS stipulated in Environmental Management and Coordination Act (EMCA), 1999- CAP 387 and Environmental Impact Assessment regulations 2003, this project require an Environmental Impact Assessment project report. Public consultation is an important exercise for achieving the fundamental principle of sustainable development.

Therefore, as one of the local community member interested/ affected party, we kindly request you to fill this questionnaire and give us your comments/opinions on the proposed project.

Your participation in answering this questionnaire will be much appreciated and will be ***handled with utmost confidentiality.***

1. **PART A: ENVIRONMENTAL ASPECTS *(Please tick appropriately).***

a) Are you aware of the proposed project? Yes [ ] No [✓]

b) Do you expect the proposed project to have any **Environmental impacts?**

Positive impacts

1. Drainage to be Improved
2. Reduced Air Pollution
3. .....

.....

Negative impacts

1. Increased Road Traffic accidents
2. .....

.....

.....

c) Make suggestions on the measures required to mitigate against the foreseen negative impacts.

1. TO observe the Routine laws

.....

2. **PART B: SOCIAL ECONOMIC ASPECTS** (*Please tick appropriately*).

a. Will the proposed project involve loss of land/involuntary resettlement of people?

Yes [ ] No [✓]

If yes, state the location where people will be affected? ..... Na .....

b. Do you support the proposed project?

Yes [✓] No [ ]

If Yes/No please why? .....

3. **PART C: HISTORICAL/CULTURAL RESOURCES** (*Please tick appropriately*).

1. Is there a possibility that the project will damage the local archaeological, historical, cultural, and religious heritage sites in the proposed project area?

Yes [ ] No [✓]

If yes, please name the place or site..... Na .....

4. **PART D: ANY OTHER INFORMATION**

Do you have any other Opinion/Suggestion/Recommendations about the project?

.....

..... None .....

.....

Name of Respondent: ..... Francis Gachenge .....

Contact: address/Tel: 0729 469057 Location/ward: .....

Signature ..... Date: 8/10/2019 .....

Thank You for Your Participation and Cooperation

COUNTY GOVERNMENT OF KIAMBU

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT QUESTIONNAIRE FOR THE IMPROVEMENT OF MUKURU AND LIMURU TOWN ACCESS ROADS TO BITUMINOUS STANDARDS AND LIGHTING IN LIMURU MUNICIPALITY

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Therefore, as one of the local community member interested/ affected party, we kindly request you to fill this questionnaire and give us your comments/opinions on the proposed project.

Your participation in answering this questionnaire will be much appreciated and will be ***handled with utmost confidentiality.***

1. **PART A: ENVIRONMENTAL ASPECTS *(Please tick appropriately).***

a) Are you aware of the proposed project? Yes [ ] No [✓]

b) Do you expect the proposed project to have any **Environmental impacts?**

Positive impacts

1. Transport Improvement
2. Drainage Improvement
.....
.....

Negative impacts

1. Noise pollution
2. Dust/air pollution
.....
.....

c) Make suggestions on the measures required to mitigate against the foreseen negative impacts.

.....Ie. construct during the school holiday: the road Section near the law court.....

2. **PART B: SOCIAL ECONOMIC ASPECTS** ***(Please tick appropriately).***

a. Will the proposed project involve loss of land/involuntary resettlement of people?

Yes [ ] No [✓]

If yes, state the location where people will be affected? .....

b. Do you support the proposed project?

Yes [✓] No [ ]

If Yes/No please why? Improvement on transport.....

3. **PART C: HISTORICAL/CULTURAL RESOURCES** ***(Please tick appropriately).***

1. Is there a possibility that the project will damage the local archaeological, historical, cultural, and religious heritage sites in the proposed project area?

Yes [ ] No [✓]

If yes, please name the place or site.....

4. **PART D: ANY OTHER INFORMATION**

Do you have any other Opinion/Suggestion/Recommendations about the project?

If the project start it shouldn't stall but should be completed.

Name of Respondent: Ruth Wanjeri

Contact: address/Tel: 0723686707 Location/ward: Limuru Central

Signature ..... Date: 8/10/19

TWINKLE NURSERY SCHOOL
P.O. BOX 1212 LIMURU.

Thank You for Your Participation and Cooperation

COUNTY GOVERNMENT OF KIAMBU

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT QUESTIONNAIRE FOR THE IMPROVEMENT OF MUKURU AND LIMURU TOWN ACCESS ROADS TO BITUMINOUS STANDARDS AND LIGHTING IN LIMURU MUNICIPALITY

County Government of Kiambu is proposing to undertake the above project in Limuru municipality. AS stipulated in Environmental Management and Coordination Act (EMCA), 1999-CAP 387 and Environmental Impact Assessment regulations 2003, this project require an Environmental Impact Assessment project report. Public consultation is an important exercise for achieving the fundamental principle of sustainable development.

Therefore, as one of the local community member interested/ affected party, we kindly request you to fill this questionnaire and give us your comments/opinions on the proposed project.

Your participation in answering this questionnaire will be much appreciated and will be ***handled with utmost confidentiality.***

1. **PART A: ENVIRONMENTAL ASPECTS** ***(Please tick appropriately).***

a) Are you aware of the proposed project? Yes [ ] No [✓]

b) Do you expect the proposed project to have any **Environmental impacts?**

Positive impacts

1. Improve the drainage
2. Mud reduction

Negative impacts

None

c) Make suggestions on the measures required to mitigate against the foreseen negative impacts.

N/A

2. **PART B: SOCIAL ECONOMIC ASPECTS** ***(Please tick appropriately).***

a. Will the proposed project involve loss of land/involuntary resettlement of people?

Yes [✓] No [ ]

If yes, state the location where people will be affected? Near the Farms.

b. Do you support the proposed project?

Yes [✓] No [ ]

If Yes/No please why? Ok.

3. **PART C: HISTORICAL/CULTURAL RESOURCES** ***(Please tick appropriately).***

1. Is there a possibility that the project will damage the local archaeological, historical, cultural, and religious heritage sites in the proposed project area?

Yes [ ] No [✓]

If yes, please name the place or site..... N/A

4. **PART D: ANY OTHER INFORMATION**

Do you have any other Opinion/Suggestion/Recommendations about the project?

Do Not to interfere with the Water while the Project is going on.

Name of Respondent: Michael Wachira Telephone: 0725098542

Signature ..... Date: 19/12/2019

Thank You for Your Participation and Cooperation

COUNTY GOVERNMENT OF KIAMBU

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT QUESTIONNAIRE FOR THE IMPROVEMENT OF MUKURU AND LIMURU TOWN ACCESS ROADS TO BITUMINOUS STANDARDS AND LIGHTING IN LIMURU MUNICIPALITY

County Government of Kiambu is proposing to undertake the above project in Limuru municipality. AS stipulated in Environmental Management and Coordination Act (EMCA), 1999- CAP 387 and Environmental Impact Assessment regulations 2003, this project require an Environmental Impact Assessment project report. Public consultation is an important exercise for achieving the fundamental principle of sustainable development.

Therefore, as one of the local community member interested/ affected party, we kindly request you to fill this questionnaire and give us your comments/opinions on the proposed project.

Your participation in answering this questionnaire will be much appreciated and will be ***handled with utmost confidentiality.***

1. **PART A: ENVIRONMENTAL ASPECTS** ***(Please tick appropriately).***

a) Are you aware of the proposed project? Yes [ ] No [✓]

b) Do you expect the proposed project to have any **Environmental impacts?**

Positive impacts

1. Good drainage
2. Improved transportation

Negative impacts

Noise

c) Make suggestions on the measures required to mitigate against the foreseen negative impacts. Nil

2. PART B: SOCIAL ECONOMIC ASPECTS ***(Please tick appropriately).***

a. Will the proposed project involve loss of land/involuntary resettlement of people?

Yes [✓]   No [ ]

If yes, state the location where people will be affected? Near along the road

b. Do you support the proposed project?

Yes [✓]   No [ ]

If Yes/No please why? ....

3. PART C: HISTORICAL/CULTURAL RESOURCES ***(Please tick appropriately).***

1. Is there a possibility that the project will damage the local archaeological, historical, cultural, and religious heritage sites in the proposed project area?

Yes [ ]   No [✓]

If yes, please name the place or site NA.

4. PART D: ANY OTHER INFORMATION

Do you have any other Opinion/Suggestion/Recommendations about the project?

To give the local youth jobs while construction

....

....

Name of Respondent: James Njoroge .... Telephone: 0720455327

Signature .... Date: 19/12/19

Thank You for Your Participation and Cooperation

COUNTY GOVERNMENT OF KIAMBU

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT QUESTIONNAIRE FOR THE IMPROVEMENT OF MUKURU AND LIMURU TOWN ACCESS ROADS TO BITUMINOUS STANDARDS AND LIGHTING IN LIMURU MUNICIPALITY

County Government of Kiambu is proposing to undertake the above project in Limuru municipality. AS stipulated in Environmental Management and Coordination Act (EMCA), 1999- CAP 387 and Environmental Impact Assessment regulations 2003, this project require an Environmental Impact Assessment project report. Public consultation is an important exercise for achieving the fundamental principle of sustainable development.

Therefore, as one of the local community member interested/ affected party, we kindly request you to fill this questionnaire and give us your comments/opinions on the proposed project.

Your participation in answering this questionnaire will be much appreciated and will be ***handled with utmost confidentiality.***

1. **PART A: ENVIRONMENTAL ASPECTS *(Please tick appropriately).***

a) Are you aware of the proposed project? Yes [ ] No [✓]

b) Do you expect the proposed project to have any **Environmental impacts?**

Positive impacts

1. Prevention of ~~traffic~~ unnecessary flooding
2.

Negative impacts

1. None
2.

c) Make suggestions on the measures required to mitigate against the foreseen negative impacts.

Nil

2. **PART B: SOCIAL ECONOMIC ASPECTS** ***(Please tick appropriately).***

a. Will the proposed project involve loss of land/involuntary resettlement of people?

Yes [ ] No [✓]

If yes, state the location where people will be affected? .....

b. Do you support the proposed project?

Yes [✓] No [ ]

If Yes/No please why? .....

3. **PART C: HISTORICAL/CULTURAL RESOURCES** ***(Please tick appropriately).***

1. Is there a possibility that the project will damage the local archaeological, historical, cultural, and religious heritage sites in the proposed project area?

Yes [ ] No [✓]

If yes, please name the place or site..... N/A.

4. **PART D: ANY OTHER INFORMATION**

Do you have any other Opinion/Suggestion/Recommendations about the project?

.....1. The project should delay.....

.....

.....

Name of Respondent: ...Mercy.....mmbone..... Telephone: 0724587282

Signature .....AM..... Date: .....19/12/2019.....

Thank You for Your Participation and Cooperation

COUNTY GOVERNMENT OF KIAMBU

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT QUESTIONNAIRE FOR THE IMPROVEMENT OF MUKURU AND LIMURU TOWN ACCESS ROADS TO BITUMINOUS STANDARDS AND LIGHTING IN LIMURU MUNICIPALITY

County Government of Kiambu is proposing to undertake the above project in Limuru municipality. AS stipulated in Environmental Management and Coordination Act (EMCA), 1999- CAP 387 and Environmental Impact Assessment regulations 2003, this project require an Environmental Impact Assessment project report. Public consultation is an important exercise for achieving the fundamental principle of sustainable development.

Therefore, as one of the local community member interested/ affected party, we kindly request you to fill this questionnaire and give us your comments/opinions on the proposed project.

Your participation in answering this questionnaire will be much appreciated and will be ***handled with utmost confidentiality.***

1. **PART A: ENVIRONMENTAL ASPECTS** ***(Please tick appropriately).***

a) Are you aware of the proposed project? Yes [ ] No [✓]

b) Do you expect the proposed project to have any **Environmental impacts?**

Positive impacts

1: Improved drainage

2: Reduced delay in traffic

Negative impacts

None

c) Make suggestions on the measures required to mitigate against the foreseen negative impacts.

N/A

2. PART B: SOCIAL ECONOMIC ASPECTS (*Please tick appropriately*).

a. Will the proposed project involve loss of land/involuntary resettlement of people?

Yes [ ] No [✓]

If yes, state the location where people will be affected? .....

b. Do you support the proposed project?

Yes [✓] No [ ]

If Yes/No please why? .....

3. PART C: HISTORICAL/CULTURAL RESOURCES (*Please tick appropriately*).

1. Is there a possibility that the project will damage the local archaeological, historical, cultural, and religious heritage sites in the proposed project area?

Yes [ ] No [✓]

If yes, please name the place or site..... N/A

4. PART D: ANY OTHER INFORMATION

Do you have any other Opinion/Suggestion/Recommendations about the project?

1. The Project Should be done Effectively without Interfering with the Business

Name of Respondent: Daniel Mburu Kelanyithi Telephone: 0700792152

Signature ..... Date: 19/12/2019

Thank You for Your Participation and Cooperation

COUNTY GOVERNMENT OF KIAMBU

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT QUESTIONNAIRE FOR THE IMPROVEMENT OF MUKURU AND LIMURU TOWN ACCESS ROADS TO BITUMINOUS STANDARDS AND LIGHTING IN LIMURU MUNICIPALITY

County Government of Kiambu is proposing to undertake the above project in Limuru municipality. AS stipulated in Environmental Management and Coordination Act (EMCA), 1999- CAP 387 and Environmental Impact Assessment regulations 2003, this project require an Environmental Impact Assessment project report. Public consultation is an important exercise for achieving the fundamental principle of sustainable development.

Therefore, as one of the local community member interested/ affected party, we kindly request you to fill this questionnaire and give us your comments/opinions on the proposed project.

Your participation in answering this questionnaire will be much appreciated and will be ***handled with utmost confidentiality.***

1. **PART A: ENVIRONMENTAL ASPECTS *(Please tick appropriately).***

a) Are you aware of the proposed project? Yes [✓] No [ ]

b) Do you expect the proposed project to have any **Environmental impacts?**

Positive impacts

1. Good drainage
2. Reduced dust & traffic

Negative impacts

None

c) Make suggestions on the measures required to mitigate against the foreseen negative impacts.

Nil

2. **PART B: SOCIAL ECONOMIC ASPECTS** (*Please tick appropriately*).

a. Will the proposed project involve loss of land/involuntary resettlement of people?

Yes [✓] No [ ]

If yes, state the location where people will be affected? Near the Bridge

b. Do you support the proposed project?

Yes [✓] No [ ]

If Yes/No please why? N/A

3. **PART C: HISTORICAL/CULTURAL RESOURCES** (*Please tick appropriately*).

1. Is there a possibility that the project will damage the local archaeological, historical, cultural, and religious heritage sites in the proposed project area?

Yes [ ] No [✓]

If yes, please name the place or site..... N/A

4. **PART D: ANY OTHER INFORMATION**

Do you have any other Opinion/Suggestion/Recommendations about the project?

Not to interfere with Business and not relocate to us.

Name of Respondent: Naomi Wambui Telephone: 0729 550787

Signature ..... Date: 19/12/2019

Thank You for Your Participation and Cooperation

COUNTY GOVERNMENT OF KIAMBU

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT QUESTIONNAIRE FOR THE IMPROVEMENT OF MUKURU AND LIMURU TOWN ACCESS ROADS TO BITUMINOUS STANDARDS AND LIGHTING IN LIMURU MUNICIPALITY

County Government of Kiambu is proposing to undertake the above project in Limuru municipality. AS stipulated in Environmental Management and Coordination Act (EMCA), 1999- CAP 387 and Environmental Impact Assessment regulations 2003, this project require an Environmental Impact Assessment project report. Public consultation is an important exercise for achieving the fundamental principle of sustainable development.

Therefore, as one of the local community member interested/ affected party, we kindly request you to fill this questionnaire and give us your comments/opinions on the proposed project.

Your participation in answering this questionnaire will be much appreciated and will be ***handled with utmost confidentiality***.

1. **PART A: ENVIRONMENTAL ASPECTS** ***(Please tick appropriately).***

a) Are you aware of the proposed project? Yes [✓] No [ ]

b) Do you expect the proposed project to have any **Environmental impacts?**

Positive impacts

1. Drainage will be good.
2. Easy to transport goods

Negative impacts

No.

c) Make suggestions on the measures required to mitigate against the foreseen negative impacts.

2. **PART B: SOCIAL ECONOMIC ASPECTS** (*Please tick appropriately*).

a. Will the proposed project involve loss of land/involuntary resettlement of people?

Yes [ ] No [✓]

If yes, state the location where people will be affected? .....

b. Do you support the proposed project?

Yes [✓] No [ ]

If Yes/No please why? .....

3. **PART C: HISTORICAL/CULTURAL RESOURCES** (*Please tick appropriately*).

1. Is there a possibility that the project will damage the local archaeological, historical, cultural, and religious heritage sites in the proposed project area?

Yes [ ] No [✓]

If yes, please name the place or site.....

4. **PART D: ANY OTHER INFORMATION**

Do you have any other Opinion/Suggestion/Recommendations about the project?

None -

.....

.....

Name of Respondent: Anne Kombui ..... Telephone: 0707838754

Signature ..... Date: 19/12/19

Thank You for Your Participation and Cooperation

Annex4: Stakeholders Meeting/Fora

i. Invitation for Citizen Fora

1 of 1

COUNTY GOVERNMENT OF KIAMBU

KENYA URBAN SUPPORT PROGRAM (KUSP)

INVITATION FOR CITIZEN FORA

County Government of Kiambu through the Department of Municipal Administration and Urban Development wishes to invite the residents of Kiambu County for public participation forums to identify and discuss new Kenya Urban Support Programme(KUSP) projects in the six Municipalities for the next financial year 2019/2020.

Venue and dates are as per below;

MUNICIPALITY	DATE	VENUE	TIME
RUIRU	15TH APRIL 2019	PEFA GITHURAI CHURCH	10.00 AM
KIKUYU	15TH APRIL 2019	ACK CHURCH KIKUYU	10.00 AM
KARURI	15TH APRIL 2019	KARURI CATHOLIC CHURCH	10.00 AM
THIKA	15TH APRIL 2019	THIKA MUNICIPAL HALL	10.00 AM
KIAMBU	15TH APRIL 2019	RIABAI SHOPPING CENTRE	10.00 AM
LIMURU	15TH APRIL 2019	OUTISIDE SUBCOUNTY ADMINISTRATOR'S OFFICE	10.00 AM

DR. MARTIN NJOGU
COUNTY SECRETARY

ii. Minutes

ANNEX 5

Minutes of Citizen fora

MINUTES OF THE CITIZEN FORA FOR THE KENYA URBAN SUPPORT PROGRAM (KUSP) HELD ON 15TH APRIL 2019, AT LIMURU SUBCOUNTY GROUNDS AT 10:00 A.M.

BOARD MEMBERS PRESENT

1.	MR. MICHAEL MUNA	-	MANAGER
2.	MR. CLEMENT KIMANI	-	CHAIRMAN
3.	MR DAVID NJUGUNA KIBURI	-	MEMBER
4.	MR. SAMUEL NENE	-	MEMBER
5.	MS. ANNE NJERI KAMITI	-	MEMBER
6.	MS. CECILIA W. CHEGE	-	MEMBER
7.	MR. JOHN KARANJA	-	MEMBER
8.	MR. JOSEPH N. MWAI	-	MEMBER
9.	MR. PAUL KAHENYA	-	MEMBER

Agenda:

1. Opening remarks by board chairman
2. Welcome remarks by area Member of County Assembly
3. Quarterly report to citizens (progress reports on Municipal projects 2018/19).
4. Items where board may seek citizen input;
   - i) Stakeholder representation
   - ii) Urban investment plan and budget
   - iii) Organizations of urban service delivery
   - iv) Any other matters affecting the urban residents
5. Plenary session
6. Closing remarks by Municipal Manager

Minute 1: Opening remarks

The meeting was started by word of prayer by one of the attendants at 11:00 a.m. thereafter the board manager welcomed all by briefing and informing that we have 6 municipalities in Kiambu county, namely;

- Kikuyu Municipality
- Kabete Municipality
- Limuru Municipality
- Ruiru Municipality
- Kiambaa Municipality
- Kiambu Municipality

The chairman (Mr. Clement) called on all board members to introduce themselves together with the sub-county staff present.

- He briefed the attendants on the formation of the municipal board
- He noted on the projects to be done in 2018/19; lighting in Limuru town and at the bus park & rehabilitation of the Bus-park
- Due to the rural-urban migration, more people have settled in the urban areas come municipalities thus adding more pressure to the county service providers (water/sewerage, roads, lighting, security e.t.c) where its funds aren't enough. Thus, the World Bank came in to boost infrastructure development.
- He then called on the Members of the County Assembly to address the attendants briefly;

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a. MCA Bibirioni ward (Jackeline Nungari) – she called on all residents to feel free to express their requests.
b. MCA Limuru Central (Joseph Kahenya) – he invited everyone to the meeting and all in his ward as it was the hosting ward.
c. MCA Nyanduma – his interest was so much as the World Bank to check on Agriculture
d. MCA Ndeiya – he reiterated that in the 2010 constitution, it emphasizes much on public participation.
   -counties came in to create assemblies for all areas representation to converge and discuss issues and motions while passing bills.
   -the boards were introduced and gives priority to projects which will capacity to absorb Ksh 50 million and above in a fiscal year.
e. MCA Kamburu ward –he informed the attendants that the attendants that Limuru municipality includes parts of Lari subcounty.
   -when public participation forums are held, it's because residents want to bring the challenges forward. Was it in order for the board to change the scenario by improving the areas in the villages and minimize on rural urban migration?
f. MCA Limuru East- he thanked the attendants for making it to the FORA.

- When projects are proposed they cannot be done for more than a year but have to be completed by the end of that year.
- When proposing projects, always check on projects which create a big impact to the society

Minute 2
He called on all residents to feel free to express their requests.
Minute 3
On waste: Ksh 50 million was allocated for the transfer station at Bibirioni. Backhoes and trucks will also be bought for the facilitation of movement of the separated waste.
On Bus-park: Ksh 60 million was allocated for lighting in the bus park and in Limuru town, Rehabilitation of buspark and improvement of storm water drainage.
On Roadworks: Ksh 50 million was allocated for the construction of Kambaa road.
DO's with World Bank money;

a. Waste management- solid waste collection, waste collection points, bins and transportation.
   -liquid waste i.e. vacuum trucks, ponds, septic tanks
b. Drainage improvement – storm water drainage
c. Connectivity : urban roads, cycle paths and walkways
d. Urban social economic structure: no parks, gardens and parks rehabilitation
e. Fire and disaster management

DON'TS with World Bank money

a. Any project that may trigger harm to the environment for instance destruction of forests.
b. Dams, power plants, highways, urban metro systems, railways, engineering land-fills, hospitals etc

Minute 4

The chairman called on the CECM W.E.N.R. (Water, Environment and Natural Resources) to address the attendants;

-conditional grants have specific projects/areas that can be undertaken
-choose projects that have huge impacts
-let projects be well distributed

Minute 5: Proposals

28. Jane from Kamirithu village: -Mukuru road (Law courts via A104) to Kamirithu village through cemetery to Ngenia High school. It should also have street lights
29. Kanyeki wa Tharau from Kirenga:-Nyambari Githunguri road is being done by KeRRA but the roads in Nyambari (uplands) needs to be improved to bitumen status.
30. Mwangi wa Njoroge from Ndeiya:- lighting to be at Ndiuni, Tiekunu and Thigio
    i. -road from Ndiuni to Bibirioni level IV hospital to be improved
    ii. -roads in Kwambira shopping centre to be done; to improve parking and business and enhance connection from Kwambira Kamirithu polytechnic areas.
31. Njeri from Redhill; lighting at ACK Junction to Redhill
32. Njenga from Limuru:- sewerage connection to serve Kwambira and Rironi shopping centres.
33. Moses from Ndeiya:- improvement of AIC Tiekunu- Ndung'u Njenga-Ngubi roads. The road serves Mukoma high school, Rwamburi dispensary, Ndung'u Njenga girls secondary school among others.
34. Munyaka from Ngecha:-Thingati C Road at Manjiri.
    a. -Road between Kabete and Limuru starting from water tanks; the
    b. Residents have signed a memorandum on the expansion.
    c. Ngecha market improvement
35. Esther Wanjiku from Kirenga ward: Nyambari Town Centre roads and around the milk cooling plant.
36. A gentleman from Ngecha:- (Kabuku sub-location)- has a storm water drainage issue around blue kiosk.
37. Councilor Titus wa Kiratu from Kinale:- sewer system in Kimende
    1. -road from Soko mjinga to Turi Sec. school.
    2. - Construction of Soko Mjinga and lighting
38. Wanjohi wa Ngatia from Ndeiya:- improvement of Tiekunu to Thigio (through Michobo) road
39. Jane from Murengeti:- improvement of Murengeti-SK- Limco road plus street lighting
40. Gachumi from Ngecha:- improvement of Kamwago- Mahinga primary- Gitangu to Ha gitu road

41. Stanley Mwangi from Bibirioni:- improvement of Manguo- cemetery- Ngarariga village road to be expanded and improved to bituminous standards
42. Njenga Kinuthia from Ngecha:- the road at ngecha
43. Catherine Wangari from Limuru:- economic empowerment to the social groups for instance in beautification and tree planting.
44. Joseph Njuguna from Lari Kirenga:- improvement of Kirenga stadium to boost sports.
45. A gentleman from:- improvement of Manguo- Gitogothi- PCEA church junction.
46. Old lady from Biberioni:- talked about fighting hunger
47. Herman: - roads in Limuru east; improvement of Jerusalem- Upendoroad and streetlighting.
48. Kevin (Hawkers chairman):- improvement of clothes market road (slaughter house to limuru model nursery road).
49. Kamburu MCA :- improvement of KIST – college road at Kamburu ward
50. Limuru East MCA:- improvement of DO- Baraka –Methodist, Dadas to Jerusalem road
    a. -streetlighting of the same road
    b. -sewerline at Juakali and Free area, stormwater improvement
    c. -garbage management: skips to be provided at Misri and Karanjee
    d. -improvement of Jomaris-Nyara road
51. Nyanduma MCA:- sewer/waste management at Kagwe shopping centre
    1. -construction of KagweBuspark
52. Limuru Central MCA:- Mukuru –A104 road
    a. -improvement of Rironi market roads
    b. -lighting of Kamirithu village
53. Joseph (Mbukinya):- all projects to be managed and funds taken care of.
54. Ndung'u Njenga (former councillor):-
    d. Fadhi dam water project to be completed to supply water to Ndeiya and Karai ward
    e. Tea zone roads to be improved
    f. Kandutura roads to be lighted

Minute 6: Closing remarks

CECM:

- Projects that have been proposed will cost lots of money thus the need to prioritize the projects.
-Collection of garbage and general cleanliness in Limuru town
-Limuru municipality residents to support the board

There being no other business, the meeting ended at 2: 05p.m. with a word of prayer from Sammy Nene.

Minutes Written by: ..... **Sign.** .....
(Municipal Manager)

Date: 11th May 2019

Confirmed by: Clement Kinai **Sign.** .....
(Municipal Board Chairman)

Date: 11/5/2019

iii. Photos