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**MINISTRY OF TRANSPORT, INFRASTRUCTURE, HOUSING AND
URBAN DEVELOPMENT**

STATE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Nairobi Metropolitan Services Improvement Project – NaMSIP

**ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT
FOR THE PROPOSED CONSTRUCTION OF GITHURAI RAILWAY STATION
ACCESS ROADS IN KIAMBU COUNTY OF NAIROBI METROPOLITAN
REGION – ALIGNMENT EXTENSION E**



10 August 2019

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SUBMISSION DETAILS

Certificate of Declaration and Document Authentication

This document has been prepared in accordance with the Environmental Management and Coordination Cap 387 and Environmental Impact Assessment and Audit Regulations, 2003 of the Kenya Gazette Supplement No.56 of 13th June 2003, Legal Notice No. 101 and World Bank Environmental and Social Safeguards Policies.

This report is prepared for and on behalf of:

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DISCLAIMER:

This Environmental Impact Assessment Study Report is based on literature review and findings from field assessment and it is strictly confidential to the Ministry of Transport, Infrastructure, Housing and Urban Development; State Department of Housing and Urban Development. It is however, subject to conditions in the Environmental Management and Coordination Act, Cap 387 and the World Bank Operational Procedures, mainly OP 4.01.

FACT SHEET

| | |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Program Name | Nairobi Metropolitan Services Improvement Project (NaMSIP) |
| Assignment Name | Environmental and Social Impact Assessment (ESIA) Report for the Proposed Construction of Githurai Railway Station Access Roads in Kiambu County of Nairobi Metropolitan Region. This ESIA targets Alignment E of the Access Roads |
| Lead Implementing Agency | The Ministry of Transport, Infrastructure, Housing and Urban Development, State Department of Housing and Urban Development. |
| Funding Agencies | World Bank |
| Project Components | <ul style="list-style-type: none">• Construction of the 1.2 Kilometre road linking the railway station and the bus station.• Laying of the various layers of road up to the finish in asphalt.• Construction of pavements and drainage systems.• Laying and/or replacement of kerbs and channel |
| Project Location | Githurai, near Githurai Railway Station, Kiambu County |
| Lead Experts | Juliana Tek Reg. No. 2084 |

ABBREVIATIONS & ACRONYMS

| | |
|----------|--------------------------------------------------------------------|
| DOHSS | Directorate of Occupational Health & Safety Services |
| DONMED | Directorate of Nairobi Metropolitan Development |
| EA | Environmental Audit |
| ESIA | Environmental & Social Impact Assessment |
| EHS | Environment, Occupational Health and Safety |
| EMCA | Environmental Management & Coordination Act, 1999 |
| ESMMP | Environmental and Social Management & Monitoring Plan |
| EMS | Environmental Management System |
| ISO | International Standards Organizations |
| MoTIH&UD | Ministry of Transport, Infrastructure, Housing & Urban Development |
| NaMSIP | Nairobi Metropolitan Services Improvement Project |
| NEMA | National Environment Management Authority |
| NMT | Non-Motorized Transport |
| OHS | Occupational Health & Safety |
| OP | Operational Procedures |
| OSHA | Occupational Safety & Health Act |
| PPC | Public Participation& Consultation |
| PSP | Private Sector Participation |
| ToR | Terms of Reference |

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EXECUTIVE SUMMARY

I. PROJECT DESCRIPTION

The proposed construction of the access road (Alignment E) is in Githurai in Kiambu County. The access road is being upgraded from being an earth road to bitumen standards to ease movement in the area. The main objective of the selected road is to link the bus station and the Railway Station. The roads will make the railway station more accessible by both vehicular and pedestrian traffic. The residents of Githurai are facing movement challenges due to the state of the poor roads especially in the rainy season, where the roads flood and become impassable. This impacts on the speed of movement and the cost of maintaining vehicles.

The proposed road covers a distance of 1.2 kilometers from the railway station through Mwiki Primary School, the Deputy County Commissioner's office, CDF office to the Bus Park. The road will be constructed on the road reserve as per the County Government physical plan and there are temporary structures along the road which require a slight movement backwards while others require removal of the iron sheet roofs that have extended into the road. These activities trigger OP 4.12 (Involuntary Resettlement) but do not trigger OP 7.60 (Projects in Disputed Areas). The Ministry of Transport, Housing, Infrastructure and Urban Development will compensate the vendors for displacement and for loss of income during the relocation process. Relocation needs to be undertaken to hasten the construction of the road which will enhance their livelihoods.

The proposed road will improve access within the area and it will entail: -

- Construction of the 1.2 Kilometre road linking the railway station and the bus station.
- Laying of the various layers of road up to the finish in asphalt.
- Laying and/or replacement of kerbs and channel.
- Construction of pavements and drainage systems.
- Installation of street lights.
- Marking of the pedestrian crossings.

The proposed project financing will be under the Nairobi Metropolitan Services Improvement Project (NaMSIP), which is a project, funded jointly by the World Bank and Government of Kenya. The Project lead implementing agency is the State Department of Housing and Urban Development under the Ministry of Transport, Infrastructure, Housing and Urban Development (MTIH&UD). The Project is financing investments in infrastructure and service delivery in the Nairobi Metropolitan Region, the main Project Development Objective (PDO) is to strengthen urban services and infrastructure in the Nairobi metropolitan area.

The Project once complete will improve accessibility to the bus station, Mwiki Primary, CDF office, Deputy County Commissioner's office and the railway station among others. The residents of Githurai will be beneficiaries of this project who are currently using poor roads.

II. PROJECT LOCATION /OWNERSHIP

The proposed road is located on public land reserved for the road, walkways and drainage. The site ownership was verified during consultation where the community agreed that this land is a road reserve and was ready to receive the project. The land is illegally encroached hence resettlement issues will be triggered as depicted by World Bank OP 4.12 Involuntary Resettlement.

III. POLICY AND LEGAL FRAMEWORK

The report has presented the relevant policies, legislation and institutional frameworks that guide preparation of ESIA at both National and World Bank Standards.

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| <p>Policy provisions included; Constitution of Kenya, 2010 Kenya Vision 2030 National Environment Policy, 2013 HIV and AIDS Policy, 2009 National Land Policy, 2009 Gender Policy, 2011 Kenya National Youth Policy, 2006 Sustainable Development Goals Acts of Parliament included; EMCA Cap 387 EMCA Regulations Land Act, 2012</p> | <p>Water Act, 2016 Physical Planning Act, 1996 (Cap 286) The Urban Areas and Cities Act, 2011 Occupational Health and Safety Act (OSHA, 2007), The Public Health Act (Cap 242) HIV and AIDS Prevention and Control Act, 2011 Sexual Offences Act 2006, Child Rights Act (Amendment Bill), 2014 Labour Relations Act, 2012 Way Leaves Act, Cap 292 National Gender and Equality Commission Act, 2011</p> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

The assessment has also referred to the World Bank Operational Procedures to comply with the international safeguards standards as shown below: -

- | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> 1) OP 4.01 Environmental Assessment ; 2) OP 4.04 Natural Habitats ; 3) OP 4.09 Pest Management; 4) OP 4.11 Physical Cultural Resources (PCR); 5) OP 4.12 Involuntary Resettlement; 6) OP 4.10 Indigenous People; 7) OP 4.36 Forests; 8) OP 4.37 Safety of Dams; 9) OP 7.50 Projects on International Waterways; 10) OP 7.60 Projects in Disputed Areas. |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

IV. HIGHLIGHTS OF CONSULTATION

The World Bank Group (WBG) Environmental Assessment OP 4.01 and the EMCA Cap 387, The Environmental (Impact, Audit and Strategic Assessment) Regulations, 2003 requires that project-affected groups and local non-governmental organizations (NGOs) be consulted during the impact assessments process about the project's potential environmental and social impacts.

A summary of outcomes of stakeholder consultations undertaken during preparation of this ESIA is as presented below: -

- a) The current status of the road is poor, while the population is high hence making movement a big challenge.
- b) Priority for employment should be given to the local residents.
- c) The project contractor should consider acquiring the necessary construction materials from the local community.
- d) The community should be notified earlier before commencement of project construction.
- e) The community proposed an additional 200 metres road if possible, due to higher population in the area.

The ESIA chapters 6 and 7 provide a detailed approach and methodology of inclusion of the stakeholder comments into the Project implementation and operation operations.

V. PROJECT POSITIVE IMPACTS

The Project is a socially economically uplifting project and it's envisaged to have more positive impacts after completion of the civil works and commissioning. The main anticipated positive impacts associated with the Project include: -

- 1) Improved accessibility to the bus park, railway station. and all other areas and amenities within the project area
- 2) Reduced travel time spent. The beneficiaries (vehicle owners and pedestrians) will use that time on economically and socially viable activities for the families and hence improved quality of life.
- 3) Promote the socio-economic development of the project area especially during construction where businesses will need to provide meals for the workers and
- 4) Provide employment opportunities for the local community during the construction, operation and decommissioning phases of the project (e.g. masons, carpenters, cooks and indirect spins-off etc.);
- 5) The project will help develop the human capital in the Country through transfer of skills to young engineers and environmental specialists among others.
- 6) The County government will benefit from an expanded source of local revenue as a result of revitalization of the local economy.

Against the above positive benefits brought about by the project, there will be some negative impacts emanating from both the construction, operation and decommissioning activities of the proposed project.

The following is a summary of the possible negative impacts and the mitigation measures.

VI. NEGATIVE IMPACTS AND MITIGATION MEASURES DURING PROJECT CONSTRUCTION PERIOD

The project construction Phase will involve the following activities; delivery of construction of materials, construction of the road, pavements, kerbs and drainage. This will involve excavation, temporary stockpiling of soils, sub-soils and rock along the road, laying the asphalt concrete layer(s) to a consolidated thickness.

The activities discussed above have the potential of triggering negative environment and social impacts during Project Construction Phase. The impacts are presented in three categories of environment namely: Biophysical, Socio-economic and Occupational Health and Safety setting.

VI-1 Biophysical Environment Setting

The impacts on Biophysical environment setting of the project area identified during the assessment are presented in the table VI-1 below.

Table VI-1: Negative Impacts on Biophysical Environment and Proposed Mitigation Measures during Construction

| Impacts | Proposed Mitigation Measures |
|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Loss of vegetation cover at the project site | <ul style="list-style-type: none"> • Site clearance and construction activities will be limited to available reserves within which the road to minimize destruction to vegetation cover. • All plants damaged during construction to be restored after completion of the works. |
| Contamination of surface water & their sources by effluent discharge from the project site and equipment | <ul style="list-style-type: none"> • Ensure construction equipment is well maintained and serviced according to manufacturers' specifications to prevent oil leaks. • Cleaning / repair of equipment to be carried out at designated yards. • Contractor to have designated storage areas for oils, fuels etc. that is protected from rainwater and away from nearby surface watercourses. |
| Soil erosion resulting to loss of top soil | <ul style="list-style-type: none"> • Apply soil erosion control measures such as leveling of the project site to reduce run-off velocity and increase infiltration of storm water into the soil, e.g. silt traps and other barriers. • Ensure that construction vehicles are restricted to existing graded roads to avoid soil compaction within the project site. The trucks should not be driven off the existing roads and trucks to avoid damaging the surrounding land. |

| Impacts | Proposed Mitigation Measures |
|--------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Generation of solid waste from construction activities | <ul style="list-style-type: none"> • Construction wastes (residual earth, debris and scrap materials) to be collected at designated points and Contractor to ensure disposal is done at a licensed solid waste disposal site approved by the Nairobi County Government. • Contractor’s camps and construction sites to have designated waste collection points. • Environmental Management, Health and Safety Training Programmes to be conducted for Contractor’s Staff to create awareness on proper solid wastes management. • Ensure that construction materials left over at the end of construction will be used in other projects rather than being disposed off. |

VI-2 Social Environment Setting

The impacts on Social Economic setting of the project area identified during the assessment are presented in the table VI - 2 below.

Table VI -2: Negative Impacts on Social Environment and proposed Mitigation measure during Construction

| Impacts | Proposed Mitigation Measures |
|----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Loss of temporary assets & sources of livelihood | <p><u>Triggered</u></p> <ul style="list-style-type: none"> • The proposed project will involve construction of the road on the road reserve. There are 15 structures along the road that will be displaced. They will require to be moved to the open field or moved slightly backwards. Others will require to have their iron-sheet canopies encroaching the road removed and later reinstated after construction works. The movement will result in minimal loss of livelihood i.e. a day for relocation and 4 days for settling-in. However, the vendors are ready and quite ok with the slight disturbance and are welcoming the project. In addition, the Ministry of Transport, Housing, Infrastructure and Urban Development has committed to facilitate this process and ensure compensation as indicated in the Annexure. |
| Interference of public utilities & blocking access to property | <ul style="list-style-type: none"> • Contractor to carry out piloting to locate services such as pipes and cables along the road before commencing excavation works. • The relevant services providers and agencies to be notified prior to commencement of works so that any relocation works can be carried out before the construction works begin. |

| Impacts | Proposed Mitigation Measures |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| adjacent to the road | <ul style="list-style-type: none"> • Length of excavation to be restricted to sections that can be restored within the shortest period possible to minimize time of disruption of services. • Materials should be placed away from access points to properties adjacent to the road and where inevitable provide an alternative access and the applicable signage. |
| Increased transmission of HIV/AIDS | <ul style="list-style-type: none"> • HIV/AIDS Awareness Program to be instituted and implemented as part of the Contractor's Health and Safety Management Plan to be enforced by the OHS supervisor. This will involve periodic HIV/AIDS Awareness Workshops for Contractor's Staff. • Control access to Contractor's Workforce Camps. • Contractor to provide protection to personnel on site. |
| Labour influx and sexual offences | <ul style="list-style-type: none"> • Effective community engagement and strong grievance mechanisms on matters related to labour. • Effective contractual obligations for the contractor to adhere to the mitigation of risks against labour influx. • Proper records of labour force on site while avoiding child and forced labour. • Fair treatment, non-discrimination, and equal opportunity of workers. • Comply with provisions of WIBA 2007. • Develop and implement a child Protection Strategy. |
| Human Rights and gender inclusivity | <ul style="list-style-type: none"> • Mainstream gender inclusivity in hiring of workers and entire Project Management as required by Gender Policy 2011 and 2/3-gender rule. • Comply with provisions of guidelines on incorporating Human Rights Standards and Principles, including Gender. • Protecting Human Risk Areas Associated with, Disadvantaged Groups, Interfering with Participation Rights, and interfering with Labour Rights |
| Increased Crime and Insecurity | <ul style="list-style-type: none"> • Contractor and Supervision Team to liaise regularly with the Local Administration and Police Service to address any security and crime arising during project implementation. • Contractor to provide 24 hours security to Workforce Camps, Yards, Stores and to the Supervising Team's Offices |

VI-3 Occupational Health and Safety Setting

The impacts on occupational health & safety setting of the project area identified during the assessment are presented in the table VI -3 below.

Table VI -3 Negative Impacts on Occupational Health and Safety Setting and Proposed Mitigation Measures during Construction

| Impact | Proposed Mitigation Measures |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Noise and Excessive Vibrations. | <ul style="list-style-type: none"> • Contractor will comply with provisions of EMCA Cap 387 (Noise and Excessive Vibrations Regulations of 2009) • The Contractor shall keep noise level within acceptable limits (60 Decibels during the day and 35 Decibels during the night) and construction activities shall, where possible, be confined to normal working hours in the residential areas • Hospitals and other noise sensitive areas such as schools shall be notified by the Contractor at least 5 days before construction is due to commence in their vicinity |
| Air Pollution and Dust Generation | <ul style="list-style-type: none"> • The contractor shall comply with the provisions of EMCA Cap 387 (Air Quality Regulations 2014). • Workers shall be trained on management of air pollution from vehicles and machinery. All construction machinery shall be maintained and serviced in accordance with the contractor's specifications. |
| Risk of Accidents at Work Sites | <ul style="list-style-type: none"> • Contractor to provide a Healthy and Safety Plan prior to the commencement of works to be approved by the Supervising Engineer. • Provide Personal Protective Equipment including gloves, gumboots, overalls and helmets to workers, the use of PPEs to be enforced by the Supervising Engineer. • Fully stocked First Aid Kits to be provided within the Sites, Camps and in all Project Vehicles. • First aiders, fire fighters and incidence/accidents book to be present at site. |
| Risk of Traffic Accidents along the road | <ul style="list-style-type: none"> • Strict use of warning signage and tapes where there is construction works. • Contractor to train Road Safety Marshalls who will be responsible for management of traffic on site. • Contractor to provide a Traffic Management Plan during construction to be approved by the Supervising Engineer. |

VII. NEGATIVE IMPACTS AND MITIGATION MEASURES DURING PROJECT OPERATION PERIOD

The operation phase activities will involve the movement of vehicles and pedestrians to the bus park, Mwiki Primary, Deputy County Commissioner's office, CDF office and the railway station. Regular maintenance of the road is a continuous activity throughout operation phase. A summary of potential negative impacts likely to be experienced during operation of the project as presented in table VII-1.

Table VII: Potential Negative Impacts and Proposed Mitigation Measures during Operation

| Potential Impact | Proposed Mitigation Measures |
|------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Risk of flooding from mis-management of storm-water runoff | <ul style="list-style-type: none"> • Regular inspections to be carried out by Kiambu County Government along the road to ensure clear drainages. • Kiambu County Government will undertake awareness campaigns to prevent solid waste and soil sediments from being channelled into the drainage. |
| Risk of road accidents | <ul style="list-style-type: none"> • Road signage and bumps should be placed at appropriate sections of the road • This risk will be further minimized through regular inspection, repair and maintenance of the road by Kiambu County Government. |
| Traffic Congestion and Noise Pollution. | <ul style="list-style-type: none"> • This impact will be minimized through regular inspection, repair and maintenance of the road by Kiambu County Government |

VIII. NEGATIVE IMPACTS AND MITIGATION MEASURES DURING PROJECT DECOMMISSIONING PERIOD

The decommissioning phase activities will mainly involve removal of the road, disposal the debris/waste material and site restoration/ rehabilitation. Another option involves removal and refurbishment of the whole road which implies that the same impacts experienced during construction phase will be anticipated with an additional impact of disposal of the waste material/debris from the decommissioned road. Since the area is reserved for a road, the second option is more appropriate. A summary of potential negative impacts likely to be experienced during decommissioning phase exploring the option of removal, disposal and refurbishment are presented in table VIII below. However, the impacts from refurbishment are similar to those experienced in construction phase hence this will not be captured in the table below.

Table VIII: Potential Negative Impacts and Proposed Mitigation Measures during Decommissioning

| Impacts | Proposed Mitigation Measures |
|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Exposure to occupational health and safety risks | <ul style="list-style-type: none"> • Adhere to the mitigation measures suggested in Table VI-3 on Negative Impacts on Occupational Health and Safety Setting and Proposed Mitigation Measures during Construction. |
| Loss of assets & sources of livelihood | <ul style="list-style-type: none"> • Structures or assets along the road that will be displaced, will require relocation and compensation for loss of livelihood. Other businesses dependent on road will be affected and alternative routes to the businesses can be provided. |

| Impacts | Proposed Mitigation Measures |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Increased transmission of HIV/AIDS | <ul style="list-style-type: none"> • Adhere to the mitigation measures suggested in Table VI-2 on Negative Impacts on Social Economic Setting and Proposed Mitigation Measures during Construction. |
| Human Rights and gender inclusivity | <ul style="list-style-type: none"> • Adhere to the mitigation measures suggested in Table VI-2 on Negative Impacts on Social Economic Setting and Proposed Mitigation Measures during Construction. |
| Increased Crime and Insecurity | <ul style="list-style-type: none"> • Adhere to the mitigation measures suggested in Table VI-2 on Negative Impacts on Social Economic Setting and Proposed Mitigation Measures during Construction. |
| Labour influx and sexual offences | <ul style="list-style-type: none"> • Adhere to the mitigation measures suggested in Table VI-2 on Negative Impacts on Social Economic Setting and Proposed Mitigation Measures during Construction. |
| Interruption of public utilities & blocking access to property adjacent to the road | <ul style="list-style-type: none"> • Adhere to the mitigation measures suggested in Table VI-2 on Negative Impacts on Social Economic Setting and Proposed Mitigation Measures during Construction. |
| Generation of solid waste from decommissioning activities | <ul style="list-style-type: none"> • Debris/waste material disposal should be in accordance to the Waste Management regulations 2006. • Decommissioning wastes (residual earth, debris and scrap materials) to be collected at designated points and Contractor to ensure disposal is done at a licensed solid waste dumping site approved by the Nairobi County Government. • Environmental Management, Health and Safety Training Programmes to be conducted for Contractor's Staff to create awareness on proper solid wastes management |

X. CONCLUSION

The assessment reached the following conclusions: -

- i) The project will be constructed within existing public land and no private land will be acquired.
- ii) The World Bank OP 7.60 Projects in Disputed Areas will not be triggered since the road will be on land that is planned for it.
- iii) OP 4.12 Involuntary Resettlement will be triggered due to the presence of 15 temporary structures along the road that will require to be relocated to the open field, slightly moved backwards or removal of the iron sheets roofs to provide the recommended reserve. This will also require compensation for the loss of income during relocation and transition at the new locations.
- iv) The Environmental and Social Screening undertaken for the project revealed that the investment is low impact on both social and biological environment; therefore, this project is categorized as a **Category B** project. The level of ESIA assessment required is at Project Report Stage, which should be approved by Nairobi NEMA office.
- v) Provisional Budget of Kshs. 4.0 million is required for implementation of mitigation measures of potential negative environmental impacts identified in the report. The estimated cost of the project is **Kshs. 80, 885,446/51**.
- vi) The overall objective of project is to improve accessibility to services in the project area.

XI. RECOMMENDATIONS

This assessment recommends the following provisions: -

- The proponent needs to support the implementation of environmental and social management plan (including mitigation plan and monitoring) in order to protect the environment of the project area from the negative impacts of project implementation.
- Priority for employment should be given to the local community including women and youth. This will enhance social economic and capacity building.
- The proponent should adopt a participatory and collaborative approach during all the phases of the project. This will ensure active participation of all key stakeholders towards success and sustainability of the project.
- For the affected structures and persons, compensation will be paid for all the affected person and further, they will be assisted with the move. A separate RAP will not be prepared, data on the affected persons will be annexed in this report see annex 5: List of vendors along the access road.

CHAPTER ONE: INTRODUCTION

1.1 General Background

The proposed construction of the access roads is in Githurai in Kiambu County. The access road is being upgraded from being an earth road to bitumen standards to ease movement in the area. The main objective of the selected road is to link the bus station and the Railway Station. The roads will make the railway station more accessible by both vehicular and pedestrian traffic. The residents of Githurai are facing movement challenges due to the state of the poor roads especially in the rainy season, where the roads flood and become impassable. These impact on the speed of movement and the cost of maintaining vehicles.

The proposed road covers a distance of 1.2 kilometers from the railway station through Mwiki Primary School, the Deputy County Commissioner's office, CDF office to the Bus Park. The road will be constructed on the road reserve as per the County Government physical plan and there is encroachment along the road hence triggers OP 4.12 on Involuntary Resettlement.

Nairobi Metropolitan Service Improvement Project (NaMSIP) is part of a wide municipal development initiative by the Government and the development partners to address these problems. NaMSIP is an initiative of the Kenya Government with the support of the World Bank under the Country Partnership Strategy (CPS). The CPS emphasizes the themes of growth, equity, and environment, with a special emphasis on governance. NaMSIP contributes to the governance, growth, and improved environmental management agendas. It seeks to strengthen structures of governance in the metropolitan area, including the county administration and the new metropolitan authorities. NaMSIP contributes to the CPS's growth objective by supporting design and implementation of critical urban services—including transport, sanitation, and solid waste management—that will allow the metropolitan area to meet the needs of businesses and residents. Investment in infrastructure also contributes to the growth agenda by improving the competitiveness of Kenya's cities as places to live and invest.

NaMSIP is intended to improve services in the metropolitan area which are critical for economic development that include solid waste management, transport systems, storm water management, water supply and sanitation, disaster management and security/street lighting among many others. In addition, the implementation of the project will give the Ministry an opportunity to build its human resource and technical capacity in carrying out metropolitan-wide activities. NaMSIP is in line with the Government's national development priorities and policies as well as ongoing public-sector reform agenda. The project also supports strengthening of public sector management and accountability.

The Government of Kenya through the Ministry of Transport, Infrastructure, Housing and Urban Development (MoTIHUD), has received financing from the World Bank under NaMSIP and intends to use these funds to implement the *Proposed Githurai Access road project*. There after the project will be handed over to Kiambu County Government.

1.2 Project Description

The proposed construction of the access road is in Githurai in Kiambu County. The access road is being upgraded from being an earth road to bitumen standards to ease movement in the area. The main objective of the selected road is to link the bus station and the Railway Station. The roads will make the railway station more accessible by both vehicular and pedestrian traffic. The residents of Githurai are facing movement challenges due to the state of the poor roads especially in the rainy season, where the roads flood and become impassable. These impact on the speed of movement and the cost of maintaining vehicles.

The proposed road covers a distance of 1.2 kilometers from the railway station through Mwiki Primary School, the Deputy County Commissioner's office, CDF office to the Bus Park. The road will be constructed on the road reserve as per the County Government physical plan and there is encroachment along the road hence triggers OP 4.12 Involuntary Resettlement while it does not trigger OP 7.60 on Projects in Disputed Areas.

The proposed road will improve access within the area and it will entail: -

- Construction of the 1.2 Kilometre road linking the railway station and the bus station.
- Laying of the various layers of road up to the finish in asphalt.
- Laying and/or replacement of kerbs and channel.
- Construction of pavements and drainage systems.
- Installation of street lights.
- Marking of the pedestrian crossings.

The Project once complete will improve access to various residents and amenities within the project area, Githurai sub-location has a total population of 51,610 according to KNBS, 1999.

This ESIA report presents environment and social impacts to human and natural environment associated with implementation of the proposed project. Appropriate mitigation measures have also been recommended in chapter 7 and 8 of this report.

1.3 Objectives of the Project

The general framework and objective of the proposed road project is to improve connectivity between the bus park and the railway station within Githurai. The proposed project will also provide easy access to Mwiki Primary School, the Deputy County Commissioner's office, CDF office and into homes along the road. The proposed road will support the communities within Githurai to access various amenities with ease and moreover to drain the rainwater into river Gathara-ini hence minimizing changes of flooding in the area.

1.4 Significance of the Project

The proposed road will support the communities within Githurai to access various amenities with ease and moreover to drain the rainwater into river Gathara-ini hence minimizing changes of flooding in the area. These have positive impacts to the community's economy and health by reducing time spent on the road and cost of vehicle maintenance hence improved quality of life.

1.5 Project Justification

The proposed construction of the access road is in Githurai in Kiambu County. The access road is being upgraded from being an earth road to bitumen standards to ease movement in the area. The roads will make the railway station more accessible by both vehicular and pedestrian traffic. The residents of Githurai are facing movement challenges due to the state of the poor roads especially in the rainy season, where the roads flood and become impassable. This impacts on the speed of movement and the cost of maintaining vehicles. The proposed project will be associated benefits:-

- Improved accessibility
- Improved security
- Improved drainage hence better health
- Improve business opportunities
- Increase revenue
- Better social cohesion

1.6 Objectives of ESIA Assessment

1.6.1 General Objective

The purpose of an environmental and social impact assessment (ESIA) is to improve decision-making and to ensure that the project under consideration is environmentally and socially sound and sustainable.

This ESIA has been conducted in compliance with the Environmental Impact Assessment Regulations as outlined under the Gazette Notice No. 56 of 2003 established under the Environmental Management and Coordination Act (EMCA), Cap 387 of Kenya and the World Bank Operational Procedures.

1.6.2 Specific Objectives of EISA Investigations

This Environmental & Social Impact Assessment (ESIA) is expected to achieve the following objectives: -

- i) To present existing environmental, social and cultural setting of the target project area.
- ii) A concise description of the national environmental legislative and regulatory framework, baseline information, and any other relevant information related to the project.
- iii) To identify potential environmental and social impacts (direct and indirect), including opportunities for enhancement; this includes the cumulative impact of the proposed project and other developments which are anticipated.
- iv) The technology, procedures and processes to be used, in the implementation of the project.
- v) To generate feasible alternative investments, sites, technologies, and designs.
- vi) The products, by-products and waste generated by the project.
- vii) To provide preventive, mitigating, and compensatory measures.
- viii) To provide detailed results of the public consultation and disclosure program, and

- ix) To prepare an Environmental and Social Management and monitoring Plan to mitigate the identified impacts so as to ensure sustainability of the proposed Projects.
- x) To recommend cost-effective measures to mitigate against the anticipated impacts.
- xi) The measures to prevent health hazards and to ensure security in the working environment for employees and for the management of emergencies.
- xii) An identification of gaps in knowledge and uncertainties, which were encouraged in compiling the information.
- xiii) An economic and social analysis of the project.

1.7 ESIA Approach and Methodology

The systematic investigative and reporting methodology specified for conduct of Project Report Studies (Legal Notice 101 of EMCA) was adopted in this Study. Baseline data on project design was generated through discussion with the client and review of project documentation. Opinions formed were revalidated through fieldwork entailing site investigations and interviews with potentially affected people and secondary stakeholders.

To identify, predict, analyse and evaluate potential impacts that may emanate from the project, diverse study methods and tools including use of checklists, matrices, expert opinions and observations were employed. An Environmental Management and Monitoring Plan, comprising of an impact mitigation plan and modalities for monitoring and evaluation were then developed to guide environmental management during all phases of project development.

Once approved by the Ministry of Transport, Infrastructure, Housing and Urban Development, NEMA and the World Bank, the Project Report will be disclosed as required.

Consequently, this report provides the following: -

- The location of the project including the physical environment that may be affected by the project's activities.
- The activities that shall be undertaken during the project design, construction, operation and decommissioning of the project.
- The materials to be used, products and by-products including waste to be generated by the project and the methods of disposal.
- The potential environmental and social impacts of the project and mitigation measures to be applied during and after the implementation of the project.
- An action plan for prevention and management of possible accidents during the project cycle.
- A plan to ensure the health and safety of the workers and the neighbouring communities.
- The project cost is – **Kshs. 80, 885,446.51.**
- Any other information that the proponent may be requested to provide by NEMA.

This report also seeks to ensure that all the potential environmental and social impacts are identified and that workable mitigation measures are adopted. The report also seeks to ensure compliance with the provisions of the EMCA Cap 387, Environmental (Impact Assessment and Audit) Regulations 2003 as well as other regulations and the World Bank safeguards policies. Finally, a comprehensive Environmental and Social Management and Monitoring Plan (ESMMP) is mandatory for a project of this nature to ensure monitoring and mitigation of negative environmental and social impacts during the different phases of the project.

1.8 Project cost

The estimated cost of the project is **Kshs. 80, 885,446/51** with an estimated ESMMP cost of **Kshs. 4,000,000/00** as elucidated in the ESMMP in Chapter 8.

CHAPTER TWO: PROJECT DESCRIPTION

2.1 Overview

The proposed 1.2 Km road project lies in Kiambu County in Ruiru Constituency. The proposal is to increase connectivity between the bus park to the railway station at Githurai. The proposed project was conceived from the proposed construction of Githurai Railway Station Access roads which were located in Githurai area covering various roads leading to Githurai Railway Station in Kiambu County. The original project roads were approximately 4.3 km in length and comprised of four (4) main alignments and access roads as indicated below: -

| S/NO. | ALIGNMENT | LENGTH (M) |
|-------|----------------------------------------|--------------|
| 1. | Alignment A | 262 |
| 2. | Alignment B | 1,060 |
| 3. | Alignment C | 953 |
| | Accesses off Alignment C | 1,102 |
| 4. | Alignment D | 894 |
| 5. | Githurai Main Drive (Walkways & Drain) | 700 |
| | TOTAL (CARRIAGEWAY) | 4,271 |

The scope of works entailed construction of existing gravel/ earth roads (Alignments A, B, C, Accesses off Alignment C and D) to bituminous standards including drainage works and construction of walkways and drainage along Githurai Main Drive. See *Annex 1: Figure 1* presents the layout of original project roads (Alignments A, B, C, Accesses off Alignment C, D and Githurai Main Drive) within Githurai area. The project ESIA was cleared and approved by both NEMA and the World Bank.

However, during execution of the works, it became apparent that some of the roads or sections of the roads could not be constructed due to various reasons as discussed below resulting into savings which has been channeled to the construction of Alignment E.

- Alignment A (350m long) passes through Githurai Market and links Githurai Main Drive with Thika Super Highway. The road could not be constructed due to heavy occupation by traders; very small section of the road could be constructed. The road will be constructed within the scope of scheduled construction of Githurai Market and upon relocation of traders to the new market.

- It was noted that construction of Accesses off Alignment C (1,102m long) could not be constructed due to lack of clear road reserve. Further, lack of connectivity of these roads and little if any economic impact informed the decision to drop them during construction of Alignment C.
- A section of Githurai Main drive (300m long) and fronting the Railway Station which was within the scope of these works was constructed under the ongoing project for Construction of Githurai Railway Station. It was therefore dropped from the scope of these works.

Arising from the above, the project appraisal carried out showed a saving of KShs. 102,803,749. This saving was adequate to construct Alignment E, estimated to cost KShs. 80,885,446/50.

Annex 1: Figure 2 presents the revised layout of the project roads after removing Alignment A, Accesses off Alignment C and the 300m long section of Githurai Main drive fronting the station.

The proposed alignment E was found necessary due to the following factors: -

1. It provides alternative link road of the railway station to the bus station.
2. Improve accessibility to Mwiki primary school and a few other learning institutions to Railway station, Main Bus park and Thika road.
3. Improve accessibility to the Deputy County Commissioner’s offices, CDF offices.
4. Improve accessibility to a number of churches and built up residential areas.
5. Provide bypass to traffic from Railway Station and Mwiki/Mwihoko areas as alternative to congested Githurai Main Drive.
6. The road will also improve drainage and provide NMT facilities in the area.



Figure 1: Proposed road (Alignment E)

2.2 Scope of works

The works shall include but not limited to: -

- Site clearance and earthworks as necessary
- Excavation to remove unsuitable materials
- Filling with approved materials as specified
- Hand packing with approved stone
- Improvement/construction of drainage facilities
- Repairs and/or improvement/construction of footpaths and shoulders
- Laying of asphaltic concrete layer(s) to a consolidated thickness.

The materials for construction of this project include the following;

- Filler material
- Aggregates for sub-base
- Bituminous (Asphaltic) mixes of bitumen and aggregate
- Bitumen (Asphalt)

These materials are purchased from respective dealers where filler materials and aggregates are purchased from quarries and borrow pits in the vicinity that are owned by private dealers or individuals. Bitumen is also purchased from bitumen dealers and purchased in drums.

- Laying and/or replacement of kerbs and channel
- Construction of the two road junctions abutting to this road
- Maintenance of the works during the construction and maintenance periods
- Traffic management through the works and from the works
- Relocation and/or protection of other services including but not limited to electric poles
- Any other works as instructed by the Engineer and/or as specified in this report

2.2.1 GPS Coordinates and altitude

The general GPS coordinates of the location of the site of the sub-project are as follows: -

| | | | |
|------------|----------|--------------|---------------------|
| Latitude: | Degrees: | S1° 20 84” | Decimal: -1.3208824 |
| Longitude: | Degrees: | E36° 55’ 41” | Decimal: 36.928111 |

2.3 Description of the Project’s Construction Activities

2.3.1 Pre-construction Investigations

The implementation of the project’s design and construction phase will start with thorough investigation of the site biological and physical resources in order to minimize any unforeseen adverse impacts during the project cycle.

2.3.2 Demolition Works

Any wastes or debris arising from any demolitions will be transported to licensed sites for disposal.

2.3.3 Sourcing and Transportation of Construction Materials

Construction materials will be transported to the project site from their extraction, manufacture, or storage sites using transport trucks. The materials to be used in construction of the project will be sourced from the licensed quarries in the neighboring areas. Greater emphasis will be laid on procurement of construction materials from within the local area, which will make both economic and environmental sense as it will reduce negative impacts of transportation of the materials to the project site through reduced distance of travel by the materials transport vehicles.

2.3.4 Storage of Materials

Construction materials will be stored on site. Bulky materials such as rough stones, ballast and sand will be carefully stored on site. To avoid piling large quantities of materials on site, the contractor should order bulky materials such as sand, gravel and stones in batches.

2.3.5 Excavation and Foundation Works

Excavation will be carried out to prepare the site for construction of foundations, pavements and drainage systems. This will involve the use of heavy earthmoving machinery, human effort and appropriate equipment.

2.3.6 Construction of the Road

This is the main activity and will incorporate the laying of the various layers of road up to the finish in asphalt.

2.3.7 Landscaping

To improve the aesthetic value or visual quality of the site once construction ceases, the contractor will carry out landscaping.



Roads within the project area

Project area residents

Figure 2: Project Area

2.4 Description of the Project's Operational Activities

The road will be repaired/maintained by Kiambu County Government during operational phase.

2.5 Description of the Project's Decommissioning Activities

2.5.1 Demolition Works

Upon decommissioning, the project components including pavements, drainage systems, parking areas and perimeter fence will be demolished. This will produce a lot of solid waste, which will be reused for other construction works or if not reusable, disposed-off by a licensed waste company.

2.5.2 Site Restoration

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

2.5.3 Implications of Upgrade to Bitumen Standards

The best solution to poor roads is upgrading them to bitumen standards, providing adequate drainage to channel the water to the rivers and pedestrian walkways to enhance the safety of the people walking. The poor earth roads lead to slow traffic movement, stagnated water on the road, pedestrians walking on the road which is unsafe. The proposed project will improve the earth road to bitumen standards and hence improve accessibility to various facilities, residents and amenities in Githurai area. This will also create employment, increase security in the area and improve business opportunities to the community. The population to benefit is as follows: -

| Sub-location | Area m² | Total Population KNBS, 2009 | Female | Male | Population Density |
|---------------------|---------------------------|----------------------------------------|---------------|-------------|-------------------------------|
| Githurai | 2 | 51,610 | 26,717 | 24,893 | 26,357 |
| Percentage | | 100% | 52% | 48% | |

CHAPTER 3: ENVIRONMENTAL AND SOCIAL BASELINE CONDITIONS

3.1 Project Location

Kiambu County is one of the five counties in the Central region of the Republic of Kenya. It is bordered to the North by Nyandarua and Murang'a, to the South by Kajiado and Nairobi, to the West by Nakuru and to the East by Machakos and Kitui Counties. It lies between latitudes 00 25' and 10 20' South of the Equator and Longitude 360 31' and 370 15' East. Kiambu County occupies a total area of 2,543.5 Km² with 476.3 Km² under forest cover according to the 2009 Kenya Population and Housing Census. The County lies between 1,200 m - 1,800 m above sea level (ASL) with an extension of the Aberdare Mountains in the North. The highest areas in the North have deeply dissected topography and are drained by several rivers. All the rivers flow from the Aberdare ranges to South East to join Athi River. The County is divided into twelve constituencies: - Gatundu South, Gatundu North, Juja, Thika Town, Ruiru, Githunguri, Kiambu, Kiambaa, Kikuyu, Kabete, Limuru, and Lari. The project site lies within Ruiru constituency (figure 3 below) with a total population of 241,007 according to the census conducted in 2009.

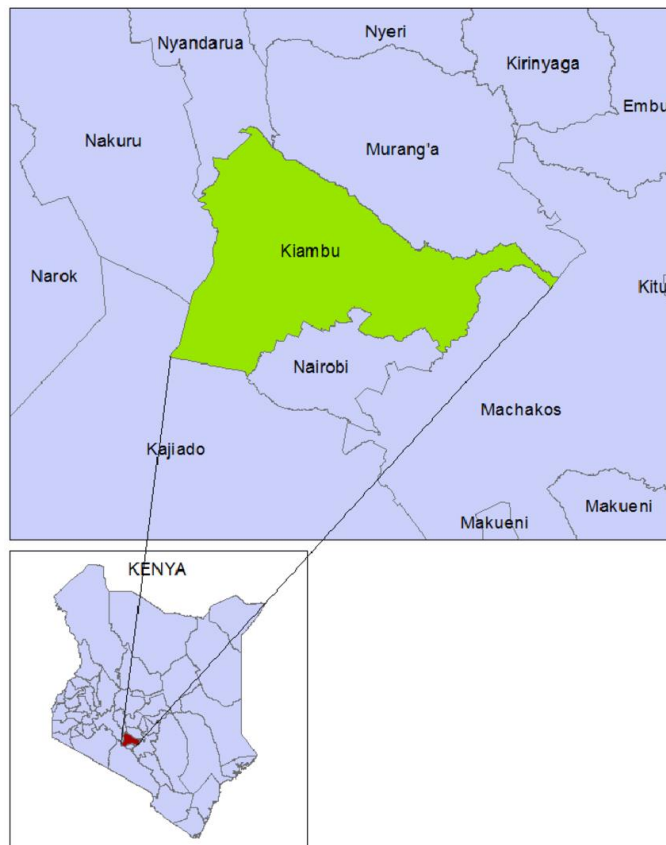


Figure 3: Project Location



Figure 4: Map of the Project site

3.2 Physical Environment

3.2.1 Climate

The county experiences bi-modal type of rainfall. The long rains fall between Mid-March to May followed by a cold season usually with drizzles and frost during June to August and the short rains between Mid-October to November. The annual rainfall varies with altitude, with higher areas receiving as high as 2,000 mm and lower areas of Thika Town constituency receiving as low as 600 mm. The average rainfall received by the county is 1,200 mm. The mean temperature in the county is 26o C with temperatures ranging from 7oC in the upper highlands areas of Limuru and some parts of Gatundu North, Gatundu South, Githunguri and Kabete constituencies, to 34oC in the lower midland zone found partly in Thika Town constituency (Gatunyaga), Kikuyu, Limuru and Kabete constituencies (Ndeiya and Karai). July and August are the months during which the lowest temperatures are experienced, whereas January to March are the hottest months. The county's average relative humidity ranges from 54 percent in the dry months and 300 percent in the wet months of March up to August.

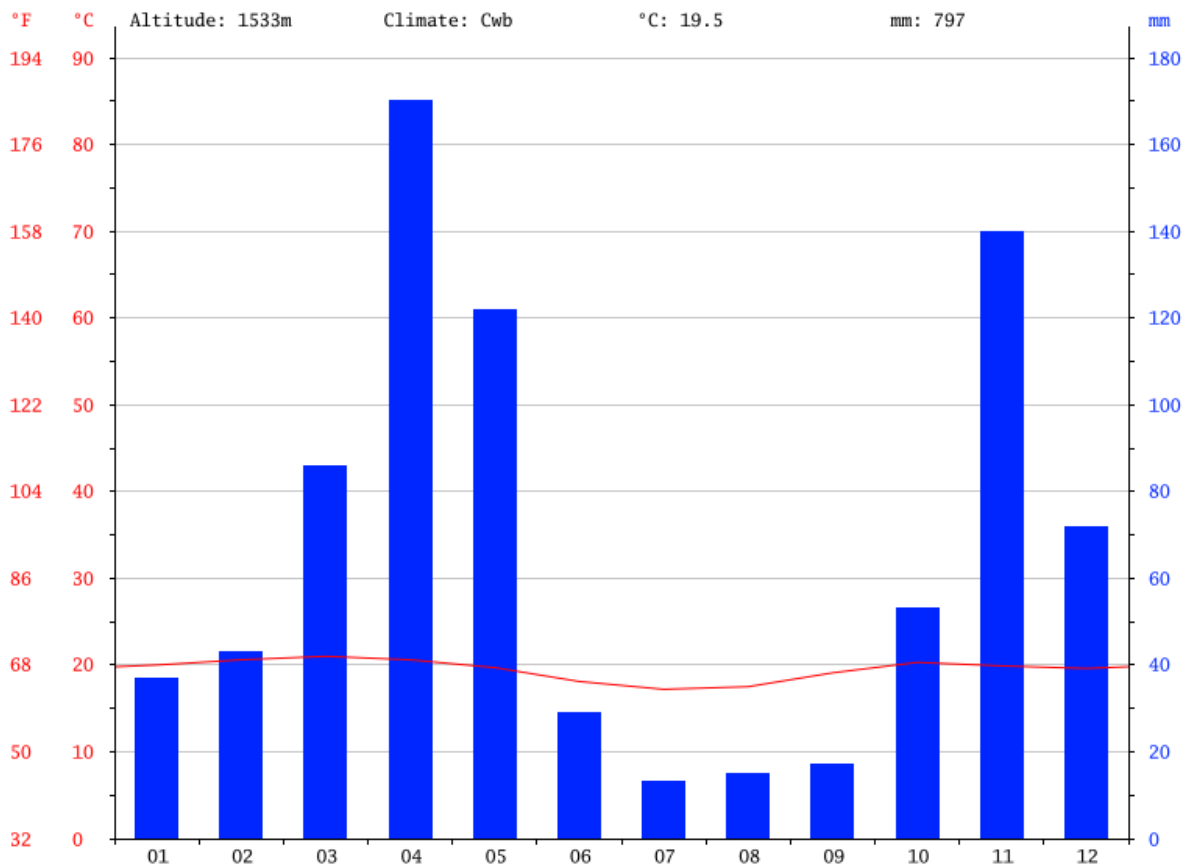


Figure 5: Ruiru climate data graph (source; Climate-Data.org)

3.2.2 Geology

The Ruiru region is located in north east of Nairobi area. Geologically, the Ruiru area lies on Cenozoic volcanic material overlying Basement System rocks at greater depth. The combined volcanic and sedimentary series locally reach a thickness of five to seven hundred meters. In recent geological times, volcanic activity has given way to prolonged erosive period. As a result, large parts of the volcanic rocks and sediments have been exposed in a terraced topography of successive flows and tuff deposits. To the east of the city the lava, sediments and pyroclastics are significantly more eroded than they are to the west. A well-developed soil cover and alluvial deposits lie in the valley buttons of many of the small rivers that transverse the region running roughly west to east.

3.2.3 Hydrology

The proposed project study area is rich in water resources. However, much of it has not been harnessed to benefit the areas development. The key water sources in study area is Ruiru dam, river Gathara-ini which joins Nairobi river at Ruai and borehole. Water is used for multiple purposes among them being domestic and industry. The impacts of water use, and demand have affected

the water quality through pollution due to poor sanitation. There are cases of river pollution especially from domestic waste and sewer from the market centres and residential flats. This is due to the lack of a proper sewer system in the project area.

3.2.4 Topography

The project area's high-altitude areas are located on the extreme south-eastern fringes of the Aberdare Ranges, which starts at about 1800 masl and terminates at about 1200 masl as shown within the Athi River drainage area, the project area is characterized by relatively gentle terrain with a general fall towards Athi River. However, the higher areas to the North West of Thika Road are characterized by deeply dissected topography with numerous streams and ridges, while the south eastern parts are lowlands with fewer streams, shallower and wider valleys. Githurai is 1524 masl as shown on figure 5 which is generally flat and is one of the areas that is covered by shallow soils, which are poorly drained hence flooding in the area is very likely. This will affect the road infrastructure especially before construction of the proposed road which will mitigate for this probability.

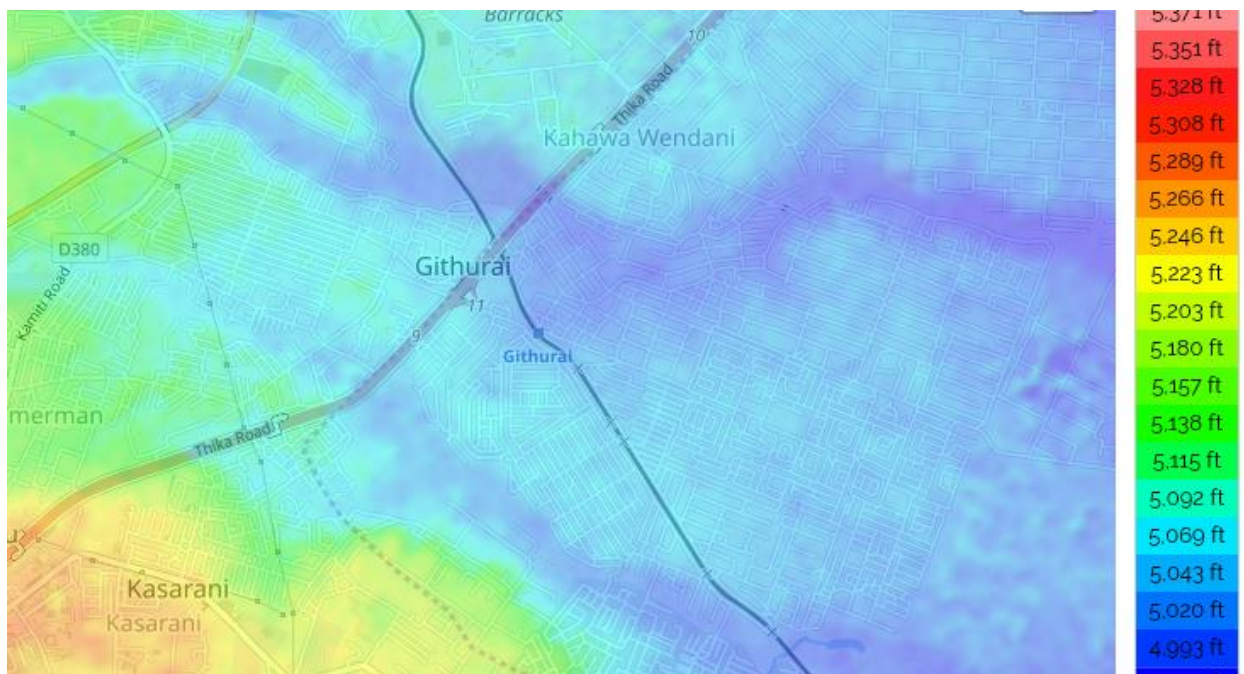


Figure 6: An elevation map illustrating the topography of the project area

Source: <https://en-gb.topographic-map.com/maps/dlge/Ruiru/>

3.2.5 Soils

The area is covered by dark-brown soils and brown lateritic soil. These soils owe their origin to weathering and erosion of the underlying volcanic rocks. The volcanic rocks in the area are represented by Upper Kerichwa Valley tuffs, Lower Kerichwa Valley tuffs, Nairobi Trachytes, Nairobi Phonolites, and Upper Athi Series consisting of sediments and Lake Beds and Athi Tuffs. The thickness of these volcanics varies, but generally decreases towards the east, probably due to both deposition and erosion.

3.3 Biological Environment

There is no significant wildlife in the project areas, due to the natural vegetation being significantly altered (plantation forest is slowly replacing the natural forest, and grasslands have been converted for agriculture).



Scanty grassland

Trees and shrubs along the road in Kimbo

Figure 7: Vegetation in the project area

3.4 Social Set Up

3.4.1 Population

According to the 2009 Population and Housing Census, Kiambu County population for 2012 was projected to be 1,766,058 with 873,200 males and 892,857 females. The project area is situated in Githurai ward, Ruiru sub-county, Kiuu sub-location. The population for Githurai Location under Kiuu is estimated to be approximately 80,705 people in the year 2015 with a projected population for the year 2030 to be 190,239 people. The sex ratio of male to female is 1:1.02.

Population Projection for Githurai Location

| Current Population (2015) | Projected Population (2030) | Average Household Size (2030) | No. of Households (2015) | No. of Households (2030) | Housing Needs (2015-2030) |
|---------------------------|-----------------------------|-------------------------------|--------------------------|--------------------------|---------------------------|
| 80,775 | 190,239 | 4 | 26,980 | 47,560 | 20,580 |

There are sensitive impact receptors present at the project site - the proposed road passes through residential area and the key environmental receptors include motorists, pedestrians, school going children, patients and businesses.

3.4.2 Land and Land Use

Land in Kiambu County is classified into freehold or leasehold land. An individual holds freehold land for an unspecified period of time while leasehold is given by the government to an individual or organization over a specified period of time and is expected to remit rent to the government. Most part of the project area is comprised of residential and commercial land owing to its affordable housing and business community. The people are predominantly entrepreneurs.

3.4.3 Sanitation and Solid Waste Management

A good fraction of the households in the County use flush toilet facilities. The majority of people living in the residential and commercial areas use flush toilets and in Githurai, shared toilets is common approach in provision of sanitary facilities. The area is heavily serviced by septic tanks which provide a leeway for the landlord to open the sewer to the public drain. This is a common problem in the area and provision of a sewer line may solve this problem permanently.

Solid waste in the County is provided through the private waste collectors or alternative approaches like burning, burying in a pit among others.

3.4.4 Infrastructure

The County has several road categories, and the key access road to the project site is the A2 trunk road Nairobi to Thika Super Highway road then branch to join the Mwihoko Road. The proposed project site is at the intersection between the Mwihoko Road and Railway Crossing. The road network to the proposed site is motorable and tarmacked. There area has a railway station, a bus park, a market among others in the project area.

3.4.5 HIV and AIDS, Malaria and Other Diseases

HIV and AIDS are considered a threat to the development of Kenya. The prevalence rate stands at 3.7 percent. AIDS related deaths are common and those mainly affected are within the productive age group of 15-49 years of age. It was also noted that the number of HIV/AIDS orphans is on the increase. The county's HIV prevalence rate is 4.6 percent against the national rate of 5.6 percent. There are various programmes within the county being implemented by NACC and NASCOP geared towards reducing the prevalence of HIV and AIDS. Poverty is viewed as a major cause of HIV/AIDS. Poverty increases vulnerability of people with HIV, hence there is need to redirect resources towards support services to poor households.

The situation is further aggravated by the fact that HIV/AIDS mostly affects people in the productive age leaving minors and the elderly people to take care of households. Progressive gains on poverty reduction may be reversed if concerted efforts are not urgently put in place to bring the HIV/AIDS pandemic under control. Implementation of the project thus needs to create comprehensive HIV/AIDS awareness among the workers along the project area.

3.4.6 Socio-Economics

Githurai is predominately a residential and commercial area where the business community is involved in various businesses to provide goods and services to the residents of Githurai. The county has a total of 2,517 trading centres with 6,634 registered retail traders and 750 registered wholesale traders. There are also a number of urban centres with the largest being Thika Town which is one of the largest industrial towns in the country. Other urban centres include Kiambu and Karuri in Kiambaa constituency, Kikuyu in Kabete constituency, Limuru in Limuru Constituency, Gatundu in Gatundu South Constituency and Ruiru in Juja Constituency. There are many enterprises (firms, businesses) in Githurai community which provide goods and / or services to consumers. Most of these businesses are privately owned. Githurai business support activities like production of goods like shoes, clothes, furniture, bags, metal works, etc and also offer services which range from salons, barber shops, car wash, medical services etc. There are also consumer-oriented stores, agriculture businesses, financial businesses, information businesses, transportation businesses real estate and utilities.

3.4.7 Poverty

Signs of poverty in Githurai area are manifested in Githurai village informal settlement. People living this area is highly populated and experiences high incidences of negative social behaviour that include child labour, prostitution and drug abuse. As a result, the informal settlement nearby is now experiencing an increase in school drop-out rates. Access to health is becoming difficult and people are easily succumbing to diseases.

3.4.8 Health Facilities

There are in total 35 health facility providers within Githurai community. There are no public hospitals in Githurai, but there are 3 private established hospitals; St Marys health hospital, round about medical centre and St John's hospital. There is one dispensary that is public owned.

3.4.9 Education Status of the People

There are many schools in the surrounding areas. Most of the schools are privately owned. There is only one public primary school by the name of Mwiki Primary school with 1,600 girls and 1,400 boys hence a total enrolment of 3,000 pupils. The high enrolment of pupils in this school is due to the free primary education offered by the government in public schools. Other schools in the area are: Excel Primary school (600 Pupils), Mukinyi Academy (500 pupils), St. Margaret Academy (700 pupils), Blessed Hands High School, St Lucie Kiriri Girls High School, Lily Academy, Brain stone Secondary school (400 students) and Blessed hands (450 students). There are also a number of tertiary institutions of higher learning including Kiriri Women's University of Science and Technology, and St. Kizito Vocational Training Institute. School dropout rates are negligible in the area.

3.4.10 Housing

According to the 2009 Kenya Population and Housing Census, 48.3% of all homes in the County are stone –walled, 4.9% are brick/block, while 4.8% are mud/wood walled. 74.6% of the houses have cemented floors while 87.5% have corrugated iron sheets. A small proportion (0.1%) of the houses has other forms of roofing materials.

The proximity of the County to the city of Nairobi has seen the conversion of large parcels of agricultural land into residential and/or mixed-use developments as many of those working in Nairobi opt to reside in the County.

3.4.11 Energy access to Kiambu County

Firewood is the main fuel used in cooking by 47.3% of the households in Kiambu County, while paraffin is the major fuel used in lighting. This poses a great challenge to the realization of 10% forest cover within the County. 98% of all trading centers within the County are connected to the national grid. However, connection to individual homes is low and there is need for up-scaling of the rural electrification programme.

3.4.12 Community organizations/non-state actors

3.4.12.1 Co-operative Societies

The co-operative movement in the county is well established with societies covering several sectors. The county has 254 active co-operatives societies and 22 dormant ones. The total membership is 258,198 and the annual turnover is approximately Kshs. 5,069,560,000. Types of co-operatives found in the county include dairy co-operatives, coffee co-operatives, transport SACCOs and housing SACCOs among others. The marketing co-operatives are engaged in production, processing and marketing of members 'produce. The savings and credit co-operative societies give loans to members at affordable interest rates.

3.4.12.2 Non – Governmental Organizations

The County has about 38 Non-Governmental Organizations that operate in the entire county. However, there is greater concentration in Kiambu and Thika towns within Kiambaa and Juja constituencies. Majority of them, concentrate in the fight against HIV and AIDS, children welfare and women empowerment.

3.4.12.3 Self-Help, Women and Youth Groups

The county boasts of having one of the biggest numbers of registered Community Based Organizations (CBOs). Though actual data is not available, they are estimated to be more than 10,000. The groups are engaged in a wide variety of activities which include: Micro-finance, HIV and AIDS, Drugs and substance abuse campaign, Environmental conservation, Training and advocacy and other income generating activities. The county has over 3,746 active women groups and 1,664 youth groups. Through these groups, women and youths are able to access loans through the Women Enterprise Fund and Youth Enterprise Fund that assist them to engage in income generating activities. Over 467 youth groups have already benefited from the Fund, while a total of 1,193 women groups have benefited from the Women Enterprise Fund. The youths engage in activities such as Jua kali sector, Micro-Finance (Revolving Loan Fund), HIV and AIDS and drug abuse campaign and Home-Based Care, Environmental conservation e.g. tree planting, training and advocacy, entertainment, drama and theatre and income generating activities.

CHAPTER FOUR: ANALYSIS OF PROJECT ALTERNATIVES

4.1 Introduction

Regulation 18(1) of Legal Notice 101 specifies the basic content of an Environmental Impact Assessment Study / Project Report subsequent to which, subsection (i) requires an analysis of alternatives. Analysis of project alternatives requires comparison of feasible alternatives for the proposed project in terms of: project site, project technology, potential environmental and social impacts, capital and recurrent costs, suitability under local conditions, and acceptability by neighbouring land users.

This chapter describes and examines the various alternatives considered during the design of the project. The consideration of alternatives is one of the proactive sides of environmental and social assessment required to enhance project design. This is achieved through examining options instead of only focusing on the more defensive task of reducing adverse impacts of a single design option. The alternative that was considered for the project was focused on: -

- i) “No-action” Alternative
- ii) Relocation Option
- iii) Alternative construction material and technology
- iv) Solid waste management alternatives

4.2 “No action” Alternative

This section analyses the project alternatives in terms of site, technology and waste management options. The No Project option in 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 community living in Githurai and as a whole. The area will continue to have earth roads, and this will not help maximize usage and utilization of this area and its facilities. The No Project Option is the least preferred from the socio-economic and partly environmental perspective due to the following factors:

- The economic status of Kenyans and the local people would remain unchanged.
- The railway station would remain largely under-utilized as it is currently.
- No employment opportunities will be created for thousands of Kenyans who will work in the project area.
- Increased urban poverty and crime in Kenya.
- Discouragement for investors and loaners
- Development of infrastructural facilities (roads and associated infrastructure) will not be undertaken.

From the analysis above, it becomes apparent that the No Project alternative is no alternative to the local people and the Government of Kenya.

4.3 Relocation Option

Relocation option to a different site is not an option available for the project implementation as this project is to improve accessibility to an already established railway station.

4.4 Alternative Construction Materials and Technology

The proposed project will be constructed using modern, locally and internationally accepted materials to achieve public health, safety, security and environmental aesthetic requirements. The road-works will be made using locally sourced materials that meet the Kenya Bureau of Standards requirements.

The alternative technologies available include the conventional concrete roads, 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.

4.5 Solid waste management alternatives

A lot of solid wastes will be generated from the proposed project. An integrated solid waste management system is recommendable. First, the proponent will give priority to reduction at source of the materials. This option will demand a solid waste management awareness program in the management and the staff. Recycling and reuse options of the waste will be the second alternative in priority. This will call for a source separation program to be put in place. The third priority in the hierarchy of options is combustion of the waste that is not recyclable. Finally, the proponent will need to establish agreement with Kiambu County Government to ensure regular waste removal and disposal in an environmentally-friendly manner. In this regard, a NEMA registered solid waste handler would have to be engaged. This is the most practical and feasible option for solid waste management considering the delineated options.

CHAPTER FIVE: POLICY AND LEGAL FRAMEWORK AND INSTITUTIONAL FRAMEWORK

5.1 Introduction

The proposed 1.2 km road project will be administered and implemented in accordance with the provisions of the Kenyan policy, administrative and legal framework and in conformance with international best practices. The legislative and legal framework applicable to the implementation of the proposed project is outlined in the following sections.

5.2 Policy Provisions

5.2.1 Constitution of Kenya

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

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

Part (II) “Every person has a duty to cooperate with State organs and other persons to protect and conserve the environment and ensure ecologically sustainable development and use of natural resources. Chapter 5 on Land and Environment emphasizes on the following: -

- i) Land use and management shall by law benefit local communities
- ii) Community land is protected from encroachment by State.
- iii) Law shall protect Rivers, forests and water bodies.
- iv) Equitable access to land.
- v) All lawful land rights are secured; only someone who has stolen land needs to worry.
- vi) County governments will manage land in trust of the people in accordance with the Constitution.

Relevance

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.

5.2.2 Kenya Vision 2030

Kenya Vision 2030 is the current national development blueprint for period 2008 to 2030 and was developed following on the successful implementation of the Economic Recovery Strategy of Wealth and Employment Creation which saw the country's economy back on the path to rapid growth since 2002. GDP growth rose from 0.6% to 7% in 2007 but dropped between 1.7% and 1.8% in 2008 and 2009 respectively. The objective of the vision 2030 is to "transform Kenya into a middle-income country with a consistent annual growth of 10% by the year 2030". One of its aims is to make Kenya to be a nation that has a clean, secure and sustainable environment by 2030. This will be achieved through promoting environmental conservation to better support the economic pillar.

Developing and improving basic infrastructure and services namely will achieve Kenya's transformation into a middle-income country: roads, streetlights, storm water drains, footpaths, and water and sanitation facilities among others.

Relevance

This Project aims at improving the access to the facilities in the area, which improves the economy, health, and sanitation of the area. The project will offer an opportunity for the local community to empower themselves economically through securing employment and service provision.

5.2.3 National Environment Policy (NEP), 2013

Sessional Paper No. 6 of 1999 on Environment and Development since adoption by parliament in 1999 has been in use and influenced the formation of EMCA in 1999 with 2015 amendments but has since been surpassed by time and is therefore under revision to comprehensively cover areas that were previously left out to augment it.

The revised draft of the National Environmental Policy, dated April 2012, sets out important provisions relating to the management of ecosystems and the sustainable use of natural resources, and recognizes that natural systems are under intense pressure from human activities particularly for critical ecosystems including forests, grasslands and arid and semi-arid lands. The objectives of the Policy include developing an integrated approach to Environmental management, strengthening the legal and institutional framework for effective coordination, promoting environmental management tools.

Relevance

The 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 Project; this will ensure that the sensitive ecosystems are not destabilized by the subsequent Project activities.

5.2.4 National Land Policy, 2009

Chapter 2 of the policy is linked to constitutional reforms; regulation of property rights is vested in the government by the Constitution with powers to regulate how private land is used in order to protect the public interest. The Government exercises these powers through compulsory acquisition and development control. Compulsory acquisition is the power of the State to take over land owned privately for a public purpose. However, the Government must make prompt payment of compensation.

Chapter 4 of the land policy under Environmental Management Principles, the policy provides actions for addressing the environmental problems such as the degradation of natural resources, soil erosion, and pollution.

For the management of the urban environment it provides guidelines to prohibit the discharge of untreated waste into water sources by industries and local authorities; it also recommends for appropriate waste management systems and procedures, including waste and waste water treatment, reuse and recycling. This Project aims at improving physical infrastructure within the Project area.

The policy goes further to advocate for environmental assessment and audit as a land management tool to ensure environmental impact assessments and audits are carried out on all land developments that may degrade the environment and take appropriate actions to correct the situation. Public participation has been indicated as key in the monitoring and protection of the environment.

Chapter 4 further advocates for the Implementation of the polluter pays principle which ensures that polluters meet the cost of cleaning up the pollution they cause and encourage industries to use cleaner production technologies.

5.2.5 HIV and AIDS Policy, 2009

The proposed project is to be implemented in the rural area; these areas have high prevalence cases of HIV and Aids. This policy shall provide a framework to both the project proponent and contractor to address issues related to HIV and Aids. In Summary the policy provides a mechanism for:

- Setting Minimum Internal Requirements (MIR) for managing HIV and AIDS
- Establishing and promoting programmes to ensure non-discrimination and non-

- stigmatization of the infected;
- Contributing to national efforts to minimize the spread and mitigate against the impact of HIV and AIDS;
 - Ensuring adequate allocation of resources to HIV and AIDS interventions;
 - Guiding human resource managers and employees on their rights and obligations regarding HIV and AIDS.

Relevance

The Policy will be complied with during implementation of the Project; the Contract will in cooperate in tender document and implement HIV awareness initiatives during construction of the Project.

5.2.6 Gender Policy, 2011

The overall goal of this Policy Framework is to mainstream gender concerns in the national development process in order to improve the social, legal/civic, economic, and cultural conditions of women, men, girls and boys in Kenya.

The policy provides direction for setting priorities. An important priority is to ensure that all ministerial strategies and their performance frameworks integrate gender equality objectives and indicators and identify actions for tackling inequality. In addition, each program will develop integrated gender equality strategies at the initiative level in priority areas. Within selected interventions, the policy will also scale-up specific initiatives to advance gender equality.

Relevance

This policy will be referred to during Project implementation especially during hiring of staff to be involved in the project, procuring of suppliers and sub consultants and sub-contractors to the project.

5.2.7 The Sustainable Development Goals (SDGs)

The 2030 Agenda comprises 17 new Sustainable Development Goals (SDGs), or Global Goals, which will guide policy and funding for the next 15 years, beginning with a historic pledge to end poverty.

The concept of the SDGs was born at the United Nations Conference on Sustainable Development, Rio+20, in 2012. The objective was to produce a set of universally applicable goals that balances the three dimensions of sustainable development: environmental, social, and economic.

The Global Goals replace the Millennium Development Goals (MDGs), which in September 2000 assembled the world around a common 15-year agenda to tackle the indignity of poverty.

Sustainable Development Goal (6), which is the new 2030 agenda and expands Millennium Development Goal as guided by resolutions of Rio+20 conference. The goal focuses more on investment in adequate infrastructure in water sanitation, Hygiene, water quality, waste Water Management, water scarcity and use efficiency, integrated water resource management and protection of water related ecosystems. The proposed road Project will directly contribute towards achieving this goal.

5.3 Kenyan Legislations

5.3.1 The Environmental Management and Coordination Act (EMCA) Cap 387

The Act 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 and EMCA 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. EMCA has provided for the development of several subsidiary legislations and guidelines, which govern environmental management and are relevant to the project implementation.

These include:

- i) The Environmental (Impact Assessment and Audit) Regulations, 2009 Legal Notice No. 101;
- ii) The Environmental Management and Coordination (Waste Management) Regulations, 2006 Legal Notice No. 121;
- iii) The Environmental Management and Coordination (Water Quality) Regulations, 2006 Legal Notice No. 120;
- iv) The Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009 Legal Notice No. 61;
- v) The Environmental Management and Coordination (Air Quality Regulations 2014)
- vi) The Environmental Management and Coordination (Conservation of Biological Diversity and Resources, Access to Genetic Resources and Benefit Sharing) Regulations, 2006 Legal Notice No. 160;
- vii) Environmental Management and Coordination (Wetlands, River Banks, Lake Shores and Sea Shore Management) Regulation, 2009.
- viii) The Environmental Management and Coordination (Controlled Substances) Regulations, 2007 Legal Notice No. 73.

Relevance to the Project

EMCA Cap 387 and above listed regulations will form the main statutory instruments which

will guide the implementation of the project so that any likely adverse impacts that could be caused by the project are promptly mitigated as recommended in this study.

5.3.2 Water Act 2016

The Water Act 2002 was amended in the year 2016 to align to the Kenyan Constitution 2010, the Act vest the responsibility of developing water and Sanitation infrastructure (sewerage and water supply) to the water service boards and ownership and management to the WSPs that acts as the agent for the board.

Section 73 of the Water Act allows a person with a license to supply water (licensee) to make regulations for purposes of protecting against degradation of sources of water, which he is authorized to take. Under the Act, the licensee could be a local authority; a private Trust or an individual and the law will apply accordingly under the supervision of the Regulatory Board.

Section 75 and sub-section 1 of the Water Act allows a licensee for water supply to construct and maintain drains, sewers and other works for intercepting, treating or disposing of any foul water arising or flowing upon land for preventing water belonging to the licensee or which he is authorized to take for supply from being polluted. However, if the proposed works will affect or is likely to affect any body of water in the catchment, the licensee shall obtain consent from the Water Resources Management Authority.

Section 76 states that no person shall discharge any trade effluent from any trade premises into sewers of a licensee without the consent of the licensee upon application indicating the nature and composition of the effluent, maximum quantity anticipated, flow rate of the effluent and any other information deemed necessary. The consent shall be issued on conditions including the payment rates for the discharge as may be provided under section 77 of the same Act.

Relevance to the Project

This Act will be relevant during construction of the project whereby the contractor will be required from time to time ensure that Project activities do not pollute water resources in the project area.

The Contractor will also be required to comply with the effluent discharge requirements during construction of the project, which will require that the contractor obtain relevant permits from Water Resource Authority (WRA) on case-by-case basis when required.

5.3.3 County Government Act No. 17 of 2012

Part II of the Act empowers the county government to be in charge of function described in Article 186 of the constitution, (county roads, water and Sanitation, Health), Part XI of the Act

vest the responsibility of planning and development facilitation to the county government with collaboration with national government, this arrangement has been adopted for interventions in order not to conflict with provisions of the Kenyan Constitution.

Relevance to the Project

The project once commissioned by NAMSIP will be handed over to Kiambu County Government which has the mandate of maintaining roads during operation.

5.3.4 Physical Planning Act 1996 (Cap 286)

Section 29 of the said Act empowers the local Authorities (now county governments) to reserve and maintain all land planned for open spaces, parks, urban forests and green belts as well as land assigned for public social amenities.

The same section allows for prohibition or control of the use and development of an area. Section 30 states that any person who carries out development without development permission will be required to restore the land to its original condition. It also states that no other licensing authority shall grant license for commercial or industrial use or occupation of any building without a development permission granted by the respective local Authority.

Relevance to the Project

Thus, the Act directs, regulates and harmonizes development and use of land over the Country, the entire Project has been designed within the reserve land stipulated as a way leave land under this Act, and this was in an effort to avoid cases of acquisition of private property and resettlement complications. Any issues that may be encountered with will be dealt with on a case-by-case basis.

5.3.5 Occupational Health and Safety Act (OSHA 2007)

This legislation provides for protection of workers during construction and operation phases. It is tailored at implementation of the EHS plan in compliance with the relevant sections of this Act. The ESMP prepared under this assessment has provided for specific health and safety aspects to be complied with during implementation of the project.

Relevance to the Project

The Act provides EHS guidelines which shall be followed by both the contractor and supervising consultant during implementation of the project in order to avoid injuries and even loss of life to workers and neighbouring community.

5.3.6 The Public Health Act (Cap 242)

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. Such nuisance or conditions are defined under section 118 and

include nuisances caused by accumulation of materials or refuse which in the opinion of the medical officer of health is likely to harbour rats or other vermin.

Relevance to the Project

The Act provides guideline to the contractor on how he shall manage all wastes (Liquid and Solid Wastes) emanating from the project in a way not to cause nuisance to the community, this Act during construction shall be read alongside the waste management regulations of EMCA Cap 387 for utmost compliance.

5.3.7 Work Injury Benefits Act, (WIBA 2007)

This is an Act of Parliament to provide for compensation to employees for work related injuries and diseases contracted in the course of their employment and for connected purposes. An employee is a person who has been employed for wages or a salary under a contract and includes apprentice or indentured learner.

The proposed project will adhere to the provisions of this act throughout the construction period of the project.

5.3.8 Way Leave Act Cap 292

Section 3 of the Act states that the Government may carry any works through, over or under any land whatsoever, provided it shall not interfere with any existing building or structure of an ongoing activity. Notice, however, should be given one month before carrying out any such works (section 4) with full description of the intended works and targeted place for inspection. Any damages caused by the works would then be compensated to the owner as per this section 8 of the Act states that any person whom without consent causes any building to be newly erected on a way leave, or cause hindrance along the way leave shall be guilty of an offence and any alternations will be done at his/her costs.

5.3.9 Kenya Roads Act, 2007

This is an Act of Parliament to provide for the establishment of the Kenya National Highways Authority, the Kenya Urban Roads Authority and the Kenya Rural Roads Authority, to provide for the powers and functions of the authorities and for connected purposes

5.4 Institutional Structure of the Road Sector

5.4.1 Kenya Urban Roads Authority (KURA)

Kenya Roads Act, 2007 gives the mandate of KURA as the Management, Development, Rehabilitation and Maintenance of National Urban Trunk Roads with the aim of providing and managing quality, safe and adequate urban road network. The functions of the Authority shall be to have the responsibility for the management, development, rehabilitation and maintenance of all public roads in the cities and municipalities in Kenya except where those roads are national roads. For the purposes of discharging its responsibility under subsection the Authority shall have the following powers and duties—

- a) constructing, upgrading, rehabilitating and maintaining roads under its control;

- b) controlling urban road reserves and access to roadside developments;
- c) implementing roads policies in relation to urban roads;
- d) ensuring adherence by motorists to the rules and guidelines on axle load control prescribed under the Traffic Act (Cap. 403) and under any regulations under this Act;
- e) ensuring that the quality of road works is in accordance with such standards as may be defined by the Minister;
- f) in collaboration with the Ministry responsible for transport and the Police Department, overseeing the management of traffic and road safety on urban roads;
- g) monitoring and evaluating the use of urban roads;
- h) planning the development and maintenance of urban roads;
- i) collecting and collating all such data related to the use of urban roads as may be necessary for efficient forward planning under this Act;
- j) preparing the road works programmes for all urban roads;
- k) liaising and coordinating with other road authorities in planning and on operations in respect of roads;
- l) advising the Minister on all issues relating to urban roads; and
- m) performing such other functions related to the implementation of this Act as may be directed by the Minister.

5.4.2 Kenya Roads Board (KRB)

As per the Kenya Roads Board Act No. 7 of 1999, KRB has a mandate to oversee the road network in Kenya and thereby coordinate its development, rehabilitation and maintenance and be the principal adviser to Government on all matters related thereto. Clause 19 (4) of the KRB Act requires KRB to review, individually, the Annual Road Works Programmes (ARWPs) submitted by Road Agencies and sub-Agencies, and consolidate these ARWPs into an Annual Public Roads Programme (APRP)

5.5 NEMA Compliance

The government established the National Environmental Management Authority (NEMA) as the supreme regulatory and advisory bodies on environmental management in Kenya under EMCA Cap 387. NEMA is charged with the responsibility of coordinating and supervising the various environmental management activities being undertaken by other statutory organs. NEMA also ensures that environmental management is integrated into development policies, programmes, plans and projects.

5.6 Sectoral Integration

This integration encourages provision of sustainable development and a healthy environment to all Kenyans. The key functions of NEMA through the NEC include policy direction, setting national goals and objectives and determining policies and priorities for the protection of the

environment, promotion of cooperation among public departments, local authorities, private sector, non- governmental organizations and such other organizations engaged in environmental protection programmes and performing such other functions as contained in the act.

5.7 Project Implementation Institutional Structure

NAMSIP has an established implementation system that has clear provisions for environmental and social integration through the Environmental Division. An ideal project management structure proposed for the organization in this project has the following components:

5.7.1 The Contractor

The contractor will be required to establish an environmental office to continuously advise on environmental components of the project implementation. Elements in the environmental and social management plan should be integrated in the project with appropriate consultations with NAMSIP through the supervising environmental expert. The environmental officer of the contractor is also expected to fully understand the engineering and management aspects of the project for effective coordination of relevant issues.

5.7.2 The Supervisor

The supervisor will be engaged by NAMSIP (as the project proponent) to ensure effective implementation of the environmental management plan. It is expected that supervisor engages the services of an environmental expert who should in return understand the details of the recommendations on environment management and especially the proposed action plans, timeframes and expected targets of the management plan. The environmental supervisor expert should also be the liaison person between the contractor and Kiambu County on the implementation of environmental concerns as well as issues of social nature associated with the Project.

5.8 International Guidelines

5.8.1 World Bank Environmental and Social Safeguards Policies

Like in any project financed by, or with financial participation of, the World Bank, the environmental and social safeguards as defined in the Bank's Operational Procedures (OPs) will be respected for the purposes of this project implementation. WB classifies its projects into four Environmental Assessment categories according to the likely impacts on the environment they will have. This classification is as follows (only main conditions mentioned):

- (a) Category A: A proposed project is classified as Category A if it is likely to have significant adverse environmental impacts.
- (b) Category B: A proposed project is classified as Category B if it's potential adverse environmental impacts on human populations or environmentally important areas—including wetlands, forests, grasslands, and other natural habitats—are less adverse than those of Category A projects. These impacts are site-specific; few if any of them are irreversible; and in most cases migratory measures can be designed more readily than for

Category A projects. **This particular NaMSIP subproject has been categorized as Category B.**

- (c) Category C: A proposed project is classified as Category C if it is likely to have minimal or no adverse environmental impacts. Beyond screening, no further EA action is required for a Category C project.

Most of the proposed specific projects are in the areas of water supply, storm water drainage and sewerage, with road upgrading and floodlighting in some of the settlements and improvement of roads in key urban areas of the metropolitan region. All of them will have significant positive effects on the environment and on the living conditions of the residents in these areas. Adverse effects, if any, will be limited (some minor and temporally limited noise and dust during construction). Only where drainage and sewage are concerned, measures will have to be taken to prevent indirect adverse effects; such effects could be outside of the project sites, i.e. the selected settlements, in the downstream area, to which drainage water and sewage will flow. Such effects can clearly be identified during the screening process and mitigated as described in ESMMP.

The table below shows the applicability of World Bank Safeguards Operational Procedures as it applies to this construction of a 1.2 Km road project in Kiambu County of the Nairobi Metropolitan Region.

Table 1: Applicability of WB OPs

| OP | Title | Comments |
|------|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4.01 | Environmental Assessment | Triggered. This project falls under category B as per the World Bank OP 4.01 and an environmental and social impact assessment has been undertaken as part of the project preparation to ensure the design, construction, operation and decommissioning phase mitigate the significant adverse environmental and social impacts. |
| 4.04 | Natural Habitats | Not applicable. There are no significant natural habitats on the site of the proposed project. |
| 4.09 | Pest Management | Not applicable. There no pests at the proposed project site. |
| 4.10 | Indigenous Peoples | Not applicable. There are no known indigenous people living at the proposed project site – it’s a cosmopolitan area with urban population. |
| 4.11 | Physical Cultural Resources | Applicable. Site visits and inventories have not indicated the presence of any cultural (historical, archaeological) sites in the sample settlements. However, to manage “chance finds” an appropriate procedure is included in this report. Such procedure to be followed by contractors during the construction phase. |
| 4.12 | Involuntary Resettlement | Triggered. The proposed project is on public land reserved for the road and there are encroachments into the reserve. There are 15 temporary structures which will require relocation and compensation for loss of income during relocation and transition. The Ministry of Transport, Housing, Infrastructure and Urban Development has committed to facilitate this process. The number of vendors affected will not warrant a RAP. A separate Social Impacts Screening Report that identifies the affected persons and compensation amounts needed has been done. |
| 4.36 | Forests | Not applicable. The proposed project site has no forest. |
| 4.37 | Safety of Dams | Not applicable. The project does not involve construction of dams. |
| 7.50 | Projects on International Waterways | Not applicable. The proposed project is not on any waterway. |
| 7.60 | Projects in Disputed Areas | Not applicable. The proposed project Site in located within the road reserve as per the County Physical plans. |

5.8.1.1 Harmonization of both WB and GOK requirements for Social and Environmental Sustainability

The World Bank (WB) and Government of Kenya (GoK) require that Projects of such nature are subjected to environmental and social impact assessment as stipulated under EMCA Cap

387 and its tools; the same process simultaneously fully resolves requirements of OP 4.01 generally, both requirements are aligned in principle and objective in that:

- Both require Environmental Assessment before project implementation leading to development of comprehensive Environmental and social Management plans to guide resolution of social and environmental impacts as anticipated.
- While OP 4.01 of World Bank stipulates different scales of Project Report for different category of projects, EMCA requires Project Report for all sizes of projects, which are required to be scoped as relevant,
- Where EMCA requires consultation of Lead Agencies comprising of relevant sectors with legal mandate under GoK laws, the WB has equivalent safeguards for specific interests.
- The Bank requires that stakeholder consultations be undertaken during planning, implementation and operation phases of the project, which is equivalent to the statutory annual environmental audits at the operation phase of projects in Kenya.
- The understanding of this Project Report study is that, pursuit of an in-depth Project Report process as stipulated by EMCA Cap 387 is adequate to address all World Bank requirements in the OP. This is a major guiding principle in this study.

Therefore, in keeping with this trend, public consultation has been done to the stakeholders, and their comments have been incorporated in the final Environmental Assessment and final design of the project. In addition, the Environmental Assessment report will be made publicly available to all stakeholders through disclosure at the project's proponent website, NEMA, and WB website, as well as copy of the report available at the project site.

5.8.2 Managing the Risks of Adverse Impacts on Communities from Temporary Project Induced Labour Influx

All phases of the project will result to employment of personnel who will work either on temporal basis or permanent basis. These personnel will be subjected to the requirements of Kenya's Work Place Injuries and Benefits Act (WIBA 2007).

In addition, the World Bank labour influx good practices for managing the risks of adverse impacts on communities from temporary project induced labour influx will also be applicable. This provides guidance on identifying, assessing and managing the risks of adverse social and environmental impacts that are associated with the temporary influx of labour resulting from Bank supported projects. It also contains guiding principles and recommendations to be considered as part of the design and implementation of projects with civil works that require labour from outside the project's area of influence. It does not introduce new requirements, but rather seeks to provide concrete guidance on how to approach temporary labour influx within the environmental and social assessment process. The key principles are as follows: -

1. Reduce labour influx by tapping into the local workforce.

The most effective mitigation measure against labour influx is to avoid or reduce it. Depending on the size and the skill level of the local workforce, a share of the workers required for the project may be recruited locally. This is generally easier for unskilled workers, while more specialized staff (typically required in smaller numbers) frequently will be hired from elsewhere. Depending on the requirements of the project and their skill level, it may be possible to train local workers within a reasonable timeframe to meet project requirements. This may be more likely if such trained staff is needed afterwards for the operation and maintenance of the new infrastructure.

2. Assess and manage labour influx risk based on appropriate instruments.

The assessment and management of labour influx should be based on risks identified in the ESIA (if available), other Bank-required assessments, and the Bank's sector-specific experience in the country. Depending on the risk factors and their level, appropriate mitigation instruments need to be developed. This may range from broad requirements set out in the ESMP in a low-risk environment, to the need to develop more specialized instruments, such as a site-specific Labour Influx Management Plan and/or a Workers' Camp Management Plan (or other instruments with similar purpose) in a high-risk environment. Risk factors to consider include, but are not limited to, the following: (i) weak institutional capacity of the implementing agency; (ii) predominant presence of contractors without strong worker management and health and safety policies; (iii) anticipated high volumes of labour influx; (iv) pre-existing social conflicts or tensions; (v) weak local law enforcement, and (vi) prevalence of gender-based violence and social norms towards it in the community; (vii) local prevalence of child and forced labour.

3. Incorporate social and environmental mitigation measures into the civil works contract.

Most adverse impacts from labour influx can only be mitigated by the contractor commissioned by the Borrower to carry out the works. It is therefore paramount that the responsibilities for managing these adverse impacts are clearly reflected as a contractual obligation, with appropriate mechanisms for addressing non-compliance. This allows the Borrower to enforce the implementation of such mitigation measures, which are required to ensure the Borrower's own compliance with Bank policy requirements. While the Bank reviews and clears project-level safeguard instruments (such as ESIA/ESMP) it is the Borrower's responsibility to: (i) ensure the safeguard instruments are reflected in the contractor's ESMP (CESMP), and (ii) ensure the project is implemented in accordance with the CESMP, safeguard instruments and other relevant contractual provisions.

The Contractor shall observe these good practices as presented in the ESMP.

CHAPTER SIX: PUBLIC PARTICIPATION AND CONSULTATION

6.1 Overview

The need for public involvement in project development is anchored in the Constitution of Kenya, 2010. This requirement is also provided for in the EMCA Cap 387, the Environmental (Impact and Audit) Regulations, 2003, and is one of the guiding principles of the National Environment Policy, 2013.

Public participation ensures that communities and stakeholders are part and parcel of the proposed development(s). It presupposes that the public has access to timely and accurate information on the environment and the proposed development(s), and therefore assures that the developments are sustainable, and resources are also used sustainably. It has also been demonstrated successfully that projects that go through this process acquire a high level of acceptance and accrue benefits to a wider section of society.

Public consultation also forms a useful component for gathering, understanding and establishing likely impacts of projects, determining community and individual preferences and selecting alternatives.

6.2 Benefits of Public Consultation

6.2.1 Benefits to the Developer

- The developer is likely to benefit from local knowledge
- Costs may be saved as key issues are identified by the public and studies are focused on key issues as opposed to a broad range of issues;
- Measures to reduce adverse impacts and enhance benefits will be identified with stakeholders;
- Relations with the communities in the vicinity of the development are likely to be improved;
- Delays in decision making may be reduced because of good participation early in the process;
- The public are unlikely to raise objections to the project; and
- The developer's image and reputation is likely to be enhanced

6.2.2 Benefits to the Public

- Capacity is built through people playing an active role during the process. The skills learnt can be used in other community projects;
- Public rights are exercised and protected in participating; and
- Inputs are likely to influence the form and nature of the development and are likely to lead to better development that takes society's needs into account.

6.2.3 Benefits to Decision makers

- Public participation is likely to improve decisions since there is access to a broader range of perspectives and opinion on the proposed rehabilitation/augmentation;
- The development is likely to be more sustainable as it takes people's needs and views into account; and

- The legitimacy of project commencement and implementation is likely to be improved.

6.3 Approach to Public Participation and Consultation

The Public consultation process involved visiting the project area and its environs. Project stakeholders were identified and consulted with the aim of informing them about the proposed project, collect their views on anticipated positive and/or negative impacts, get recommendations on how the adverse impacts can be mitigated or avoided, and gather local knowledge that would be useful to the proposed project.

6.3.1 Objectives

The main objectives of the public consultation process were as follows:

- To inform stakeholders about the proposed project;
- To share with stakeholders, the impacts (positive and/or negative) that they should expect from the proposed project during construction and operation; and
- To collect stakeholders' views, comments, concerns and local knowledge regarding the proposed project.

6.3.2 Engagement Methodology

To complete the public consultation exercise, a systematic approach was implemented that consisted of a reconnaissance visit to the project area, review of relevant documentation, conducting interviews, administration of questionnaires to the project stakeholders and holding stakeholders' meetings. The Public consultation exercise was conducted in the month of February.

6.3.3 Reconnaissance Visit

Project site visits were carried out on February 2019 to familiarize with the project area and scope. During these visits, would-be project stakeholders covering government institutions, individual households and the neighbouring communities were identified.

6.3.4 Literature Review

A review of relevant information including the project's design report was done to provide a background on the project and area, and a basis for collection of additional information to fill identified gaps.

6.3.5 Stakeholders Identification and Analysis

Like in all civil works projects, the core stakeholders comprise people to be directly served by the project once implemented. This is the group that is likely to benefit or be affected by the proposed development hence the primary stakeholders. This study also identified a second category of stakeholders comprised of GoK officers, county government heads and institutions in charge of diverse sectors (Ministry of Health among others), This category was also consulted as key informants on sectoral policy and to advise this ESIA study on mitigation measures to be put in place so as to minimize adverse impacts in respective sectors. Each category of stakeholders called for a different approach to consultation. Outcome of community consultation



Environmental expert addressing Participants



The area MCA, NaMSIP team, Contractor and County official addressing participants during public meeting.

➤ Stakeholder Engagement

Stakeholder engagements were carried out in the form of interviews; a public meeting also took place, where attendance sheets were filled, and minutes of the meeting were taken. It also involved administration of questionnaires to solicit views regarding this project from these persons. The status of the project as well as its design was disclosed to the stakeholders at this point. The questionnaire initially gave introduction and created awareness to these stakeholders of the proposed project. Afterwards, the ESIA team enquired on the acceptance of the project and whether the project would cause any negative impacts on the following: - a) Local residents and their businesses; b) Ecology of the area; c) Human environment; d) Recreational and leisure facilities; e) Public health and safety; f) Effect on water resources and quality; g) Effect on the soils; h) Effect on road transport and; i) Waste disposal. The said parameters were directly mentioned to foresee which could have intense negative impact.

6.3.6 Issues Raised

The issues raised in the public meeting included the following: -

1. How long the project would take.
2. If there will be local employment and business opportunity
3. How will the contractor ensure no interruptions on the water pipeline?

Further issues are as reflected in the minutes of meetings in the Annexure. The attendance sheets, questionnaires and minutes of meeting for CPP are as attached in this report.

CHAPTER SEVEN: ENVIRONMENTAL AND SOCIAL IMPACTS ASSESSMENT & MITIGATION MEASURES

7.1 Introduction

This Chapter presents the assessment of the issues likely to arise as a result of implementation of the proposed project. For each issue, the analysis is based on its nature, the predicted impact, extent, duration, intensity and probability, and the stakeholders and/or values affected. In accordance with best practice, the analysis includes issues relating to the project's environmental and social sustainability.

7.2 Definition and Classification of Environmental Impact

An environmental or social impact is any change to the existing condition of the environment caused by human activity or an external influence. Impacts may be:

- Positive (beneficial) or negative (adverse);
- Direct or indirect, long-term or short-term in duration, and widespread or local in extent.

Impacts are termed cumulative when they add incrementally to existing impacts. In the case of the Project, potential environmental impacts would arise during the construction, operation and decommissioning phases of the Project and each stage positive and negative impacts would occur.

7.3 Impact Significance

The purpose of this ESIA Report is to identify the significant impacts related to the Project under consideration and then to determine the appropriate means to avoid or mitigate those, which are negative. Significant impacts are defined, not necessarily in order of importance, as being those which:

- Result in Loss of property and of livelihood.
- Relate to protected areas or to historically and culturally important areas;
- Are of public concern and importance.
- Trigger subsequent secondary impacts.
- Elevate the risk to life threatening circumstances.
- Affect sensitive environmental factors and parameters.

7.4 Positive Impacts during the Construction Phase

7.4.1 Creation of Employment and Business Opportunities

During the construction period, new employment opportunities will be created in the form of skilled and unskilled labour. The majority of unskilled labour will be sourced from the project areas. Business and Employment Opportunities will also be created for Suppliers, Sub-Contractors and other small businesses such as food kiosks that may be set-up near the contractor's camps and along the road. Based on the Scope of Works, it is estimated that the following employment opportunities will be created during the Construction Phase:

Table 2: Jobs to be created by the Project

| Description | No. |
|--------------------------|-----|
| Casual Labourers | 50 |
| Skilled Staff | 15 |
| Site Operators / Drivers | 10 |
| Managerial Staff | 10 |

7.5 Positive Impacts during Operation Phase

7.5.1 Improved Accessibility to the railway station and other facilities

The project once commissioned will have a direct benefit the residents of Githurai and its environs where the road network will pass. These areas are currently experiencing transport due to the poor road network. Residents currently spend more time and money to move and maintain their vehicles. It's also unsafe for the pedestrians since they have the no designated path for walking.

7.5.2 Reduction of Flooding Incidences

Cases of flooding in the Project area is likely to reduce with improved accessibility of proper drainage. This will effectively reduce related illnesses related to stagnated water, and accidents / incidences while walking in flooded areas this will have long term effects resulting in social productivity.

7.5.3 Reduced Congestion (vehicles and pedestrian) on the Roads

The traffic on the earth road will reduce due to the bitumen standards of the proposed road. This will impact on the speed of the vehicles, which means that they will move faster hence less time spent on the road. Moreover, there will be no congestion on the roads due to the improved roads linked to the railway station. There will also be less crowding on the roads since a proper pedestrian walk has been incorporated in the design of the proposed road. This will improve the quality of life of the residents of Githurai.

7.5.4 Increased Land Values and Revenue Collection in the Project Area

Provision of any infrastructure is an additional value for properties in target areas. It is expected that property and land will appreciate because of improved access to the railway station, the bus park, residential and commercial property, schools, hospitals and other facilities. It is also expected that Kiambu County will increase collections from the growth in business.

7.6 Positive Impacts during the Decommissioning Phase

7.6.1 Creation of Employment and Business Opportunities

During decommissioning, new employment opportunities will be created in the form of skilled and unskilled labour. The majority of unskilled labour will be sourced from the project areas. Business and Employment Opportunities will also be created for Suppliers, Sub-Contractors

and other small businesses such as food kiosks that may be set-up near the contractor’s camps and along the road. Based on the Scope of Works, it is estimated that the following employment opportunities will be created during the decommissioning Phase:

Table 3: Jobs to be created by the Project

| Description | No. |
|--------------------------|------------|
| Casual Labourers | 30 |
| Skilled Staff | 10 |
| Site Operators / Drivers | 8 |
| Managerial Staff | 3 |

7.6.2 Rehabilitation/ Restoration of the Project Area

During decommissioning, the project will be rehabilitated or restored to /close to its original state. The process will involve planting of trees and different vegetation types which will then assist in revitalizing the ecosystem. This will lead to a rich bio-geophysical environment.

7.7 Potential Negative Impacts and Mitigation Measures at Pre-Construction

7.7.1 Delay in Implementation of the Project due to Objections and Stop orders

Seeking approvals from NEMA for the ESIA and for the plans from County and National Government may take more time than expected. This may be due to objections before implementation or after approval and at the inception of the project. This may be mitigated by: -

Mitigation measure

- i) The Contractor shall ensure that all pertinent permits, certificates and licenses have been obtained prior to any activities commencing on site and are strictly enforced/ adhered to;
- ii) The Contractor shall maintain a database of all pertinent permits and licenses required for the contract as a whole and for pertinent activities for the duration of the contract.

7.7.2 Environmental and Social Degradation Risks

The construction of the campsite to provide a site office and storage area for materials and equipment is necessary. The construction and access to the campsite by delivery tracks and other vehicles will have environmental and social impacts which can be mitigated by: -

Mitigation measure

- i) Isolate through fencing the campsites from access by the public for their safety. Preferably the campsite should be located on land already cleared land wherever possible.
- ii) The Contractor’s Camp layout shall take into account availability of access for deliveries and services and any future works.
- iii) Utilize to the extent possible the existing public roads to avoid social and economic disruption.
- iv) Ensure road safety measures for the vehicles to the extent possible by observing all traffic regulations.

7.7.3 Risks of Environmental degradation risks and occupational health and safety related accidents

All activities to be undertaken on site will have the environmental and health and safety risk associated with them. This requires the contractor to minimize the risks by applying appropriate mitigation measures as follows: -

Mitigation measure

- i) The Contractor and sub-contractors shall be aware of the environmental requirements and constraints on construction activities contained in the provisions of the ESMMP.
- ii) The Contractor will be required to provide for the appropriate Environmental Training and Awareness as described in this ESMMP in his costs and programming.
- iii) An initial environmental awareness training session shall be held prior to any work commencing on site, with the target audience being all project affected persons

7.7.4 Risks of Increased HIV and Aids Transmission in the Area

HIV/AIDS transmission is likely to increase due to the influx of workers from other areas to the project areas. To mitigate this, application of the mitigation measures below are recommended.

Mitigation measure

- i) The Contractor shall institute HIV/AIDS awareness and prevention campaign amongst his workers for the duration of the contract, & contracting organisation, with preference for an organisation already working on this issue in the project area.
- ii) The Contractor's Camp layout shall take into account availability of access for deliveries and services and any future works.
- iii) The campaign shall include the training of facilitators within the workers, information posters in more frequented areas in the campsite and public areas, availability of promotional material (T-shirts and caps), availability of condoms (free), and theatre groups.

7.7.5 Delay in project Implementation due to Opposition from Aggrieved Community Members

Recruitment of people for labour may led to complains from the local community as there may be disparities in the employment. Gender issues related to labour may also lead to complaints. Moreover, the stakeholder engagement may be conducted in a manner that may not be accepted y the community therefore leading to grievances. To mitigate for these impacts, the recommended mitigation measures below may be applied.

Mitigation measure

- i) Wherever possible, the Contractor shall use local labour, and women must be encouraged to be involved in construction work.
- ii) The contractor shall ensure compliance to the gender balance as required by the 2/3 gender rule.
- iii) Apply the World Bank good practices of managing influx of labour.

- iv) Contractor to hire community liaison officers who will act as a link between the community and contractor.
- v) Identification and Engagement of all Stakeholders to be undertaken.
- vi) A working Grievance Redress Mechanism to be established before commencement of Works.

7.7.6 Risks of Associated with Non-tracking of Environment and Social Risks Management Initiatives

The project site will attract several activities that may have both environmental and social risks. These activities will need proper tracking to enhance accountability and compliance to the safeguards standards.

Mitigation measure

- i) Copies of all necessary permits and licenses & the updated version of the ESMMP should be kept on site.
- ii) All site-specific plans prepared as part of the updated ESMMP.
- iii) All related environmental, social, health and safety management registers and correspondence, including any complaints.
- iv) A register of audit non-conformance reports and corrective actions.

7.8 Potential Negative Impacts and Mitigation Measures at Construction Phase

7.8.1 Negative Impacts to the Biophysical Environment and Mitigation Measures

7.8.1.1 Impacts on Vegetation Cover

Human settlement and anthropogenic activities have resulted to the areas being cleared of natural vegetation; clearance is done in order to provide land for development of commercial houses. However less significant impact to vegetation is expected in terms of

- i) Loss of vegetation cover along the road reserve.
- ii) Economic loss due to destruction of trees
- iii) Less significant terrestrial habitat disruption

The risk of destruction of vegetation in the project areas is low and will be further minimized by limiting Site Clearance and Construction activities to the road reserve within the Project area.

Mitigation measure

- i) Reinstatement of the project sites to their original after completion of civil works
- ii) All damaged vegetation during construction to be reinstated after Works are completed.
- iii) The contractor to adhere to the delineated construction work area.
- iv) Planting of friendly trees and grass along the way leave

7.8.1.2 Impacts on Soils

The Project activities are likely to have minor impacts on soils, these impacts include:

- i) Soil Erosion
- ii) Soil Compaction

- iii) Soil pollution.

The impact if not mitigated could result to:

- i) Sediment transfer.
- ii) Increased sediment in rivers
- iii) Soil contamination
- iv) Reduced rainfall infiltration
- v) Alteration of the biophysical and chemical component of the soil reducing soil productivity.

Mitigation measures (Soil Erosion)

- i) The contractor to adhere to the proposed Soil conservation practices.
- ii) Proper and compacted back filling.
- iii) The contractor to stick to clear delineation of the construction to avoid vegetation loss.
- iv) Planting of vegetation cover along the road reserve

Mitigation measures (Soil Compaction)

- v) Split compacted area to reduce runoff & re-vegetate where necessary
- vi) Vehicles to be kept in designated access roads.
- vii) Minimize compaction during stockpiling by working the soil in dry state

Mitigation measures (Soil Pollution)

- i) Any polluted soil should be handled with care for proper disposal.
- ii) Concrete mixing shall be done on concrete slabs or a large metal sheet or mortarboards.
- iii) Maintenance of vehicles to be done strictly at designated place/Drip trays to be used to avoid oil spills.
- iv) Excavation materials to be stock piled at the demarcated location.
- v) Rehabilitation of the site after construction

7.8.1.3 Project Impact on Water

The project is likely to have less significant impacts to water in terms of:

- i) Water pollution from excavated soil, Sediments and effluents from construction machine during river crossing
- ii) Increased Water demand
- iii) Management of Waste water

This impact if not mitigated could result to

- i) Reduced water quality
- ii) Siltation
- iii) Obstruction of water flow
- iv) Increased water demand
- v) Increased toxic levels in soil and water

Project Impacts on Water Resources can be mitigated as follows

Mitigation measures (Reduced Water Quality)

- i) Storing of fuels, oils and chemicals beneath impermeable away from surface drains
- ii) The machines to be properly serviced offsite and maintained to avoid spillage of effluents into the ground.

Mitigation measures (Siltation, Obstruction and Water Demand)

- i) Use of soil erosion control measures e.g. Planting vegetation

Mitigation measure (Waste Water Management)

- i) Grey water to be contained and properly channelled.
- ii) Onsite treatment of Grey water by the facility approved resident engineer.
- iii) Water containing pollutants should be kept in a conservancy tank for removal to prevent pollution of the surface water and surface water bodies.
- iv) Prompt action to be taken by the contractor in case of any pollution incident.

7.8.1.4 Solid Wastes Generation from Construction Activities

Construction activities at the work sites and Contractor's Camps will generate some Spoil material, solid wastes such as plastic containers, used tyres, metal parts, plastics and cables. Such material if not mitigated could be washed away to drainage channels and rivers eventually clogging the drainage channels and increasing river sedimentation.

Mitigation measure (Solid Waste Mitigation Measures)

- i) Maximum reuse of excavated material.
- ii) Implementation of Soil erosion management in the spoil locations
- iii) Construction wastes (residual earth, debris and scrap materials) to be collected at designated points and Contractor to dispose to appropriately
- iv) Contractor's Camps and Construction Sites to have designated waste collection points,
- v) Environmental Management, Health and Safety Training Programmes to be conducted for Contractor's Staff to create awareness on proper solid wastes management

7.8.1.5 Accidental Oil and Fuel Spills and Leaks

The Project will involve use of equipment diesel oils. In the event that these oils accidentally leak into the environment, they could result to significant contamination of soil, surface and underground water resources.

Mitigation measures

- i) Checking and regular servicing of Equipment.
- ii) Re-fuelling at safe locations,
- iii) Use of spill kits and applications of emergency spill procedures.
- iv) Provision of a 20cm layer of sand and ballast at the machinery storage area and diesel tank section, this layer act as sink to potential oil spills and will be replaced when

saturated.

- v) Vehicle maintenance to be done in impervious concrete platforms and grease and oil traps to be used.

7.8.2 Negative Impacts to the Social Environment and Mitigation Measures

7.8.2.1 Loss of Temporal Assets and Sources of Livelihood

There are anticipated impacts on the peoples' assets since there are 15 temporary structures along the road hence triggers OP 4.12 Involuntary Resettlement while OP 7.60 Projects in Disputed Areas is not triggered since the land belongs to the Kiambu County Government. The 15 temporary structures to be displaced will require relocation and compensation for the loss of income during relocation and transition at the new locations. 1-3 kiosks will require relocation and resettlement while the others will either move backwards or require removal of the iron sheet roofs that have extended into the road reserve.

7.8.2.2 Interference of Public Utilities and Blocking Access to Property Adjacent to the Road

The proposed Project will affect other public utility infrastructure, which include, existing water infrastructure, internal roads within the project areas and storm water drainage channels. During construction, the road will and may block access to property adjacent to the road.

Mitigation Measures for Disruption of Public Utilities

- i) Contractor to carry out piloting to locate services such as pipes and cables along the road before commencing excavation works.
- ii) Length of excavation to be restricted to sections that can be reinstated within the shortest period possible to minimize time of disruption of services.
- iii) The relevant services providers and agencies to be notified prior to commencement of works so that any relocation works can be carried out before the road works begin.
- iv) Road materials should be placed away from access points to properties adjacent to the road and where inevitable provide an alternative access and the applicable signage.

7.8.2.3 Labour influx and Sexual Offences to Minors

The project at construction phase has the potential of attracting workers from various regions to Githurai and its environs where the project will be implemented, also if the construction tender is awarded to international contractor chances of foreign workers influx to Githurai will be high. Labour influx has potential of triggering the following impacts.

- | | |
|-----------------------------|----------------------------|
| i. Increased HIV | iv. Disruption of families |
| ii. Early Child pregnancies | v. Sexual offences |
| iii. School dropout | vi. Gender violence |

Mitigation measures (Labour Influx)

- i) Effective community engagement and strong grievance mechanisms on labour issues.
- ii) Effective contractual obligations for the contractor to adhere to the mitigation of risks against labour influx.
- iii) Proper records of labour force on site while avoiding child and forced labour.

- iv) Fair treatment, non-discrimination, and equal opportunity of workers.
- v) Comply with provisions of WIBA 2007 on Labour and Working Conditions, and World Bank good practices on labour influx.
- vi) Develop and implement a child Protection Strategy.

7.8.2.4 Human Rights Principles and Gender Inclusivity

The possibility of the works contractor not adhering to requirements of Human Rights Principles and Gender Inclusivity could trigger resistance from Civil Society Organization (CSO) through demonstrations. This could lead to delay substantial delay in Project implementation

Mitigation measures to non-adherence to Human Rights Principles and Gender inclusivity

- i) Mainstream Gender Inclusivity in hiring of workers and entire Project Management as required by Gender Policy 2011 and 2/3-gender rule.
- ii) Comply with provisions of guidelines on incorporating Human Rights Standards and Principles, including Gender, in Programme Proposals for Bilateral German Technical and Financial Cooperation.
- iii) Protecting Human Risk Areas Associated with, Disadvantaged Groups, Interfering with Participation Rights, and interfering with Labour Rights.

7.8.2.5 Increased Transmission of HIV/AIDS

The Project will attract new people to the Project area seeking employment during the construction period and this can lead to increased transmission of HIV/AIDS and or the other sexually transmitted diseases (STDs). This is may result from increased incomes of workers whereby some may try to seek for sexual favours using their incomes. The fact that some the contractors and workers will be away from their homes may lead them seeking sexual satisfaction from the area residents.

Mitigation Measures for Increased HIV transmission

- i) Offer HIV/AIDS sensitization to workers in collaboration with the local health facilities.
- ii) Offer VCT services to the communities with the help of the local Health facilities.
- iii) Contractor to provide standard protection to personnel on site.

7.8.2.6 Increased Crime and Insecurity

Influx of persons to the project area may lead to increased insecurity and incidences of crime. This impact applies to all the project areas under this assessment.

Mitigation Measures for increased Crime and Insecurity

- i) Contractor and Supervision Team to liaise regularly with the Local Administration and Police Service to address any security and crime arising during project implementation.
- ii) Contractor to provide 24 hours security to Workforce Camps, Yards, Stores and to the Supervising Team's Offices

7.8.3 Negative Impacts on Occupational Health and Safety and Mitigation Measures

7.8.3.1 Air Pollution and Dust Generation

Air Pollution can be caused by emissions from construction activities at the site and equipment and vehicles. Vehicles travelling on unpaved roads and tracks can generate dust. Dust can also be generated from exposed, non-vegetated surfaces. Some dust will also be generated during excavation works, by blowing from dump truck loads, and possibly from project borrow pits and quarries.

Mitigation Measures (Air pollution)

- i) The contractor to comply with the provisions of EMCA Cap 387 (Air Quality Regulations 2014), to be enforced by the Supervising Engineer.
- ii) Workers shall be trained on management of air pollution from vehicles and machinery.
- iii) All construction machinery shall be maintained and serviced in accordance with the contractor's specifications
- iv) The removal of vegetation shall be avoided until such time as clearance is required and exposed surfaces shall be re-vegetated or stabilized as soon as practically possible
- v) The contractor shall not carry out dust generating activities (excavation, handling and transport of soils) during times of strong winds
- vi) Vehicles delivering construction materials and vehicles hauling excavated materials shall be covered to reduce spills and windblown dust
- vii) Water sprays shall be used on all earthworks areas within 200 metres of human settlement especially during the dry season.

7.8.3.2 Noise and Excessive Vibrations

Noise and Excessive Vibrations are caused by operation of construction equipment and activities such as excavation and rock breaking. This impact poses a health and safety risk to both the communities living in the project area and construction workers.

Mitigation Measures for exposure to Noise and Excessive Vibrations

- i) Contractor will comply with provisions of EMCA Cap 387 (Noise and Excessive Vibrations Regulations of 2009)
- ii) The Contractor shall keep noise level within acceptable limits (55 Decibels during the day and 35 Decibels during the night) and construction activities shall, where possible, be confined to normal working hours in the residential areas
- iii) Hospitals and other noise sensitive areas such as schools shall be notified by the Contractor at least 5 days before construction is due to commence in their vicinity
- iv) Undertake Noise and Excessive Vibration Assessments
- v) Effective use of appropriate PPE by exposed workers and Proper maintenance of machines.
- vi) Any complaints received by the Contractor regarding noise will be recorded and communicated to the Supervising Engineer for appropriate action

7.8.3.3 Risk of Accidents at Work Site

Accidents during construction activities may occur due to failure to use Personal Protective Equipment (PPE) by workers on site and members of the public illegally accessing the work sites. Accidents may result in injuries or even death of workers or members of the public.

Mitigation Measures for Accidents at Work sites

- i) Construction Workers and the Supervising Team to be provided with Personal Protective Equipment including gloves, gumboots, overalls and helmets. Use of PPE to be enforced by the Supervising Engineer.
- ii) Fully stocked First Aid Kits to be provided within the Sites, Camps and in all Project Vehicles
- iii) Isolate the site for access by the local communities during the construction for their safety and health
- iv) Camps and Work Sites to be secured by hoarding and security guards provided to restrict access to members of the public.
- v) Strict use of warning signage and tapes where there are road works are happening and at other active construction sites
- vi) Contractor to Employ and train Road Safety Marshalls who will be responsible for management of traffic on site
- vii) Contractor to provide a Traffic Management Plan during construction to be approved by the Supervising Engineer
- viii) Contractor to provide a Healthy and Safety Plan prior to the commencement of works to be approved by the Supervising Engineer.

7.9 Potential Negative Impacts and Mitigation Measures during the Operation Phase

7.9.1 Risk of flooding from mis-management of storm-water runoff

The road is designed to channel the storm- water through the drainage into the river Gathara-ini about 1 kilometre away. However, the soil sediments and solid waste from the area could block the drainage and cause the storm-water to stagnant at a point which will then lead to flooding if mitigation is not prompt.

Mitigation Measures due to Risk of flooding from mis-management of storm-water runoff

- i) Regular inspections to be carried out by Kiambu County Government along the road to ensure clear drainages.
- ii) Kiambu County Government will undertake awareness campaigns to prevent solid waste and soil sediments from being channelled into the drainage.

7.9.2 Risk of Road Accidents

Accidents on the smooth road may occur as a result of vehicles moving at high speeds.

Mitigation of Risk of Road Accidents

- i) Road signage and bumps should be placed at appropriate sections of the road.

- ii) This risk will be further minimized through regular inspection, repair and maintenance of the road by Kiambu County Government.

7.9.3 Traffic Congestion and hence result in noise pollution

There is a likelihood that many vehicles and pedestrians will prefer to use this road and walk way due to access their homes, schools, and other facilities due to the state of other roads in the area. This is likely to increase noise levels due to heavy traffic.

Mitigation Measures to Traffic Congestion and Noise Pollution

- i) This impact will be minimized through regular inspection, repair and maintenance of the road by Kiambu County Government.

CHAPTER EIGHT: ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN (ESMMP)

8.1 Purpose and Objectives of ESMMP

The specific objectives of the ESMMP are to:

- Serve as a commitment and reference for the contractor to implement the ESMMP including conditions of approval from NEMA.
- Serve as a guiding document for the environmental and social monitoring activities for the supervising consultant, contractor and the client management including requisite progress reports.
- Provide detailed specifications for the management and mitigation of activities that have the potential to impact negatively on the environment.
- Provide instructions to relevant Project personnel regarding procedures for protecting the environment and minimizing environmental effects, thereby supporting the Project goal of minimal or zero incidents.
- Document environmental concerns and appropriate protection measures; while ensuring that corrective actions are completed in a timely manner.

8.2 Auditing of ESMMP

The contractor shall conduct regular audits to the ESMMP to ensure that the system for implementation of the ESMMP is operating effectively. The audit shall check that a procedure is in place to ensure that:

- The ESMMP being used is the up to date version;
- Variations to the ESMMP and non-compliance and corrective action are documented;
- Appropriate environmental training of personnel is undertaken;
- Emergency procedures are in place and effectively communicated to personnel;
- A register of major incidents (spills, injuries, complaints) is in place and other documentation related to the ESMMP; and
- Ensure that appropriate corrective and preventive action is taken by the Contractor once instructions have been issued

8.3 Management Responsibility of ESMMP

In order to ensure the sound development and effective implementation of the ESMMP, it will be necessary to identify and define the responsibilities and authority of the various persons and Organizations which will be involved in the project. The following entities should be involved in the implementation of this ESMMP:

- NEMA;
- Contractor;
- Consultant;
- County Government of Kiambu.

8.3.1 National Environment Management Authority (NEMA)

The responsibility of NEMA is to exercise general supervision and co-ordination over all matters relating to the environment and to be the principal instrument of Government of Kenya in the implementation of all policies relating to the environment.

8.3.2 The Contractor

The persons/firms contracted to lay the proposed road will be required to comply with the requirements of the ESMMP within this report. To ensure strict compliance environmental specifications of this ESMMP should form part of the contract documents.

8.3.3 Consultant

The sourced consultant will have to ensure that the proposed ESMMP is up to date and is being used by the contractor. Periodic audits of the ESMMP will have to be done to ensure that its performance is as expected.

8.3.4 County Government of Kiambu

The relevant departmental officers in the above County government will be called upon where necessary during Project implementation to provide the necessary permits and advisory services to the Project implementers. The County Government of Kiambu maintain the road once commissioned.

Tables 27, 28, and 29 present the ESMMP for the proposed Alignment E road Project during the construction, operation and decommissioning phases respectively wastes and debris holding sites will be cleared with maximum re-use of the debris either on surfacing the passageways or other grounds such as schools.

8.4 Emergency Procedure during Construction and Operation Phase of the Project

An emergency situation means unforeseen happening resulting in serious or fatal injury to employed persons or the neighbouring communities. In the event of an emergency during construction, the workers shall: -

- i) Alert other persons exposed to danger;
- ii) Inform the OSHA coordinator;
- iii) Do a quick assessment on the nature of emergency;
- iv) Call for ambulance.

When emergency is over the OSHA coordinator shall notify the workers by putting a message: "ALL CLEAR".

In the event of such an emergency during operation the workers shall:

- a. Alert other persons exposed to danger;
- b. Ring the nearest police station and ambulance services.

The proponent has already put measures to respond to emergencies in their premises like alarms and a fire assembly point. The proponent also has trained first aiders and fire marshals who can assist in case of emergencies

Table 4: Pre-Construction Phase: Environmental and Social Management and Monitoring Plan

| Activity | Associated Impacts | Management Actions | Target Areas & Responsibilities | Monitoring Indicator | Budget |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| <ul style="list-style-type: none"> Seeking approvals from NEMA for ESIA Seeking Approvals of plans from County and National Government | Delay in implementation of the project due to objections and stop orders | <ul style="list-style-type: none"> The Contractor shall ensure that all pertinent permits, certificates and licenses have been obtained prior to any activities commencing on site and are strictly enforced/ adhered to; The Contractor shall maintain a database of all pertinent permits and licenses required for the contract as a whole and for pertinent activities for the duration of the contract. | <p>All Project Components</p> <p><u>Responsibility</u> Contractor/NAM SIP</p> | <ul style="list-style-type: none"> Degree of completion of set of required approvals / permits issued (%) Number and type of findings during any audits based on conditions of approvals | ~KShs 0.05M |
| <ul style="list-style-type: none"> Construction Campsites | Environmental and social degradation risks | <ul style="list-style-type: none"> Isolate through fencing the campsites from access by the public for their safety. Preferably the campsite should be located on land already cleared land wherever possible. The Contractor's Camp layout shall take into account availability of access for deliveries and services and any future works. | <p>Campsites</p> <p><u>Responsibility</u> Contractor(s)</p> | <ul style="list-style-type: none"> Environment license Number of public outcry due to accidents | ~Kshs. 0.3M |
| <ul style="list-style-type: none"> Access to campsites | Environmental and social degradation risks | <ul style="list-style-type: none"> Utilize to the extent possible the existing public roads to avoid social and economic disruption Ensure road safety measures for the vehicles to the extent possible by observing all traffic regulations. | <p>Access Roads</p> <p><u>Responsibility</u> Contractor(s)</p> | <ul style="list-style-type: none"> Cases of private land required Accidents occurrence incidences | (Integrated in the works costs |
| <ul style="list-style-type: none"> Environmental Training and Awareness | Risks of Environmental degradation risks and occupational health and safety related accidents | <ul style="list-style-type: none"> The Contractor and sub-contractors shall be aware of the environmental requirements and constraints on construction activities contained in the provisions of the ESMMP The Contractor will be required to provide for the appropriate Environmental Training and Awareness as described in this ESMMP in his costs and programming An initial environmental awareness training session shall be held prior to any work commencing on site, with the target audience being all project affected persons | <p>All Workers</p> <p><u>Responsibility</u> Contractor(s)</p> | <ul style="list-style-type: none"> Number of Trainings Held Availability of Training reports Attendance list of participants during the training sessions Minutes of the trainings | KShs 0.1M |
| <ul style="list-style-type: none"> HIV/AIDS awareness and prevention campaign | Risks of Increased HIV and Aids transmission in the area | <ul style="list-style-type: none"> The Contractor shall institute HIV/AIDS awareness and prevention campaign amongst his workers for the duration of the contract, & contracting organisation, with preference for an organisation already working on this issue in the project area; | <p>All Workers and selected workshops targeting communities</p> | <ul style="list-style-type: none"> Number of Trainings Held Availability of Training reports | KShs 0.05M |

| Activity | Associated Impacts | Management Actions | Target Areas & Responsibilities | Monitoring Indicator | Budget |
|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| | | <ul style="list-style-type: none"> ▪ The campaign shall include the training of facilitators within the workers, information posters in more frequented areas in the campsite and public areas, availability of promotional material (T-shirts and caps), availability of condoms (free), and theatre groups. | <u>Responsibility</u> Contractor(s) | <ul style="list-style-type: none"> ○ Attendance list of participants during the training sessions ○ Minutes of the trainings | |
| <ul style="list-style-type: none"> • Local Labour / Employment | Delay in project implementation due to opposition from aggrieved community members | <ul style="list-style-type: none"> ▪ Wherever possible, the Contractor shall use local labour, and women must be encouraged to be involved in construction work ▪ The contractor shall ensure compliance to the gender balance as required by the 2/3 gender rule ▪ Apply the World Bank good practices of managing influx of labour. | All the Project components <u>Responsibility</u> Contractor | <ul style="list-style-type: none"> ○ Number of work-force employed from the local community ○ Number of females employed ○ Complaints from disgruntled work force | No direct costs associated |
| <ul style="list-style-type: none"> • ESMMP management records | Risks of associated with non-tracking of environment and social risks management initiatives. | <ul style="list-style-type: none"> ▪ Copies of all necessary permits and licenses & the updated version of the ESMMP should be kept on site. ▪ All site-specific plans prepared as part of the updated ESMMP. ▪ All related environmental, social, health and safety management registers and correspondence, including any complaints. ▪ A register of audit non-conformance reports and corrective actions. | All the Project Components <u>Responsibility</u> Contractor | <ul style="list-style-type: none"> ○ Number of available permits on site ○ Environment and Safety audit ○ Number of corrective measures adopted | No direct associated costs |
| <ul style="list-style-type: none"> • Stakeholder Engagement | Risk of delays in Project Implementation due to disputes / grievances from Stakeholders | <ul style="list-style-type: none"> ▪ Contractor to hire community liaison officers who will act as a link between the community and contractor. ▪ Identification and Engagement of all Stakeholders to be undertaken. ▪ A working Grievance Redress Mechanism to be established before commencement of Works. | All work areas <u>Responsibility</u> NAMSIP | <ul style="list-style-type: none"> ○ No. of Complaints recorded in the Grievances Book ○ Number of community liaison officers employed by the contractor | Cost for implementation of any mitigation measures resulting from resolution of grievances. |
| Sub-total Estimated Cost for ESMMP | | | | | 0.5M |

Table 5: Construction Phase: Environmental and Social Management and Monitoring Plan

| Activity | Associated Impacts | Management Actions | Target Areas & Responsibilities | Monitoring Indicator | Budget |
|---------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| 1. Earth moving and excavations (channelling and site preparations) | <ul style="list-style-type: none"> ▪ Vegetation Cover destruction | <ul style="list-style-type: none"> • Construction activities will be limited to project sites / routes that already exist therefore limited destruction to vegetation cover. • Re-vegetate the project route after completion of civil works. | All work areas <u>Responsibility</u> Contractor(s) | <ul style="list-style-type: none"> • Soil erosion extend and intensity on site | Contractor to include these costs in his rates |
| | <ul style="list-style-type: none"> ▪ Loss of top soil | <ul style="list-style-type: none"> • Stock piling of top soil, construction material and wastes should be done only at designated sites approved by the supervising engineer; erosion prevention through berming of loose soil should be done in all areas susceptible to agents of erosion. | All work areas <u>Responsibility</u> Contractor(s) | <ul style="list-style-type: none"> • Soil erosion extend and intensity on site | |
| | <ul style="list-style-type: none"> ▪ Safety risks ▪ Air pollution ▪ Social nuisance and crime | <ul style="list-style-type: none"> • Provide notices, signage and information to the public for their safety at all locations. • Display emergency contacts in case of crime. • Install barriers along walkways, crossings and public places affected by the works for public safety • Where there are potential for nuisance from dust generation, ensure earth moving is under dump conditions (consider watering where necessary) • Inform immediate communities or stakeholders of the activities. | All work areas <u>Responsibility</u> Contractor(s) | <ul style="list-style-type: none"> • Accidents occurrence incidences • Cases of respiratory complication at nearby health centre | ~KShs. 0.1M |
| | <ul style="list-style-type: none"> ▪ Public safety risks ▪ Worker Occupational safety risks | <ul style="list-style-type: none"> • Provide signage and safety information in all work areas. • Ensure compliance by workers with safety safeguards including the OHS, provision of safety gear and enforcement of application. | Civil works areas <u>Responsibility</u> Contractor(s) Supervision | <ul style="list-style-type: none"> • Accidents occurrence incidences | Kshs. 0.1M |
| | <ul style="list-style-type: none"> ▪ Disruption of amenities (access to property, services lines) causing inconveniences to community. | <ul style="list-style-type: none"> • Notify other services providers and open small sections that can be reinstated within the shortest period to avoid public disruption. • Mark the lines to avoid conflicts with other activities. • Use a local to identify the pipelines especially the water line since it was implemented by the community. | Civil works areas <u>Responsibility</u> Contractor(s) Supervision | <ul style="list-style-type: none"> • Number of complaints from community due to lack of certain services | Costs included in contractors' rates |
| 2. Materials sourcing, delivery | <ul style="list-style-type: none"> ▪ Environmental and Safety risks | <ul style="list-style-type: none"> • Construction material sources should be environmentally sustainable (approved accordingly). • Delivery routes and modes of transport should be approved. | All workers involved | <ul style="list-style-type: none"> • Complains from the community | Costs included in contractors' |

| Activity | | Associated Impacts | Management Actions | Target Areas & Responsibilities | Monitoring Indicator | Budget |
|------------------------------------------------------------------------|---|------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| and storage | | | <ul style="list-style-type: none"> Material storage on site not to be internal or external nuisance. Delivery trucks to be well covered to avoid dust blown pollution. | <u>Responsibility</u> Contractor(s) Supervision | on material transportation | rates |
| 3. Wastes removals and disposal | ▪ | <ul style="list-style-type: none"> Risks of contaminating surface and underground water resources | <ul style="list-style-type: none"> Construction wastes (residual earth, debris and scrap materials) to be removed for safe disposal. Encourage recycling where possible (concrete debris for access road surfacing). Contaminated organic matter in the work areas to be isolated for safe disposal. Material residuals to be disposed-off in accordance with established regulations. | Construction areas <u>Responsibility</u> Contractor(s) Supervision | <ul style="list-style-type: none"> Number of complaints from community not happy with waste management of the contractor | KShs. 0.1M |
| 4. Spoil Storage site | ▪ | <ul style="list-style-type: none"> Risks of solid waste mismanagement leading to pollution | <ul style="list-style-type: none"> Preferably to be located on land already cleared wherever possible. Communities shall be involved in the site location to avoid conflict. The need to be more than 20 meters from water courses and in apposition that will facilitate the prevention of storm-water runoff from the site from entering the watercourse. Contouring of spoil site to approximate natural topography and drainage and/or reduce erosion impacts on the site. The Contractor shall ensure that the placement of spoil is done in such a manner to minimize the spread of materials and the impact on surrounding vegetation and that no materials 'creep' into 'no-go' areas. | Construction areas <u>Responsibility</u> Contractor(s) Supervision | <ul style="list-style-type: none"> Number of complaints from community not happy with waste management of spoil material | Contractor best management practice |
| 5. Storage of fuel oils, lubricants, chemicals and flammable materials | ▪ | <ul style="list-style-type: none"> Hazards of fire outbreak, oil and chemical spills. | <ul style="list-style-type: none"> Follow specifications of the Occupational Health and Safety Act, EMCA Cap 387 and others in the development and operation of stores. Provide 20cm sand or ballast medium at site and equipment storage area and fuel tanks area, the sand and ballast will trap any oil / fuel leaks, this medium should be replaced when saturated and disposed-off appropriately. | All work areas <u>Responsibility</u> Contractor(s) Supervision | <ul style="list-style-type: none"> Incidence of reported cases of fuel leaks and fire incidences | (Integrated in the works costs) |

| Activity | Associated Impacts | Management Actions | Target Areas & Responsibilities | Monitoring Indicator | Budget |
|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| 6. Occupational Health and Safety | <ul style="list-style-type: none"> ▪ Risks of Accidents, Injuries or death of workers or community member | <ul style="list-style-type: none"> • Provide construction workers with personal protective gear (gloves, gum boots, overalls and helmets). • Provide temporary toilets and bathrooms for the construction workers at the work sites. • Provide onsite first aid kit accessible by the workers on need. • Isolate the site for access by the local communities during the construction for their safety and health. • Contractor to provide a Healthy and Safety Plan prior to the commencement of works to be approved by the resident engineer. • Contractor to follow provisions of Kenya Occupational Health and Safety Act 2007. | <p>All work areas</p> <p><u>Responsibility</u> Contractor(s) Supervision</p> | <ul style="list-style-type: none"> • Accidents occurrence incidences recorded in the Incidence Book | KShs. 0.05M |
| 7. Sanitation issues resulting from both solid and liquid wastes on site. | <ul style="list-style-type: none"> ▪ Risks associated with water borne diseases exposed to community and workforce | <ul style="list-style-type: none"> • The Contractor shall comply with all laws and any by-laws relating to public health and sanitation and provisions of Public Health Act Cap 242 • All temporary/ portable toilets or pit latrines shall be secured to the ground to the satisfaction of the RE to prevent them from toppling over. • A washbasin with adequate clean water and soap shall be provided alongside each toilet. Staff shall be encouraged to wash their hands after use of the toilet, in order to minimize the spread of possible disease. | <p>All work areas</p> <p><u>Responsibility</u> Contractor(s) Supervision</p> | <ul style="list-style-type: none"> • Incidence of reported cases of water related diseases among the workforce and neighbour community | (Integrated in the works costs) |
| 8. Noise and Vibration control from equipment | <ul style="list-style-type: none"> ▪ Risk to health and safety of community and workers | <ul style="list-style-type: none"> • The Contractor shall keep noise level within acceptable limits 60dB (A) at day time and 35dB(A) at night and construction activities shall, where possible, be confined to normal working hours in the residential areas • Hospitals and other noise sensitive areas shall be notified by the Contractor at least 5 days before construction is due to commence in their vicinity. • Undertake Noise and Excessive vibrations assessments • Any complaints received by the Contractor regarding noise will be recorded and communicated to the RE | <p>Civil works areas and access roads</p> <p><u>Responsibility</u> Contractor(s) Supervision engineer</p> | <ul style="list-style-type: none"> • Reported complaints from neighbour community and institutions | (Integrated in the works costs) |
| 9. Traffic management on site | <ul style="list-style-type: none"> ▪ Risks of Accidents, Injuries or death of workers or | <ul style="list-style-type: none"> • Strict use of warning signage and tapes where the road works are present and active sites. • Employ and train road safety Marshalls who will be | <p>Civil works areas and access roads</p> <p><u>Responsibility</u></p> | <ul style="list-style-type: none"> • Accidents occurrence incidences | (Integrated in the works costs) |

| Activity | Associated Impacts | Management Actions | Target Areas & Responsibilities | Monitoring Indicator | Budget |
|-------------------------------------------------------|--------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|---------------------------------|
| | community member | responsible for management of traffic on site. <ul style="list-style-type: none"> Contractor to provide a traffic management plan during construction to be approved by the resident engineer. | Contractor(s) Supervision engineer | | |
| 10. Air Quality Control | <ul style="list-style-type: none"> Air pollution causing respiratory disorders to human | <ul style="list-style-type: none"> Workers shall be trained on management of air pollution from vehicles and machinery. All construction machinery shall be maintained and serviced in accordance with the contractor's specifications. The removal of vegetation shall be avoided until such time as clearance is required and exposed surfaces shall be re-vegetated or stabilized as soon as practically possible The contractor shall not carry out dust generating activities (excavation, handling and transport of soils) during times of strong winds. Vehicles delivering soil materials shall be covered to reduce spills and windblown dust. | All work areas <u>Responsibility</u> Contractor(s) Supervision | <ul style="list-style-type: none"> Cases of respiratory complication at nearby health centre | (Integrated in the works costs) |
| 11. Contractor de-mobilization and site reinstatement | <ul style="list-style-type: none"> Associated risks of environmental degradation | <ul style="list-style-type: none"> The site is to be cleared of all construction materials, including litter prior to hand over. Fences, barriers and demarcations associated with the construction phase must be removed from the site. Rehabilitation Activities of Environmental Cases identified must continue throughout the defect liability period. | All work areas <u>Responsibility</u> Contractor(s) Supervision | <ul style="list-style-type: none"> Closeout audit report findings | (Integrated in the works costs) |
| 12. 'Chance find' | <ul style="list-style-type: none"> Loss of material of cultural heritage value | <ul style="list-style-type: none"> The contractor should implement the Chance Finds Procedure if cultural heritages is discovered | All work areas <u>Responsibility</u> Contractor(s) Supervision | <ul style="list-style-type: none"> Number of Materials of heritage value) | No cost implication |
| Sub-total Estimated Cost for ESMMP | | | | Kshs. 3.5 Million | |
| Total Estimated Cost for ESMMP | | | | Kshs. 4 Million | |

Table 6: Operational Phase: Environmental and Social Management and Monitoring Plan

| No. | Issue | Action required | Responsibility | Monitoring Indicator | Provisional Budget |
|-----|------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 1 | Risk of flooding from mis-management of storm-water runoff | <ul style="list-style-type: none"> Regular inspections to be carried out by Kiambu County Government along the road to ensure clear drainages. Kiambu County Government will undertake awareness campaigns to prevent solid waste and soil sediments from being channelled into the drainage. | Kiambu County Government | <ul style="list-style-type: none"> Number of flooding incidences reported. | To be established at operation phase and included in the operation of the projects. |
| 2 | Risk of road accidents | <ul style="list-style-type: none"> Road signage and bumps should be placed at appropriate sections of the road This risk will be further minimized through regular inspection, repair and maintenance of the road by Kiambu County Government. | Kiambu County Government | <ul style="list-style-type: none"> Number of reported accidents. | To be established at operation phase and included in the operation of the projects. |
| 3 | Traffic Congestion and Noise Pollution. | <ul style="list-style-type: none"> This impact will be minimized through regular inspection, repair and maintenance of the road by Kiambu County Government | Kiambu County Government | <ul style="list-style-type: none"> Number of complaints. | To be established at operation phase and included in the operation of the projects. |

Table 7: Decommissioning Phase: Environmental and Social Management and Monitoring Plan

Note: A due diligence environmental audit will be undertaken and submitted to NEMA at least three months prior to decommissioning and in line with the Environmental Management and Coordination Act Cap 387.

In the event that removal of the road will be implemented then this plan will provide a guideline on how to mitigate the anticipated adverse impacts.

| Impacts | Proposed Mitigation Measures | Target areas & Responsibility | Monitoring Indicator | Provisional Budget |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| Generation of solid waste from decommissioning activities | <ul style="list-style-type: none"> • Pipes disposal should be in accordance to the Waste Management regulations 2006. • Decommissioning wastes (residual earth, debris and scrap materials) to be collected at designated points and Contractor to ensure disposal is done at a licensed solid waste dumping site approved by the Kiambu County Government. • Environmental Management, Health and Safety Training Programmes to be conducted for Contractor's Staff to create awareness on proper solid wastes management. | Ditto | <ul style="list-style-type: none"> • Number of complaints • Visual observation of waste | Ditto |
| Interruption of public utilities & blocking access to property adjacent to the road | <ul style="list-style-type: none"> • Adhere to the mitigation measures suggested in Table VI-2 on Negative Impacts on Social-economic Setting and Proposed Mitigation Measures during Construction. | Ditto | <ul style="list-style-type: none"> • Number of complaints | Ditto |
| Exposure to occupational health and safety risks during road removal process | <ul style="list-style-type: none"> • Adhere to the mitigation measures suggested in Table VI-3 on Negative Impacts on Occupational Health and Safety Setting and Proposed Mitigation Measures during Construction. | All work areas <u>Responsibility</u> Contractor(s) Supervision | <ul style="list-style-type: none"> • Number of Accidents/ incidences | To be established at decommissioning phase. |
| Loss of assets & sources of livelihood | <ul style="list-style-type: none"> • Compensation for relocation and the loss of business for all affected traders. • Traders will be assisted to move by the contractor. • Vulnerable traders will be provided with additional assistance. | All work areas <u>Responsibility</u> Contractor(s) Supervision | <ul style="list-style-type: none"> • Number of complaints | Ditto |

| Impacts | Proposed Mitigation Measures | Target areas & Responsibility | Monitoring Indicator | Provisional Budget |
|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------------------------------------------------------------------|--------------------|
| | <ul style="list-style-type: none"> Assets and sources of livelihood dependent on the road will need to look for alternative roads or businesses. | | | |
| Increased transmission of HIV/AIDS | <ul style="list-style-type: none"> Adhere to the mitigation measures suggested in Table VI-2 on Negative Impacts on Social Economic Setting and Proposed Mitigation Measures during Construction. | Ditto | <ul style="list-style-type: none"> Number of infections | Ditto |
| Human Rights and gender inclusivity | <ul style="list-style-type: none"> Adhere to the mitigation measures suggested in Table VI-2 on Negative Impacts on Social Economic Setting and Proposed Mitigation Measures during Construction. | Ditto | <ul style="list-style-type: none"> Number of complaints | Ditto |
| Increased Crime and Insecurity | <ul style="list-style-type: none"> Adhere to the mitigation measures suggested in Table VI-2 on Negative Impacts on Social Economic Setting and Proposed Mitigation Measures during Construction. | Ditto | <ul style="list-style-type: none"> Number of reported incidences | Ditto |
| Labour influx and sexual offences | <ul style="list-style-type: none"> Adhere to the mitigation measures suggested in Table VI-2 on Negative Impacts on Social Economic Setting and Proposed Mitigation Measures during Construction. | Ditto | <ul style="list-style-type: none"> Number of complaints | Ditto |

8.5 Decommissioning Flow Chart

The project has been designed to operate effectively for over 20 years. In the event that the infrastructure will be required to be overhauled, then the following steps should be considered in order to undertake the procedure in a structured manner with minimum impact to both human and natural environment.

Table 8: Decommissioning Flow Chart

| | Action | Actor |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| Step 1 | Initiation <ul style="list-style-type: none"> ▪ Development of an Objective Worksheet and checklist incorporating references, legal, stakeholder engagement and policies ▪ Undertake decommissioning audit | Proponent |
| Step 2 | Prepare Road Map for Decommissioning Design <ul style="list-style-type: none"> ▪ Conduct design review to validate elements of the design and ensure design features are incorporated in the decommissioning design. ▪ Public consultations | Proponent |
| Step 3 | Prepare and Award Contract <ul style="list-style-type: none"> ▪ Prepare a contract that incorporates validated project information and award to a contractor as per the Procurement rules. | Proponent |
| Step 4 | Execute Decommissioning Works <ul style="list-style-type: none"> ▪ Implement design elements and criteria on the Project in accordance with specifications and drawings. ▪ Inspect during decommissioning and at Project completion to ensure that all design elements are implemented according to design specifications. | Contractor |
| Step 5 | Non-Conformance, Corrective/Preventive Action <ul style="list-style-type: none"> ▪ Determine root cause ▪ Propose corrective measures ▪ Propose future preventive measures | Proponent |

CHAPTER NINE: CONCLUSION AND RECOMMENDATION

9.1 Conclusion

Through the assessment and evaluation of all potential environmental and social impacts of the proposed road project, it is concluded that the Project will have net ecological, economic, social and health benefits to residents of the target Project areas in Githurai.

The Project is expected to provide improved access to residents and amenities to the target population. Project activities that are envisaged to have potential less significant negative impacts at different phases of the project have been assessed in detail in this Report and appropriate Mitigation Measures proposed.

In order to mitigate the potential negative impacts and to make the Project environmentally and socially sound, an Environmental and Social Management and Monitoring Plan (ESMMP) has been prepared for implementation. It includes the Mitigation Plan, the Monitoring and Enforcement Requirements, and the Responsible Persons/Organizations. All the recommendations/ mitigations mentioned in the assessment will be financed and incorporated in the construction and supervision contracts.

The main findings from the assessment described in the Report are as follows:

- i) Road works will be carried out within the existing infrastructure except for the encroached areas that will require displacement of 15 temporary structures, that is, relocation of some kiosks to the open field, other kiosks will require to move backwards while others will require removal of iron sheets roofs to clear the road reserve for construction to proceed. However, the Ministry of Transport, Housing, Infrastructure and Urban Development the vendors are keen to have the road constructed and are willing to compensate the vendors. See annex 5: List of vendors along the access road
- ii) The Environmental and Social Scoping undertaken for the project indicate that the investment will result in low impact on biological and socio-economic environment; however, the Project triggers World Bank Operational Procedure 4.01 on Environmental Assessment and 4.12 on Involuntary Resettlement.
- iii) Provisional Budget of Kenya Shillings 4.0 Million is required for implementation of mitigation measures of potential negative environmental impacts identified in the report.
- iv) The overall objective of project is to improve the living conditions of people of Githurai and its surrounding environs through provision of good roads.

9.2 Recommendation

The project is recommended for implementation provided the mitigation measures identified in the study for the potential negative impacts are implemented, the recommendations will also form part of NEMA License that will be issued for the Project.

REFERENCES

- i) Environment Management and Coordination EMCA Cap 387 and EIA/EA Regulations 2003)
- ii) Kenya gazette supplement number 56. Environment Impact Assessment and Audit Regulations 2003. Government printer, Nairobi
- iii) Kenya gazette supplement number 69. Environmental Management and Coordination (waste Management) Regulations 2006. Government Printer Nairobi.
- iv) Kenya gazette supplement number 68. Environmental Management and Coordination (water quality) Regulations 2006. Government Printer.
- v) Kenya gazette supplement Acts 2000, Environmental Management and Coordination Act Number 8 of 1999. Government Printers, Nairobi.
- vi) Kenya gazette supplement Acts Public Health Act (Cap. 242).
- vii) World Bank Operational Safeguards Policies on Environment and Social Risks
- viii) <https://en.climate-data.org/africa/kenya/kiambu-1727/>
- ix) <https://kiambu.go.ke/about-us/#7>
- x) <http://askumo.com/a-guide-to-nairobi-rivers-and-streams/>
- xi) <https://en-gb.topographic-map.com/maps/dlge/Ruiru/>

ANNEXES

Annex 1: Project Layout Plans



Annex 2: Public Consultation

NAIROBI METROPOLITAN SERVICE IMPROVEMENT PROJECT (NaMSIP)

MINUTES OF PUBLIC PARTICIPATION AND CONSULTATION MEETING FOR ACCESS ROAD TO GITHURAI RAILWAY STATION HELD ON WEDNESDAY, 29TH MAY 2019.

| | |
|---------------|----------------------------------------------------|
| Meeting Date | 29 th May 2019. |
| Meeting Time | 3.00pm. |
| Meeting Venue | Githurai Deputy Commissioners office - Social Hall |

Attendance

The members in attendance were 31 No. as per the attached list.

Agenda

1. Welcome and Introduction
 2. Opening Remarks
 3. NaMSIP overview
 4. Scope of Works for the project
 5. Environmental and Safety remarks
 6. Questions and Answers
 7. A.O.B
-

| | DESCRIPTION | Action by |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| MIN 1 29/05/19 | <p>Welcome and Introduction</p> <p>The meeting was called to order by Area MCA Mr James Kimani as the master of ceremony of the meeting at 3.00 pm. The meeting took off after a word of prayer by Doris Njambi and self-introductions were made thereafter.</p> | Info |
| MIN 2 29/05/19 | <p>Opening Remarks</p> <p>The Area MCA Mr James Kimani thanked the members for attending the meeting.</p> <p>Eng. Mugo Kimani informed the members that the public participation meeting was meant to bring diverse groups of stakeholders together and engage them in information sharing and discussion. Further, the meeting was to create awareness of proposal to construct Alignment E and enable the public to participate in decision-making by commenting on the proposed development project during the meeting. He also informed the members that an ESIA Report is to be prepared after the meeting presenting a thorough study of the impact of the investment project on the environment and the social fabric of the local communities.</p> | All to note |
| MIN 3 20/05/19 | <p>NaMSIP Overview.</p> <p>Eng. Samuel Mugo, Technical Assistant of Kiambu County presented the NaMSIP overview. Below are the highlights discussed during this presentation: -</p> <ul style="list-style-type: none"> • Nairobi Metropolitan Services Improvement Project (NaMSIP) is under State Department for Housing and Urban Development in the Ministry of Transport, Infrastructure, Housing, Urban Development and Public Works (MoTIHUD&PW). • NaMSIP is a GoK and the International Development Association (IDA), World Bank-funded project. NaMSIP started on 17th December 2012 and is ongoing. • NaMSIP projects are implemented in a collaborative effort with 5 counties in the Nairobi Metropolitan Region; Nairobi City County, Kiambu County, Kajiado County, Machakos County and Murang'a County. • The NaMSIP projects include transport, stormwater management, street lighting, disaster management, water & sanitation, demonstrative Integrated Urban Water Management and solid waste management. • Kiambu County has benefited from the funding including projects such as the Thika-Juja Trunk Sewer and treatment ponds, Ruiru, Kahawa, Githurai railway stations among others. | All to note |
| MIN 4 29/05/19 | <p>Scope of works for the project</p> <p>Eng. Mugo briefed the stakeholders on the proposed Alignment E as follows:</p> <ul style="list-style-type: none"> • The works are located in Githurai area covering various roads leading to Githurai Railway Station in Kiambu County. The original project roads are | All to note |

| | | |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| | <p>approximately 4.3 km in length and comprises of four (4) main alignments and access roads.</p> <ul style="list-style-type: none"> • The scope of works entailed construction of existing gravel/ earth roads (Alignments A, B, C, Accesses off Alignment C and D) to bituminous standards including drainage works and construction of walkways and drainage along Githurai Main Drive. • However, during execution of the works, it became apparent that some of the roads or sections of the roads could not be constructed due to various reasons resulting into savings which could be utilized in construction of Alignment E. • Alignment A (350m long) passes through Githurai Market and links Githurai Main Drive with Thika Super Highway. The road could not be constructed due to heavy occupation by traders; very small section of the road could be constructed. The road will be constructed within the scope of scheduled construction of Githurai Market and upon relocation of traders to the new market • It was noted that construction of Accesses off Alignment C (807m long) could not be constructed due to lack of clear road reserve. Further, lack of connectivity of these roads and little if any economic impact informed the decision to drop them during construction of Alignment C. • A section of Githurai Main drive (300m long) and fronting the Railway Station which was within the scope of these works was constructed under the ongoing project for Construction of Githurai Railway Station. It was therefore dropped from the scope of these works. • Arising from the above, the project appraisal carried out showed a saving of KShs. 102,803,749. These saving were adequate to construct Alignment E, estimated to cost KShs. 80,885,446.5. • The proposed Alignment E was found necessary due to the following factors:- <ul style="list-style-type: none"> i. It provides alternative link road of the railway station to the bus station. ii. Improve accessibility to Mwiki primary school and a few other learning institutions to Railway station, Main bus park and Thika road. iii. Improve accessibility to the Deputy County Commissioner’s offices, CDF offices. iv. Improve accessibility to a number of churches and built up residential areas. v. Provide bypass to traffic from Railway Station and Mwiki/Mwihoko areas as alternative to congested Githurai Main Drive. vi. The road will also improve drainage and provide NMT facilities in the area. • The expected project duration is 4 Months. | |
| <p>MIN 5 29/05/19</p> | <p>Environmental and Safety remarks.</p> <p>a) Juliana Tek the Environmental Expert for NaMSIP took the members through the requirements of the ESIA and NEMA licences. Below are the highlights;</p> | |

- Before the commencement of any project, it's a requirement that an ESIA report is given for approval by World Bank and also NEMAs approval. Once approval is given and NEMA license is issued works commence.
 - For the approvals to be given there has to have been Public Participation and consultation meeting. The public participation meeting is essential since it creates a platform where the public can air their views pertaining to the proposed project.
 - The ESIA indicates the effects of the project on the environment and the mitigation measures. Some of the effects of the project include improved accessibility and security, increase in land value and thriving of businesses.
 - Attendance list and pictures must be included in the ESIA report to prove that the public participation meeting took place.
 - Storm water drain will be constructed to drain the water to Githagaini River.
 - Safeguards are vital in the implementation of the project and will be enforced during the construction phase.
 - Child labour should not arise during implementation of the project.
 - Gender equality should be adhered to.
 - The wage the Contractor is giving to his Casual workers was okay since it's above the minimum wage requirements and should maintain the same or improve.
 - The Contractor to employ the locals for skill transfer and also to avoid labour influx.
 - The Contractor should consider sourcing raw materials locally.
 - The site office will have a grievance redress book where the public can record their grievances. A committee will be formed to address the grievances raised and ensure all are closed.
 - She gave the members questionnaires to fill and emphasized that the feedback from the questionnaires will help improve the design of the project and will be included in the ESIA report.
- b)** Doris Njambi the Social Expert for NaMSIP informed the members that;
- A committee will be formed to resolve any gender-based violence grievances raised.
 - There is need for residents to come up with a solution pertaining the traders that might be along the road reserve hence being affected during implementation of the works.
- c)** Jenifer Mbugua the NaMSIP Assistant Communication Expert gave the residents the online platform where they can give their remarks pertaining the ongoing NaMSIP projects. However, she insisted on the need for the residents to record their grievances on the grievance book on site since there will be a special grievance committee to ensure all grievances raised are addressed/closed.

| | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------------------|
| <p>MIN 6 29/05/19</p> | <p>Questions and Answers</p> | <p>RE</p> |
| <p>The master of ceremony requested for questions from the audience in regards to the project. Below is a summary of the inquiries and the response: -</p> | | |
| <ul style="list-style-type: none"> ❖ Mr. Patrick Mwhaki thanked the team from the Ministry for the project that has been proposed to their area and recommended it be constructed as soon as possible. He requested to know the length of the carriage way and road reserve. Eng. Mugo confirmed that in the design the width of the carriage way is 6m, walkway -2.5m and there is provision for storm water drain. | | <p>RE/Contractor</p> |
| <ul style="list-style-type: none"> ❖ Mr. Patrick Mwhaki insisted that the Contractor should ensure the water services are not disrupted during implementation of the project. In order to achieve that the Contractor should engage the locals who know the location of the water pipes to assist in identifying the same. The site agent confirmed that the relocation of water pipes within the carriageway will be carried out with the assistance of the water service providers and locals. | | <p>RE</p> |
| <ul style="list-style-type: none"> ❖ Mr Josphat Mugambi requested that the design be done such that the level of the drain is below the level of the residentials to avoid water ponding in their houses. Eng. Mugo confirmed that the same was catered for in the design to allow for free flow of storm water from their houses to the storm water drain. | | <p>RE</p> |
| <ul style="list-style-type: none"> ❖ Mr. Kariuki Maina appreciated the proposed project and inquired how long the distance for access to plots will be paved. Eng. Mugo informed the members that at road junctions the distance to be paved is 10m and for access to plots is 3-5m. | | <p>NaMSIP/Kiam bu County Government</p> |
| <ul style="list-style-type: none"> ❖ Ms. Ann Kimuhu inquired which consideration were made before selecting the diversion to Thika Road instead of the extension of D. O's Road to Mwhiko Road considering it has higher traffic than the diversion to Thika Road. Eng. Mugo informed the members that the diversion will serve as a by-pass to Thika Road hence reducing the traffic Jam in Mwhiko Road. Also due to budgetary constraints its might not be possible to do the extension to Mwhiko Road but Kiambu County Government can do the paving of the road. | | <p>NaMSIP/Kiam bu County Government</p> |
| <ul style="list-style-type: none"> ❖ Mr. Philip Mugendi requested extension of the road by 300m to Mwiki Primary school. Mr. Mugo informed the members that due to budgetary constraints it might not be possible to construct the road to bituminous standards but he will forward the request to the relevant parties in the Ministry for more advice. | | <p>MCA/ARE</p> |
| <ul style="list-style-type: none"> ❖ Mr. Wycliffe Gichira informed the members that streetlighting has been done for a section of the proposed Alignment E. He therefore requested for streetlighting works which was allocated for that section of the proposed road to be done in another priority area in Githuirai. Eng. Mugo confirmed that the ARE for the project will liaise with area MCA to locate the best area to do the alternative streetlighting. | | <p>RE/Contractor</p> |
| <ul style="list-style-type: none"> ❖ Mr. Gabriel Mwaura inquired whether installation of service ducts will be done along the alignment E to avoid cutting of the road by service providers in the future. Further, he inquired whether the employment of the locals will be done. The site agent confirmed that 90% of his casual workers are locals and will continue employing the locals for the works. Eng. Mugo confirmed that | | <p>ARE</p> |

| | | |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| | <p>installation of 300 diameter service ducts will be done at intervals of 100m along the Alignment.</p> <ul style="list-style-type: none"> ❖ Ms. Makena Muriithi raised an issue pertaining the size of the speed bumps installed along Alignment B. The RE confirmed that the size of the bumps were as per the standard specifications in the road manual. However, she will recheck due to the low axial wheel of the private cars. ❖ Ms. Ann Kimuhu requested for installation of speed bumps along Kwanyanga Road. The site agent confirmed that he will install the 2 No speed bumps | Contractor/RE |
| MIN 7 29/05/19 | <p>A.O.B</p> <ul style="list-style-type: none"> i. The residents wanted assurance that the project will be completed within the contract duration of 4 Months. Eng. Mugo assured the members that the project will not stall and will push the contractor to finish the project as agreed in the contract. ii. The MCA appreciated the residents for attending the meeting though it was on a short notice. He further asked the residents whether they wanted the project which they concurred and requested that the project starts immediately. | <p>All to note</p> <p>All to note</p> |
| | There being no A.O.B the meeting adjourned at 5:30 pm with a word of prayer from Makena Muriithi. | |

Approval of Minutes

Signature of Chairman

Date

.....

.....

Signature of Safeguards Team Representative

Date

.....

.....

Signature of RE's Representative

Date

.....

.....

Signature of Contractor's Representative

Date

.....

.....

Annexes 1: Attendance List

Attendance List for Public Participation & Consultation Meeting for the proposed Improvement of Commuter Rail Off-Station Roads Githurai Station (Extension Road E) in Kiambu County of Nairobi Metropolitan Region


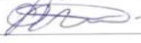

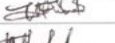
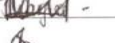

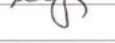
Date: Wednesday 29 May 2019

| S/No. | Name of Participant | Organization/Contact | Signature |
|-------|---------------------|---------------------------|-----------|
| 1 | HON JAMES KIMANI | W.C.A Kiambu 0722774160 | |
| 2 | PATRICK K. MWITARI | Mwira Resident 073390054 | |
| 3 | Josphat Mwangi | Mwira Resident 0724116474 | |
| 4 | Samuel N. Kariuki | Resident 0727949949 | |
| 5 | Phillip MUGENDO | YOUTH 0722695553 | |
| 6 | SIMON MICHU | Resident 0722826915 | |
| 7 | T. KARIUKI, MARIKA | Mwikia 0704539287 | |
| 8 | Peter Ndungu Muchi | 0729233936 | |
| 9 | CAROL MARIKA | Mwikia Resident 072154719 | |
| 10 | PAUL LINDHU | MWIKIA RESIDENT 071722222 | |

1 | Page

| S/No. | Name of Participant | Organization/Contact | Signature |
|-------|---------------------|--------------------------|-----------|
| 11 | MACHARIA EDUCATION | BUNGIE 0725635311 | |
| 12 | MARIKA MURITHI | MCA Office | |
| 13 | Catherine Wangui | MCA office | |
| 14 | PETER KIMANI | TRACTOR DEN | |
| 15 | Godfrey Njiru | T.D.K | |
| 16 | Eliza Mwangi | T.D.K | |
| 17 | Alice K. Kimani | Tractor Den (0721955861) | |
| 18 | George Njiru | PC Resident | |
| 19 | Sammy Muthuri | ICT | |
| 20 | JOSEPH GITHURU | Busickers | |
| 21 | Ines Karani | Resident | |
| 22 | John Mwangi | | |
| 23 | Joseph G. Wangui | 0722738724 | |
| 24 | Margaret Karanja | 0723769422 | |

2 | Page

| S/ No. | Name of Participant | Organization/Contact | Signature |
|--------|---------------------|----------------------|-------------------------------------------------------------------------------------|
| 25 | Petronilla Wambui | 0727267897 |  |
| 26 | Nelson Xlygg | 0719667302 |  |
| 27 | Joyce Ngina | 0711565105 |  |
| 28 | Joseph Muthula | 0732488454 |  |
| 29 | Jemjer Mbuqua | 0723281266 |  |
| 30 | Juhana Tek | 0717326140 |  |
| 31 | Doris Nyambi | 0700065726 |  |
| 32 | | | |
| 33 | | | |
| 34 | | | |
| 35 | | | |
| 36 | | | |
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| 38 | | | |

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Annexes II: Public Participation and Consultation meeting Photos







Annex 3: Grievance Resolution Mechanism

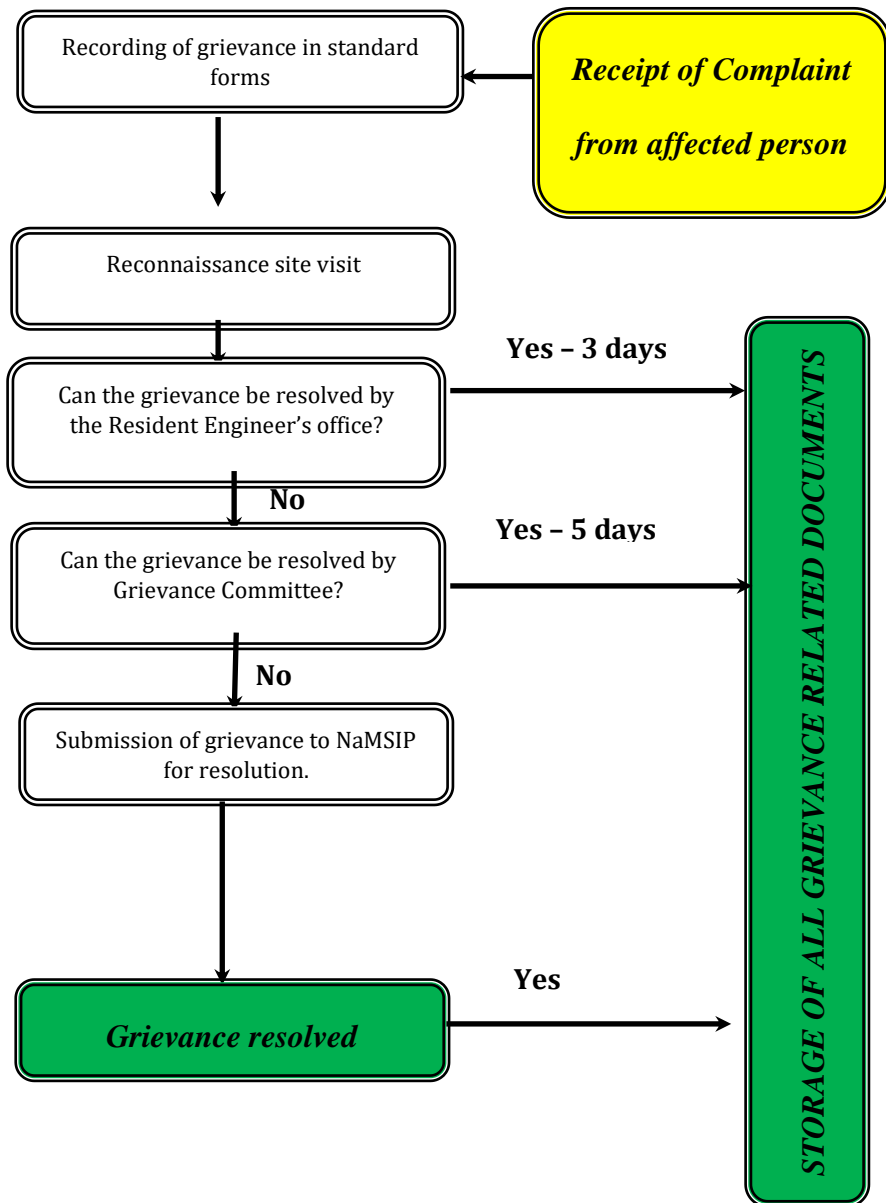
1. Steps in dealing with grievances

- 1.1. Complaint received in writing from affected person
- 1.2. Recording of grievance in standard form
- 1.3. Reconnaissance site visit with the complainant.
- 1.4. Submission of detailed complaint to Resident Engineer for resolution by negotiation.
- 1.5. Submission of detailed complaint to the Grievance Committee for resolution by mediation.
- 1.6. Submission of complaint to NaMSIP for resolution.

2. Composition of grievance committee

| | Name | Designation | Organization | Position |
|---|-------------|---------------------------------|---------------------|-------------------------------|
| 1 | | Resident Engineer | | Committee Secretary |
| 2 | | Assistant Resident Engineer | | Committee Assistant Secretary |
| 3 | | Contractor Representative | | Member |
| 4 | | Member of Surrounding Community | | Member |
| 5 | | Site Administrator | | Member |

GRIEVANCE RESOLUTION PROCEDURE

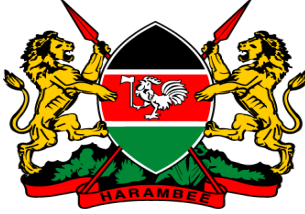


Annex 4: Sample Chance Find Procedure

Chance find procedures are an integral part of the project ESMMP and civil works contracts. The following is proposed in this regard: -

If the Contractor discovers archeological sites, historical sites, remains and objects during excavation or construction, the Contractor shall:

- Stop the construction activities in the area of the chance find;
- Delineate the discovered site or area;
- Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities or the Ministry of State for National Heritage and Culture take over;
- Notify the supervisor, Project Environmental Officer and Resident Engineer who in turn will notify the responsible local authorities and the Ministry of State for National Heritage and Culture immediately (within 24 hours or less).
- Responsible local authorities and the Ministry of State for National Heritage and Culture would then be in charge of protecting and preserving the site before deciding on subsequent appropriate procedures. This would require a preliminary evaluation of the findings to be performed by the archaeologists of the National Museums of Kenya. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage, namely the aesthetic, historic, scientific or research, social and economic values.
- Decisions on how to handle the find shall be taken by the responsible authorities and the Ministry of State for National Heritage and Culture. This could include changes in the layout (such as when finding irremovable remains of cultural or archeological importance) conservation, preservation, restoration and salvage.
- Implementation for the authority decision concerning the management of the finding shall be communicated in writing by relevant local authorities.
- Construction work may resume only after permission is given from the responsible local authorities or the Ministry of State for National Heritage and Culture concerning safeguard of the heritage.



Annex 5: Screening Report + List of vendors along the access road



WORLD BANK

REPUBLIC OF KENYA

MINISTRY OF TRANSPORT, INFRASTRUCTURE, HOUSING AND URBAN DEVELOPMENT

STATE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
Nairobi Metropolitan Services Improvement Project – NaMSIP

SOCIAL IMPACTS SCREENING REPORT FOR THE PROPOSED CONSTRUCTION OF ALIGNMENT EXTENSION ‘E’ OF GITHURAI RAILWAY STATION ACCESS ROADS IN KIAMBU COUNTY OF NAIROBI METROPOLITAN REGION



8 August 2019

1.0 BACKGROUND OF THE PROJECT

The proposed project financing will be under the Nairobi Metropolitan Services Improvement Project (NaMSIP), which is a project, funded jointly by the World Bank and Government of Kenya. The Project lead implementing agency is the State Department of Housing and Urban Development under the Ministry of Transport, Infrastructure, Housing and Urban Development (MTIH&UD). The Project is financing investments in infrastructure and service delivery in the Nairobi Metropolitan Region, the main Project Development Objective (PDO) is to strengthen urban services and infrastructure in the Nairobi metropolitan area.

The proposed construction of the access road (Alignment E) is in Githurai in Kiambu County. The access road is being upgraded from being an earth road to bitumen standards to ease movement in the area. The main objective of the selected road is to link the bus station and the Railway Station. The roads will make the railway station more accessible by both vehicular and pedestrian traffic. The proposed road covers a distance of 1.2 kilometers from the railway station through Mwiki Primary School, the Deputy County Commissioner's office, CDF office to the Bus Park.

The proposed road will improve access within the area and it will entail: -

- Construction of the 1.2 Kilometre road linking the railway station and the bus station.
- Laying of the various layers of road up to the finish in asphalt.
- Laying and/or replacement of kerbs and channel.
- Construction of pavements and drainage systems.
- Installation of street lights.
- Marking of the pedestrian crossings.

The project once complete will improve accessibility to the bus station, Mwiki Primary, CDF office, Deputy County Commissioner's office and the railway station among others.

2) PROJECT DESCRIPTION AND SCOPE

The above works are located in Githurai area covering various roads leading to Githurai Railway Station in Kiambu County. The original project roads are approximately 4.3 km in length and comprises of four (4) main alignments and access (Alignments A, B, C, Accesses off Alignment C and D) to bituminous standards including drainage works and construction of walkways and drainage along Githurai Main Drive.

Figure 1 in the Annex of this report shows the layout of original project roads (Alignments A, B, C and accesses off alignment C, D and Githurai Main Drive) within Githurai area.

| S/NO. | ALIGNMENT | LENGTH (M) |
|--------------|----------------------------------------|-------------------|
| 6. | Alignment A | 262 |
| 7. | Alignment B | 1,060 |
| 8. | Alignment C | 953 |
| | Accesses off Alignment C | 1,102 |
| 9. | Alignment D | 894 |
| 10. | Githurai Main Drive (Walkways & Drain) | 700 |
| | TOTAL (CARRIAGEWAY) | 4,271 |

3) METHODOLOGY

The screening of social safeguards was conducted through:

- A review of available secondary information on the project and the areas where it will be implemented
- Non-structured key informant interviews with local residents, traders and the local administration
- Field visits to the proposed alignment Githurai road E, and
- Photographs taken of the proposed alignment E road and the various structures nearby

4) PROJECT JUSTIFICATION

The residents of Githurai area are facing movement challenges due to the state of the poor roads especially in the rainy season, where the roads flood and become impassable. This impacts on the speed of movement and the cost of maintaining vehicles. Overall, poor infrastructure has a major negative impact on the socio-economic development of the area.

The proposed road will greatly improve accessibility within the surrounding areas. It will improve the socio-economic livelihoods of residents and business people who have had to live and work in difficult environment of extreme dusty roads or muddy and impassable roads during the rainy season.

During execution of the works, on alignment B, C and D, it became apparent that some of the roads or sections of the roads could not be constructed due to the following reasons:

- Alignment A (350m long) passes through Githurai Market and links Githurai Main Drive with Thika Super Highway. The road could not be constructed due to heavy occupation by traders;

very small section of the road could be constructed. The road will be constructed within the scope of scheduled construction of Githurai Market and upon relocation of traders to the new market

- It was noted that construction of Accesses off Alignment C (1,102m long) could not be constructed due to lack of a clear road reserve. Further, lack of connectivity of these roads and little, if any, economic impact informed the decision to drop them during construction of Alignment C.
- A section of Githurai Main drive (300m long) and fronting the Railway Station which was within the scope of these works was constructed under the ongoing project for Construction of Githurai Railway Station. It was therefore dropped from the scope of these works.

Arising from the above, the project appraisal carried out showed a saving of KShs. 102,803,749. This saving was adequate to construct Alignment E, estimated to cost KShs. 80,885,446/50.

5) PURPOSE OF THE PROJECT

The other factors found necessary to have this alignment E road include the following;

1. It provides alternative link road of the railway station to the bus station
2. It improves accessibility to Mwiki Primary School and a few other learning institutions to the railway station, main bus park and Thika road
3. It improves accessibility to the Deputy County Commissioner's offices and the Constituency Development Fund offices
4. It improves accessibility to a number of churches and built up residential areas
5. It provides bypass to traffic from Railway Station and Mwiki/Mwihoko areas as alternative to congested Githurai Main Drive, and
6. The road will also improve drainage and provide NMT facilities in the area.

6) STAKEHOLDER IDENTIFICATION AND ANALYSIS

During the screening process, informal interviews with multiple groups of stakeholders were carried out. These groups of people have interest in the project development in one way or another, and they were all in agreement that the road is a big asset that will improve the infrastructure and hence the general development of the area. The main groups of stakeholders were:

6.1. Directly Affected Persons

There are stakeholders who derive their means of livelihood from the kiosks along the road and may need to make some movement away from these temporary structures to make way for the construction works to commence. The kiosk structures are located toward the entrance of the proposed road near the main Thika road highway. During the social assessment, an additional 8 kiosks structures were included when it was noted they would equally require to be shifted

backward as well. This brings the total number of those affected to 15 kiosk structures. They mostly trade in selling food stuffs, shoes, hardware and clothing businesses.

The informal interviews that were conducted and consultations targeted this group of vendors who would be the most affected by the proposed construction works. The group included the owners of the kiosk structures and those who had rented them out.

6.2 Government Agencies and Other Organizations

The various administrative and government departments were consulted including Kiambu County and the local administration. During the informal interviews, the local administration was supportive of the project because it would improve the security and ease access to government services for the local residents.

7.0 SOCIAL AND ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The project construction phase will involve the following activities; delivery of construction of materials, construction of the road, pavements, kerbs and drainage. This will involve excavation, temporary stockpiling of soils, sub-soils and rocks (aggregates) along the road, laying the asphalt concrete layer(s) to a consolidated thickness. The potential negative and positive environmental and social impacts that are anticipated and that will be associated with the construction works activities will comprehensively be covered in an ESIA report to also ensure compliance with the Environmental Assessment World Bank Operational Procedure (OP4.01) that is triggered by this proposed project.

8.0 SOCIAL ASSESSMENT

On Friday the 19th July 2019, NaMSIP Safeguards Team carried out a social assessment of the proposed construction path of Githurai Alignment E.

Several observations as follows were made:

1)Kiosks 1 -3

The three kiosks are mobile semi –structured kiosks. The owners were willing to move at least 1m backwards or even lift them and temporarily relocate across the open field to allow for works to continue. Their only concern was after the works are complete, they wanted a reassurance they would be allowed to re-occupy the space. We shall recommend that Kiambu County Government does not allocate the space to new vendors but retain the same people. The Ministry of Transport, Housing, Infrastructure and Urban Development will compensate these vendors by relocating their structures. The vendors will also be compensated for loss of income during relocation.

2) Kiosks No 4-7 are vendors in the container.

There were 4 kiosks partitioned inside a container which had been built into the wall. We talked to the landlord on phone (he is out of the country) and to the caretaker. We had a robust and amicable discussion whereby they were both very willing to agree to move the container at least 1.5 metres backward into the walled compound to allow for the adequate space required for construction of the road. These vendors will be compensated for relocation/movement by the Ministry of Transport, Housing, Infrastructure and Urban Development. The vendors will also be compensated for loss of income during relocation.

3) Kiosks 8 -10

These four kiosks have a protruding canopy of mabati (iron sheets) which can be temporarily removed but it will not affect their day to day businesses which will continue to operate as the construction works continue. The Ministry of Transport, Housing, Infrastructure and Urban Development will assist these vendors by removing the protruding iron sheets to pave way for the construction of the road. After the works, the Ministry will also ensure the iron-sheets canopies are reinstated.

4). Kiosks 11-15 movable structures

All these kiosks have some space of a few metres behind the boundary wall that is adequate for them to move and create space for the construction of the road and drainage without it disrupting their day to day businesses.

The last column on the Annexed table (Figure 2) shows the tabulation of what the actual movement backwards to create space would cost. All the individual vendors had some input into tabulation of what the expenses would mostly cover, as follows:

- Hiring workers to move the structures backward
- Hiring workers to remove the protruding mabati (iron sheets)
- Minor welding tasks and reorganizing the goods

From the assessment and discussion with all the vendors, they expressed a willingness to move to make way for the construction works on the road to commence. They all expressed the frustration of the road being impassable during the rainy season and too dusty during the hot season resulting in many respiratory infections especially among children. They equally stated these challenges slow down business and affect their social economic livelihoods. The Ministry of Transport, Housing, Infrastructure and Urban Development will compensate these vendors by relocating their structures. The vendors will also be compensated for loss of income during relocation. The compensation amounts are as indicated in the Annexed table in Figure 2.

9.0 CONCLUSION

Although the kiosks are close to the 6 metres recommended for the road, they only need to relocate to the open space or temporarily move backwards to allow for working space. We engaged all the kiosk owners individually and they were willing to sign an agreement that they will move voluntarily. However, The Ministry of Transport, Housing, Infrastructure and Urban Development will compensate all the vendors who will be displaced and also those who will lose their income during the relocation. They all agreed the temporary shifts will affect their day to day business and it was estimated that about 5 working days will be required to complete the move (1 day for relocation/movement/removal of iron sheets and 4 days for settling-in the new space, hence there will be economic displacement).

In this regard, the considered view is that this sub-project triggers the Involuntary Resettlement Safeguard (OP 4.12) and has some displacement impacts that require compensation as indicated in Figure 2 – with estimates of movement fees, business value and daily profits. This list was prepared in consultation with the vendors. A total number of 15 vendors will be affected or displaced and will therefore be compensated by The Ministry of Transport, Housing, Infrastructure and Urban Development as per the Table. The number of vendors to be displaced does not warrant the preparation of a Resettlement Action Plan.

All the traders interviewed individually expressed willingness to co-operate and make way for this crucial project to commence up to the completion stage. The cost of relocation/movement is estimated at Kshs. 124,000 for all the 15 temporary structures. Relocation will also lead to the loss of income (profits) amounting to Kshs. 46,000 per day for all businesses this was multiplied by 4 days to give the vendors time for transition and the sub-total estimated amount for loss of income is Kshs. 138,000. The business value comprises the estimated value of the goods, fixtures and the structure was estimated at Kshs. 509,000. The business worth was to assist in understanding the economic impacts. However, this value will not be included in the compensation since their structures, goods and fixtures will be moved and positioned as they are without any alterations. Therefore, the total amount for compensation is the addition of the relocation/movement fees and the loss of income for 4 days which is estimated as **Kshs. 262,000**. The Ministry of Transport, Housing, Infrastructure and Urban Development has committed to facilitate this process.

It is anticipated, the road once complete will improve the socio-economic livelihoods of all area residents. It will improve the transportation of goods, access to crucial government offices, schools and churches and improve security and access to homes and essential health dispensaries. Continuous stakeholder engagement will be ensured during the implementation of the project.

In order to prevent and mitigate any possible undue harm to people and the environment in the project implementation process, this screening report, recommends that a full ESIA report is prepared. Social issues will be an integral part of the proposed ESIA.

ANNEXES: VENDORS INTERVIEWED ALONG THE PROPOSED GITHURAI ACCESS ROAD CONNECTING THE RAILWAY STATION AND THE BUS PARK (ALIGNMENT E)

The list below contains the names of the vendors working along the Githurai access road E who are will be compensated by the Ministry of Transport, Housing, Infrastructure and Urban Development. The vendors will be compensated for relocation of their structures and for loss of income during relocation.

| NO. | NAME | ID NO. | MOBILE NO. | OCCUPATION | DAILY PROFITS | BUSINESS VALUE | MOVT. FEE |
|----------------------------------------|----------------------------|----------|------------|--------------------------------------------|---------------|----------------|----------------|
| 1. | Dominic Kareru | 22048902 | 0743790726 | Cobbler | 500 | 3000 | 4000 |
| 2. | Purity Muthaura | 28369583 | 0705445612 | Shop owner | 5000 | 50000 | 5000 |
| 3. | Stephen Maina | 24401655 | 0712334368 | Cobbler | 500 | 10000 | 5000 |
| 4. | Agnes Wanjiru | 22583062 | 0714091176 | Beauty & Mpesa shop | 4000 | 150000 | 10,000 |
| 5. | Catherine Wanjiru | 26151408 | 0727834931 | Mpesa & Electricals | 3000 | 20000 | 10,000 |
| 6. | Margaret Wambui | 13394740 | 0725359059 | Tailor | 2000 | 50000 | 10,000 |
| 7. | Racheal Wanjiku | 24960858 | 0721543498 | Salon | 3000 | 70000 | 10,000 |
| 8. | Dan Loishpa Molell | 32902052 | 0792931371 | Shop | 4000 | 60000 | 10,000 |
| 9. | Bernard Kaburu | | | Spare parts shop | 4000 | 15,000 | 10,000 |
| 10. | Martin Gikare | 22464279 | 0728299401 | Mpesa shop (on opp side) | 4000 | 20,000 | 10,000 |
| 11 | Mary Wairimu | 37447789 | 0718970280 | Equity Agent shop (on opp side) | 5000 | 15,000 | 10,000 |
| 12 | Mary Wanjiru | 23624920 | 0724236872 | Hair saloo(on opp side) | 4000 | 20,000 | 10,000 |
| 13 | Robert Mbuthia | 25363327 | 0704939123 | Phone repair shop | 2000 | 10,000 | 10,000 |
| 14 | Robert Njoroge (Tenant) | 20972683 | 0724269538 | Fruit Kiosk | 1000 | 6,000 | 5,000 |
| 15 | Benson Mbogo | 22049003 | 0720339188 | Miraa Kiosk/Hotel Grocery & Shoes kiosk | 4000 | 10,000 | 5,000 |
| TOTAL ESTIMATED AMOUNT IN KSHS. | | | | | 46,000 | 509,000 | 124,000 |