Environmental and Social Impact Assessment Report for the Construction of Embakasi Access Road to the Railway Station in Nairobi Metropolitan Region

Republic of Kenya

SFG1405 V8

Environmental and Social Impact Assessment Project Report for the Construction of Embakasi Access Road to the Railway Station in Nairobi Metropolitan Region

February 22, 2017

PropONENT
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Certificate of Declaration and Document Authentication
This document has been prepared in accordance with the Environmental (Impact
Assessment and Audit) Regulations, 2003 of the Kenya Gazette Supplement No.56 of
This report is prepared for and on behalf of:

The Proponent
The Senior Principal Superintending Engineer
(Transport), Ministry of Transport, Infrastructure,
Housing and Urban Development, State Department of
Housing and Urban Development,
P.O. Box 30130-00100,
Nairobi - Kenya.

Designation ________________________________

Name ________________________________

Signature ________________________________

Date ________________________________

Lead Expert
Eng. Stephen Mwaura is a registered Lead Expert on Environmental Impact
Assessment/Audit (EIA/A) by the National Environment Management Authority –
NEMA (Reg. No. 7284), confirms that the contents of this report are a true
representation of the Environmental & Social Impact Assessment of the proposed
Construction of Embakasi Access Road to the Railway Station in Nairobi City County of
the Nairobi Metropolitan Region. This report is issued without prejudice.

Lead Expert – Eng. Stephen Mwaura

Signature: ____________________________

Date: ________________________________
<table>
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<tr>
<td>DOHSS</td>
<td>Directorate of Occupational Health &amp; Safety Services</td>
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<tr>
<td>DONMED</td>
<td>Directorate of Nairobi Metropolitan Development</td>
</tr>
<tr>
<td>EA</td>
<td>Environmental Audit</td>
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<tr>
<td>ESIA</td>
<td>Environmental &amp; Social Impact Assessment</td>
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<td>EHS</td>
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<td>EMCA</td>
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EXECUTIVE SUMMARY

1. Introduction

This Environmental & Social Impact Assessment (ESIA) report was prepared as per the provisions of the Environmental Management and Coordination Act No. 8 of 2015, and the Environmental Impact Assessment Regulations 2003. It is also in line with the World Bank Safeguards Policies, OP4.01 (Environmental Assessment). These safeguard policies are a set of instruments to ensure that the Bank supported lending operations minimize any adverse impacts on local people, their livelihoods, culture and the environment and are a mandatory mechanism for evaluating Bank financed projects during design, implementation and completion, mainly through environmental and social impact assessments. This Project Report gives the findings of the Environmental and Social Impact Assessment Study undertaken as an integral part of the design and construction process. The project report highlights salient social, economic and environmental issues associated with the design, construction and operational aspects of the proposed Embakasi Access Rod to the Railway Station of Nairobi City County in the Nairobi Metropolitan Region.

2. Scope of the Project Report

This Environmental & Social Impact Assessment (ESIA) project report was prepared as per the provisions of the Environmental Management and Coordination Act No. 8, 2015 and more specifically to Environmental Impact Assessment Regulations 2003. It is also in line with the World Bank Safeguard Policies and specifically OP4.01 (Environmental Assessment). These Safeguard policies are a set of instruments to ensure that the Bank supported lending operations minimize any adverse impacts on local people, their livelihoods, culture and the environment and are a mandatory mechanism for evaluating Bank financed projects during design, implementation and completion, mainly through environmental and social impact assessments.

The study process leading to this project report was further designed to address client expectations as stipulated in the Terms of Reference.
3. Objectives of the Project Report Study
The main objective of the Study was to identify environmental and social impacts associated with the proposed access road project and to recommend an appropriate environmental management strategy for the project. Thus, a core outcome of the Study is an Environmental and Social Management and Monitoring Plan (ESMMP) for the project.

4. Study 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 field work entailing site investigations and interviews with potentially affected people and secondary stakeholders. To identify, predict, analyze 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 and Social 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 and NEMA, the Project Report will be disclosed as required from where accruing comments will be used to finalize the report.

5. Policy, Legal and Regulatory Framework
This Project Report has been developed to ensure that the proposed construction of the Embakasi access road is in conformity with national policy aspirations towards securing sustainable development. Specifically, this report has been developed to ensure compliance with requirements of the Environmental Management and Coordination Act (EMCA) 2015-Kenya’s supreme environmental law and the National Constitution. Section 58 of EMCA requires that all proposed development in Kenya to be subjected to an environmental and social impact assessment and to be conducted in line with the Second Schedule (of EMCA) and the Legal Notice 101 (Regulations for Environmental Assessment and Audit) of June 2003. The entire study process has been designed to conform to the regulatory framework stipulated by the National Environment Management
Environmental and Social Impact Assessment Report for the Construction of Embakasi Access Road to the Railway Station in Nairobi Metropolitan Region

Authority (NEMA)-the body that will review this report and make decisions on grant of an environmental license to the development.

6. Project Description
The works are located in Embakasi in Nairobi City County. The project has a total length of 2.995Km and covers the following roads as shown on the layout plan attached to this report:-

<table>
<thead>
<tr>
<th>S/No</th>
<th>Road</th>
<th>Length (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Alignment A</td>
<td>525</td>
</tr>
<tr>
<td>2</td>
<td>Alignment B</td>
<td>1628</td>
</tr>
<tr>
<td>3</td>
<td>Alignment C</td>
<td>842</td>
</tr>
<tr>
<td></td>
<td><strong>Total length</strong></td>
<td><strong>2995</strong></td>
</tr>
</tbody>
</table>

7. Project Justification
The broad aim of the project is to enhance mobility, accessibility and connectivity of Industrial and Embakasi areas to the existing Railway Station. The project has laid emphasis on the provision of Non-Motorized Transport facilities to encourage people working in the industries to walk to and from the railway station. The project also aims at providing transportation services for goods produced from the existing industries to the market within and outside Nairobi.

8. Scope and content of project
The works shall include but not limited to: -

(a) Site clearance and earthworks as necessary
(b) Excavation to remove unsuitable materials
(c) Filling with approved materials as specified and directed.
(d) Hand packing with approved stone as specified and directed
(e) Base repairs as specified and directed
(f) Scarifying of the existing bituminous layer
(g) Repairs to existing drainage structures as specified and directed
(h) Improvement/construction to the drainage facilities as directed
(i) Sectional improvement/construction of sections of roads as directed
(j) Repairs and/or improvement/construction to footpaths and shoulders as directed
(k) Laying of Asphaltic concrete layer(s) to a consolidated thickness directed
(l) Laying and/or replacement of kerbs and channel as specified and directed
(m) Grading and/or improvement/construction of unpaved roads as directed
(n) Construction of road junctions abutting to these roads
(o) Provision of public transport facilities
(p) Operations ancillary to the main works
(q) Maintenance of the works during the construction and maintenance periods specified
(r) Traffic Management through the works and from the works
(s) Relocation and/or protection of other services including but not limited to water pipes, sewer pipes, street-lighting, power and telephone
(t) Provision of service ducts
(u) Installation of streetlights
(v) Any other works as instructed by the Engineer and/or as specified in this document

The project assessment investigates and analyses the anticipated environmental and social impacts of the proposed development in line with the Environmental (Impact Assessment and Audit) 2003 regulations.

9. Scope of environmental and social assessment

This Environmental & Social Impact Assessment (ESIA) Report considers the following aspects and others that may prove of significance during the study.

1. Assess the project’s impacts on ecology. This will in essence cover:-
   i. Impacts due to loss of vegetation cover, if any
   ii. Surface run-off water, containment and flood control.

2. Assess social implications of the development within the locality, region and nationally to include: -
   i. Economic implications of the development.
   ii. Security-threats, risk and enhancement.
   iii. Employment.
   iv. Impact on livelihoods.
   v. Public health implications.
   vi. Demand and development of infrastructure and social amenities.
3. Assess the impacts of development on landscape and land use such as: - 
   i. Determine the impact on change on civic shape, scenery, aesthetic modifications.
   ii. Examine the compatibility of the development with the surrounding land uses and how it complements them.
   iii. Examine the impacts of dumping of spoil from the road works

4. Assess the impacts of the development on power demands, water demands, and access road congestion as well as possible impacts on surface run-off and ground water qualities and quantities, if any.

5. Impacts of safety during construction - this is mainly because of increased traffic during construction requiring better traffic management plan during construction for the safety of workers, safety of motorists and other road users during construction.

   Develop an Environmental and Social Management and Monitoring Plan (ESMMP) that would mitigate the possible impacts on the environment.

10. Public Participation Process

Public participation and consultative forums were held at the site that included traders and business community mainly as the primary stakeholders and the county government as a key secondary stakeholder. The aim of the consultative meetings was to obtain data related to the past and present operations of the project road that are significant to the future environmental status of the area, the management of the project both during and after implementation. The stakeholders responded positively to the development as long as mitigation measures especially dust abatement, waste management and noise management were incorporated in the implementation phase of the project. The record of the consultations is presented in this report in the form of questionnaires, attendance sheets and minutes of meetings held that had been administered to the stakeholders seeking their views on the project and especially as regards environmental management during project implementation.

11. Findings from the Study

(i) Potential positive impacts anticipated:
The core observation of this study is that the proposed access road project is aimed at improving commuter services and the broad transport sector to the railway station. As such, the project in itself is already an activity in mitigation of an existing concern and this is the prime justification of the proposed investment. Other positive implications of the project will accrue from its potential to create short-term business and employment opportunities to both professional staff and workers during the design phase while, at construction phase, traders will benefit from opportunities to supply construction material while locals will be employed in works. Upon commissioning, the project will improve the accessibility to the railway station.

(ii) Potential adverse impacts:
Construction activities will introduce nuisances such as dust, noise, vibrations and fumes which however can be effectively managed through shortening the construction period. Social vices associated with influx of job seekers can disturb the social order and even lay the ground for escalation of HIV/AIDS cases whose impacts are likely to be prolonged in prevalence. The notable potential negative environmental impacts that were identified include among others:

i. Air pollution due to noise, vibration and dust;
ii. Traffic inconvenience during construction;
iii. Material sourcing and supply for the construction and maintenance works;
and
iv. Any effects from uncontrolled storm-water run-off

These have to be mitigated sufficiently for the project to progress. Mitigation measures include dust abatement, traffic management and material sourcing from licensed quarries and borrow pits. The mitigation measures to manage these impacts are as identified in the Environmental and Social Management and Monitoring Plan (ESMMP) in the report.

(iii) Residual and cumulative impacts:
The project has no residual or cumulative impacts as all can be effectively mitigated.

12. The ESMMP
An ESMMP has been developed whose pursuit can greatly improve the overall net effect of the project. This report observes that the bulk of adverse impacts will manifest at the construction stage in which case, the core effort in mitigation will be concentrated in the
contract for construction. This report therefore requires that the ESMMP be integrated into the design report with appropriate allocation of funds in the Bills of Quantities. The contract for construction should bear clauses binding the contractor to implement impact mitigation as part of the civil works. The NaMSIP’s PCT will mount own internal monitoring to ascertain environmental and social sensitivity at all stages of project development. During project development, a grievance redress mechanism will also be in place to handle all complaints and there will be creation of awareness and sensitization on HIV-AIDS. The ESMMP budget is estimated at about Kshs. 5.0 Million. Moreover, this project’s potential benefits and positive impacts far outweigh the negative impacts.

12. Total Cost of the Project
Total cost of the project is approximated to be Kshs. 261,197,065/27.

13. Recommendations and Conclusions of this Project Report
In the view of this study, the project as currently proposed is environmentally sound. An ESMMP has been outlined to guide resolution of potential adverse impacts while enhancing the positive ones. Further, all negative impacts need to be mitigated and it is recommended that this project is granted NEMA licensing and other clearances to pave way for implementation. Our conclusion is that the project is important for economic development of Nairobi City County and has balanced environmental considerations and benefits. The ESIA team has given adequate measures to mitigate the negative impacts and a management plan proposed which the proponent should adhere to.
CHAPTER ONE: INTRODUCTION

1.1. Project Location

The works are located in Embakasi Area in Nairobi City County. The project has a total length of 2.995Km and covers the following alignments:

<table>
<thead>
<tr>
<th>S/No</th>
<th>Road</th>
<th>Length (m)</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
<tr>
<td>2</td>
<td>Alignment B</td>
<td>1628</td>
</tr>
<tr>
<td>3</td>
<td>Alignment C</td>
<td>842</td>
</tr>
<tr>
<td></td>
<td><strong>Total length</strong></td>
<td><strong>2995</strong></td>
</tr>
</tbody>
</table>

The various alignments are as shown in the following location map:

The general GPS coordinates of the location of the site are as follows;

Latitude: Degrees: S1° 21’ 27” Decimal: -1.35767
Longitude: Degrees: E37° 54’ 10” Decimal: 36.90279

Altitude: 1627 meters above sea level (masl)
1.2 Need for the project
The broad aim of the project is to enhance mobility, accessibility and connectivity of Industrial and Embakasi areas to the existing Railway Station. The project has laid emphasis on the provision of Non-Motorized Transport facilities to encourage people working in the industries to walk to and from the railway station. The project also aims at providing transportation services for goods produced from the existing industries to the market within and outside Nairobi.

1.3 Scope of project
The works shall include but not limited to:

(a) Site clearance and earthworks as necessary
(b) Excavation to remove unsuitable materials
(c) Filling with approved materials as specified and directed.
(d) Hand packing with approved stone as specified and directed
(e) Base repairs as specified and directed
(f) Scarifying of the existing bituminous layer
(g) Repairs to existing drainage structures as specified and directed
(h) Improvement/construction to the drainage facilities as directed
(i) Sectional improvement/construction of sections of roads as directed
(j) Repairs and/or improvement/construction to footpaths and shoulders as directed
(k) Laying of Asphaltic concrete layer(s) to a consolidated thickness directed
(l) Laying and/or replacement of kerbs and channel as specified and directed
(m) Grading and/or improvement/construction of unpaved roads as directed
(n) Construction of road junctions abutting to these roads
(o) Provision of public transport facilities
(p) Operations ancillary to the main works
(q) Maintenance of the works during the construction and maintenance periods specified
(r) Traffic Management through the works and from the works
(s) Relocation and/or protection of other services including but not limited to water pipes, sewer pipes, street-lighting, power and telephone
(t) Provision of service ducts
(u) Installation of streetlights
(v) Any other works as instructed by the Engineer and/or as specified in this document
## 1.4 Scoping Report

<table>
<thead>
<tr>
<th>Road Section</th>
<th>Remarks</th>
<th>Recommendations</th>
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</thead>
<tbody>
<tr>
<td><strong>1. Alignment A</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0+000 - 0+375 (375)</td>
<td>Gravel roads</td>
<td>Section of the road to be reconstructed including excavations to remove black cotton soil, construction of fills, sub base and base, binder and wearing courses, drain construction and road furniture</td>
</tr>
<tr>
<td></td>
<td>Road surface worn out with big depressions due to base failure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The carriage is not self-draining and road shoulders heavily silted</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The road cross-section has no defined cross-fall or camber</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No functional drains</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Paving block surfacing with big depressions due to base failure</td>
<td>Section of the road to be rehabilitated. Existing paving blocks and failed sections of base to be removed and carted away, construction of 300mm base layer including widening the road, laying of 50mm and 35mm binder and wearing courses respectively and new lined drain construction, and road furniture</td>
</tr>
<tr>
<td></td>
<td>The carriage is not self-draining and road shoulders heavily silted</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The road cross-section has no defined cross-fall or camber</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Drains narrow and heavily silted</td>
<td></td>
</tr>
<tr>
<td><strong>2. Alignment B</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0+000 - 1+200 (1240)</td>
<td>Asphaltic concrete surfacing with big depressions due to base failure</td>
<td>Scarifying the existing asphaltic concrete layer, base repair on failed sections, laying of 75mm DBM and 35mm wearing course and new lined drain construction, and road furniture</td>
</tr>
<tr>
<td></td>
<td>Carriageway is rutted with edge failure/ chipped edges being evident</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Road shoulders are heavily silted</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No functional drains</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Road surface worn out with big depressions due to base failure</td>
<td>Section of the road to be reconstructed including excavations to remove black cotton soil, construction of fills, sub base and base, binder and wearing courses, drain construction and road furniture</td>
</tr>
<tr>
<td></td>
<td>The carriage is not self-draining and road shoulders heavily silted</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The road cross-section has no defined cross-fall or camber</td>
<td></td>
</tr>
<tr>
<td></td>
<td>No functional drains</td>
<td></td>
</tr>
<tr>
<td><strong>3. Alignment C</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0+000 - 0+842 (842)</td>
<td>Earth roads</td>
<td>Road to be constructed including excavations to remove black cotton soil, construction of fills, sub base and base, binder and wearing courses, drain</td>
</tr>
<tr>
<td></td>
<td>Road surface completely worn out with deep and wide depressions</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Carriage is not self-draining</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The road cross-section has no defined</td>
<td></td>
</tr>
</tbody>
</table>
1.5 Study Approach and Methodology

The project assessment investigates and analyses the anticipated environmental and social impacts of the proposed development in line with the Environmental (Impact Assessment and Audit) 2003 regulations. Consequently, the 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 construction, operation and design 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 taken 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 neighboring communities.
- The economic and social cultural impacts to local community.
- The project budget – Kshs. 261,197,065/27
- 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 1999, and Environmental (Impact Assessment and Audit) Regulations 2003 as well as other regulations.

The report emphasizes the duties of the proponent and contractor during the construction phase as well as the operational phase of this project.

1.6 Duties of the Proponent

It will be the duty of the proponent to ensure that all legal requirements as pertaining to the development are met as specified by the law, including World Bank Safeguards and specifically OP4.01 (Environmental Assessment).
The proponent shall hand over the site to the Contractor for implementation of the project
The proponent is also the one to fund the project
The proponent is also the one who has initiated the project and will also ensure its satisfactory implementation
The proponent will ensure that the ESIA is submitted to NEMA and a license is obtained.

1.7 Duties of the Contractor

- Implementation of the ESMP and regularly reporting back to the Project proponent.
- Maintaining the required level of stakeholder engagement and communication, including providing project schedule information to the public, accepting and resolving public grievances, advertising and hiring local workers.
- Maintain a working grievance redress mechanism.
- Ensure that the project has children protection champions.
- Prepare and maintain an approved Time and Progress chart, showing clearly the period allowed for each section of the work.
- The contractor is to comply with all regulations and by-laws of the local Authority including serving of notices and paying of the fees.
- During the night, public holidays and any other time when no work is being carried out onsite, the contractor shall accommodate only security personnel and never should a labor camp be allowed on-site.
- The contractor shall make good at his own expense any damage he may cause to public and private roads, drainages and pavements in the course of carrying out his work.
- The proponent shall define the area of the site, which may be occupied by the contractor for use as storage, on the site.
- The contractor shall include all recommendations from ESIA into the contract.
- The contractor shall provide at his own risk, and cost all water required for use in connection with the works including the work of subcontractors, and shall provide temporary storage tanks, if required.
- The contractor shall make his own arrangements for sanitary conveniences for his workmen. Any arrangements so made shall be in conformity with the public health requirements for
such facilities and the contractor shall be solely liable for any infringement of the requirements.

- The contractor shall be responsible for all the actions of any subcontractors in the first instance.
- The contractor shall take all possible precautions to prevent nuisance, inconvenience or injury to the neighboring properties and to the public generally, and shall use proper precaution to ensure the safety of wheeled traffic and pedestrian.
- All work operations which may generate noise, dust, vibrations, or any other discomfort to the workers and/or guest of the client and the neighbors must be undertaken with care, with all necessary safety precautions taken.
- The contractor shall take all effort to muffle the noises from his tools, equipment and workmen to not more than 70dBA
- The contractor shall upon completion of working, remove and clear away all plant, rubbish and unused materials and shall leave the whole site in a clean and tidy state to the satisfaction of the Proponent. He shall also remove from the site all rubbish and dirt as it is produced to maintain the tidiness of the premises and its immediate environs.
- No shrubs, trees, bushes or underground thicket shall be removed except with the express approval of the Proponent.
- No blasting shall be permitted without the prior approval of the Proponent and the local authorities.
- Borrow pits will only be allowed to be opened up on receipt of permission from the Proponent
- The standard of workmanship shall not be inferior to the Kenya Bureau of Standards where existing. No materials for use in the permanent incorporation into the works shall be used for any temporary works or purpose other than that for which it is provided. Similarly, no material for temporary support may be used for permanent incorporation into the works.
- Disposing of the waste generated during construction activities according to the agreement with the local government.

All the materials and workmanship used in the execution of the work shall be of the best quality and description. Any materials condemned by the Proponent (or their representatives) shall be immediately removed from the site at the contractor’s cost.
The materials for construction of this access road 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.

The premises should also be planned to be landscaped and with adequate drainage facilities as it is sloping in some sections. Environmental concerns need to be part of the planning and development process and not an afterthought, it is therefore advisable to avoid land use conflicts with the surrounding area. To avoid unnecessary conflicts that retard development in the project area, the proponent undertook this ESIA and incorporated environmental concerns as advised by the Authority. Finally, a comprehensive Environmental Management and Monitoring Plan (EMMP) is mandatory for a project of this magnitude and nature because large quantities of solid wastes are likely to be generated with temporary interference to the general public and services during project execution.

1.8 Description of the Project’s Construction Activities

1.8.1 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.

1.8.2 Demolition works

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

1.8.3 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.

1.8.4 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.

1.8.5 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.

1.8.6 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.

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

1.9 Description of the Project’s Operational Activities

1.9.1 General repairs and maintenance
The access road will be repaired and maintained by Nairobi City County during their operational
phases.

2.0 Description of the Project’s decommissioning activities

2.0.1 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 of appropriately by a licensed waste
disposal company.

2.0.2 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.
2.0.3 Noise and Vibration

The sources of noise pollution will include transport vehicles, construction machinery and metal grinding and cutting equipment. The maximum level of noise during construction should be kept at 55dB within residential areas and 70dB commercial areas. However, the proponent will take appropriate steps to minimize noise impacts including provision of appropriate protective equipment to construction workers, planning and minimizing the frequency of materials transport, and ensuring that all equipment are well maintained. The construction works will also be carried out exclusively during the day according to NEMA regulated working hours.

2.0.4 Road junctions

The road junctions where the access roads join Mombasa Road will be improved to ensure continuity as required in order to effectively manage traffic in the junctions.

2.0.5 Dust generation

There is possibility of generation of large amounts of dust within the project site and surrounding areas as a result of transportation of building materials, especially if the construction is done in dry weather. The proponent will ensure that dust levels at the site are minimized through sprinkling water in areas being excavated and along the tracks used by the transport trucks within the site. Additional mitigation measures presented in the ESMMP will be fully implemented to minimize the impacts of dust generation.

2.0.6 Transport trucks

The heavy transport trucks that will be turning around the project site while delivering construction materials may cause traffic file-up. In addition to contribution of noise and emission of exhaust fumes around the premises, such trucks may slow down traffic flow. The contractor will put in place measures to address such concerns by ensuring that delivery trucks are well driven and managed. In addition, the mitigation measures outlined in the ESMMP will be fully implemented to address environmental issues relating to construction trucks.

2.0.7 Aesthetics

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

Part of Alignment A to be constructed

Confluence of Alignment A and Alignment B
Environmental and Social Impact Assessment Report for the Construction of Embakasi Access Road to the Railway Station in Nairobi Metropolitan Region

Alignment C showing the Standard Gauge Railway Station under construction

Alignment B

Alignment A showing the kiosks on the left with a wide enough road corridor. The operations of the kiosks though illegal encroachers will remain undisplaced by the project
CHAPTER TWO: LEGAL, INSTITUTIONAL AND LEGISLATIVE FRAMEWORK

2.1 Environmental Management and Coordination Act of 2015
This project report has been undertaken in accordance with the Environment (Impact Assessment and Audit) regulation 2003, which operationalized the environment management and coordination act 1999. The report is prepared in conformity with the requirements stipulated in the environmental management and coordination act no 8 of 1999(EMCA) and the Environmental Impact Assessment and audit regulations 2003 regulation7 (1) and the second schedule. Part II of the said act states that every person is entitled to a clean and healthy environment and has the duty to safeguard the same. In order to achieve the goal of a clean environment for all, new projects listed under the second schedule of Section 58 of EMCA No 8 of 1999 shall undergo an Environmental Impact Assessment. This includes development activities such as this new project. In additional to the legal compliance above, the following legal aspects have also have been taken into consideration or will be taken into consideration before commencement of construction:

2.2 Occupational Health & Safety, 2007 (OSHA 2007)
The said Act requires that before any premises are occupied or used a certificate of registration should be obtained from the chief inspector. The occupier must keep a general register with provision for health, safety and welfare of workers on site. For safety, fencing of the premise and dangerous parts must be done. There should be provision for clean and sanitary working conditions. More so there must be also provision of quality and quantity wholesome drinking water.

2.3 Public Health Act Cap 242
Part IX section 115 of the Act states that no person or institution shall cause nuisance or condition liable to be injurious or dangerous to human health section 116 requires that local Authorities take all lawful necessary and reasonable practicable measures to maintain their jurisdiction clean and sanitary to prevent occurrence of nuisance or condition liable to injuries or dangerous to human health.

2.4 Physical Planning Act, 1999
The said Act section 29 empowers the Local Authorities to reserve and maintain all land planned for open spaces, parks, urban forests and green belts. 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.

2.5 Land Planning Act Cap 303
Section 9 of the subsidiary legislation (the development and use of land Regulations 1961) under which it requires that before the Local Authority submits any plans to the minister for approval, steps should be taken as may be necessary to acquire the owners of any land affected by such plans. Particulars of comments and objections made by the landowners should be submitted, which intends to reduce conflict of interest with other socio economic activities. This project follows a designated public road corridor and has no issues of encroachment or need to acquire private land.

2.6 Building Code 2000
Section 194 requires that where sewer exists, the occupants of the nearby premises shall apply to the Local Authority for permit to connect to the sewer line and all the wastewater must be discharged in to sewers. The code also prohibits construction of structures or building on sewer lines.

2.7 Other Relevant Laws
2.7.1 EMCA (Waste Management) Regulations, 2006
These regulations guide on the appropriate waste handling procedures and practices. It is anticipated that, the proposed project may generate large quantities of solid waste during construction which will need to be managed through reuse, recycling or appropriate disposal. It is therefore anticipated that, the amount of materials to be discarded as waste during the project implementation will be minimum. It is recommended that the proponent should put in place measures to ensure that construction materials requirements are carefully budgeted and to ensure that the amount of construction materials left on site after construction is kept minimal. It is further recommended that the proponent should consider the use of recycled or refurbished construction materials including those excavated from existing road. Purchasing and using recovered construction materials will lead to financial savings and reduction of the amount of construction debris disposed of as solid waste. To comply with the requirements of the regulations, the proponent should undertake the following in addition to the above-mentioned recommendations;

i. Should not dispose any waste on the main road in Embakasi Area or near any recreational area or public places;

ii. Segregate waste and group them according to their similarity for example plastics, toxic, organic etc;
iii. Ensure all waste is deposited in a designated dumping area approved by the local authority in Nairobi City County and/or NEMA;

iv. All waste handlers engaged by the proponent should be licensed by NEMA and possess all relevant waste handling documents such as waste transport license, tracking documents, license to operate a waste yard, insurance cover, vehicle inspection documents among others;

v. Implement cleaner production principles of waste management strategy namely reduce, reuse and recycle;

vi. Label all hazardous wastes as specified in section 24 (1-3) of the regulation.

vii. The fourth schedule lists wastes considered as hazardous and solvents, emulsifiers/emulsion, waste oil/water and hydrocarbon/water mixtures. Road projects involve use of inputs which are likely to generate the mentioned wastes and thus will need to be handled as required by the regulations.

2.7.2 EMCA (Noise and Vibrations Control) Regulations, 2009

These Regulations provides guidelines for acceptable levels of noise and vibration for different environments during the construction and operation phases. Section 5 of the regulation warns on operating beyond the permissible noise levels while section 6 gives guidelines on the control measures for managing excessive noises and copy of the first schedule indicating the permissible noise levels for different noise sources and zones. The project team should observe the noise regimes for the different zones especially when working in areas termed as silent zones which are areas with institutions and worship places. These areas are permitted exposure to sound level limits of not exceeding 40 dB (A) during the day and 35 dB (A) at night. The regulation states that a day starts from 6.01 a.m. to 8.00 p.m. while night starts from 8.01 p.m. – 6.00 a.m. Construction sites near the silent zones are allowed maximum noise level of 60 dB (A) during the day and night levels are maintained at 35 dB (A). The time frame for construction sites are adjusted and the day is considered to start at 6.01 a.m. and ends at 6.00 pm while night duration from 6.01 p.m. to 6.00 a.m.

Part III of the regulation gives guidelines on noise and vibration management from different sources. Sections 11, 12 and 13 of the stated part give guidelines on noise and vibration management from machines, motor vehicles and night time construction respectively. Section 15 requires owners of activities likely to generate excessive noise to conduct an ESIA to be reviewed and approved by NEMA. It is anticipated that the proposed project will generate excessive noise.
and/or vibration due demolition of the existing road this noise will originate from the construction equipments, vehicles and the workers since the road neighbors homesteads and institutions in some sections and it is therefore recommended that the construction team develops mitigations to reduce noise propagation in the project area.

2.7.3 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 Section 8 of the Act that 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 alterations will be done at his/her costs. This act will not apply to this project.

2.7.4 Public Roads and Roads of Access Act (Cap 399)
Sections 8 and 9 of the Act provides for the dedication, conservation or alignment of public travel lines including construction of access roads adjacent to lands from the nearest part of a public road. Sections 10 and 11 allows for notices to be served on the adjacent land owners seeking permission to construct the respective roads.

2.7.5 Traffic Act Chapter 403
This Act consolidates the law relating to traffic on all public roads. The Act also prohibits encroachment on and damage of roads including land reserved for roads. This Embakasi Access Road project is under the provisions of this Act.

2.7.6 County Governments Act, 2012
This Act delineates the roles and responsibilities of county governments with their administrations as well as the role of county citizens in public participation and consultations regarding projects at the county level.

2.7.7 HIV Aids Prevention and Control (Cap 246A)
This Act is to promote public awareness about the causes, modes of transmission, consequences, means of prevention and control of HIV and AIDS. It also seeks to positively address and seek to address conditions that aggravate the spread of HIV infection.
2.7.8 The National Environment Management Authority

The responsibility of the National Environmental Management Authority (NEMA) is to exercise general supervision and, co-ordination of all matters relating to the environment and to be the principal instrument of government in the implementation of all policies relating to the environment. The Authority shall review the project report for the proposed project, visit the project site to verify information provided in the report and issue an ESIA license if it considers that all the issues relevant to the project have been identified and mitigation measures to manage them proposed.

2.8 World Bank Environmental and Social Safeguard 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 its 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 mitigatory measures can be designed more readily than for Category A projects. **This particular NaMSIP subproject has been categorized as 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.

(d) Category FI: A proposed project is classified as Category FI if it involves investment of Bank funds through a financial intermediary, in subprojects that may result in adverse environmental impacts; this case, in any way, is not applicable to the NaMSIP 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 is 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 EMMP.

The table below shows the applicability of World Bank Operational Safeguards as it applies to this construction of Embakasi Access Roads in Nairobi City County of the Nairobi Metropolitan Region.

<table>
<thead>
<tr>
<th>OP</th>
<th>Title</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.01</td>
<td>Environmental Assessment</td>
<td>Applicable. As a result of environmental and social screening, the project was identified as a Category B project due to its road rehabilitation and other activities, as described</td>
</tr>
<tr>
<td>4.04</td>
<td>Natural Habitats</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>4.09</td>
<td>Pest Management</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>4.10</td>
<td>Indigenous Peoples</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>4.11</td>
<td>Physical Cultural Resources</td>
<td>Not applicable. Several site visits conducted have not indicated the presence of any cultural (historical, archaeological) sites in the construction area. However, to manage “chance finds” an appropriate procedure is included in this ESIA (Annex A). Such procedure to be followed by contractors during the construction phase.</td>
</tr>
<tr>
<td>4.12</td>
<td>Involuntary Resettlement</td>
<td>Not applicable</td>
</tr>
<tr>
<td>4.36</td>
<td>Forests</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>4.37</td>
<td>Safety of Dams</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>7.50</td>
<td>Projects on International Waterways</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>7.60</td>
<td>Projects in Disputed Areas</td>
<td>Not applicable.</td>
</tr>
</tbody>
</table>
CHAPTER THREE: CONSULTATIVE AND PUBLIC PARTICIPATION

3.1 Approach to Public Consultations

Legal Notice of 101 of EMCA 1999 (The Environmental Regulations, 2003) requires that all environmental assessment process in Kenya to incorporate Public Consultation. The aim is to ensure that all stakeholder interests are identified and incorporated in project development, implementation and operation. Of necessity, stakeholder consultations should take place alongside project design and implementation to ensure that the project puts in place measures to cater for stakeholder concerns in all project phases. In case of the proposed road project, public consultations followed several steps as follows.

3.2 Identification of Stakeholders

Like in all civil works projects, the core stakeholders comprise people to be directly served by the access road project and comprise companies (business community), traders and motorists along the road corridor. This is the group that is likely to benefit or be affected by the proposed development. This study also identified a second category of stakeholders comprised of GoK officers in charge of diverse sectors, which are likely to be impacted by the access road project. 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.

3.3 CPP Methodology

Interviews were carried out in the project area by the use of questionnaires, to find out all the views from the neighbors’ and other stakeholders on the proposed project. The main objective was to find out if the stakeholders support the project and have no objection to it. The questionnaire was to initially give introduction and make the residents aware 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 had intense negative impacts. The meeting of the key stakeholders (NaMSIP, County Government) assessed the need for the project and its
attendant benefits. During such meetings, it was emphasized that high environmental, occupational health and safety standards would be adhered to during project implementation.

3.4 Stakeholder Analysis

However, from previous projects of similar magnitude and similar setting, some impacts even without concern of the residents, are expected and their effects are discussed later in this report. A public meeting (baraza) was organized with the traders and surrounding factories where the project was discussed and further views sought. During the initial reconnaissance conducted, the residents (mainly those operating kiosks near the access roads to be constructed) and the surrounding factories all support the project and are waiting eagerly for its commencement and full implementation. A sample of the questionnaires from those that attended the meeting including the attendance sheet are as attached in the appendix. Those that attended the meeting included:

- Kiosks/eateries owners and operators
- Representative of Heavy Engineering Limited
- Representative from Katko Limited
- Owners of go-downs near the access road
- Officers from Nairobi City County
- Drivers of vehicles along the road

The ESIA consultations included disclosure of the design and project status that was done by the appointed Resident Engineer (RE), Eng. Allan Nyagah. The issues that were raised by each group of stakeholders included;

- **Kiosks (eateries) owners along the access road**
  A confirmation that there would be dust management during implementation and this was affirmed.

- **Factories representatives / owners along the access road**
  How long the project would take once it starts

- **Go-down owners**
  Needed assurance that all wastes removed will be disposed off

- **Young Men & Women from near the access road**
  Whether the contractor would engage local staff for casual work and this was assured

A full survey is to be carried out to indicate the beacons of the road corridor before work commences.
Attendance sheets, minutes and questionnaires of the public participation and consultation meetings are as attached to this report.

**Public Participation Photographs**

Mostly kiosks owners and surrounding community

Mostly kiosk owners

Owners of factories along access road
CHAPTER FOUR: BASELINE INFORMATION OF THE PROJECT AREA

4.1 Environmental Baseline Conditions

4.1.1 Soils and drainage
This area is flat and as such drainage is poor. Run-off from the nearby urban settlements contributes to the drainage problem. The soils are black cotton, commonly associated with the Athi Kapiti Plains and are often waterlogged during rainy seasons. During the field visit large pools of water had accumulated in and around the project area. There are provisions for drainage and the control of road runoff with the access road design. The existing drainage ditches are not clearly defined and have not been properly maintained, and as a result they have been partially blocked by debris and covered with vegetation.

Flooded section of project area

4.1.2 Water supply and Sanitation
The neighbourhoods served by the railway station are connected to the Nairobi Water Supply mains and the main sewerage reticulation system that follows the natural drainage system through the area. Approximately 95% of all properties in Embakasi are on main sewer where flush toilets are the main type of sanitation. However, the areas of Embakasi access road and some of the residents use septic tanks. Some people from the same neighbourhoods buy water for domestic use. Water from the Nairobi City Water and Sewerage Company (NCWSC) will be used during construction and operational phases.

4.1.3 Air and dust pollution
Previous measurements of the concentration of suspended particulate matter in Nairobi revealed the highest concentrations are in the industrial area decreasing with distance from the industrial area. Embakasi area has one of the highest number of industries in Nairobi and as such the levels of air
pollution might be higher compared to other parts of Nairobi. There is also emission of vehicular fumes from the buses, personal cars, trucks and motorbikes plying Mombasa Road and trucks, cars, tuk-tuk and motorbikes along the access road. They emit lead and smoke particulate matter and fumes that contain carbon monoxide, nitrogen oxide, and sulphur dioxide. Dust produced by vehicles plying roads in and around the area is also evident.

4.1.4 Trade and Industry
Nairobi is the most industrialized urban centre in Kenya and in East Africa in general. Most of these industries are located in the main industrial area and along Mombasa road. This area is along Mombasa Road and has a mixture of residential and industrial land-uses. The factories/depots employ many Embakasi residents.

4.1.5 Infrastructure
The main railway line runs from Nairobi railway station to Embakasi Estate. This network facilitates residents’ daily commute to and from the city’s Central Business District. Commuter train services were introduced in Nairobi in the 1980s to provide a low cost public transport
alternative to the urban poor in the city. Operation times for the train are on weekdays during the morning and evening hours. It makes three trips from Embakasi to Nairobi at 0545, 0717 and 1725 hours and to Embakasi at 0642, 1630 and 1805 hours. Travelling by train takes a shorter time compared to roads which experience traffic jams.

4.1.6 Health, Safety and Security

Unemployment has been cited as the main cause of insecurity in the sub-county. Insecurity discourages investments because it increases the cost of conducting business. Investors would have to put in more resources to enhance the security of their property and their lives.

4.1.7 Flora and Fauna

Within the project site animal life is minimal except for some birds. The project site is covered with grass and low lying acacia species, shrubs and grass in some places but is mostly bare.

4.2 Social Baseline Conditions

4.2.1 Population

According to the 2009 population and housing census, Embakasi East Constituency had a total of 163,858 while the project ward had a population of 32,527. Population of the administrative areas of the project location is presented in the following table:

<table>
<thead>
<tr>
<th>Administrative Area</th>
<th>Population</th>
<th>Number of households</th>
<th>Population Density</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male / Female / Total</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Embakasi Division</td>
<td>468,097 / 457,678 / 925,775</td>
<td>296,942</td>
<td>4,546</td>
</tr>
<tr>
<td>Embakasi Location</td>
<td>45,354 / 42,616 / 87,970</td>
<td>25,982</td>
<td>43,918</td>
</tr>
</tbody>
</table>

Source: GOK, 2009 Population Census

Population of the project location is dynamic, during the day it decreases as residents move out to work in offices mainly in the Nairobi CBD of industries located in the industrial area and then return in the evening increasing the population thereof throughout the night. These population dynamics causes a lot of vehicle and human congestion in the morning and evenings. There is also rural-urban and inter-urban immigration from other areas in search of employment opportunities, better education opportunities and better infrastructure. Rapid population growth has led to over-stretching of infrastructures and social facilities whose expansion is not commensurate with the increase in population. Rapid migration into the project area has also led to mushrooming of slums.
Most of the people in search of job opportunities end up in slums where houses are cheap and lack basic facilities.

4.2.2 Land Tenure and Use

Three land ownership patterns exist in the project location including: Trust land, Private land and Public land. Land in the project area is owned by individuals, societies, the Government and the Nairobi City County. The land hold sizes vary from below 30 x 40 feet to over 50 x 100 feet. There are however, few holders especially the Government institutions, hoarding large tracts of land. Cost of land varies from one area to another depending on access to infrastructure and economic activities.

Land neighbouring the railway station was initially owned by ranch companies (Katani and Githunguri among others) with minimal sections under Private ownership. Thus, the neighbourhood initially consisted of expansive tracts of Rangelands mainly used for livestock ranching. These group ranches have since been demarcated to members who have further subdivided their shares into small plots and sold them. All these have combined and changed land use and specifically along the stretch of the project corridor from livestock ranching to residential settlements, industrial and commercial establishments. The land for the railway station is owned by the Kenya Railway Cooperation.

Primarily, land in the project location is used for commercial, institutional, residential and industrial purposes. Other uses include provision of infrastructure (road and railway networks, water supply, power supply and telecommunication systems, sewerage networks and treatment works and airports), urban subsistence agriculture and grazing.

At the proposed site, land is used for small scale business such as hawking which includes food kiosks, grazing area and bricks construction site.

4.2.3 Education

Literacy level in the project sub-county stands at 95.3%. 26% of the population is school going while 73% have left school and the rest (1%) has never attended school. The primary school going population (within Ages Group 6 – 13 years) increased with the implementation of Free Primary Education (FPE) by 47% while secondary enrolment (for ages 14 – 17 years) increased by 7%. At present, the enrolment rate is expected to have increased by 71% for primary schools and 17% for secondary schools. The current transition rate from primary to secondary school is 43.3%.
4.2.4 Poverty
Signs of poverty in Embakasi area are manifested in Embakasi village informal settlement. People living this area is highly populated and experiences high incidences of negative social behavior 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.

4.2.5 HIV/AIDS
Nairobi County has a HIV prevalence rate of 6.8% which is higher than the national prevalence of 6.04%. The adults living with the virus totals to 177,552 while the county experiences a total of 3,098 new infections every year. The most affected age group is between 15 to 49 years. This is mainly the most active population as it provides the required man power. HIV/AIDS also has a negative impact on all aspects of development. Prevention and control of HIV/AIDS is therefore central for effective poverty reduction. Resistance to behaviour change amongst the community has posed a challenge to the fight against HIV/AIDS and its dynamics. New infections increases the number of those already in affected and this poses a great concern for the County. The County is providing antiretroviral therapy (ART) care for over 20,000 patients every month thus measures need to be taken to reduce the drug burden. The major challenge the County is facing in combating HIV/AIDS is the influx of migrants from all parts of the country who are seeking employment in the City. The issue of orphans and its associated problems is becoming a challenge as many of those infected are young parents. This creates a dependent population which impacts negatively on economy.

4.2.6 Sensitive Receptors
The road to be constructed passes through residential area with some small-scale industries. The key environmental receptors include motorists, pedestrians, businesses and the Standard Gauge Station (SGR) currently under construction.
CHAPTER FIVE: ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT

5.1 Introduction
This chapter outlines the potential negative and positive impacts that will be associated with the project. The impacts will be related to activities to be carried out during construction of the project and the operation stage of the project. The operational phase impacts of the project will be associated with the activities carried out within the premises. In addition, closure and decommissioning phase impacts of the project are also highlighted.

The impacts of the project during each of its life cycle stages (construction, operation and decommissioning) can be categorized into: impacts on the biophysical environment; health and safety impacts and socio-economic impacts.

5.2 Negative environmental impacts of construction activities

5.2.1 Extraction and use of construction materials
Construction materials such as rough stone, ballast and bitumen required for construction of the roads project will be obtained from quarries and bitumen dealers. Since substantial quantities of these materials will be required for construction of the roads, the availability and sustainability of such resources at the extraction sites will be negatively affected, as they are not renewable in the short term. In addition, the sites from which the materials will be extracted may be significantly affected in several ways including landscape changes, displacement of animals and vegetation, poor visual quality and opening of depressions on the surface leading to several human and animal health impacts.

5.2.2 Dust emissions
During construction, the project will generate substantial quantities of dust at the construction site and its surrounding. The sources of dust emissions will include excavation and leveling works, and to a small extent, transport vehicles delivering building materials. Emission of large quantities of dust may lead to significant impacts on construction workers and the local residents, which will be accentuated during dry weather conditions.

5.2.3 Exhaust emissions
The trucks used to transport various building materials from their sources to the project site will contribute to increases in emissions of CO₂, NO₂ and fine particulate along the way as a result of
diesel combustion. Such emissions can lead to several environmental impacts including global warming and health impacts. Because large quantities of building materials are required, some of which are sourced outside the access road area, such emissions can be enormous and may affect a wider geographical area. The impacts of such emissions can be greater in areas where the materials are sourced and at the construction site as a result of frequent running of vehicle engines, frequent vehicle turning and slow vehicle movement in the loading and offloading areas.

5.2.4 Noise and vibration
The construction works, delivery of construction materials by heavy trucks and the use of machinery/equipment including bulldozers, generators, tippers and concrete mixers will contribute high levels of noise and vibration within the construction site and the surrounding area. Elevated noise levels within the site can affect project workers and the residents, passers-by and other persons within the vicinity of the project site.

5.2.5 Risks of accidents and injuries to workers
Because of the intensive engineering and construction activities including excavations, concrete work, sub-base stone laying among others, construction workers will be exposed to risks of accidents and injuries. Such injuries can result from the hand tools and construction equipment and risk of vehicular accidents.

5.2.6 Increased soil erosion
Excavation works associated with this project may lead to increased soil erosion at the project site and release of sediments into the drainage systems. Uncontrolled soil erosion can have adverse effects on any local water bodies.

5.2.7 Solid waste generation
Large quantities of solid waste will be generated as a result of clearances, excavations and the final construction of the selected roads. Such waste will consist of surplus materials, surplus soil and excavated materials among others. Such solid waste materials can be injurious to the environment through blockage of drainage systems, choking of water bodies and negative impacts on human and animal health. This may be accentuated by the fact that some of the waste materials contain hazardous substances such as paints, cement, adhesives and bitumen, while some of the waste materials including plastic containers are not biodegradable and can have long-term and cumulative effects on the environment.
5.2.8 Energy consumption
The project will consume fossil fuels (mainly diesel) to run transport vehicles and construction machinery. Fossil energy is non-renewable and its excessive use may have serious environmental implications on its availability, price and sustainability. The project may also use electricity supplied by Kenya Power & Lighting Company (KPLC) Ltd. Electricity in Kenya is generated mainly through natural resources, namely, water and geothermal resources. In this regard, there will be need to use electricity sparingly since high consumption of electricity negatively impacts on these natural resources and their sustainability.

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

5.2.10 Social disturbance
The construction works may cause disturbance to the local population with interactions of non-local workers with residential communities. The movement of trucks and other equipment in the project area during the works implementation will cause noise and dust if the works will be in dry weather. This noise and dust may also affect the businesses in the vicinity of the construction works.

5.3 Positive environmental impacts of construction activities
5.3.1 Creation of temporary employment opportunities
Several employment opportunities will be created for construction workers during the construction phase of the project. This will be a significant impact since unemployment is currently generally high in Kenya and in most urban and surrounding areas.

5.3.2 Provision of market for supply of construction materials
The project will require supply of large quantities of construction materials most of which will be sourced locally in the larger Embakasi area and the surrounding areas. This provides ready market for construction material suppliers such as quarrying companies, hardware shops and individuals with such materials.

5.3.3 Increased business opportunities
The large number of project staff required will provide ready market for various goods and services, leading to several business opportunities for small-scale traders such as food vendors around the construction site.
5.4 Negative environmental impacts of operational activities

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

5.4.2 Worksite health and safety
The health and safety of surrounding community may be affected from dust, a matter that was raised during the CPP.

5.4.3 Operation of quarries and borrow pits
The contractor will mainly source this from private quarries but all in all this degrades the environment.

5.4.4 Traffic management
Flow of traffic along or near the proposed road will be affected and diversions may need to be done to manage traffic

5.4.5 Road safety
This may be impeded because of road works

5.4.6 Labor Camps
These may need to be set up and it is important that labour laws or activities that abuse workers and children are avoided.

5.4.7 HIV/AIDS
The project may raise and expose workers and other persons to sexual immorality leading to infections of sexually transmitted diseases including HIV-AIDS.

5.5 Positive environmental impacts of operational activities

5.5.1 Revenue to national and local governments
Through payment of relevant taxes, rates and fees to the government and the local authority, the roads project will contribute towards the national and local revenue earnings from those using the improved facilities.
5.5.2 Positive social impacts of operational activities

The operational activities after this project is commissioned will have several positive long-term social impacts that include the following:

- Improved access to the railway station
- Improved pathways (NMT) for cycling and walking for pedestrians
- Easier accessibility for all to different parts of Embakasi in the locality
- Improved drainage will reduce the flood damage and improve accessibility especially for pedestrian traffic and residents
- Improved accessibility will spur physical development in the area leading to increased jobs for the urban poor
- Improved lighting will increase trading hours for the businesses
- Cleaner and orderly environment
- Improved safety and security for all

In a nutshell, all roads being improved or rehabilitated will be installed with street lights. This will lead to improved security in the area as well as increased time for doing business and hence increased income to inhabitants of the area.

5.6 Negative environmental impacts of decommissioning activities

5.6.1 Solid waste

Demolition of the roads and related infrastructure will result in large quantities of solid waste. The waste will contain the materials used in construction including concrete, kerbs, bitumen, stones and ballast. Although demolition waste is generally considered as less harmful to the environment since they are composed of inert materials, there is growing evidence that large quantities of such waste may lead to release of certain hazardous chemicals into the environment. In addition, even the generally non-toxic chemicals such as chloride, sodium, sulphate and ammonia, which may be released as a result of leaching of demolition waste, are known to lead to degradation of groundwater quality.

5.6.2 Dust

Large quantities of dust will be generated during demolition works. This will affect demolition staff as well as the neighboring residents.
5.6.3 Noise and vibration
The demolition works will lead to significant deterioration of the acoustic environment within the project site and the surrounding areas.

5.7 Positive environmental impacts of decommissioning activities

5.7.1 Rehabilitation
Upon decommissioning the project, rehabilitation of the project site will be carried out to restore the site to its original status. This will include replacement of topsoil that will lead to improved visual quality of the area.

5.7.2 Employment Opportunities
Several employment opportunities will be created for demolition staff. There therefore will be citizen and community engagement that requires a communication and community engagement plan.
CHAPTER SIX: ANALYSIS OF PROJECT ALTERNATIVES

This section analyses the project alternatives in terms of site, technology and waste management options.

6.1 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.

6.2 Zero or No Project Alternative
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 Embakasi and the community 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 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.

6.3 Analysis of 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.

6.4 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 Nairobi City County 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 SEVEN: IMPACTS MITIGATION AND MONITORING

7.1 Introduction
This chapter highlights the necessary mitigation measures that will be adopted to prevent or minimize significant negative environmental, health and safety impacts associated with the project during its construction, operation and decommissioning phases. Allocation of responsibilities, time frame and estimated costs for implementation of these measures are presented in the Environmental Management and Monitoring Plan (EMMP).

7.2 Mitigation of construction phase impacts
7.2.1 Efficient sourcing and use of raw materials
The contractor will source construction materials such as sand, ballast and hard core from registered quarry and sand mining firms, whose projects have undergone satisfactory environmental impact assessment/audit and received NEMA approval. Since such firms are expected to apply acceptable environmental performance standards, the negative impacts of their activities at the extraction sites are considerably well mitigated. To reduce the negative impacts on availability and sustainability of the materials, the contractor will only order for what will be required through accurate budgeting and estimation of actual construction requirements. This will ensure that materials are not extracted or purchased in excessive quantities. Moreover, the proponent will ensure that wastage, damage or loss (through run-off, wind, etc) of materials at the construction site is kept minimal, as these would lead to additional demand for and extraction or purchase materials. In addition to the above measures, the contractor shall consider reuse of construction materials and use of recycled materials. This will lead to reduction in the amount of raw materials extracted from natural resources as well as reducing impacts at the extraction sites.

7.2.2 Excavations
The existing earth roads will have to be excavated to make for new roads and associated facilities and the removed materials will be taken to licensed sites or reused.

7.2.3 Minimization of run-off and soil erosion
The project design has incorporated construction drainage to avoid instances of standing water and manage run-off. The contractor will put in place some measures aimed at minimizing soil erosion and associated sediment release from the project site during construction. These measures will include silt traps, barriers, vegetation planting, terracing and leveling the project site to reduce run-
off velocity and increase infiltration of rainwater into the soil. In addition, construction vehicles will be restricted to designated areas to avoid soil compaction within the project site, while any compacted areas will be ripped to reduce run-off. This is especially relevant to the area close to the railway station, which is located in a low lying area likely to have standing water during the rainy season.

7.2.4 Minimization of construction waste
It is recommended that demolition and construction waste is properly collected, stored, recycled or reused to ensure that materials that would otherwise be disposed off as waste are diverted for productive uses. In this regard, the proponent is committed to ensuring that construction materials left over at the end of construction will be used in other projects rather than being disposed off. The proponent shall put in place measures to ensure that construction materials requirements are carefully budgeted and to ensure that the amount of construction materials left on site after construction is kept minimal. Additional recommendations for minimization of solid waste during construction of the project include:

- Use of durable, long-lasting materials that will not need to be replaced as often, thereby reducing the amount of construction waste generated over time.
- Provision of facilities for proper handling and storage of construction materials to reduce the amount of waste caused by damage or exposure to weather elements
- Purchase of perishable construction materials such as paints incrementally to ensure reduced spoilage of unused materials
- Use of building materials that have minimal packaging to avoid the generation of excessive packaging waste
- Use of construction materials containing recycled content when possible and in accordance with accepted standards.

7.2.5 Reduction of dust generation and emission
Dust emission during construction will be minimized through strict enforcement of on-site speed controls as well as limiting unnecessary traffic within the project site. Traffic routes on site have to be sprinkled with water regularly to reduce amount of dust generated by the construction trucks.
7.2.6 Minimization of exhaust emissions
This will be achieved through proper planning of transportation of materials to ensure that vehicle fills are increased in order to reduce the number of trips done or the number of vehicles on the road. In addition truck drivers will be sensitized to avoid unnecessary racing of vehicle engines at loading/offloading areas, and to switch off vehicle engines at these points.

7.2.7 Minimization of noise and vibration
Noise and vibration will be minimized in the project site and surrounding areas with strict adherence to NEMA designated working hours; and through sensitization of construction truck drivers to switch off vehicle engines while offloading materials. In addition, they will be instructed to avoid running of vehicle engines or hooting especially when passing through sensitive areas such as residential areas and schools. In addition, construction machinery shall be kept in good condition to reduce noise generation. It is recommended that all generators and heavy duty equipment be insulated or placed in enclosures to minimize ambient noise levels.

7.2.8 Reduction of risks of accidents and injuries to workers
The contractor will have to be committed to adherence to the occupational health and safety rules and regulations stipulated in Occupational Health and Safety Act, OSHA 2007. In this regard, the contractor is committed to provision of appropriate personal protective equipment, as well as ensuring a safe and healthy environment for construction workers as outlined in the EMMP.

7.2.9 Reduction of energy consumption
The proponent shall ensure responsible electricity use at the construction site through sensitization of staff to conserve electricity by switching off electrical equipment or appliances when they are not being used. In addition, proper planning of transportation of materials will ensure that fossil fuels (diesel, petrol) are not consumed in excessive amounts. Complementary to these measures, the proponent shall monitor energy use during construction and set targets for reduction of energy use.

7.2.10 Minimization of water use
The contractor shall ensure that water is used efficiently at the site by sensitizing construction staff to avoid irresponsible water usage.
7.3 Mitigation of operation phase impacts

7.3.1 Management of storm-water runoff
The contractor will ensure that proper drainage is provided and regularly maintained for storm-water runoff management.

7.3.2 Mitigation of decommissioning phase impacts

7.3.3 Efficient solid waste management
Solid waste resulting from demolition or dismantling works will be managed as described above.

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

7.3.5 Minimization of noise and vibration
Significant impacts on the acoustic environment will be mitigated as described.

7.3.6 Grievance redress system
A grievance redress mechanism as attached in the appendix will be used to handle any complaints mainly during project implementation.

7.3.7 Gender mainstreaming
There will be a system to prevent sexual and gender based violence and adequate mechanisms in place to protect local vulnerable population especially women and minors from risks associated with influx of workers (harassment, underage sex). There will also be a code of conduct established for Contractor employees and contract workers acknowledging a zero tolerance policy towards child labor and child sexual exploitation.

7.3.8 HIV/AIDS awareness and prevention
To prevent spread and HIV-AIDS infection owing to the project, there shall be a behavior changes communication and awareness and sensitization on sexually transmitted diseases.
CHAPTER EIGHT: ENVIRONMENTAL MANAGEMENT AND MONITORING PLAN

8.1 Significance of an EMMP

An Environmental and Social Management and Monitoring Plan (ESMMP) for developing projects is used to provide a logical framework within which identified negative environmental impacts can be avoided, mitigated and monitored. In addition, the ESMMP assigns responsibilities of actions to various actors and provides a timeframe within which mitigation measures and monitoring can be done. The ESMMP is a vital output of an Environmental and Social Impact Assessment as it provides a checklist for project monitoring and evaluation. The ESMMP outlined below will address the identified potential negative impacts and mitigation measures of the project based on the chapters on Environmental Impacts and Mitigation of the Negative Impacts.

8.1.1 Pre-Construction & Construction Phases ESMMP

The necessary objectives, activities, mitigation measures, and allocation of costs and responsibilities pertaining to prevention, minimization and monitoring of significant negative impacts and maximization of positive impacts associated with the construction phase of the project are as outlined below:
Table 3: The ESMMP for the Construction of Embakasi Access Road to Railway Station in Nairobi City County

<table>
<thead>
<tr>
<th>Objective/Plan</th>
<th>Recommended Mitigation Measures</th>
<th>Responsible Party</th>
<th>Monitoring Mechanism</th>
<th>Approximate Cost (Kshs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Increased exploitation of raw materials</td>
<td>▪ Ensure accurate budgeting and estimation of actual construction material requirements to ensure that the least amount of material necessary is ordered. ▪ Maximize sourcing of construction materials from suppliers who use environmentally friendly processes in their operations. ▪ Ensure that damage or loss of materials at the construction site are kept minimal through proper storage.</td>
<td>Contractor</td>
<td>Throughout construction period</td>
<td>-</td>
</tr>
<tr>
<td>2) Run off and soil erosion</td>
<td>▪ 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, barriers, tree planting. ▪ Ensure that construction vehicles are restricted to existing graded roads as much as possible to avoid soil compaction within the project site. ▪ Ensure that any compacted areas are ripped to reduce run-off. ▪ Through accurate estimation of the sizes and quantities of materials required, order materials in the sizes and quantities they will be needed, rather than cutting them to size, or having large quantities of residual materials.</td>
<td>Contractor</td>
<td>Throughout construction period</td>
<td>15,000</td>
</tr>
<tr>
<td>3) Solid waste generation</td>
<td>▪ Before the finalization of construction, replace trees and shrubs and provide landscaping along the road to contribute to minimization of runoff and soil erosion. ▪ Ensure that construction materials left over at the end of construction will be used in other projects rather than being disposed of. ▪ Ensure that damaged or wasted construction materials will be recovered for refurbishing and use in other projects. ▪ Utilize opportunities for donating recyclable/reusable or residual materials to local community groups, institutions and individual local residents or home owners.</td>
<td>Contractor</td>
<td>By end of construction</td>
<td>Included in the BoQ</td>
</tr>
<tr>
<td></td>
<td>▪ Ensure that construction materials left over at the end of construction will be used in other projects rather than being disposed of.</td>
<td>Contractor</td>
<td>One-off</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>▪ Ensure that damaged or wasted construction materials will be recovered for refurbishing and use in other projects.</td>
<td>Contractor</td>
<td>One-off</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>▪ Utilize opportunities for donating recyclable/reusable or residual materials to local community groups, institutions and individual local residents or home owners.</td>
<td>Contractor</td>
<td>One-off</td>
<td>-</td>
</tr>
</tbody>
</table>
## Environmental and Social Impact Assessment Report for the Construction of Embakasi Access Road to the Railway Station in Nairobi Metropolitan Region

<table>
<thead>
<tr>
<th>Objective/Plan</th>
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<th>Responsible Party</th>
<th>Monitoring Mechanism</th>
<th>Approximate Cost (Kshs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>Use of durable, long-lasting materials that will not need to be replaced as often, thereby reducing the amount of construction waste generated over time</strong></td>
<td>Contractor</td>
<td>Throughout construction period</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td><strong>Provide facilities for proper handling and storage of construction materials to reduce the amount of waste caused by damage or exposure to the elements</strong></td>
<td>Contractor</td>
<td>One-off</td>
<td>10,000</td>
</tr>
<tr>
<td></td>
<td><strong>Reuse packaging materials such as cartons, cement bags and plastic containers to reduce waste at the site</strong></td>
<td>Contractor</td>
<td>Throughout construction period</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td><strong>Use construction materials that have minimal or no packaging to avoid the generation of excessive packaging waste</strong></td>
<td>Contractor</td>
<td>Throughout construction period</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td><strong>Purchase of perishable construction materials such as paints should be done incrementally to ensure reduced spoilage of unused materials</strong></td>
<td>Contractor</td>
<td>Throughout construction period</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td><strong>Dispose waste more responsibly by dumping at designated dumping sites or engaging the use of a registered waste disposal company or Nairobi City Council</strong></td>
<td>Contractor &amp; Nairobi City Council</td>
<td>Throughout construction period</td>
<td>4,000/month</td>
</tr>
<tr>
<td>4) Air/Dust pollution</td>
<td><strong>Sprinkle water on graded access routes each day to reduce dust generation by construction vehicles</strong></td>
<td>Contractor</td>
<td>Throughout construction period</td>
<td>8,000/month</td>
</tr>
<tr>
<td></td>
<td><strong>Sensitize truck drivers to avoid unnecessary racing of vehicle engines at loading/offloading points and parking areas. Switch off or keep vehicle engines at these points</strong></td>
<td>Contractor</td>
<td>Throughout construction period</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td><strong>Ensure proper planning of transportation of materials to ensure that vehicle fills are increased in order to reduce the number of trips done per vehicle or the number of vehicles on the road</strong></td>
<td>Contractor</td>
<td>Throughout construction period</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td><strong>Sensitize construction vehicle drivers and machinery operators to switch off engines of vehicles or machinery not being used.</strong></td>
<td>Contractor</td>
<td>Throughout construction period</td>
<td>-</td>
</tr>
<tr>
<td>5) Noise Pollution</td>
<td><strong>Sensitize construction drivers to avoid gunning of vehicle engines or hooting especially when passing through sensitive areas such as residential areas and schools</strong></td>
<td>Contractor</td>
<td>Throughout construction period</td>
<td>-</td>
</tr>
</tbody>
</table>
### Objective/Plan

<table>
<thead>
<tr>
<th>Objective/Plan</th>
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<th>Responsible Party</th>
<th>Monitoring Mechanism</th>
<th>Approximate Cost (Kshs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6) Depletion of energy resources</td>
<td>• Ensure planning of transportation of materials to ensure that fossil fuels (diesel, petrol) are not consumed in excessive amounts&lt;br&gt;• Monitor energy use during construction and set targets for reduction of energy use.</td>
<td>Contractor</td>
<td>Throughout construction period</td>
<td>-</td>
</tr>
<tr>
<td>7) Exploitation of water resources</td>
<td>• Promote recycling and reuse of water as much as possible.&lt;br&gt;• Organize collection of rainwater on site.</td>
<td>Contractor</td>
<td>Throughout construction period</td>
<td>-</td>
</tr>
<tr>
<td>8) Accidents</td>
<td>• Ensure that provisions for reporting incidents, accidents and dangerous occurrences during construction using prescribed forms obtainable from the local Directorate of Occupational Health and Safety Office (DOHSS) are in place.&lt;br&gt;• Ensure that the premises/works are insured as per statutory requirements (third party and workman’s compensation)&lt;br&gt;• Develop, document and display prominently an appropriate SHE policy for construction works&lt;br&gt;• Provisions must be put in place for the formation of a Health and Safety Committee, in which the employer and the workers are represented</td>
<td>Contractor</td>
<td>Continuous</td>
<td>-</td>
</tr>
<tr>
<td>9) Hygiene</td>
<td>• Suitable, efficient, clean, well-lit and adequate gender specific sanitary conveniences should be provided for construction workers</td>
<td>Contractor</td>
<td>One-off</td>
<td>-</td>
</tr>
<tr>
<td>10) Medical Examinations</td>
<td>• Arrangements must be in place for the medical examination of all construction employees before, during and after termination of employment.</td>
<td>Contractor</td>
<td>Continuous</td>
<td>-</td>
</tr>
<tr>
<td>11) Machinery Safety</td>
<td>• Ensure that machinery, equipment, personal protective equipment, appliances and hand tools used in construction do comply with the prescribed safety and health standards and be appropriately installed, maintained and safeguarded</td>
<td>Contractor</td>
<td>One-off</td>
<td>-</td>
</tr>
<tr>
<td>12) Injuries caused by machineries</td>
<td>• Ensure that equipment and work tasks are adapted to fit workers and their ability including protection against mental strain&lt;br&gt;• All machines and other moving parts of equipment must be enclosed or guarded to protect all workers from injury</td>
<td>Contractor</td>
<td>Continuous</td>
<td>-</td>
</tr>
<tr>
<td>and equipments.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Objective/Plan</td>
<td>Recommended Mitigation Measures</td>
<td>Responsible Party</td>
<td>Monitoring Mechanism</td>
<td>Approximate Cost (Kshs)</td>
</tr>
<tr>
<td>---------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------</td>
<td>---------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>13) Poor storage of materials</td>
<td>▪ Ensure that items are not stored/stacked against weak walls and partitions</td>
<td>Contractor</td>
<td>Continuous</td>
<td>-</td>
</tr>
<tr>
<td>14) Emergencies.</td>
<td>▪ All floors, steps, stairs and passages of the premises must be of sound construction and properly maintained</td>
<td>Contractor</td>
<td>Continuous</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>▪ Design suitable documented emergency preparedness and evacuation procedures to be used during any emergency. Such procedures must be tested at regular intervals</td>
<td>Contractor</td>
<td>Every 3 months</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>▪ Ensure that adequate provisions are in place to immediately stop any operations where there in an imminent and serious danger to health and safety and to evacuate workers</td>
<td>Contractor</td>
<td>One-off</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>▪ Ensure that the most current emergency telephone numbers posters are prominently and strategically displayed within the construction site</td>
<td>Contractor</td>
<td>One-off</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>▪ Provide measures to deal with emergencies and accidents including adequate first aid arrangements</td>
<td>Contractor</td>
<td>Continuous</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>▪ Sensitize the public on potential emergency situations</td>
<td>Contractor</td>
<td>Once before construction begins and a repeat after 1 month if necessary.</td>
<td>-</td>
</tr>
</tbody>
</table>
**Objective/Plan** | **Recommended Mitigation Measures** | **Responsible Party** | **Monitoring Mechanism** | **Approximate Cost (Kshs)** |
--- | --- | --- | --- | --- |
- | Provision must be made for persons to be trained in first aid, with a certificate issued by a recognized body. | Contractor | One-off | - |
- | Fire-fighting equipment such as fire extinguishers should be provided at strategic locations such as stores and construction areas. | Contractor | One-off | 30,000 |
- | Regular inspection and servicing of the equipment must be undertaken by a reputable service provider and records of such inspections maintained | Contractor | Every 3 months | 5,000 |
- | Signs such as “NO SMOKING” must be prominently displayed within the premises, especially in parts where inflammable materials are stored | Contractor | One-off | - |
- | Enough space must be provided within the premises to allow for adequate natural ventilation through circulation of fresh air | Contractor | One-off | - |
- | Well stocked first aid box which is easily available and accessible should be provided within the premises | Contractor | One-off | - |
- | Ensure that all chemicals used in construction are appropriately labeled or marked and that material safety data sheets containing essential information regarding their identity, suppliers classification of hazards, safety precautions and emergency procedures are provided and are made available to employees and their representatives | Contractor | One-off | - |
- | Keep a record of all hazardous chemicals used at the premises, cross-referenced to the appropriate chemical safety data sheets (MSDBs/MSDSs) | Contractor | Continuous | - |
- | There should be no eating or drinking in areas where chemicals are stored or used | Contractor | Continuous | - |
- | Ensure that workers at the excavation sites and other dusty sites are adequately protected from inhalation of substantial quantities of dust through provision of suitable protective gear (e.g. nose masks) | Contractor | One-off | - |
- | Provide workers in areas with elevated noise and vibration levels, with suitable ear protection equipment such as ear muffs | Contractor | One-off | - |
- | Suitable overalls, safety footwear, dust masks, gas masks, respirators, gloves, ear protection equipment etc should be made available and construction personnel must be trained to use the equipment | Contractor | Once off | - |

15) Food and toxins.

16) Provisions of PPE to Workers.
### Objective/Plan

<table>
<thead>
<tr>
<th>#</th>
<th>Objective/Plan</th>
<th>Recommended Mitigation Measures</th>
<th>Responsible Party</th>
<th>Monitoring Mechanism</th>
<th>Approximate Cost (Kshs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>Sanitary</td>
<td>- Ensure that construction workers are provided with an adequate supply of wholesome drinking water which should be maintained at suitable and accessible points.</td>
<td>Contractor</td>
<td>One-off</td>
<td>5,000/month</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Provide and maintain adequate and suitable accommodation for clothing not worn during working hours for construction employees</td>
<td>Contractor</td>
<td>One-off</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Provide and maintain, for the use of all workers whose work is done standing, suitable facilities for sitting sufficient to enable them to take advantage of any opportunities for resting which may occur in the course of their employment</td>
<td>Contractor</td>
<td>One-off</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Ensure that conveniently accessible, clean, orderly, adequate and suitable washing facilities are provided and maintained in within the site</td>
<td>Contractor</td>
<td>One-off</td>
<td>-</td>
</tr>
<tr>
<td>18</td>
<td>Insecurity</td>
<td>- All work places must be kept in a clean state, and free from effluvia arising from any drain, sanitary conveniences or nuisance</td>
<td>Contractor</td>
<td>Continuous</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Accumulations of dirt and refuse should be cleaned daily from the floors, benches, staircases and passages</td>
<td>Contractor</td>
<td>Daily</td>
<td>-</td>
</tr>
<tr>
<td>19</td>
<td>HIV-AIDS Management</td>
<td>- Awareness creation and sensitization to workers and other persons engaged in the project to reduce or eliminate chances of infections of HIV-AIDS and other sexually transmitted diseases</td>
<td>Contractor</td>
<td>Continuous</td>
<td>Kshs. 2,500,000</td>
</tr>
</tbody>
</table>
Management of complaints and/or grievances

- Employ a grievance redress mechanism incorporating a negotiation and/or mediation team or party

Grievance Chairman / Committee (Stewarded by Resident Engineer)

Continuous

Continuous

The key responsibilities regarding compliance to the above ESMMP rest on the Contractor. However, it is important that the project proponent ensures adequate monitoring and evaluation for the Contractor for no non-conformances.

8.1.1 Operational Phase ESMMP

The necessary objectives, activities, mitigation measures, and allocation of costs and responsibilities pertaining to prevention, minimization and monitoring of significant negative impacts and maximization of positive impacts associated with the operational phase of the project are outlined below.

Table 4: ESMMP for the Operational Phase of the Construction of Embakasi Access Road to Railway Station

<table>
<thead>
<tr>
<th>Objective/Plan</th>
<th>Recommended Mitigation Measures</th>
<th>Responsible Party</th>
<th>Monitoring Mechanism</th>
<th>Cost (Kshs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Storm Water Run-off Management</td>
<td>• Provide proper storm water drainage from the paved roads during road construction. • Provide regular inspection and maintenance of the drains.</td>
<td>Contractor</td>
<td>One-off</td>
<td>Part of project costs</td>
</tr>
<tr>
<td>2) Health and Safety Risks.</td>
<td>• Implement all necessary measures to ensure health and safety of workers and the general public during operation of the project as stipulated in OSHA 2007</td>
<td>County</td>
<td>Continuous</td>
<td>-</td>
</tr>
<tr>
<td>3) Solid waste management</td>
<td>• Implement measures to ensure adequate solid waste management in the park including putting wastes receptacles and disposal</td>
<td>County</td>
<td>Continuous</td>
<td>-</td>
</tr>
<tr>
<td>4) Access Road management</td>
<td>• Implement a sustainable access road management plan after hand-over with clear structure of management</td>
<td>County</td>
<td>Continuous</td>
<td>-</td>
</tr>
<tr>
<td>5) HIV-AIDS Management</td>
<td>• Awareness creation and sensitization to workers and other persons post-project to reduce or eliminate chances of infections of HIV-AIDS and other sexually transmitted diseases</td>
<td>County</td>
<td>Continuous</td>
<td>-</td>
</tr>
</tbody>
</table>
8.1.2 Decommissioning Phase

In addition to the mitigation measures provided above, it is necessary to outline some basic mitigation measures that will be required to be undertaken once all operational activities of the project have ceased. The necessary objectives, mitigation measures, allocation of responsibilities, time frames and costs pertaining to prevention, minimization and monitoring of all potential impacts associated with the decommissioning and closure phase of the project are outlined in below.
Table 5: ESMMP for the Decommissioning Phase

<table>
<thead>
<tr>
<th>Environmental Impact</th>
<th>Recommended Mitigation Measures</th>
<th>Responsible Party</th>
<th>Time Frame</th>
<th>Cost (Kshs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sold Waste Generation.</td>
<td>• All removed materials that will not be used for other purposes must be removed and recycled/reused as far as possible</td>
<td>Contractor</td>
<td>One-off</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>• Where recycling/reuse of the removed materials and other demolition waste is not possible, the materials should be taken to a licensed waste disposal site or arrangements made with Nairobi City County</td>
<td>Contractor</td>
<td>One-off</td>
<td>5,000</td>
</tr>
<tr>
<td></td>
<td>• Donate reusable demolition waste to charitable organizations, individuals and institutions</td>
<td>Contractor</td>
<td>One-off</td>
<td>-</td>
</tr>
<tr>
<td>Degeneration of vegetation at the construction site</td>
<td>• Implement an appropriate re-vegetation program to restore the site to better status</td>
<td>Contractor</td>
<td>One-off</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>• Consider use of indigenous plant species in re-vegetation</td>
<td>Contractor</td>
<td>One-off</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>• Trees should be planted at suitable locations so as to interrupt slight lines (screen planting), between the adjacent residential area and the development.</td>
<td>Contractor</td>
<td>Once-off</td>
<td>-</td>
</tr>
</tbody>
</table>
CHAPTER NINE: AUXILIARY INFORMATION

9.1 Budget
The summary of the certified Bills of Quantities (BoQ) that form the budget of the project will be attached in the Annexes. The total project cost is Kshs. 261,197,065/27. The implementation of the ESMMP is included into the BoQ.

9.2 Monitoring Guidelines
Continuous observations and assessment is essential so that if unforeseen safety dangers are noticed, alternatives must be sought for. Risk assessment of accidents, and other adverse impacts should not be ignored in the construction plan. Waste management in the construction should be strictly followed. Mitigation measures of storm water management are essential. Safety standards should constantly be maintained, with indicators like condition of equipment, contractor compliance with the set regulations, and tracking of accidents on-site logged regularly as required by the Directorate of Occupational Health & Safety Services, DOHSS under the Kenyan Ministry of Labor & Social Services.

9.2 Reporting
Monthly reporting by the site contractor to the proponent is necessary to ensure the project is executed as per the plans and drawings. The safety officer should always remain on site to report any safety concerns for urgent mitigation. The officer should also at all times enforce safety requirements as per the relevant legislation. The contractor must consult the proponent to maintain a clear understanding of all the aspects of the project. Nairobi City County should be involved in early stages of the project to increase acceptance and ensure necessary partnership is in place (e.g. waste removal requirements).
CHAPTER TEN: CONCLUSION AND RECOMMENDATIONS

During the preparation of this report for the development of the proposed access road development, it is observed and established that most of the negative impacts on the environment can be mitigated and have potentially short term low significant effects. The positive impacts are highly rated and will benefit all stakeholders and the Nairobi City County residents at large. The project proponents have proposed to adhere to prudent implementation of the environmental management and monitoring plan. The contractor should be committed to obtaining all necessary permits and licenses from the relevant authorities and have qualified and adequate personnel to do the project as proposed. The proponent has proposed adequate safety and health mitigation measures as part of the relevant statutory requirements.

It is the duty of NEMA to consider licensing the project subject to annual environmental audits once it has been commissioned. This will be in compliance with the Environmental Management and Coordination Act, EMCA of 1999 and the Environmental Impact Assessment and Audit Regulations, Legal Notice No. 101 of 2003.
REFERENCES


Kenya gazette supplement Acts *Building Code 2000 by government printer, Nairobi*

Kenya gazette supplement Acts *Land Planning Act (Cap. 303) government printer, Nairobi*

Kenya gazette supplement Acts *Local Authority Act (Cap. 265) government printer, Nairobi*

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

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


The Environmental Management & Coordination Act 2015 (EMCA 2015).

World Bank’s Safeguards Instruments
Annexure

- Sample Chance Find Procedures
- Plate of Selected Photographs
- Public Participation & Consultation Documents
  - a. Attendance Sheets
  - b. Questionnaires
  - c. Minutes of Meetings
- Grievance Redress Mechanism
Annex A. Sample Chance Find Procedures

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

If the Contractor discovers archeological sites, historical sites, remains and objects, including graveyards and/or individual graves 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 Project 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 B. Plate of Selected Photographs

Part of Alignment A to be constructed

Confluence of Alignment A and Alignment B

Alignment C showing the Standard Gauge Railway Station under construction
Alignment B

Alignment A showing the kiosks on the left with a wide enough road corridor. The operations of the kiosks though illegal encroachers will remain undisplaced by the project

Public participation and consultation on site
Minutes of Stakeholders Meeting of ESIA at Embakasi Held on 5th September 2016

CONTRACT No. NCB/MoLH&UD/DoU&MED/NaMSIP/ WKS-14/ 2015 – 2016: REHABILITATION AND CONSTRUCTION OF ACCESS ROADS TO EMBAKASI RAILWAY STATION.

ATTENDANCE

<table>
<thead>
<tr>
<th>S/No</th>
<th>Name</th>
<th>Organization</th>
<th>Designation</th>
<th>Contacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Eng. S. M. Mwaura</td>
<td>DONMED</td>
<td>NaMSIP (Chairing)</td>
<td>0729377629 <a href="mailto:mwaurastephenmburu@gmail.com">mwaurastephenmburu@gmail.com</a></td>
</tr>
<tr>
<td>2</td>
<td>Allan M Nyaga</td>
<td>NCCG</td>
<td>A.R.E (Taking Minutes)</td>
<td>0723463963 <a href="mailto:allanmu03@yahoo.com">allanmu03@yahoo.com</a></td>
</tr>
<tr>
<td>3</td>
<td>Collins Orage</td>
<td>NCCG</td>
<td>Ward Adm. (Imara Daima Ward)</td>
<td>0722462525</td>
</tr>
<tr>
<td>4</td>
<td>Kennedy Maranga</td>
<td>NCC</td>
<td>Surveyor</td>
<td>0722556013 <a href="mailto:maranga@yahoo.com">maranga@yahoo.com</a></td>
</tr>
<tr>
<td>5</td>
<td>S. N. Kimani</td>
<td>NJUCA</td>
<td>Supervisor</td>
<td>0722222356 <a href="mailto:kimanisam@gmail.com">kimanisam@gmail.com</a></td>
</tr>
<tr>
<td>6</td>
<td>Augustino Ndwiga</td>
<td>NCCG</td>
<td>S. Inspector</td>
<td>07224028329</td>
</tr>
<tr>
<td>7</td>
<td>Hildah Wangari</td>
<td>DONMED</td>
<td>Attaché</td>
<td>0714661145 <a href="mailto:wangarihkariuki@gmail.com">wangarihkariuki@gmail.com</a></td>
</tr>
<tr>
<td>8</td>
<td>Martin Sauka</td>
<td>NJUCA</td>
<td>Site Agent</td>
<td>0722591291 <a href="mailto:Sauka.martin@gmail.com">Sauka.martin@gmail.com</a></td>
</tr>
<tr>
<td>9</td>
<td>John Waweru</td>
<td>NJUCA</td>
<td>Surveyor</td>
<td>0720579256</td>
</tr>
</tbody>
</table>

In Attendance

The members of public who attended the meeting are as per attached list

AGENDA.

1) Introduction
2) Project brief
3) Remarks by Team Leader - ESIA
4) Questions and answers
5) A. O. B.

<table>
<thead>
<tr>
<th>Min No.</th>
<th>ITEM</th>
<th>ACTION BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN1/5/09/16/1.01</td>
<td><strong>1.0 Introduction</strong></td>
<td>All To Note</td>
</tr>
<tr>
<td></td>
<td>The team leader called the meeting to order at 1100hrs after which the meeting started with a self-introduction for the members present.</td>
<td></td>
</tr>
<tr>
<td>MIN2/5/09/16/2.01</td>
<td><strong>2.0 Project Brief</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The A.R.E gave a brief of the project in which the following was noted as scope of the works. The works</td>
<td></td>
</tr>
</tbody>
</table>
### Covers approximately 3.5km split into three alignment (A, B and C). The works entails construction of these roads into bituminous standards, road safety infrastructure, street lighting as well as drainage infrastructure. The main objective of the project is to facilitate traffic movements from proposed Embakasi SGR station to Syokimau Commuter Railway stations.

### MIN3/5/09/16/3.01
#### 3.0 Remarks by team leader - ESIA
Eng. Stephen Mwaura gave a brief about Environmental Social Impact Assessment (ESIA) of which he noted the following:

i. That it is a legal requirement by National Environment Management Authority (NEMA) that any project should undertake ESIA;

ii. The project would affect the various stakeholders especially people in the neighborhood both socially and environmentally.

iii. The main aim of the assessment was to check the Social and Environmental impact of the project and come up with mitigation measures which require to be implemented during the project implementation to minimize the negative impact on the neighborhood and public in general. Such measures would include but not limited to watering of the project roads to abate dust, maintenance of diversions, provision of sanitary facilities and safety gears for the workers on site and provision of traffic and safety signage.

### MIN4/5/09/16/4.01
#### 4.0 Questions and Answers
The Stake holders were taken through a questionnaire of which were required to answer and return for record and necessary action. (The returned questionnaires are herewith attached)

### MIN5/5/09/16/5.01
#### 5.0 A.O.B
The members present were very positive about the project and were eager to see it completed within the stipulated time.

There being no any other business, the meeting adjourned at 1230hrs.
### Environmental and Social Impact Assessment Report for the Construction of Embakasi Access Road to the Railway Station in Nairobi Metropolitan Region

<table>
<thead>
<tr>
<th>Min No.</th>
<th>ITEM</th>
<th>ACTION BY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A.R.E.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Allan M. Nyaga</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Signature</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NAMSIP EIA Expert</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Eng. S.M. Mwaura</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Signature</td>
</tr>
</tbody>
</table>

**CONFIRMED**

**CONTRACTOR REP:**

**NAME:**  
………………………………………………………………………………………………………………

**Signature**  
…………………………  DATE …………

---

70
**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

<table>
<thead>
<tr>
<th>Name</th>
<th>Designation</th>
<th>Organization</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Eng. Allan Nyagah</td>
<td>Resident Engineer</td>
<td>Nairobi City County</td>
<td>Committee Secretary</td>
</tr>
<tr>
<td>2</td>
<td>Assistant Resident Engineer</td>
<td></td>
<td>Committee Assistant Secretary</td>
</tr>
<tr>
<td>3 Martin Sauka</td>
<td>Site Administrator</td>
<td>Contractor - Njuca</td>
<td>Member</td>
</tr>
<tr>
<td>4</td>
<td>Kiosks Representative</td>
<td></td>
<td>Member</td>
</tr>
<tr>
<td>5</td>
<td>Factories Representative</td>
<td></td>
<td>Member</td>
</tr>
</tbody>
</table>

**GRIEVANCE RESOLUTION PROCEDURE**

- **Receipt of Complaint from**
- **Recording of grievance in standard forms**
- **Reconnaissance site visit**
- **Can the grievance be resolved by the Resident Engineer’s office? (Negotiation)**
  - Yes – 3 days
- **Can the grievance be resolved by Grievance Committee? (Mediation)**
  - Yes – 5 days
  - No
- **Submission of grievance to NaMSIP for resolution.**
  - No
  - Yes – 5 days
- **Grievance resolved**
  - Yes
  - No

**STORAGE OF ALL GRIEVANCE RELATED DOCUMENTS**
Location Map