ENVIRONMENTAL IMPACT ASSESSMENT REPORT

FOR

PROPOSED - COMMERCIAL BUILDING ON PLOT

NUMBER,

FIVE (5), MWANIKA MARKET KITHOKA. NYAKI WEST WARD,

NORTH IMENTI

SUBCOUNTY, MERU COUNTY

PROPONENT:

MRS. LUCY MAKENA MBURUGU

PRESENTED TO:

NATIONAL ENVIRONMENT MANAGEMENT AUTHORITY (NEMA)

MERU COUNTY

This report is done in accordance with the requirements of the Environmental Impact Assessment and Audit Regulations, 2019,

Pursuant to the Environmental Management and Coordination Act, (EMCA) 1999 Amended 2015.

LEAD CONSULTANT

BONFACE K MANYARA (LEAD EXPERT)
P.O. BOX 6-60300
ISIOLO
EMAIL: bonemaceconsult@gmail.com

MARCH 2021

CERTIFICATION:

Assignment:

To carry out an environmental impact assessment for the commercial development on Plot No. 5 MWANIKA Market-Kithoka, Meru.

Report title:

Environmental impact assessment project report

Site name: Proposed Commercial Development
Site address: P. O BOX 160 Meru.
Land reference; PLOT No. 5 Mwanika Market.

Lead expert;

Bonface Koome
P.o. box 6-60300 Isiolo, Kenya
REG. NO. 2534

Signed……  **…… date ……..**

For Bonemace consultants

Proponent:

Mrs. Lucy Makena Mburugu

P.o box 160-60200

MERU

Signed……date……..

For-

Disclaimer:
This environmental impact assessment project report is strictly confidential of Mrs. **Lucy Makena Mburugu** (the proponent) and any use of the materials thereof should be strictly in accordance with the agreement between the proponent and Bonemace consultants (the EIA expert). It is, however, subject to conditions in the environmental (impact assessment and audit) regulations, 2019.

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EXCECUTIVE SUMMARY

The need to undertake an Environmental Impact Assessment is a legal requirement as stipulated by the Environmental Management and Coordination Act (EMCA of 1999-amended 2015) and subsequent regulations and legislations. In the Act, projects of a given scale are legally required to have an assessment of the project site and a detailed analysis of expected positive and negative impacts on the environment, the neighboring publics and their properties. This is aimed towards a sustainable development that enhances the wellbeing of total environment. The private sector has continued growing in the current years and consequently playing a major role in Kenya's economy through provision of employment opportunities and as a result improving the livelihoods of Kenyan citizenry. The proponent of this project is an entrepreneur who has felt the need of constructing a commercial building. This will enhance the increase of the houses having in mind that Meru has an increasing demand for commercial and residential houses given its current and projected population growth.

The proponent of the above mentioned project is set to benefit from the vibrant business in the region, and so does the local community in terms of economic growth, area development and employment opportunities. However, before any sort of development is undertaken on any site, it is the expectation of the Government agency in charge of the environment (National Environment Management Authority) that all proposed projects should undergo environmental impact assessment. This EIA was carried out to find the impacts of the proposed project on the environment and to the community not withstanding their positive or negative aspects. The preparation of this environmental Impact Assessment report is therefore a statutory requirement as above noted. In addition, it has been made a requirement by commercial banks before they can process a loan towards development projects.

CHAPTER ONE

INTRODUCTION

In accordance with section 58 (2) of the Environmental Management and Coordination Act of 1999 which requires that all proposed projects likely to have negative impact on the environment be subjected to Environmental Impact Assessment and a report thereof submitted the national Environmental Management Authority (NEMA) for issuance of EIA license, the project proponent has engaged the services of an EIA/EA registered firm of experts to undertake EIA on the proposed commercial development and thereafter compile an EIA report for submission to NEMA.

In the preparation of the project report, the lead expert followed the guidelines contained in the EIA regulations under legal notice No. 101 of June 2003. In the EIA study, the team of experts have concisely described the project location as well as the baseline environment. Further the objective of the project is expressly stated. The views and inputs of site neighbours, members of the public and the affected and interested parties have been sought and incorporated in this report. Various project alternatives have been analyzed and a justification made for the preferred alternative.

Moreover, this report has described the potentially affected environment and also identified, predicted and evaluated the environment and social impacts associated with the proposed project.

Ultimately, this report has made recommendation for the mitigation of potential adverse environmental and social-economic impacts and also generated an environmental management plan as framework for implementation of mitigation measures, a guide for environmental monitoring and basis for future environmental audits.
The proponent will contribute to private-public sector initiative to boost the country's economic recovery, improve infrastructure and return the economy back to the envisioned medium term growth path.

1.1 Project Objectives

The principal objective of the project is to avail a modern commercial house for rental, create job opportunities and generation of incomes. The experts' interest was therefore to ensure adequate identification of potentially negative environmental impacts, propose workable mitigation measures and propose an environmental management & monitoring plan for the project. The summary of these objectives is as follows;

- To identify the potential environmental impacts resulting from the proposed development.
- To assess the significance of these impacts
- To assess the alternative plans, designs and sites of proposed projects
- To propose the mitigation measures against these negative effects
- To generate baseline data on how mitigation and evaluation measures are carried out during implementation of the project.
- To present information on environmental impacts of proposed alternatives.

- To prepare environmental management and monitoring plans for the proposed project.
- To assess the compliance of the project with provisions of legal, institutional frameworks as provided in EMCA 1999.
- To suggest measures to prevent health and safety hazards and to ensure security in the working environment for the employees, residents and for the management in case of emergencies. This encompasses prevention and management of the foreseeable accidents and hazards during both the construction and occupational phases.

1.2 Scope of the report

This Environmental Impact Assessment project report therefore provides relevant information and an environmental consideration on the proponent's intention to seek approval from National Environmental Management Authority (NEMA); for the execution of the proposed project. The scope of the assessment study covered the physical extent of the project's site and its immediate environs and construction works of the proposed development. The major output of the EIA process and a component of this EIA Report is the Environmental Management and Monitoring Plan, the benchmark in the implementation of the mitigation measures and monitoring the environmental performance of the facility. The EIA did not only concentrate on establishing impacts of the proposed project in the project site but also considered the surrounding environs, and the long-term effects of the proposed activity on environmental and socio-economic conditions of the project area.

1.3 Methodology

- Environment screening in which the project is identified as among those requiring Environmental Impact Assessment under schedule 2 of EMCA, 1999, amended in 2013.
- Physical inspection of the site and its environs.
- Desk top studies, consultations, questionnaires and interviews with the proponent, his consultants, Neighbors among others.
- Preliminary assessment (reconnaissance survey) of the general property. Through this, the development was therefore identified as being among those that needed environmental impact assessment; as provided under schedule 2 of Environmental Management and Coordination Act (EMCA), 1999. During the field investigations, information on Biophysical and socio-economic environment of the proposed development area and its environs were collected.
- The environmental scooping was then done relative to the construction operations and activities. This provided significant environmental issues to be considered during the assessment. To ensure comprehensiveness on the assessment, desktop studies and interviews were held. This involved the proponent and the consultants.
- Relevant studies and reports on the construction including design works and other related sources of information were critically reviewed.

1.4 Relevant Legislations

Several legislations were reviewed. The law has made provisions for the establishment of the National Environmental Management Authority (NEMA), which has the statutory mandate to supervise and co-ordinate all environmental activities. The Environment Management and Co-ordination Act (EMCA), 1999, amended 2013, is the legislation that governs EIA studies. The second schedule of the Act lists the projects that are supposed to undergo EIA studies in accordance with section 58 (1-4) of the Act. It makes it mandatory for any proponent of a project, to, before financing, commencing, proceeding with, carrying out, executing or conducting or causing to be financed, commenced, proceeded with, carried out, executed or conducted by another person any undertaking specified in the second schedule in the Act, submit a project report to the National Environment Management Authority (NEMA), in the prescribed form, giving the prescribed information.

1.5 Environmental Setting and baseline data

The proposed project area is within Mujujune market, Kiamiago ward. This is a built up area as it is within the commercial land uses of Kithoka.The geology of the area is generally made up of metamorphic rocks with clay-loams as the predominant soils.
Land at the project site and its surroundings are moderately sloping at about 1% - 7 %. Due to the nature of the soils coupled with the moderate slopes.

The proposed development will occur on a flat levelled ground and will have little or no influence to the movement of surface materials, mostly soil.

1.6 Rainfall and Temperatures

The area experiences bimodal type of rainfall with the long rains occurring in March - May and the short rains from October to December. The average annual rainfall is between 1000mm and 1250mm.
The maximum average temperature range is 8°C to 32°C whereas minimum average temperature is 18°C. Due to the expansive roof catchments in the estate, a lot of surface run-off is expected to be generated

1.7 Water supply

The proposed project site is connected to the community water projects available within the area and Meru water and sewerage water supply (MEWAS). However, during the construction and occupation phase the water supply will be stretched however water scarcity is not anticipated. Nevertheless, measures have been put in place for water conservation practices especially by increasing rainwater harvesting from roofs in either underground tank or store it in the surface water storage tank. The residents of the proposed project should be sensitized on water use, efficiency and best conservation practices.

1.8 Flora

Trees play an important role in our daily lives. The obvious ones they attract rain, act as water catchment areas, purify air, act as wind-breakers, block noise and dust, produce oxygen and in return take in carbon dioxide (act as carbon sinks), control soil erosion, act as a habitat (homes for birds and insects), absorb run off and also they add value to property among many others.

The proposed project site is devoid of any trees/ vegetation of environmental value.

1.9 Population

Meru County is located in the Eastern Central region of Kenya, in the former Eastern Province. The County population is 1,635,264 persons, projected to grow to 1,775,511 by 2022 from 2018 Population Census.

1.9.1 Infrastructure

The proposed project site can easily be accessed since it's along Meru-Ruiri road hence accessibility is ideal.

1.9.2Communication.

The area is well covered by all mobile phones service providers namely; Safaricom, Airtel, Telkom and equitel Signals.

2.0 Brief overview of the Construction Sector.

The construction industry is very important for the Kenyan economy. It accounts for 5% of the country's GDP and employs about 1 million people with an estimated annual wage bill of Sh3.2 billion. According to findings by Kenya National Bureau of Statistics (KNBS), Kenya's economy grew by 4.9% due to the improved productivity in the construction industry. KNBS reported that the industry contributed Sh12.6 billion to the Kenya's GDP.The construction boom was also reflected in cement consumption which rose to 779.3 million tonnes up from 667.1 million tonnes consumed in the same period last year. As a result of the rapidly expanding population, the industry is expected to grow further as investors rush to meet rising demand for housing. Extensive opportunities for investment are huge especially in the construction of middle/low income housing, manufacture and supply of construction materials and components as well as in the area of upgrading informal settlements.

However, construction cannot be justified while overlooking the negative impacts such activities has on the environment.

There is therefore a need to integrate environmental conservation in all stages of construction activities so as to minimize the negative impacts that may result. During the

recent years there has been a growing awareness on the importance and need for protection and preservation of environment. In this report the impacts of proposed construction of a - commercial building on environment, need for pragmatic view and remedial measures have been discussed.

2.1 T.O.R (Terms of Reference)

The terms of Reference for this Environmental Impact Assessment are based on the NEMA EIA/EA Regulations. They were;

- ✓ Description of the proposed project
- ✓ Review of relevant Policy Legal and Institutional framework
- ✓ Identification of probable impacts of the project on the environment
- ✓ Contribution of the project to local economy
- ✓ Seek views from members of the public
- ✓ Propose mitigation measure for anticipated negative impacts
- ✓ Prepare Environmental Management Plan for the project.

2.2 Scope

The scope of work conformed to the Terms of Reference (To R) and included technical studies, internet studies, field investigations, consultative public participation (CPP), and identification of impacts, setting out of mitigation and preventive measures and a study of other proposed alternatives suggested in this report.

2.3 EIA Methodology

In carrying out of the Impact Assessment, the following methods were incorporated:

- ❖ CPP interview: this involves holding individual interviews with the project proponents and other stakeholders using a pre- prepared questionnaire and Impact

Assessment checklists and recording the feedback. The importance of this methodology was to create confidentiality of the source of the information.

- Literature review: this involves the review of all literature and data relevant to the project. The literature included legislations, the CIDP, lead agencies, and government agencies and information available from the internet.

- Site observation: this involves a walk within the proposed project site to get acquainted with the environment and also to cross check issues, which arise from the CPP interviews above.

2.4 Public Participation and Analysis

A total number of 12 people living or working in the environment, (neighbours and plot owners) were interviewed to get their views on the proposed project. The respondents have resided in the area for a period ranging from one year to ten years. Most of these respondents were seen to have a positive attitude towards the proposed project with the common belief that the benefits to be accrued from it would go along way in improving the area development of the local community and improve on the aesthetic need of the area. Benefits proposed ranged from creation of employment opportunities, improved security, more accommodation services, generation of revenue to the government, raising of the economy, improvement of aesthetic beauty and the boosting of other business especially suppliers of goods and services.

2.5 Expected Benefits from the Proposed Project

From the views given out by the respondents, we can deduce that 60% of the respondents believe that employment and job opportunities will be created with the implementation of the proposed development. In this both skilled and unskilled employees will be engaged during construction and operation phases. Concerning provision of commercial houses 18% of the respondents were of the opinion that the businessmen would greatly benefit from these.12% of the respondents felt that the proposed development would lead to improved livelihoods from employment at the premises., 8% were inclined towards aesthetic beauty and boosting of other businesses especially the suppliers of commodities and services related to the proposed project while 2% felt that they did not expect any

benefit from the facility. It was therefore can conclude that the majority of the respondents did not have any predicament in relation to the proposed project.

CHAPTER TWO

2.0 LEGISLATIVE AND REGULATORY FRAMEWORKS

Kenya has a fairly good number of statutes for the protection of the environment relating to land use, physical planning, building and infrastructure construction, water resources, pollution, environmental and occupational health. Although there is a comprehensive Act of parliament that specifically centres on environmental issues, there is need for a wider legal review since land development issues are multi faceted. This section therefore examines all such policies and laws related to the project under review giving a brief outline of each.

2.1 The Physical Planning Act Cap 286

This Act empowers local authorities to control development activities taking place within their areas of jurisdiction. Among the relevant powers the Act grants local authorities are the powers to prohibit or control the use and development of land and powers to consider and approve all development applications and grant all development permissions. In effect, no person is allowed to carry out development within the area of a local authority without a development permission granted by that local authority. The Act further provides for penalties relating to contravention of its provisions as relate to development activities. A local authority is in addition empowered to require a development applicant to submit an EIA report where a proposed development is considered of potential injurious impacts on the environment, (Section 36).

2.2 Environmental Management and Coordination Act (EMCA) of 2015

This Act came in to force in the year 2000 January 14th, was amended in 2015 and was aimed at combining into one legislation the 77 different statutes, which related to environmental issues. Lack of co-ordination in dealing with environmental protection thus necessitated the need for a comprehensive Act to deal with all environmental matters.

The Act gives every person in Kenya a right to a clean and healthy environment. It also confers upon every person the duty to protect and safeguard the environment. Part V of the Act provides measures for protection and conservation of the environment. Pollution of the environment through waste disposal, noise, dust, radiation, pesticides, and smell is

prohibited. The Authority (National Environment Management Authority) may issue and serve on any person in respect of any matter relating to the management of the environment a restoration order requiring the person to restore the environment as near as it may be to the state in which it was before the implementation of a project or an action. Thus the polluter pays principle shall apply. Part XIII of the Act defines environmental offences and provides for heavy penalties on any person who commits an environmental offence. Section 148 provides that the Act shall prevail over any written law, relating to the management of the environment that was in force immediately before the coming into force of this Act.

2.3 The Local Government Act, Cap 265

The Local Government Act Cap 265 provides that all developments shall obtain development permission from the Local Authority. The Act also empowers local Authorities with the mandate to supervise developments within their areas of jurisdiction. The local authority is also responsible to designate sites where waste generated should be disposed In this regard; the proponent has sort development approval from the county Council of Meru for the desired developments. These involved getting approval for the building plans.

2.4 The Public Health Act

The Act makes it the duty of every Local Authority to take necessary lawful practicable measures to safeguard and promote public health.

Section 126 of the Act provides for drainage and specifies the rules below:

- Provision of drainage for all new buildings.
- Prohibit the drainage of surface water into foul water sewers.
- Prohibit discharge of matter into sewers, which may interfere with free flow of the sewage or injure the sewer.
- Empower the local authority to prohibit the discharge of injurious matter into sewers.

It is therefore expected that extra care will be undertaken in the discharge of wastes.

2.5 Landlord and Tenants Act Cap 301

In this Act the ways through which tenants and their landlords are supposed to relate is explained. During tenancy termination, it says a landlord should give a notice to the tenant in the prescribed form; this notice shall not be less than two months after the receipt of the notice by the tenant. It further details circumstances under which tenancy period can be cancelled such as; when tenant has defaulted payment of rent, he has failed to repair the premises occupied as agreed or when the landlord intends to demolish or reconstruct the premises comprised in the tenancy.

2.6 Codes and Standards

Codes and standards applicable in the project include

- BS 8110:1985- structural use of concrete
- MOW: m 1973 – code of practice for the design and construction of buildings and structures in relation to earthquakes.
- BS 5911- Precast concrete pipes, fittings and ancillary products.
- BS 5911-100 (1988) – Precast concrete pipes
- BS 8666 (2000) – bending steel
- BS 5955-6 (1980) – code of practice for the installation of U-PVC pipes-gravity sewers/storm.
- Ministry of Public Works (MOPW) - standard details, drainage and civil works, 1976.

2.7 The Water Quality Regulations (2006) and Waste Management Regulations

National Environment Management Authority and other players have championed two new regulations namely. The Water Quality Regulations (2006) Gazette supplement No. 68 of September 2006, Legal notice No. 120 and the Waste Management Regulations Gazette supplement No. 69, legal notice No. 120 of September 2006. The two regulations will guide investors on the best practices in disposal of both wastewater and solids in environmental friendlier ways.

2.8 The National Poverty Eradication Plan (NPEP) and the Poverty Reduction Strategies Paper (PRSP)

The NPEP has the objective of reducing the incidence of poverty in both rural and urban areas by 50 percent by the year 2015; as well as strengthening the capabilities of the poor and vulnerable groups to earn an income. It also aims at narrowing the gender and geographical disparities and at creating a healthy, educated and more productive population. This plan has been prepared in line with the goals and commitments of the World Summit for Social Development (WSSD) of 1995. The end result of this arrangement is in line with the four focuses of the WSSD themes; of poverty eradication, reduction of unemployment, social integration of the disadvantaged people and the creation of an enabling economic, political, and cultural environment. This plan is to be implemented by the Poverty Eradication Commission (PEC) formed in collaboration with Kenyan government ministries, community based organizations, private sector, non-governmental organizations, bilateral and multilateral donors. This strategy is important in raising human capabilities and thus human development. The PRSP has the twin objectives of poverty reduction and economic growth. The paper articulates Kenya's commitment and approach to fighting poverty; with the basic rationale that the war against poverty cannot be won without the participation of all the stakeholders.

2.9 The Building Code

The Local Government (Adoptive By-laws) popularly known as the Building Code, seeks to regulate all development activities within the built environment to ensure safety, convenience and acceptable standards of construction. The By-laws specify design standards relating to building materials, building sites, foundations, walls, fire safety, roofs, floors, chimneys, stairs, lifts, refuse disposal, water supply, ventilation and drainage of buildings. They also specify standards for sanitary conveniences, sewers, access to plots and sitting and spacing about buildings within a given plot.

Any person who erects a building or develops land or changes the use of a building must therefore comply with the requirements of the code. All such developments must be applied for in a prescribed form and submitted to the relevant local authority for consideration and consequent approval or rejection. To this form must be attached copies

of the plans showing the details of construction and in particular of any framework, and the sizes and position of any reinforcing metal. Any person who contravenes the requirements of the By-laws is liable for an offence. Such a person will be served with a notice prescribing the period, which will be allowed for the contravention to be rectified and notification given to the council of the compliance with the requirements of the notice. Section 257 of the Building Code provides penalties for failure to comply with the any of its requirements.

2.10 Other legislations

- Registration of Titles Act cap 281
- Public Roads and Roads of Access Act cap 349
- Value Added Tax Act cap 4.76

CHAPTER THREE

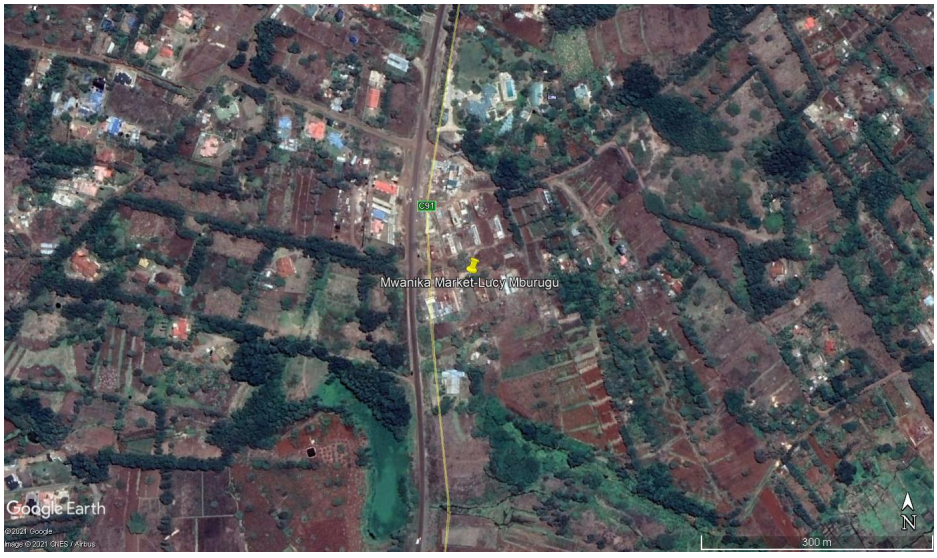
3.0 PROJECT DESCRIPTION

This section explores the various inception stages of the planning variables pertaining to the project site from its location characteristics, infrastructure and services.

3.1 Location

The project site under study is located on plot no-5, Mwanika Market within Kithoka on the outskirts of Meru town registered under the names of the proponent. The GPS coordinates for the site are; N: 00°06.410' E037°39.601'

Fig 1:-Site photo



Google excerpt for the site-source Google earth 2021

3.2 Neighborhood description

There are various types of developments that exist in the project area. They comprise of business premises. Residential houses also form part of the developments in the area with a high potential of attaining very high population densities in the near future.

3.3 Infrastructural development

The project site is within Mwanika Market, which is off Meru-Ruiri road and is also fairly served with access roads and water. Other services that the area enjoys include electricity supply and good telephone networks.

3.4 Flora and Fauna

The area site has no vegetation of environmental value. Most of the adjacent plots are all built up and there is no bare land around the site. The implementation of the proposed project will therefore result to no biodiversity interference.

3.5 PROJECT ALTERNATIVES

3.5.1 Analysis of Project Alternatives

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

3.5.2 Relocation Option

The land belongs to the proponent and it's in a very serene area within the market centre and that is where she anticipates to putting up this commercial development.

Relocation means that the proponent will look for a different plot to establish the proposed development.

Bearing in mind that the land owner does not have another site equaling to this, this means that he has to look for land elsewhere. Searching for land to accommodate the space and size of the project and completing official transaction it may take a long time although there is no guarantee that such land could be available.

The developer will spend time on design and approvals since design and planning has to be according to the site conditions. Project design and planning before the stage of implementation will cost the developer a large sum of money. Whatever has been done and paid up to this level will be counted as a loss to the developer.

Assuming the proposed project will be given a positive response by the relevant authorities including NEMA, the project would have been delayed for about two year's period before implementation. This is a delay that the proponent can ill afford. This would also lead to a situation like no other project alternative option; the other consequences of this would be a discouragement to local/private investors especially in this sector that has been shunned by many public and private investors.

From the bone statements relocation of the project to different site is not viable hence it's ruled out.

3.5.3 No project Alternative

The no project alternative option in respect to the proposed project implies that the status quo is maintained. This option is the most suitable alternative from the extreme environmental perspective as it ensures non-interference with the existing conditions. Under no project alternative, the proponent's proposal would not receive the necessary approval from NEMA, proposed project would not be constructed and there would be no development. This option will however, involve several losses both to the land owner and the community as a whole. The plot owner will continue paying land rates while the property remains idle. The no project option is the least preferred from the socio-economic and partly environmental perspective due to the following factors;

- Discouragement for investors
- Land will still remain idle
- No employment opportunities will be created for Kenyans bearing in mind that the proposed project will have employment opportunities both directly or indirectly during construction and thus improve lifestyles and livelihoods
- Local skills would remain under utilized
- Commercial houses stock will remain low

3.6 Project Design

The building will constitute of four floors. The ground floor will comprise of; 2 shops and seven bedsitter units. All the other 3 floors will be of similar characteristics and features and will consist of one (1 bedroom unit and 9 bedsitters). Standard electrical wiring, accessories and fittings with external security will be installed in accordance with the approved building plans attached.

3.7 Project Activities

This section outlines the various inception stages of the project from planning to decommission. The activities at each stage vary both in scope ad in duration. Below is a discussion in detail of each phase.

Planning

Planning is the initial phase of the project. This involves various activities that aim at ensuring that the project receives all the necessary approvals prior to the actual physical developments. It involves the acquisition of all the necessary and relevant approvals related to the proposed project from various Government agencies. This report detailing out the environmental impact assessment carried out on the site will go along way in ensuring that the regulations set by the National Environment Management Authority are followed to the latter therefore forming an important step in the preparation phase. On the other hand, the proponent will submit the building plans to the necessary institutions including the Lands Office, The county government of Meru, The Planning Department, The Public Health Department and The Physical Planning Office.

The preparation of this Environmental Impact Assessment (project report) and its expected submission to NEMA therefore will form an essential step in the project registration with the National Construction Authority (NCA) and subsequent issuance with a compliance license.

Pre- Construction Stage

Project Approvals

The project has been submitted for and approved by Lead Agencies for implementation as follows:

APPROVING AUTHORITY	**ACT**	**DATE APPROVED**	**REMARKS**
Physical Planning Officer	Physical Panning act, Cap. 286	26th /02/2021	Proponent to abide by the zoning regulations of the council.
County government	The Local Government Act, Cap. 265	17th /03/2021	-Supervision to be done by a competent Architect and structural engineer.
Public health	Public health	17th /03/2021	To give regulations regarding health and

	Act		sanitation
NEMA	EMCA 2015	This EIA PR	To review the report for approval and licensing.
NCA	NCA act 2014	To be sought out after this approval	To build as per the act regulation

3.8 Construction Phase

Several physical activities will be involved in this phase. These will include fencing off the site, digging of foundation columns, excavation, leveling, transportation of building materials and erection of the - commercial building.

During the construction, there will be regular inspections to ensure that the implementation of the project abides with the set regulations as well as conforming to the approved building plans. The Project architect and engineer as well as the national construction authority (NCA) will undertake inspections on routine basis. The building will thus undergo several certifications during the construction process until completion.

The final construction phases will include infrastructure improvements that will affect the project area as well as establishing linkages with the existing facilities. Close collaboration will take place between the developer, the engineer and the service providers such as the Kenya Power and lighting company, county government of Meru and Meru Water and Sewerage Company/ other community water projects serving the area. In this phase, finalization activities of the project will be undertaken. These include statutory inspections and certifications, installation of utility meters and issuance of completion /occupation certificates by the county.

It is important to note that the county government shall issue the occupation certificates on completion of the civil works. This is necessary to ensure that the developments were adequately executed in line with the building regulations as well as according to the approved plans. This will be done to certify the buildings fit for human habitation.

3.10 Operation Phase

Once the construction is completed, the development will be ready for use. At this stage the building will start receiving tenants. The management will be expected to maintain

the highest level of environmental protection all through. Once occupied, periodic monitoring and maintenance will be necessary to ensure that the facilities remain in good order. The developments are expected to remain in good condition for several decades during which monitoring, maintenance and waste disposal activities will take place.

3.11 Final Decommissioning Phase

After some considerable use of the structure, it will reach time for either partial or complete demolition to reflect changes in land use at the time. This will depend on the planning and developmental changes and priorities prevailing over time in the area. The need to decommission the structures may also arise from the deterioration of the state of the buildings due to age. Decommissioning strategies to be adopted are given below:

- Assess the prevailing planning and development policy in application in the area to determine the appropriate future use of the land.
- Assessment of the condition of the building to determine appropriate use or disposal off materials.
- Prepare a demolition plan.
- Apply for approvals to the relevant agencies.
- Fencing off the site.
- Disconnection and removal of utilities e.g. water pipes, electricity and telephone cables.
- Remove all the underground facilities like water pipes, electricity and telephone cables
- Manual demolition of the structures
- Reuse or sell the salvaged materials.
- Disposal off generated waste and debris at designated council sites.

The completion of the decommissioning phase will thus open an opportunity for another development cycle.

CHAPTER FOUR

4.0 POTENTIAL ENVIRONMENTAL IMPACTS

The proposed project, like any other physical development activity, is bound to impact on the biophysical and socio-economic environments at the various stages of its implementation and operation. These impacts need to be analyzed prior to its implementation in order to mitigate against the probable negative impacts. This EIA report therefore attempts to reconcile the proposed development to the environmental needs. The maximization of the positive impacts of a development project while minimizing the negative impacts of the same remains crucial in the realization of sustainable development.

4.1 Negative Impacts on the Natural Environment

These are the environmental unfriendly impacts both short and long term that cover all the phases of the project under review.

Construction phase

Noise

The construction activities involve use of heavy machinery especially during the building construction, transportation of materials, ground leveling phase and digging of foundation trenches. The noise pollution though a short term both to the construction workers and the neighbouring population will be mitigated against in the Environmental Management Plan (E.M.P)

Air quality

Construction activities will result in generation of dust particles and smoke from soil and machinery. These may temporarily minimally lower the air quality. It is thus imperative to provide workers with protective gadgets during construction phase and effect the measures outlined in the EMP.

Disturbance of soil profile

Excavation during the project will result in minimal soil disturbances. This should be limited to the construction area.

Destruction of Flora and loss of Fauna

The site is devoid of any plants or animals.

Accidents

Some project activities such as movement of construction materials and the construction process itself may cause physical injuries to the workers during the construction process. Construction sites in addition attract many stakeholders who may expose themselves to risks of accidental falling rocks.

Lorries transporting construction materials could also cause accidents if carelessly driven.

Construction waste

Wastes predominantly solid waste generated during construction phase could cause environmental quality degradation if not properly disposed off. The wastes include pieces of tiles, timber, glassware, and soil and stones debris. Although no hazardous wastes will be generated proper disposal mechanism must be put in place for the non toxic waste.

Operation phase

Upon completion of the project there will be likely negative impacts on the environment in the following ways:

Grey water

With the increased number of people residing and working within the development, the volume of grey water produced from designated wash rooms, hand wash basins, kitchens and laundry will significantly increase if poorly disposed off, and this water could be a serious environmental hazard.

Storm water

During heavy rains, storm water could cause a lot of damage to people and investment if not properly channeled and disposed off.

Solid waste

The proposed development will generate solid wastes. General waste is expected to be produced but in small quantities. This can be disposed in one central place within the premises after which licensed waste handlers can periodically dispose it to designated dumpsites. Kitchen garbage will be centrally collected within the site and disposed off by licensed handlers.

Fire outbreaks

Fire outbreaks are known to occur in buildings like the one proposed. The design has provided protection devices. These plus safety measures to deal with such emergencies will be incorporated into the EMP.

4.2 Positive impacts of the project

This project is likely to produce many positive impacts to Meru town and its environs and further the national economies. It is precisely for these reasons that this project is being carried out.

Employment creation

The project is expected to create jobs in all its various stages. In the planning and design stage many qualified professionals will be employed. There will be contractual jobs during construction phase. At the operational phase, skilled and unskilled members will be residing in various departments within the building. There is high potential for businesses given that the proposed site is near the town centre. This will create revenue for the county government through licenses and other levies.

Improvement of local and national economies

The construction phase will release money into the economy through purchase of building materials and hiring of both skilled and semi- skilled labour.

The additional economic impact of this facility will be through business permits, license fees and rates to the local authority. This will be critical in improving the general welfare of the Meru town dwellers through services offered by the County government. The central government will in addition levy taxes such as value-added tax, income tax etc.

Enhanced Land Values Land always appreciates in value after construction of well planned and designed project. After the proposed development is constructed, the plot value and values of surrounding plots will have increased values.

Enhanced environmental quality

The aesthetic value of the project site will improve with the implementation of the project. In addition, provisions for tree planting on the land with particular preference to ornamental species will contribute to area aesthetic nature. These factors will improve

environmental quality within the project site, and thus the enjoyment of the same.

Improved area security

Once the proposed facility is operational a number of security guards will be employed to man the premise. This is likely to promote area security improvement.

Creation of higher returns for the proponent

People always invest with an aim of expected higher economic returns. The proponent in this case would not have invested so heavily without sure proof of good economic returns. These returns will in turn be used for further investment hopefully within Kenya. Such systematic investments move national economies from Third to First world

CHAPTER FIVE

5.0 ENVIRONMENTAL MONITORING AND MANAGEMENT

In this section mitigation measures are suggested for the identified negative impacts. Those responsible for implementing the same are identified, implementation time is also given.

Construction phase

This is the first stage in project implementation after the preparatory stages such as physical planning, preparation and approval of building plans. It involves such activities as transportation of machinery to site, excavation and actual construction up to removal of construction waste and debris.

Table1: Environmental Management/ Monitoring Plan for the construction phase of the project

Activity	**Action required**	**Responsibility**	**Time frame**
Maintain the occupational health of the construction workers	- Ensure adherence to MOH Covid-19 containment measures -Provide toilets for the workers which should be kept clean at all times. - Provide a clean water stand pipe on the construction site for use by the workers. - Hire only licensed (NCA accredited) construction workers on the site Workers to undergo medical check –ups.	Contractor Contractor	Continuous
Reduce dust pollution	- Provide dust masks and noise mufflers to workers in the course of their daily construction activities. - Sprinkle water when the surfaces are dry and likely to be blown by wind. - fence off the site.	Contractor	Daily
Maintenance of soil profile	- Excavation will only be concentrated along foundation	Building	When laying

	lines.	Contractor/ proponent	foundation
Reduce nuisance such as noise and dust to neighbouring publics and passers by and traffic obstruction.	Erect temporary hoarding of a height of not less than 6 metres to be erected all around the site in accordance with the County government of Meru by-laws.	Contractor	Continuous
Complete all construction work as approved	- All works is to be done as shown in the architectural plans and civil/engineering drawings. - Certifications of compliance and occupation to be issued as defined by the law.	Contractor/ Proponent Site Engineer Director of Physical Planning	Once off
Reduce accidents among construction workers	- Contracting qualified and experienced builders - Providing written instructions on how to respond during accidents - Provide a list of contact persons and hospitals to be contacted during accidents	Contractor Contractor Contractor	Once off

Operational Phase

This is the longest stage of project activities. It is at this stage that the intended project activities are accomplished. During this phase care must be taken to ensure that the following mitigation measures are strictly implemented.

5.1 Environmental Management Plan.

Table 2: Environmental Management Plan for the operational phase of the project

Anticipated negative Impacts	**Action required**	**Responsibility**	**Time frame**	**Cost**
Fire outbreaks	- Conduct fire drills to the residents. -Installation and inspection of fire extinguishers and other fire equipments -Installation and replacement of smoke detectors -Ensure fire blankets, fire extinguishers and hose reels are always in good condition.	proponent	Quarterly Inspection to be continuous Replacement to be done quarterly Continuous	10,000 Nil Varying Varying
Soil Erosion	-compact the loose soils -replant grasses	proponent	1000/month	Varying
Solid waste accumalation	-Provide dust/garbage bins and contract a licensed solid waste handler.	Management	10,000	Nil

Increased energy and water demands	- Install power saving bulbs. - Put off power when not needed - Close water taps when not in use.	Management Workers	Continuous	Varying
Effluent discharge	-Construct a functional septic tank. -Direct waste domestic water via soak pit -Exhausting filled-up septic tanks.	Management	Monthly Annualy	Varying Varying

The Decommissioning Phase

This is the final stage in any proposed development. Its mostly hypothetical but may arise in cases where the premises age or the land zoning is altered. Several measures have to be put in place to ensure that the area returns to its original state or to a better state.

Table 3: Environmental Management Plan for the Decommissioning Phase

Issue	**Action Required**	**Responsibility**	**Time Frame**	**Cost**
Demolition of the buildings	-Approval of the demolition plans. - Fencing off of the site. - Disconnection of all utilities including electricity and piping systems. - Actual bringing down of the buildings by use of the required machinery and procedure.	Proponent Contractor Engineer	2months 2 weeks 2 days 2 weeks	Varying
Disposal of debris	- Reuse and recycling of salvaged material. - Disposal of unwanted material and debris to the County	Contractor Proponent	Always	Varying

	government of Meru selected sites.	Licensed waste handler		
Rehabilitation and landscaping of the site	- Backfilling of the foundation columns and open trenches. - Environmentally friendly vegetation should be planted in the area to reclaim the original state of the site.	Contractor Ecologist	Once off	100,000
Total				**>100,000**

CONCLUSIONS AND RECOMMENDATIONS

In any implementation of a proposed project development are beneficial aspects not just to the proponent but also to the locals and the whole community at large. The construction of the proposed - commercial development that is to take place will be a step in the right direction towards the attainment of the Government agenda in Kenya like making the country a better place to live and work in. The economic and creation of employment objectives will also be enhanced as the implementation of the proposed development is in line with them. It has been clearly outlined in the report that certain benefits will be accrued from the implementation of the proposed project ranging from creation of employment, payment of taxes to the Government, creation of an affordable – commercial facility among others. In addition to the beneficial aspects, some negative impacts were also discussed and their mitigation measures posted for the proponent to put into action. Comprehensive environmental management plans have been given to ensure continued environmental protection. The project can therefore be seen to have insignificant negativity on the environment and its bio-physical components. We therefore hope that with all the details presented, the project will be given a go ahead and implementation realised.

REFERENCES

I. Kenya gazette supplement Acts *Building Code 2000*. Government Printer, Nairobi.

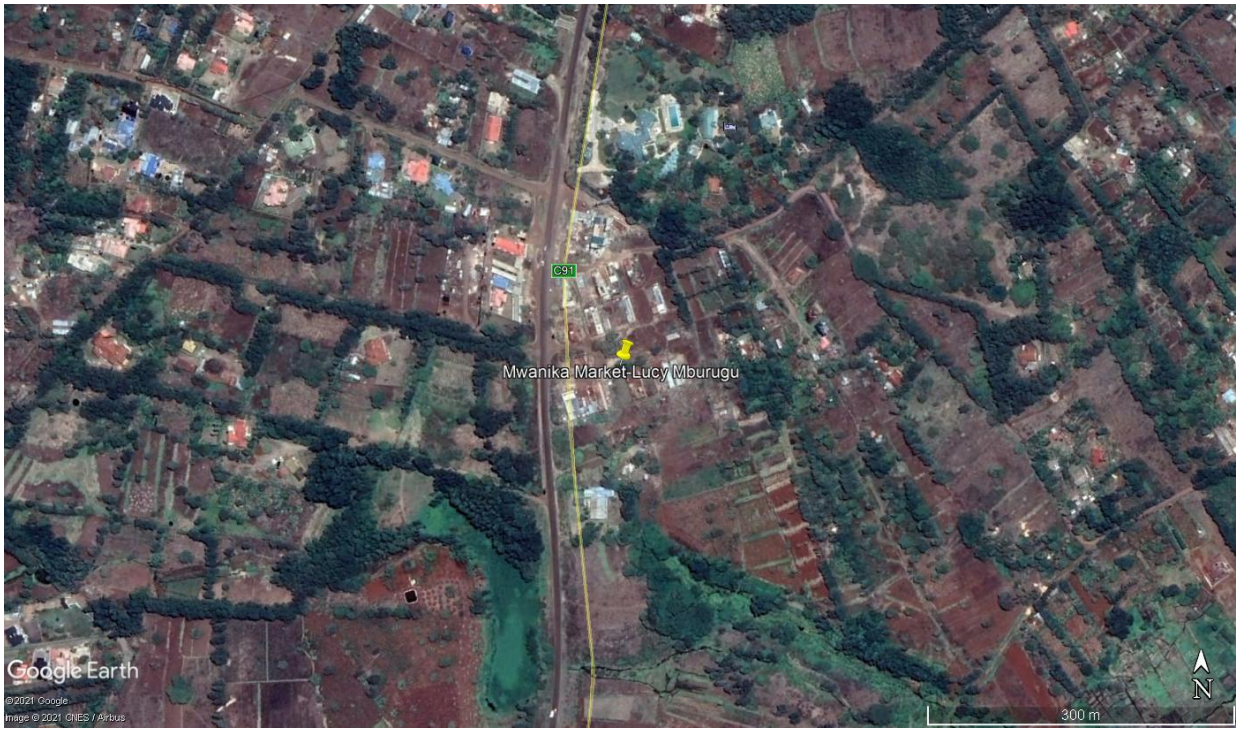
II. Kenya gazette supplement Acts *Public Health Act (CAP. 242)*. Government Printer, Nairobi.

III. Kenya gazette supplement number 56. *Environmental Impact Assessment and Audit Regulations 2003 & 2019*. Government Printer, Nairobi.

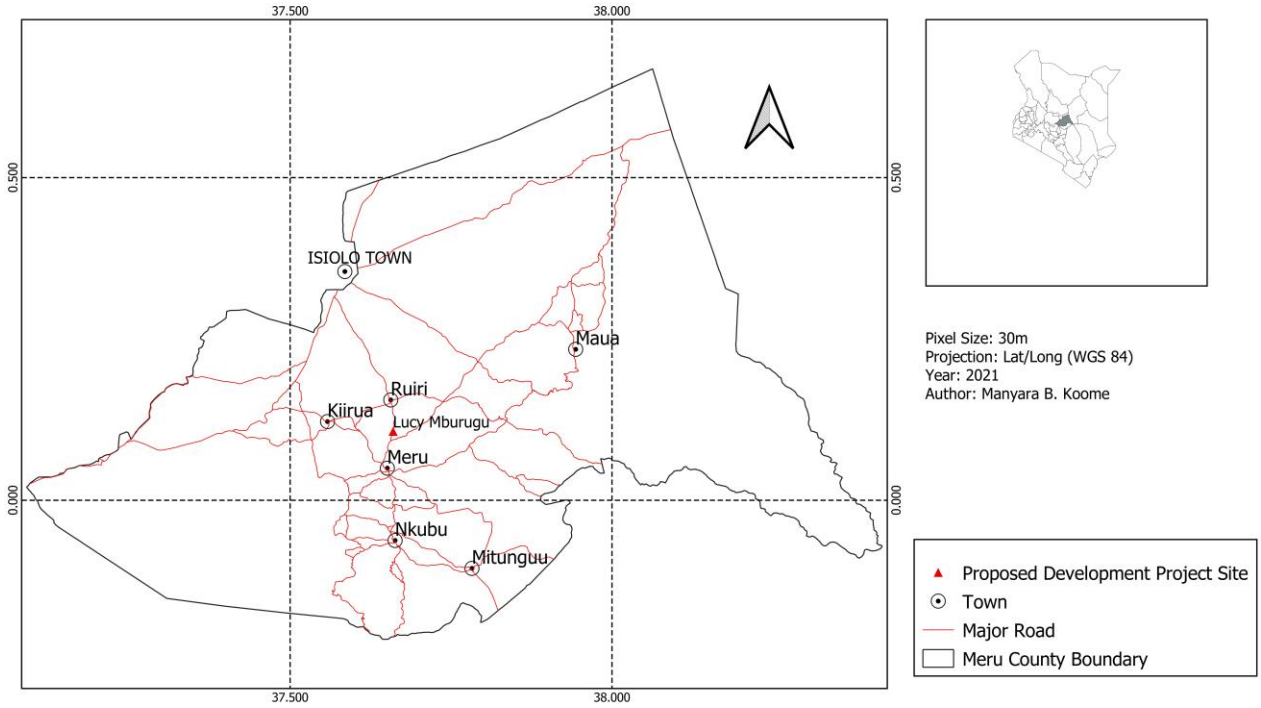
IV. Kenya gazette supplement number 69. *Environmental Management and Co-ordination (Waste Management) Regulations 2009*. Government Printer, Nairobi.

V. Kenya gazette supplement number 68. *Environmental Management and Co-ordination (Water Quality) Regulations 2009*. Government Printer, Nairobi.

VI. Other EIA reports done by the consultant.



MERU COUNTY MAP SHOWING THE PROPOSED LUCY MBURUGU DEVELOPMENT PROJECT SITE



MINUTES FOR THE CPP AND CONSULTATION FOR THE PROPOSED COMMERCIAL BIULDING ON PLOT NUMBER 5 MWANIKA MARKET

PRESENT;

S/No.	**NAME**	**ID NUMBER**	**CONTACT**
1	Bonface Manyara	20260811	0722630172
2	Lucy Kairuthi	12312683	0705023171
3	Henry Mworia	Plot no. 6	N/A
4	Monica Nkirote	19223610	0708505340
5	Caroline Kariuki	37921487	0799861567
6	Joseph Minyori	9697306	0723828154
7	Kinyua Mbijiwe		0725256885
8	Florence Kabobori	11326362	07122942506

The meeting started at noon after a word of prayer by a volunteer. The consultant introduced the agenda for the meeting as follows;

- Nature of the proposed development
- The positive impacts of the proposal
- The negative impacts of the proposal
- Mitigation measures for the negative impacts
- AOB

MIN 1. The nature of the project was disclosed to the public who were invited to share their views freely as their confidentiality was assured.

MIN 2. THE POSITIVE IMPACTS

The following positive impacts were identified;

- Employment creation
- Income generation
- Raising of land value
- Aesthetic beauty of the neighbourhood

- Increase of housing stock within the market

MIN 3. NEGATIVE IMPACTS

The following negative impacts were identified;

- Noise from machinery and equipment
- Dust pollution
- Increase in water & power demand
- Increase in waste generation
- Grey water

MIN 4. MITIGATION MEASURES

The following mitigation measures were proposed;

- Noise from machinery and equipment

-Provision of ear muffs to workers

-Construction work and delivery of construction materials to be on working hours only

-idling of vehicles discouraged

- Dust pollution

-Fencing of the site

-Setting down the dust

-Erection of dust screens

- Increase in water & power demand

-Recycling of water and prudent water using

-Rain water harvesting and storage

-Use of energy saving bulbs

-Use of solar energy

- Increase in waste generation

-waste separation and contracting of licensed waste handler

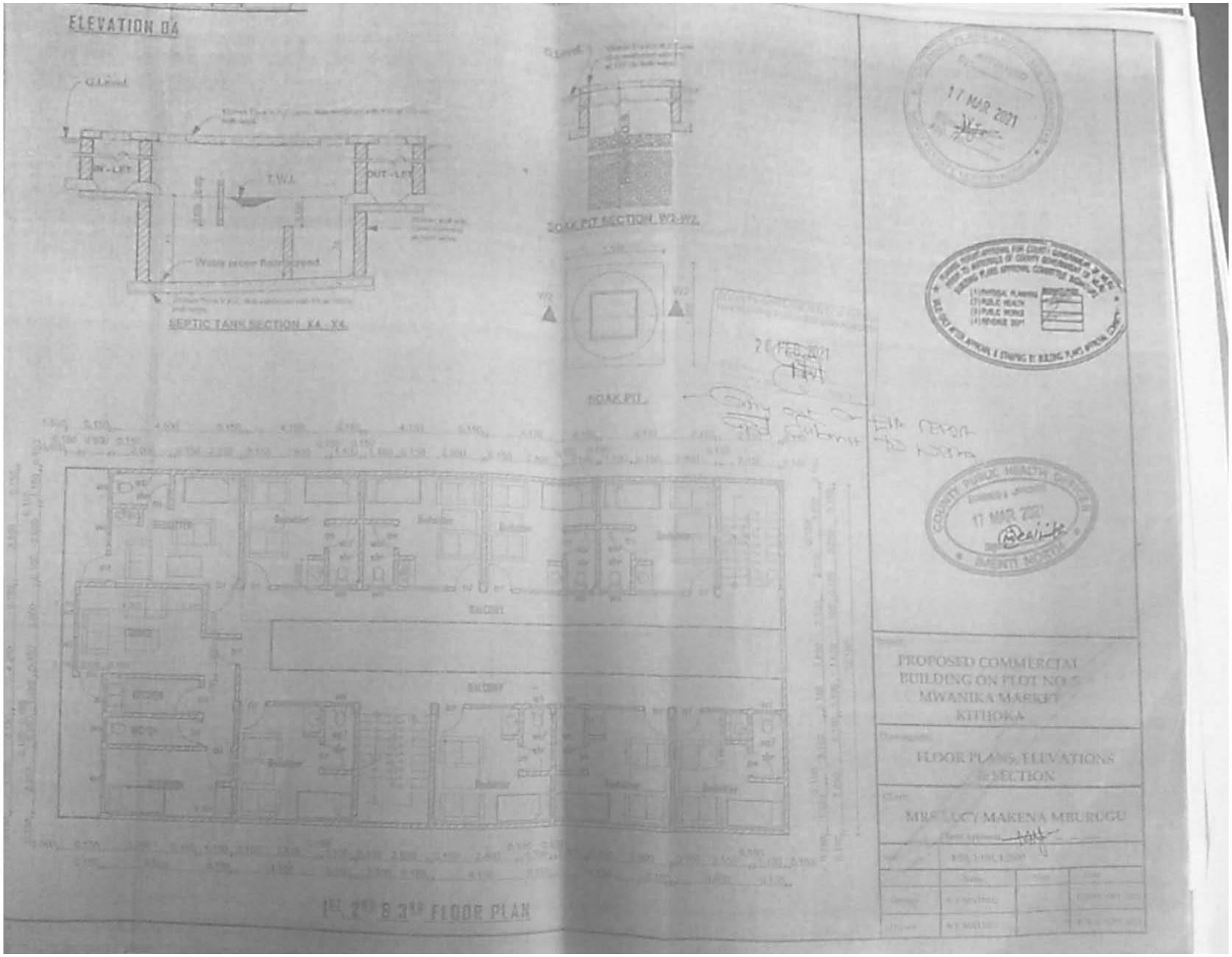
- Grey water

-Provision of septic tank as in the approved designs

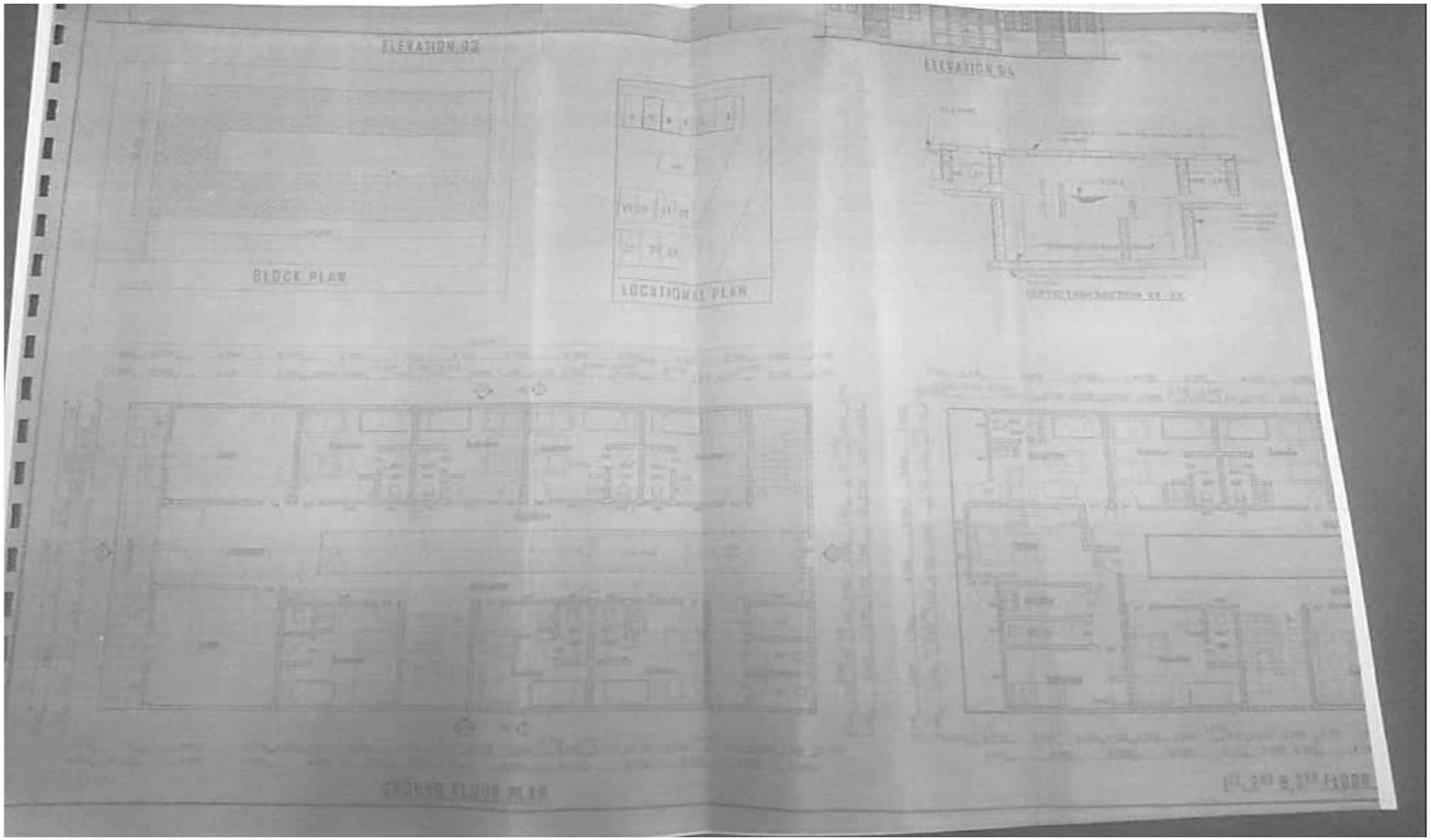
-Development and maintain ace of good drainage system

There being no other business the meeting ended at 2.00 PM with a word of prayer.

Signed……


ELEVATION 04
SEPTIC TANK SECTION X4 - X4
SOAK PIT SECTION W2-W2
SOAK PIT
1ST, 2ND & 3RD FLOOR PLAN
17 MAR 2021
PROPOSED COMMERCIAL BUILDING ON PLOT NO. S MWANIKA MARKET KITHOKA
FLOOR PLANS, ELEVATIONS & SECTION
MRS. LUCY MAKENA MBUROGU


ELEVATION 02
SECTION B-B
DOORS AND WINDOWS SCHEDULE


ELEVATION 03
BLOCK PLAN
LOCATIONAL PLAN
ELEVATION 04