ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT FOR THE PROPOSED SIAYA COUNTY AGGREGATION AND INDUSTRIAL PARK AT CENTRAL ALEGO WARD, ALEGO USONGA SUB-COUNTY, SIAYA COUNTY

SPR REPORT PREPARED BY; HOPE URBAN VIRONMENTAL AND RESEARCH INVESTMENT LIMITED
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P.O BOX 7128-40100
KISUMU.

FOR:
THE PROPONENT:

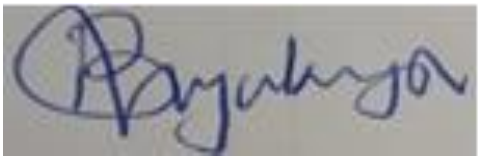
COUNTY GOVERNMENT OF SIAYA
DEPARTMENT OF ENTERPRISE AND INDUSTRIAL DEVELOPMENT
P.O. BOX 803-40600
SIAYA.
JUNE, 2024.

SUBMISSION OF DOCUMENTATION

This Environmental Impact Assessment (EIA) Report was prepared in accordance with the amended EMCA 2015 (CAP 387) and the Environmental Impact assessment and Audit Regulations (2003) for the proposed development. We the undersigned confirm that the contents of this report are an accurate and truthful representation of all findings as relating to the project.

EIA FIRM OF EXPERTS;

1, BELINDA AWUOR NYAKINYA- A NEMA registered and Licensed Lead EIA/EA Expert (Reg. No. 7319), on behalf of the firm of experts ; HOPE URBAN ENVIRONMENT AND RESEARCH INVESTMENT LIMITED (NEMA REG. NO.7718), hereby certify that the information provided hereby is to the best of our knowledge true and correct.



JUNE, 2024

Signed……Date; ……

PROPONENT;

I, MICHAEL OLIECH OMBAMBO, on behalf of the proponent COUNTY GOVERNMENT OF SIAYA, hereby certify that the information provided hereby is to the best of our knowledge true and correct.

11TH JUNE, 2024

Signed; ……Date; …….

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ACRONYMS AND ABBREVIATIONS

CEC	County Environment Committees
EA	Environmental Assessment
EHS	Environmental, Health, and Safety
EIA	Environmental Impact Assessment
EMCA	Environmental Management and Coordination Act
EMP	Environmental Management Plan
ERP	Emergency Response Plan
ESIA	Environmental and Social Impact Assessment
ESMMP	Environmental and Social Impacts Management and Monitoring Plan
ESMP	Environmental and Social Management Plan
NEC	National Environment Council
NEMA	National Environment Management Authority
NGOs	Non-Governmental Organizations
PPE	Personal Protective Equipment
SHE	Safety, Health and Environmental
SMEs	Small and Medium Enterprises
SOPs	Standard Operating Procedures
WBG	World Bank Group
WRMA	Water Resources Management Authority

DEFINITIONS OF OPERATIONAL TERMS

Baseline Information:	Initial data collected to establish the existing environmental and social conditions in the project area before any project activities commence.
Community Engagement:	The process of involving and consulting with local communities, stakeholders, and interested parties to gather input, address concerns, and foster collaboration in project planning and decision-making.
Decommissioning:	The process of permanently ceasing operations and dismantling facilities at the end of a project's life cycle, including the removal of infrastructure and restoration of the site.
Environmental Impact:	Any change to the environment, whether adverse or beneficial, resulting from human activities, including construction, operation, and decommissioning phases of a project.
Environmental Management Plan (EMP):	A comprehensive plan outlining specific measures and protocols for managing environmental impacts throughout a project's life cycle, including monitoring, reporting, and mitigation strategies.
Mitigation Measures:	Actions or strategies implemented to reduce, minimize, or eliminate the negative environmental and social impacts of a project, aiming to enhance sustainability and protect communities and ecosystems.
Public Participation:	The involvement of the public in decision-making processes, including consultation, information-sharing, and engagement, to ensure that their views and concerns are considered in project planning and implementation.
Social Impact:	The effect of a project on the well-being, lifestyles, and cultural practices of individuals, communities, and societies, including changes in employment, income distribution, and community cohesion.
Stakeholder Consultation:	Engaging with individuals, groups, organizations, and institutions that have an interest or stake in the project to gather input, address concerns, and build consensus on project-related issues.
Sustainable Development:	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs, balancing economic, social, and environmental considerations.

PROJECT DATA SHEET

TITLE OF THE PROJECT	**PROPOSED CONSTRUCTION OF SIAYA COUNTY AGGREGATION AND INDUSTRIAL PARK.(CAIP)**
PROPONENT	**COUNTY GOVERNMENT OF SIAYA** **DEPARTMENT OF ENTERPRISE AND INDUSTRIAL DEVELOPMENT** **P.O. BOX 803-40600** **SIAYA.**
PROJECT OBJECTIVES	The main objective of CAIP is to grow manufacturing and investments through Agro-Industries and enhance productivity of agriculture sector in a sustainable manner hence creating inclusive decent jobs, increase farmers' income; Increase foreign exchange, provide platform where farmers, processors, exporters, research institutions, industrial bodies and Government can engage for agro-industrial development.
SCOPE OF THE PROJECT	i. Design and construction of Construction of 8 warehouses ii. Construction of storage facilities, iii. Electrical installation works, iv. Installation of fire alarm detection, v. Installation of a centralized antennae system, vi. Installation of lightening protection, earthing and bonding system, vii. Installation of sub- switch board.
GPS POSITION	0°03'48.8"N 34°12'32.5"E (0.063545, 34.209060)
LOCATION	**CENTRAL ALEGO WARD, ALEGO USONGA SUB-COUNTY, SIAYA COUNTY.** **PLOT NO:SIAYA /OJWANDO 'A' 933,1622,1664,1625,1934,3294,3296CENTRAL ALEGO WARD, ALEGO USONGA SUB-COUNTY, SIAYA COUNTY**
PROJECT COST	**KSH 83,688,922.23 (Eighty Three Million, Six Hundred and Eighty Eight Thousand, Nine Hundred and Twenty Two Kenya Shillings Only)**

EXECUTIVE SUMMARY

The Siaya County Aggregation and Industrial Park (CAIP) project is a transformative initiative aimed at fostering economic development, job creation, and infrastructure enhancement in Siaya County, Kenya. This Environmental and Social Impact Assessment (ESIA) report outlines the comprehensive process undertaken to assess the project's potential impacts and benefits, incorporating extensive stakeholder engagement, rigorous analysis, and proactive mitigation strategies.

The report begins by providing an overview of the project's background, rationale, scope, and methodology. It highlights the project's objectives, which include enhancing industrial development, creating employment opportunities, and ensuring compliance with legal frameworks. Through a systematic approach, the ESIA process identified potential environmental and social impacts associated with constructing warehouses, storage facilities, and associated infrastructure.

Detailed baseline information was gathered, covering geography, population, climate, water sources, sanitation, energy access, economic activities, and social amenities in the project area. This baseline data formed the foundation for evaluating potential impacts and designing appropriate mitigation measures. A thorough review of policy, legal, and institutional frameworks was conducted to ensure alignment with regulatory requirements and international best practices. Emphasis was placed on safety, health, and environmental policies, as well as national and World Bank Group guidelines relevant to the project. The ESIA report discusses alternative project options, including the implications of not proceeding with the project and alternative sites. It examines the economic, social, and environmental factors influencing each option, ultimately recommending the proposed Siaya County Aggregation and Industrial Park project as the most viable and beneficial choice.

Public participation was a central component of the ESIA process, providing opportunities for community engagement, feedback, and input. Stakeholder consultations facilitated dialogue, addressed concerns, and incorporated local knowledge into project planning, ensuring inclusivity and transparency. Anticipated positive impacts of the project include job creation, economic development, and infrastructure enhancement, while potential negative impacts such as environmental degradation, social disruption, and health risks were also identified. Mitigation measures were proposed to address these concerns, emphasizing sustainable practices, community empowerment, and proactive risk management. The Environmental and Social Impacts Management and Monitoring Plan (ESMMP) outlines strategies for managing and monitoring environmental and social impacts throughout the project lifecycle.

An Emergency Response Plan (ERP) was developed to address potential emergencies effectively and minimize their impact on the community and environment. In conclusion, the ESIA report underscores the importance of balancing economic development with environmental and social considerations. By incorporating stakeholder feedback, adhering to regulatory requirements, and

implementing proactive mitigation measures, the Siaya County Aggregation and Industrial Park project aims to achieve sustainable development, promote inclusive growth, and improve the well-being of the local community and environment.

CHAPTER ONE: INTRODUCTION, RATIONALE, SCOPE AND METHODOLOGY

1.1 Introduction

The proposed Siaya County Aggregation and Industrial Park aims to bolster industrial development within the region by constructing warehouses, storage facilities, and other essential infrastructure. This project is a collaborative effort between the Siaya County Government and the Ministry of Investment, Trade, and Industry, intended to enhance economic growth and create employment opportunities.

To ensure that the project's development aligns with environmental sustainability and addresses social concerns, an Environmental and Social Impact Assessment (ESIA) has been conducted. The ESIA is a critical process that evaluates potential impacts on the environment and the local community, ensuring that any adverse effects are mitigated and positive outcomes are maximized.

1.2 Scope and Terms of Reference

The ESIA for the proposed Siaya County Aggregation and Industrial Park encompasses a comprehensive evaluation of the project's potential environmental and social impacts. The assessment specifically addresses the following components:

- **Construction of Warehouses and Storage Facilities:** Evaluating the environmental implications of building large-scale storage infrastructure.
- **Associated Infrastructure:** Assessing the impacts of installing electrical works, fire alarm detection systems, centralized antenna systems, lightning protection, earthing and bonding systems, and sub-switch boards.
- **Public Participation:** Involving the local community and stakeholders in the assessment process to gather their input and address their concerns.
- **Compliance with Legal Frameworks:** Ensuring the project adheres to national and county regulations, including the Environmental Management and Coordination Act (EMCA) Cap 387, the Constitution of Kenya, and other relevant laws and guidelines.

The ESIA aims to integrate environmental and social considerations into the project planning and implementation stages, promoting sustainable development and ensuring legal compliance.

1.3 Rationale for the Environmental Impact Assessment

Conducting an Environmental Impact Assessment (EIA) for the proposed project is essential for several reasons:

1. **Environmental Protection:** The EIA process identifies potential environmental impacts, such as land degradation, water pollution, and loss of biodiversity. By recognizing these impacts early, appropriate mitigation measures can be implemented to protect the environment.

2. **Social Responsibility:** The assessment ensures that the project's social impacts, including effects on local communities, health, and livelihoods, are considered. This helps in minimizing negative social consequences and enhancing positive outcomes for the community.
3. **Legal Compliance:** The EIA is a legal requirement under Kenyan law, particularly the EMCA Cap 387. Compliance with this legislation is necessary to obtain the necessary approvals and permits from regulatory bodies such as the National Environment Management Authority (NEMA).
4. **Sustainable Development:** By integrating environmental and social considerations into the project planning, the EIA supports the principles of sustainable development. This ensures that the project contributes to economic growth without compromising the environment or social well-being.
5. **Public Involvement:** The EIA process involves public participation, allowing stakeholders and local communities to voice their concerns and contribute to the decision-making process. This fosters transparency and inclusivity in project development.

1.4 Methodology

The ESIA for the proposed Siaya County Aggregation and Industrial Park was conducted using a systematic and participatory approach, involving the following steps:

1. **Data Collection:**
    - **Site Visits:** Field visits to the proposed project site were conducted to gather firsthand information on the existing environmental and social conditions.
    - **Stakeholder Consultations:** Meetings and discussions were held with various stakeholders, including local community members, government officials, and representatives from non-governmental organizations (NGOs). These consultations aimed to gather input on potential impacts and proposed mitigation measures.
    - **Document Review:** Relevant documents, including project plans, legal frameworks, and previous environmental assessments, were reviewed to provide a comprehensive understanding of the project's context and requirements.
2. **Environmental and Social Impact Identification:**
    - **Baseline Studies:** Baseline environmental and social data were collected to establish the current conditions of the project area. This included information on topography, climate, hydrology, flora and fauna, population demographics, and socio-economic activities.

- **Impact Analysis:** Potential environmental and social impacts were identified and assessed based on the data collected. This analysis considered both direct and indirect impacts during the construction, operation, and decommissioning phases of the project.

3. **Mitigation Measures:**
    - **Impact Mitigation:** Appropriate mitigation measures were proposed to address identified impacts. These measures aim to minimize negative effects and enhance positive outcomes. Mitigation strategies were developed in consultation with stakeholders to ensure their feasibility and effectiveness.
    - **Environmental and Social Management Plan (ESMP):** An ESMP was developed, detailing the implementation of mitigation measures, monitoring activities, and responsibilities of various stakeholders. The ESMP serves as a guide for managing and monitoring environmental and social impacts throughout the project lifecycle.
4. **Public Participation:**
    - **Consultation and Disclosure:** The ESIA process included public consultation and disclosure activities to ensure transparency and stakeholder involvement. Feedback from consultations was incorporated into the assessment and mitigation planning.
    - **Grievance Mechanism:** A grievance mechanism was established to address any concerns or complaints from stakeholders and community members during the project's implementation.

5. **Preparation of the Project Report –** This environmental impact assessment report was then prepared by approved and registered by NEMA (EIA) experts, who are familiar with the provision of the Environmental Coordination Act, (EMCA),CAP 387 and other relevant regulations and laws of Kenya as indicated on the Legal frame work.

6. **Submission of the project report –** The report will then be submitted to National Environmental Management Authority (NEMA), ten hard copies and soft copy for review.

7. **Limitation:**

- Some of the information in this report was obtained from the stakeholders and the owner of the project thereby making it difficult for verification and validation or authenticating the validity of such information. Therefore, the consultant has attempted to evaluate independently such information within limits towards establishing the scope of work.

CHAPTER TWO: PROJECT DESCRIPTION

2.1 Project Site

The proposed Siaya County Aggregation and Industrial Park is strategically located in **Central Alego Ward, Alego Usonga Sub-County, Siaya County**

The project entails; Design and construction of Construction of warehouses , construction of storage facilities, electrical installation works, installation of fire alarm detection, installation of a centralized antennae system, installation of lightening protection, earthing and bonding system and installation of sub- switch board .(detailed designs Annexed)

The Project is located on **PLOT NO:SIAYA /OJWANDO 'A' 933,1622,1664,1625,1934,3294,3296 Central Alego Ward, Alego Usonga Sub-County, Siaya County. GPS LOCATION;** 0°03'48.8"N 34°12'32.5"E (0.063545, 34.209060)

The site is selected based on its accessibility, availability of infrastructure, and suitability for industrial development. The location offers ample space for the planned facilities and is situated in a region with potential for economic growth.

The project site is characterized by hilly terrain, which complicates construction activities and increases site preparation costs. The surrounding area includes mixed-use land, comprising residential, commercial, and agricultural zones. The proximity to major roads and utilities makes it an ideal location for an industrial park.

2.2 Project Objectives

The primary objectives of the Siaya County Aggregation and Industrial Park project are as follows:

1. **Enhance Industrial Development:** Establish a robust industrial infrastructure to attract investment and support local industries.
2. **Create Employment Opportunities:** Generate direct and indirect employment for the local population, thereby improving livelihoods.
3. **Foster Economic Growth:** Stimulate economic activities in Siaya County by providing a conducive environment for businesses to thrive.
4. **Promote Sustainable Development:** Ensure that industrial growth aligns with environmental and social sustainability principles.

These objectives are in line with the county's development plans and the national vision for industrialization.

2.3 Waste Generation

The project is expected to generate various types of waste during its construction and operational phases. These include:

- **Construction Phase:**
    - **Solid Waste:** Debris, scrap materials, packaging, and broken concrete.
    - **Hazardous Waste:** Paints, solvents, oils, and other chemicals.
    - **Organic Waste:** Vegetation and food waste from workers on-site.
- **Operational Phase:**
    - **Industrial Waste:** By-products from manufacturing processes, packaging materials, and other non-hazardous waste.
    - **Hazardous Waste:** Chemicals, lubricants, and other toxic substances.
    - **General Waste:** Office waste, food waste from canteens, and other non-industrial waste.

Waste Management Strategies:

- **Segregation:** Waste will be sorted at the source to facilitate recycling and safe disposal.
- **Recycling and Reuse:** Materials such as metals, plastics, and paper will be recycled. Efforts will be made to reuse construction materials where possible.
- **Safe Disposal:** Hazardous waste will be handled and disposed of following regulatory guidelines to prevent environmental contamination.
- **Regular Monitoring:** Implementing a waste management plan with regular monitoring and reporting to ensure compliance with environmental standards.

2.4 Energy

The energy requirements of the industrial park will be met through a combination of grid power and renewable energy sources. The strategy includes:

- **Grid Power:** Reliable electricity supply from the national grid will be ensured to meet the operational demands of the industrial park.
- **Renewable Energy:** Integration of renewable energy solutions such as solar panels and wind turbines to supplement grid power, reduce carbon footprint, and promote sustainability.

- **Energy Efficiency:** Implementation of energy-efficient technologies and practices to optimize energy consumption. This includes the use of energy-efficient lighting, machinery, and HVAC systems.

The goal is to ensure a stable and sustainable energy supply that supports the industrial park's operations while minimizing environmental impact.

2.5 Water Supply and Sanitation

The industrial park will have a robust water supply and sanitation system designed to meet the needs of the facilities and workers. The plan includes:

- **Water Supply:**
    - **Sources:** Boreholes, rainwater harvesting systems, and connection to the municipal water supply.
    - **Storage:** Adequate storage tanks to ensure a reliable water supply even during peak usage or interruptions in municipal supply.
    - **Distribution:** Efficient distribution networks to deliver water to all parts of the industrial park.
- **Sanitation:**
    - **Sewage System:** A comprehensive sewage collection and treatment system to manage wastewater effectively.
    - **Sanitary Facilities:** Adequate restroom facilities for workers, designed to meet health and hygiene standards.
    - **Wastewater Treatment:** On-site wastewater treatment plant to treat industrial effluent and domestic sewage before safe discharge or reuse for landscaping and other non-potable uses.

2.6 Fire Protection

A comprehensive fire protection system will be installed to ensure the safety of the industrial park. This system will include:

- **Fire Detection:** Advanced fire alarm systems with smoke and heat detectors strategically placed throughout the park.
- **Fire Suppression:** Automatic fire sprinkler systems and portable fire extinguishers will be installed in all buildings and critical areas.

- **Emergency Response:** Trained fire response teams and regular fire drills to ensure preparedness in case of an emergency.
- **Infrastructure:** Fire hydrants, water reservoirs, and access routes for fire engines to ensure efficient firefighting operations.

2.7 Project Implementation Phases

The project will be executed in four main phases, each with specific activities and timelines:

1. **Pre-Construction Phase:**
    - **Site Preparation:** Clearing, leveling, and preparing the site for construction.
    - **Planning and Design:** Finalizing architectural designs, securing permits, and engaging contractors.
2. **Construction Phase:**
    - **Infrastructure Development:** Building warehouses, storage facilities, and installing electrical systems.
    - **Facility Installation:** Setting up fire protection systems, centralized antenna systems, and other infrastructure.
    - **Quality Assurance:** Regular inspections to ensure construction meets specified standards and regulations.
3. **Operation Phase:**
    - **Facility Management:** Running and maintaining the industrial park, ensuring all systems are operational.
    - **Monitoring and Evaluation:** Continuous assessment of environmental and social impacts, and implementing necessary adjustments.
    - **Economic Activities:** Full-scale industrial operations, including manufacturing, storage, and distribution.
4. **Decommissioning Phase:**
    - **Site Restoration:** Removing structures and restoring the site to its natural state or repurposing for other uses.
    - **Waste Disposal:** Safely disposing of all waste materials generated during decommissioning.

- **Environmental Remediation:** Addressing any environmental damage that occurred during the project's lifecycle.

Each phase will be managed to ensure minimal disruption to the environment and local communities, while maximizing the project's economic and social benefits.

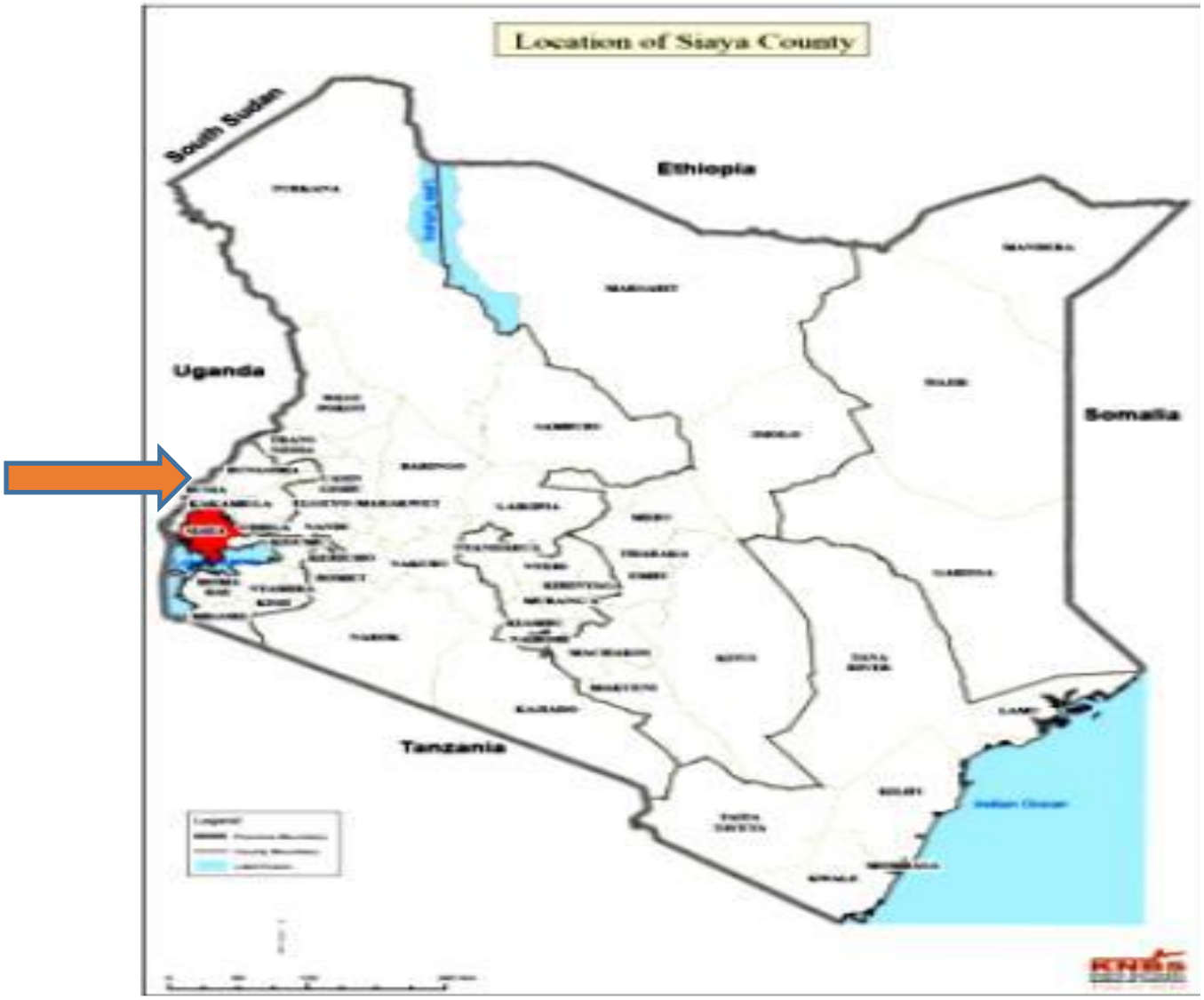
CHAPTER THREE: BASELINE INFORMATION

3.1 Geography and Site Location

The Siaya County Aggregation and Industrial Park is located in Siaya County, situated in the western region of Kenya. Siaya County is one of the counties in the former Nyanza Province in the southwest part of Kenya. It is bordered by Busia County to the north, Kakamega County and Vihiga County's to the northeast and Kisumu County to the southeast. It shares a water border with Homa Bay County which is located south of Siaya County.

The project site is on **ON PLOT NO; SIAYA /OJWANDO 'A' 933,1622,1664,1625,1934,3294,3296, GPS LOCATION;** 0°03'48.8"N 34°12'32.5"E (0.063545, 34.209060). The property is situated within Central Alego Ward, Alego Usonga Sub-County, Siaya County. **The total land size is 13.05 HA.** Below is a google map of the site;

Figure 2-1 Map of Kenya showing Siaya County



The County has three major geomorphologic areas namely: Dissected Uplands, Moderate Lowlands and Yala Swamp. These have different relief, soils and land use patterns. The altitude of the County rises from 1,140m on the shores of Lake Victoria to 1,400m above sea level on the North. There are few hills found in the County namely; Mbaga, Odiado, Akala, Regea,Nyambare, Usenge, Ramogi hills, Rambugu, Abiero, Sirafuongo and Naya hills. River Nzoia and Yala traverse the County and enter Lake Victoria through the Yala Swamp.

The proposed project is located at Got Ramogi forest which covers an area of approximately 283 ha. It is located in Ramogi Sub-location, Central Yimbo Location, Usigu Division, Bondo Sub-county, Siaya County; on geographical co-ordinates 34 ° 03 East and 0 ° 00 East; in western Kenya.

3.2 Population and Settlement Patterns

The county consists of six constituencies and thirty wards. Alego Usonga, Bondo and Gem constituencies have six wards each; Rarieda, Ugenya and Ugunja constituencies have five, four and three wards respectively.

In 2009, the population of the county was 842,304 consisting of 398,986 males and 443,318 females. This figure was projected to increase to 1,027,795 consisting of 488,077 males and 539,718 females in 2018. The population has been further projected to rise to 1,114,735 comprising 529,646 males and 585,088 females and 1,285,971 comprising 610,179 males and 675,792 females in 2022 and 2030 respectively. The population of the county is dominated by females at 53 percent against 47 per cent males due to high mortality rate for males between ages 0 years to 19 years and high life expectancy for females. The rapidly increasing population requires increased investments in basic social infrastructure and utilities such as schools, health facilities, water, sanitation and services.

There are six villages surrounding the forest namely; Ureje, Umina, Kakuma, Mugane, Unyenjera, Kanyagol who benefit directly from the forest and around thirteen villages in Got Ramogi sub location who also benefit in one way or another and would wish to be included in the planning and management of the forest as was established during public participation with the community members. Among them that were mentioned are: Kalaka, Masiwo, Rang'ombe, Kajwacha and Somro.

3.3 Climate and Hydrology

The County experiences a bi-modal rainfall, with long rains falling between March and June and short rains between September and December. The relief and the altitude influence its distribution and amount. Siaya County is drier in the western part towards Bondo and Rarieda sub-counties and is wetter towards the higher altitudes in the eastern part particularly Gem, Ugunja and Ugenya sub-counties. On the highlands, the rainfall ranges between 800mm – 2,000mm while lower areas receive rainfall ranging between 800 – 1,600mm.

Temperatures vary with altitude rising from 21° C in the North East to about 22.50° C along the shores of Lake Victoria while in the South, it ranges from mean minimum temperature of 16.3°C and mean maximum temperature of 29.1° C. Humidity is relatively high with mean evaporation being between 1,800mm to 2,200mm per annum within the County. The relative humidity ranges between 73 per cent in the morning and 52 per cent in the afternoon. Climate variations are evident in all these areas due to human activity distorting some of the statistics above.

Got Ramogi lies in a Semi – Arid Savannah climate modified with equatorial type of climate with very little rain and lots of winds blowing into Lake Victoria

3.4 Geology and Soils

The county is predominantly covered by sandy loam soils. The distribution and development of soils in the county is influenced by topography, rock types and vegetation cover among other factors. Bondo sub-county has various soil types ranging from black-cotton, sandy loams to laterite including red volcanic soils. West Sakwa, South Nyang'oma and Usigu locations have ferrasols, while North Sakwa, East and Central Yimbo have luvisols with low moderate fertility. The soil types in Rarieda ranges from black cotton soil in Madiany Division and sandy loams and red volcanic soils in Rarieda Division. The expansive Yala Swamp around Ramogi Hill has potential for large scale- irrigation using river Yala.

The geology of Got Ramogi forest is characterised with old Nyanzaian Meta volcanic which comprises of basalts, and esites and kavirondianmet sediments. There are also grits and conglomerates. The geology is also characterised by rocks, granites, syenites and dolerites. On the hills are gravel – clay soils consisting of materials that has been washed from the twin hills and form excellent ceramic clays. On the steep gently undulating hill slopes the soils are shallower varying from sandy clay to sandy loam. While the soil on the hill top is sandy clay and very shallower but good soil profile exist within the fractures of the rocks.

3.5 Flora and fauna

Bondo sub- County, in its original setting, was full of trees and shrubs. The bare semi-arid land with few shrubs, which is the picture of Bondo today, was an expansive forest that engulfed both human and wildlife habitat in the 1960s. The deforestation is due to trees being cut for wood fuel and construction of human settlements. The community of the sub county have tried to preserve several tree species, such as Albizia coriaira (ober) and Acacia nilotica (obede) by enforcing cultural beliefs that restrict their use to specific functions but this has not yielded any preservation cause. Such species are preserved by the community for medicine, construction and firewood purposes.

3.6 Water Sources

The rural population of the County depends on various types of water sources for their domestic needs. The southern part (Bondo and Rarieda) has less than one water point per 2.5km^2, while the north and north-eastern parts have a water point density of more than 3 per km^2. The distribution of water sources, surface and underground in the County are naturally widely spaced and make people walk long distances to fetch water. Streams are the widest spread type of water points, but occur mainly in north-eastern part of the County. Other sources of water in the County include; wells, boreholes, roof catchment, rivers, Lake Victoria, water holes, dams, ground catchments and piped supplies.

3.7 Sanitation

About 34 per cent of the Siaya County population is using improved sanitation facilities, the most common being pit latrines with slabs (used in 26 per cent of households). Notably, 16 per cent of

the households in Siaya County lack conventional sewer facilities whilst 24 per cent use either public or shared sanitation facilities. Stools of children age 0-2 years are disposed of safely in 71 per cent of cases. Only 5 per cent of the households have both improved drinking water sources and improved sanitation.

The proposed development will depend on the septic tank for sewerage and wastewater disposal since the project is not connected to sewer line. Among the things to be constructed is an ablution block which will comprise of modern toilets and bathrooms .

CHAPTER FOUR: REVIEW OF POLICY, LEGAL AND INSTITUTIONAL FRAMEWORK

4.1 General Overview

The development of the Siaya County Aggregation and Industrial Park is guided by a comprehensive framework of policies, laws, and institutional arrangements designed to ensure sustainable and environmentally sound project implementation. This chapter provides an overview of the relevant policy, legal, and institutional frameworks that govern the environmental and social aspects of the project. These frameworks ensure that the project aligns with national and international standards for environmental protection, public health, and safety.

4.2 Institutional Framework

A number of key institutions play critical roles in the oversight, regulation, and management of the environmental and social impacts of the proposed project:

- **National Environment Management Authority (NEMA):**
    - NEMA is the principal body responsible for coordinating, monitoring, and supervising all environmental activities in Kenya. It enforces compliance with the Environmental Management and Coordination Act (EMCA) and ensures that projects comply with environmental regulations and standards.
- **National Environment Council (NEC):**
    - NEC provides policy guidance and sets the strategic direction for environmental management in the country. It advises the government on environmental policies and planning, ensuring that sustainable development principles are integrated into national development plans.
- **Water Resources Management Authority (WRMA):**
    - WRMA oversees the management and conservation of water resources in Kenya. It is responsible for issuing permits for water use and ensuring that water resources are used sustainably. WRMA also monitors water quality and quantity to prevent pollution and over-extraction.
- **County Environment Committees (CEC):**
    - CECs operate at the county level to implement environmental policies and regulations. They work closely with NEMA to ensure local compliance with national environmental standards and address environmental issues specific to their regions.

4.3 Legislative Framework Related to The Project

Several key pieces of legislation are relevant to the proposed industrial park project:

- **Environmental Management and Coordination Act (EMCA), CAP 387:**
    - EMCA provides the legal framework for environmental management in Kenya. It mandates the conduct of Environmental Impact Assessments (EIA) for all major projects and outlines the procedures for obtaining environmental licenses and approvals.
- **The Water Act, 2002 / Water Quality Regulations (2006):**
    - This Act regulates the use and management of water resources. It sets standards for water quality and provides guidelines for the sustainable use of water resources. The regulations ensure that industrial activities do not compromise water quality.
- **Public Health Act Cap 242:**
    - The Public Health Act aims to protect and promote public health. It includes provisions for sanitation, waste management, and control of pollutants, ensuring that industrial activities do not pose health risks to the public.
- **The Land Planning Act, CAP 303, Subsidiary Legislation (The Development and Use of Land Planning Regulations):**
    - This Act governs land use planning and development. It ensures that land is used sustainably and that developments are consistent with local land use plans.
- **The Occupational Health and Safety Act, 2007:**
    - This Act provides guidelines for ensuring the safety and health of workers. It mandates the implementation of safety measures in workplaces, including industrial sites, to prevent accidents and occupational hazards.
- **The Physical Planning Act, CAP 286:**
    - The Physical Planning Act regulates land use and development planning. It ensures that developments are well-planned and adhere to zoning regulations to prevent conflicts and ensure orderly development.
- **Building Code 2000:**
    - The Building Code sets standards for construction to ensure the safety and integrity of buildings. It covers aspects such as structural design, materials, and safety measures.

- **National Construction Authority Act, 2011:**
    - This Act establishes the National Construction Authority, which regulates the construction industry in Kenya. It ensures that construction practices meet national standards and promotes professionalism in the industry.
- **The County Government Act, 2012:**
    - This Act provides the framework for the governance and management of counties. It outlines the responsibilities of county governments in managing development projects within their jurisdictions.
- **Wayleave Act CAP 292:**
    - The Wayleave Act provides for the creation of wayleaves for the installation of utilities such as power lines and pipelines. It ensures that such installations do not impede other land uses.
- **The Registration of Titles Act Cap 281:**
    - This Act provides for the registration of land titles. It ensures that land ownership is properly documented and recognized by law.
- **The Land Title Act Cap 282:**
    - This Act governs the issuance and management of land titles. It ensures that land transactions are legally binding and properly recorded.
- **Electricity Power Act No. 11 of 1997:**
    - This Act regulates the generation, transmission, and distribution of electricity. It ensures that the electricity supply is reliable and that infrastructure projects comply with safety and environmental standards.
- **The Factories and Other Places of Work Act (Cap 514):**
    - This Act sets standards for the safety, health, and welfare of workers in factories and other workplaces. It mandates regular inspections and compliance with safety regulations.
- **Building Operations and Works of Engineering Constructions Act:**
    - This Act provides regulations for construction operations and engineering works. It ensures that construction activities are carried out safely and meet technical standards.
- **Penal Code Act, Cap.63:**

- The Penal Code includes provisions for penalizing environmental crimes such as pollution and illegal dumping. It serves as a deterrent against activities that harm the environment.

- **Kenya's Vision 2030:**
  - Vision 2030 is Kenya's long-term development blueprint, aiming to transform Kenya into a newly industrializing, middle-income country. It emphasizes sustainable development and environmental conservation as key pillars.

4.4 Safety, Health and Environmental (SHE) Policy

The Safety, Health, and Environmental (SHE) policy for the Siaya County Aggregation and Industrial Park emphasizes the following principles:

- **Commitment to Green Practices:**
  - The project commits to adopting environmentally friendly practices, including the use of renewable energy, sustainable materials, and green technologies.
- **Energy Efficiency:**
  - Energy efficiency measures will be implemented to reduce energy consumption and promote the use of renewable energy sources.
- **Waste Management:**
  - A comprehensive waste management plan will be put in place to minimize waste generation and promote recycling and safe disposal of waste.
- **Safety:**
  - Safety protocols and measures will be implemented to protect workers and the surrounding community from accidents and hazards associated with construction and industrial activities.

4.5 National Guidelines and Policies

Several national guidelines and policies are relevant to the proposed project:

- **Health Care Waste Management Strategic Plan 2015-2020:**
  - This strategic plan provides guidelines for managing healthcare waste, ensuring that it is handled and disposed of in a manner that protects public health and the environment.

- **National Infection Prevention and Control Guidelines for Health Care Services in Kenya, 2010:**
    - These guidelines provide measures for preventing and controlling infections in healthcare settings, which are applicable to the proposed project's health and safety protocols.
- **Relevant International Safeguards:**
    - The project will comply with international environmental and social safeguards to ensure best practices are followed.

4.6 World Bank Group (WBG) Guidelines

The World Bank Group's Environmental, Health, and Safety (EHS) Guidelines are considered in the assessment:

- **Environmental Guidelines:**
    - These guidelines provide best practices for managing environmental impacts, including waste management, pollution control, and resource conservation.
- **Health and Safety Guidelines:**
    - The guidelines emphasize measures to protect the health and safety of workers and the community, including occupational health standards, emergency preparedness, and response plans.
- **Social Guidelines:**
    - These guidelines ensure that social impacts are managed effectively, including community engagement, social inclusion, and grievance mechanisms.

CHAPTER FIVE: ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

5.1 Construction Phase Impacts

Positive impacts

Employment Creation One of the main positive impacts during the project's construction phase will be the availability of employment opportunities especially to casual workers and several other specialized workers.

Employment opportunities are of benefit both economically and in a social sense. In the economic sense it means abundant unskilled and skilled labour will be used in construction hence economic production. Several workers including casual labourers such as masons, carpenters, joiners, electricians and plumbers are expected to work on the site for the period from the start of the project to the end. Apart from casual labour, semi-skilled and unskilled labour, formal employees are also expected to obtain gainful employment during the period of construction. Other indirect sources of employment will also arise.

Enhancement measure

- Wherever possible, local people from the neighbouring areas should be considered for job opportunities matching their level of skills. Adequate occupational safety and health principles and standards should be provided to ensure the work environment is conducive.

Income Generation to material and equipment suppliers, contractors, and others

During project implementation, the proponent will hire contractors who will in turn appoint suppliers for various goods and services, as needed.

There will be civil works thus necessitating materials such as sand, ballast, stones, cement, quarry chips, steel and timber. Construction equipment such as excavators, mixers, cranes are also often hired during construction. Formal and informal businesses will benefit from the works. Informally, those who provide services to the workers on site e.g. catering businesses will experience an upsurge in business. Similarly, businesses that provide services such as waste management will also greatly benefit from increased sales.

Enhancement measure

- Earth materials needed for construction, for example, stones and sand are obtained from quarry operations. Therefore, the contractor should be conscious of the sources of these materials, as supplies from unlicensed operations indirectly promotes environmental degradation at illegal quarry sites and can cause medium- to long-term negative impacts. In this regard the contractor shall enter into contractual agreements during procurement

with all suppliers to procure construction materials from quarries legitimately licensed by the respective local government authorities.

- The contractor shall also ensure food vendors conform to hygiene standards related to food handling and are licensed by the respective local government departments to supply food materials.

Negative Impacts

During the construction phase of the Siaya County Aggregation and Industrial Park, several potential environmental impacts have been identified. These include:

- **Habitat Disturbance:** Construction activities may disrupt local habitats, leading to the displacement of flora and fauna.
- **Soil Erosion:** Excavation and earth moving activities can result in soil erosion, particularly in areas with steep terrain.
- **Air Pollution:** Dust emissions from construction activities may contribute to air pollution, affecting air quality in the vicinity.
- **Noise Pollution:** Machinery and equipment used during construction can generate noise, impacting nearby residents and wildlife.
- **Water Pollution:** Runoff from construction sites may contain sediment and pollutants, potentially contaminating nearby water bodies.

To mitigate these impacts, the following measures will be implemented:

- **Habitat Restoration:** Affected habitats will be restored post-construction through reforestation and re-vegetation efforts.
- **Erosion Control:** Sediment control measures such as silt fences and erosion control blankets will be employed to prevent soil erosion.
- **Dust Suppression:** Water spraying and dust suppression techniques will be utilized to minimize dust emissions from construction activities.
- **Noise Management:** Construction activities will be scheduled during times of minimal activity to reduce noise disturbance to nearby communities.
- **Water Management:** Sediment traps and retention ponds will be installed to capture runoff and prevent pollution of water bodies.

5.2 Operation Phase Impacts

Positive Impacts

Developing the manufacturing sector; A competitive manufacturing sector plays a key role in both economic growth and socio-economic transformation. Aggregation and Industrial parks can also be used to create backward and forward linkages where an economy's raw materials and supplies flow to the park for processing. Agro-processing parks, for instance, have backward linkages to farmers and their raw materials, as well as forward linkages to food wholesalers, retailers and exporters.

Attracting investment and technology; Aggregation and Industrial parks are an important tool for attracting investment and technology, given that some of the key factors that influence investment decisions are the availability of land, infrastructure, quality services and proximity to strategic markets.

Regional and national development; Contributing to regional and national development is often a primary driver of the decision to establish industrial parks that foster new investment, industries, jobs, linkages and growth.

Improving the business environment; Aggregation and Industrial parks can improve companies' productivity by reducing production costs, reducing waste and pollution, and generally increasing economic opportunities.

Fostering innovation; Aggregation and Industrial parks create environments that foster collaboration and innovation by providing a location where the government, the private sector and universities and research institutes can collaborate, as well as conduct and commercialize research and reinforce entrepreneurship. Industrial parks can also support entrepreneurs by incubating new businesses. The shared services offered by industrial parks can moreover reduce

small business market entry barriers and facilitate access to seed capital.

Economic experimentation and demonstration; Aggregation and Industrial parks can serve as a test of economic reforms, new policies and approaches in a geographically-concentrated pilot area. Their demonstration effects can then, if successful, be replicated nationwide, along with the best practices drawn from these pilots and their demonstration effects then being applied to other industrial locations and businesses.

Community development; Aggregation and Industrial parks, as local economic hubs and growth centres with certain positive externalities, can (when properly designed) serve as platforms for delivering on broader local community goals, such as local employment creation, as well as transportation services, education and training, health care, mail and communication services, and others.

Promoting environmental safeguards; Aggregation and Industrial parks can offer the opportunity to decrease production costs through common infrastructure and systems, while also leading to increased materials, water and energy efficiency, including through waste recycling,

water management and resource recovery. Eco-industrial parks can further reduce pollution and waste by applying pollution prevention, renewable energy, industrial symbiosis, and other environmental management methods and technologies.

Negative Impacts

During the operational phase of the industrial park, the following environmental impacts may occur:

- **Air Emissions:** Industrial processes and activities may result in emissions of pollutants such as particulate matter, gases, and odors.
- **Water Consumption:** Increased water demand for industrial processes may strain local water resources.
- **Waste Generation:** Industrial activities may generate solid and liquid waste, posing challenges for proper management and disposal.
- **Traffic Congestion:** Increased vehicular traffic associated with the industrial park may lead to congestion and road safety concerns in the surrounding area.
- **Light and Visual Pollution:** Nighttime lighting and industrial structures may contribute to light pollution and alter the visual landscape.

To address these impacts, the following mitigation measures will be implemented:

- **Emission Control:** Installation of pollution control devices such as scrubbers and filters to minimize air emissions from industrial processes.
- **Water Conservation:** Implementation of water recycling and reuse systems to reduce water consumption and minimize strain on local water sources.
- **Waste Management:** Adoption of waste reduction measures, recycling initiatives, and proper disposal practices to manage generated waste effectively.
- **Traffic Management:** Development of transportation management plans to mitigate traffic congestion and ensure safe and efficient traffic flow.
- **Lighting Design:** Utilization of energy-efficient lighting fixtures and strategic placement of lights to minimize light pollution and visual impacts.

5.3 Decommissioning Phase Impacts

During the decommissioning phase of the industrial park, potential environmental impacts may include:

- **Soil Contamination:** Residual pollutants and chemicals from industrial activities may contaminate soil and groundwater.

- **Structural Demolition:** Demolition of industrial structures may generate noise, dust, and debris, impacting surrounding areas.
- **Waste Disposal:** Disposal of decommissioned equipment and materials may pose challenges for proper waste management and disposal.
- **Habitat Disruption:** Decommissioning activities may disturb local habitats and wildlife, particularly if not conducted carefully.

To mitigate these impacts, the following measures will be implemented:

- **Site Remediation:** Conducting soil and groundwater remediation activities to address any contamination issues before site closure.
- **Demolition Management:** Implementation of controlled demolition techniques to minimize noise, dust, and debris generation.
- **Waste Minimization:** Prioritizing waste reduction and recycling during decommissioning to minimize the volume of waste requiring disposal.
- **Habitat Restoration:** Undertaking habitat restoration and re-vegetation efforts to mitigate the disruption caused by decommissioning activities.

The anticipated negative impacts and recommended mitigation measures for the above activities are outlined in the table II below:

Table II: Other Anticipated Environmental Impacts and Recommended Mitigation Measures		
Activity/Item	**Anticipated Impacts**	**Recommended Mitigation Measures**
Procurement of construction materials:	Natural resource depletion if not sustainably harvested activities such as quarrying, mining, timber logging, bamboo harvesting may lead to adverse negative impacts to the environment.	• The tender documents should specify required standards and certification for procurement of all materials and appliance. • All construction materials should be from approved sources; for example, hard stone for building should be obtained from bona fide commercial entity. • As much as possible, environmentally friendly and sustainable materials should be used. Materials not to be used for construction of the buildings include: (High alumina cement, Wood wool slab in permanent framework to concrete, Calcium silicate bricks of tiles, Asbestos in any form, Asbestos substitutes or any naturally occurring or man-made mineral fibres, Lead, lead paint or any other material containing lead which may be inhaled ingested or absorbed; vermiculite, unless it is established as being fibre-free; Any products containing calcium that regarded as being injurious substance, Any other substances regarded as being deleterious building materials which are not in accordance with statutory requirements or with current accepted good building practice at the time of specification or construction). • The Project Manager should ensure that the contractors are instructed in the use of all materials that may have negative environmental (including health) effects. • If any materials or substance is used that is at any point in the future deemed to be deleterious to health, then it must be replaced with an acceptable alternative.
Building works	Health and safety risk from accident and incidents; Noise and dust	• Adhere to safety regulations outlined in the Local Government Adoptive by-laws, Building Order 1968 (Building code) and the Building Operations and works of Engineering • The Project should ensure strict safety management through close attention to design, work procedures, materials and equipment.

		• Develop a safety action plan detailing safety equipment to be used, emergency procedures, restrictions on site, frequency and personnel responsible for safety inspections and controls • All workmen should be provided with personal protective equipment PPE (e.g. nose masks, ear muffs, helmets, overall, industrial boots,etc) • There should be regular site reporting on health, safety and environment HSE issues by an appointed HSE representative, daily site inspections should be done to ensure safe work practices are adhered to.
Energy Utilization	Increase in energy demand and unsustainable use of energy.	• Develop an energy management plan; • Construction machinery and vehicles should be maintained and used in accordance with manufacturer's specifications, to maximize efficiency and lower use of energy, e.g. drivers of construction vehicles should be instructed not to leave them idling for extended periods • Construction workers should be sensitized on the importance of energy management. • Consider using alternative sustainable energy e.g solar and biogas • The project design should reconsider use of energy. • Monitor energy consumption to establish trend and monitor losses. • Maintain clear records on energy consumption. • Maximize the contribution of daylight to reduce use of artificial lighting in the buildings. • Install energy saving appliances. • Select the most effective lighting controls for optimal operating efficiency and minimum energy wastage.
Water Utilization and waste water treatment management.	Unsustainable water consumption Hygiene and sanitation challenges	• Monitor water consumption and utilization. • Sensitize construction workers on the importance of proper water management. • All waste water should be drained into approved drainage facilities. • Maximize on rain water harvesting as an alternative source of water.

		• Develop and adhere to a maintenance program for the storm-water drains. Regular cleaning of the drains. • Incorporate grease traps in the kitchen and consider options for waste water recycling for urban aesthetics and agricultural irrigation.
Solid Waste Generation	Littering, soil and surface water pollution potential	• The tender documents should specify the proper disposal of waste during construction and should also ensure that the Contractor leaves the site in a clean and safe condition on completion of the works. • All solid waste generated during construction should be collected, stored and taken away for disposal by the contactor. • There should be controlled use of raw materials • Procedures of handling special wastes such as waste fuel oil should be specified. • Comply with guidelines on EMC Waste Management Regulations 2006. • Prepare a waste management plan. • Do not burn waste on site or in open pit. • Clearly designate and construct an appropriate waste collection facility or provide covered refuse pit. • Monitor and record waste volumes and characteristics.
Influx of construction workers into the area.	Possible proliferation of informal kiosks in the area; Increase in transport demand.	• Develop a catering program on site for construction staff • Provide transportation for the workforce to and from the site. • Engage the county government to ensure that informal kiosks are controlled around the site.
Culture and heritage	Destruction of natural heritage/ loss of archaeological findings.	• In the event of an archeological finding, the constructor should secure the location 'as it is' and immediately call the National Museums of Kenya's Archaeology Section. • The project should not in any way contribute to the destruction of the community culture and heritage.

Health, safety and security		• Develop a site safety action plan detailing safety equipment to be used, emergency procedure, restrictions on site, frequency and personnel responsible for safety inspections and controls. • All workmen should be provided with personal protective equipment (e.g. nose masks, ear muffs, overalls, helmets, industrial boots, etc); • There should be regular site reporting on health, safety and environment (HSE) issues by an appointment HSE representative, daily site inspections should be done to ensure safe work practices are adhered to. • All injuries that occur on site must be recorded in the accident registers and corrective actions for their prevention be instigated as appropriate • Statistical records on accidents and incidents should be collated and analyzed on a monthly basis and forwarded to the project manager and / or displayed on the notice boards • Site personnel should be encouraged to report "near-miss incidents" in order to avoid potential problems and increase safety awareness.
HIV and AIDS,COVID 19	Increase in the prevalence rate due to increased community incomes and interactions.	• Incorporate HIV and AIDs, COVID 19 awareness campaign throughout the project implementation and operation phase. • Provide condom dispensers in strategic locations
Economic Impacts	Mismanagement of earned income by workers leading to family break ups.	• Have a short training sessions to workers on financial management

CHAPTER SIX: PUBLIC PARTICIPATION

6.1 Introduction

Public participation stands as a cornerstone of the Environmental and Social Impact Assessment (ESIA) process, ensuring that communities are actively engaged in decision-making processes regarding proposed projects. It serves to foster transparency, accountability, and inclusivity, ultimately leading to more informed and sustainable development outcomes.

6.2 Objectives of Public Consultation and Participation

The objectives of public consultation and participation in the ESIA process for the Siaya County Aggregation and Industrial Park project are multifaceted and geared towards fostering meaningful engagement with local communities. These objectives include:

i. **Gathering Local Knowledge**: The ESIA process aims to engage with local communities to tap into their unique insights, traditional knowledge, and experiences related to the proposed project. By understanding the local context, including cultural practices and ecological sensitivities, project planners can make more informed decisions that resonate with community needs and values.

ii. **Addressing Concerns**: Public consultation provides a vital platform for community members to voice their concerns, ask questions, and seek clarification on various aspects of the project. By actively addressing these concerns, project proponents can build trust, alleviate fears, and foster a sense of transparency and accountability in the decision-making process.

iii. **Incorporating Community Input**: Community input is essential for ensuring that the project's design, implementation, and mitigation measures align with the needs and preferences of local stakeholders. By soliciting feedback and suggestions from community members, project planners can identify potential challenges, opportunities, and alternative approaches that may have otherwise been overlooked. This inclusive approach helps build consensus, promotes ownership of the project, and enhances its overall social acceptance and sustainability.

6.3 Public Consultation Methodology

To ensure robust public consultation and participation throughout the ESIA process for the Siaya County Aggregation and Industrial Park project, a variety of methodologies were employed. These methodologies were carefully selected to facilitate meaningful engagement with diverse stakeholders and communities. The following approaches were utilized:

i. **Community Meetings**: Public meetings were organized at different stages of the ESIA process to provide comprehensive information about the project, address questions and concerns raised by community members, and facilitate open dialogue. These meetings

served as inclusive platforms for sharing project updates, soliciting feedback, and fostering mutual understanding between project proponents and the local community.(minutes attached in annex)

ii. **Surveys and Questionnaires**: Structured surveys and questionnaires were designed and distributed among community members to gather their opinions, preferences, and concerns regarding various aspects of the proposed project. These survey instruments provided a structured framework for collecting quantitative and qualitative data, allowing for a comprehensive analysis of community perspectives and priorities.

iii. **Stakeholder Workshops**: Workshops were conducted with key stakeholders, including local leaders, community representatives, government officials, and relevant agencies, to facilitate in-depth discussions, collaboration, and consensus-building. These workshops provided opportunities for stakeholders to share their expertise, exchange ideas, and contribute to the development of the project in a participatory manner.

iv. **Kenya Gazzette , Newspapers and Radio advertisements; To be done once approved by NEMA.**

Through these methodologies, the ESIA process aimed to ensure that all relevant stakeholders had a meaningful opportunity to voice their opinions, raise concerns, and contribute to the decision-making process. By fostering open communication, transparency, and collaboration, the project proponents sought to build trust, promote accountability, and ultimately enhance the social acceptance and sustainability of the Siaya County Aggregation and Industrial Park project.

6.4 Anticipated Positive Impacts

Throughout the public consultation process, community members voiced their expectations regarding the positive impacts that the Siaya County Aggregation and Industrial Park project could bring to the region. These anticipated benefits, identified through stakeholder engagement and community feedback, include:

6.4.1 Job Creation

One of the primary anticipated positive impacts highlighted by community members is the significant potential for job creation. The establishment of the industrial park is expected to generate employment opportunities across various sectors, including manufacturing, logistics, and support services. By providing job opportunities for local residents, the project has the potential to reduce unemployment rates, alleviate poverty, and improve the overall standard of living within the community.

The feedback summary from public participation regarding job creation reflects a realistic assessment of the anticipated positive impacts of the Siaya County Aggregation and Industrial Park project. Community members are correct in identifying job creation as a primary benefit of the project, considering the diverse employment opportunities it is expected to generate.

The establishment of the industrial park is indeed poised to create employment across multiple sectors, including manufacturing, logistics, and support services. This aligns with the nature of industrial developments, which typically require a workforce with varied skills and expertise to operate and maintain facilities, manage supply chains, and provide ancillary services.

Moreover, the emphasis on job creation resonates with the socio-economic context of the region, where unemployment rates may be high, and poverty levels prevalent. By providing job opportunities for local residents, the project has the potential to address these socio-economic challenges by offering stable employment and income sources. This, in turn, can contribute to poverty alleviation and enhance the overall standard of living within the community.

However, it's essential to acknowledge that the actual extent of job creation and its distribution among local residents may vary depending on factors such as project scale, labor requirements, and skill mismatches. Therefore, while the potential for job creation is promising, it's crucial for project planners to ensure that local communities have access to training and capacity-building initiatives to qualify for employment opportunities within the industrial park.

6.4.2 Economic Development

Community members expressed optimism about the project's potential to drive economic development and prosperity in the region. The industrial park is anticipated to serve as a catalyst for attracting investments, fostering entrepreneurship, and stimulating economic growth. By creating a conducive environment for business activities and industrial expansion, the project could catalyze the diversification of the local economy, reduce dependency on agriculture, and enhance the overall competitiveness of Siaya County.

The feedback summary regarding the anticipated economic development benefits of the Siaya County Aggregation and Industrial Park project reflects a realistic understanding of the transformative potential that such initiatives can have on regional economies.

Community members are justified in expressing optimism about the project's ability to drive economic development and prosperity. Industrial parks are known to attract investments, stimulate entrepreneurship, and catalyze economic growth by providing a platform for businesses to thrive. By creating a conducive environment for industrial activities, the project has the potential to diversify the local economy, reduce dependency on traditional sectors like agriculture, and enhance the overall competitiveness of Siaya County.

Furthermore, the emphasis on economic development aligns with broader development objectives, such as job creation, poverty alleviation, and infrastructure improvement. The project's success in attracting investments and fostering business growth can have ripple effects throughout the region, creating multiplier effects that benefit various sectors of the economy.

However, it's essential to recognize that realizing the full economic potential of the project requires careful planning, strategic partnerships, and effective implementation. Factors such as infrastructure development, access to finance, and regulatory frameworks play crucial roles in facilitating economic activities within the industrial park. Therefore, while community members' optimism about the project's economic benefits is well-founded, it's important for project planners and stakeholders to work collaboratively to address potential challenges and maximize opportunities for sustainable economic development. This may involve investing in infrastructure, promoting entrepreneurship, and fostering innovation to create an enabling environment for businesses to thrive and contribute to the long-term economic prosperity of Siaya County.

6.4.3 Infrastructure Development

The anticipated positive impacts also extend to the realm of infrastructure development. Community members recognized the potential for the project to contribute to the improvement of critical infrastructure, including roads, utilities, and public facilities. The development of modern infrastructure within and around the industrial park area is expected to enhance connectivity, facilitate transportation, and improve access to essential services such as healthcare, education, and utilities. This, in turn, is anticipated to enhance the quality of life for local residents and contribute to the overall socio-economic development of the region.

The feedback summary regarding the anticipated positive impacts on infrastructure development underscores the significance of community engagement in the planning and decision-making processes of the Siaya County Aggregation and Industrial Park project.

Community members rightly identified the potential for the project to contribute to the improvement of critical infrastructure, including roads, utilities, and public facilities. The development of modern infrastructure within and around the industrial park area is expected to have far-reaching benefits. Enhanced connectivity and transportation networks will not only facilitate the movement of goods and services but also improve accessibility to essential services such as healthcare and education.

Moreover, the anticipated infrastructure development aligns with broader socio-economic development objectives by enhancing the overall quality of life for local residents. Improved access to utilities such as water and electricity, coupled with upgraded public facilities, can significantly enhance living standards and create a more conducive environment for residents to thrive.

By recognizing these anticipated positive impacts, the public consultation process demonstrated its effectiveness in ensuring that community perspectives and expectations were integrated into the project planning and decision-making processes. It highlighted the importance of community engagement in shaping the project's outcomes and underscored the potential benefits that the Siaya County Aggregation and Industrial Park project could bring to the local community and the wider region.

Moving forward, it will be essential for project stakeholders to prioritize infrastructure development in a manner that addresses the specific needs and priorities of the local community. This may involve targeted investments in key infrastructure projects, collaborative efforts with local authorities, and ongoing engagement with community stakeholders to ensure that infrastructure development initiatives align with the broader goals of sustainable socio-economic development.

By identifying and acknowledging these anticipated positive impacts, the public consultation process played a crucial role in ensuring that community perspectives and expectations were integrated into the project planning and decision-making processes. It underscored the importance of community engagement in shaping the project's outcomes and highlighted the potential benefits that the Siaya County Aggregation and Industrial Park project could bring to the local community and wider region.

6.5 Anticipated Negative Impacts of the Project

Community consultations also highlighted several concerns and anticipated negative impacts of the project, including:

i. **Environmental Degradation:** There are concerns about potential environmental degradation resulting from industrial activities, including pollution, habitat destruction, and natural resource depletion.
ii. **Social Disruption:** The influx of workers and industrial activities may disrupt community cohesion, traditional livelihoods, and cultural practices, leading to social tensions and conflicts.
iii. **Health and Safety Risks:** Community members expressed concerns about potential health and safety risks associated with industrial operations, including air and water pollution, accidents, and occupational hazards.
iv. **Increased Insecurity;** Community expressed concerns with regards to increased insecurity in the area.

The feedback from community consultations provides valuable insights into the potential negative impacts associated with the Siaya County Aggregation and Industrial Park project. By acknowledging and addressing these concerns, project stakeholders can develop effective mitigation measures and ensure that the project proceeds in a socially and environmentally responsible manner.

6.5.1 Environmental Degradation

Community members rightly express concerns about potential environmental degradation resulting from industrial activities. are legitimate worries that must be addressed through robust environmental management and mitigation strategies. Implementing measures such as pollution control technologies, habitat restoration initiatives, and sustainable resource management practices

can help minimize adverse environmental impacts and ensure the project's long-term sustainability.

6.5.2 Social Disruption

The potential for social disruption stemming from the influx of workers and industrial activities is a valid concern raised during community consultations. Disruptions to community cohesion, traditional livelihoods, and cultural practices can lead to social tensions and conflicts. It is essential for project stakeholders to engage with local communities, respect their cultural heritage, and implement measures to minimize social disruption. This may include community engagement programs, livelihood restoration initiatives, and conflict resolution mechanisms to address grievances and foster positive relationships between project proponents and affected communities.

6.5.3 Health and Safety Risks

Community members' concerns about health and safety risks associated with industrial operations highlight the need for robust health and safety management systems. Air and water pollution, accidents, and occupational hazards pose significant risks to both workers and nearby communities. Implementing stringent safety protocols, conducting regular risk assessments, and providing comprehensive training to workers can help mitigate these risks and ensure a safe working environment. Additionally, monitoring air and water quality, implementing pollution control measures, and providing access to healthcare services can address community concerns and safeguard public health. By addressing these anticipated negative impacts through proactive mitigation measures and stakeholder engagement, project proponents can build trust with local communities, minimize conflicts, and ensure the long-term sustainability of the Siaya County Aggregation and Industrial Park project.

6.6 Conclusion

The conclusion drawn from the public participation process underscores its critical role in shaping the Siaya County Aggregation and Industrial Park project's outcomes. Through active engagement with the community, valuable insights and feedback have been gathered, enabling project planners to make informed decisions that prioritize the well-being of both people and the environment.

The input received from community members has been carefully considered and integrated into various aspects of project planning, ensuring that local perspectives and concerns are addressed. This inclusive approach not only enhances the credibility and legitimacy of the project but also fosters a sense of ownership and collaboration among stakeholders.

Looking ahead, the commitment to ongoing dialogue and collaboration with stakeholders remains paramount. By maintaining open channels of communication and actively involving the community in project implementation, potential challenges can be identified and addressed in a

timely manner. This proactive approach not only mitigates risks but also fosters trust, transparency, and accountability throughout the project lifecycle.

In conclusion, the success of the Siaya County Aggregation and Industrial Park project hinges on continued engagement with stakeholders, including the local community. By prioritizing public participation and incorporating community feedback, the project can strive towards its goals of sustainable development, economic prosperity, and social well-being for all stakeholders involved.

CHAPTER SEVEN: PROJECT ALTERNATIVES

7.1 Introduction

This chapter delves into a comprehensive analysis of various project alternatives for the Siaya County Aggregation and Industrial Park project. By considering alternative approaches, the aim is to identify the most sustainable and beneficial option while minimizing adverse environmental and social impacts. Evaluating these alternatives is crucial for informed decision-making, ensuring that the selected approach aligns with both development goals and environmental stewardship.

7.2 No Project Alternative

The "No Project" alternative examines the consequences of not proceeding with the Siaya County Aggregation and Industrial Park project. While this alternative would inherently avoid any direct negative impacts from the project's implementation, it presents significant disadvantages that must be carefully weighed.

7.2.1 Missed Economic Opportunities

The Siaya County Aggregation and Industrial Park project represents a significant opportunity for economic advancement in the region. Opting not to proceed with the project would result in several missed economic opportunities, ultimately hindering the area's potential for growth and development.

7.2.1.1 Economic Development

Job Creation: The project is anticipated to generate a substantial number of jobs, both directly and indirectly. During the construction phase, numerous employment opportunities will arise, ranging from skilled labor to administrative roles. Once operational, the industrial park will continue to provide ongoing employment in various sectors such as manufacturing, logistics, and maintenance. These jobs are critical for addressing the region's high unemployment rates and improving the standard of living for local residents. Without the project, these job opportunities will not materialize, perpetuating economic stagnation and poverty in the area.

Boosting Local Businesses: The presence of the industrial park would stimulate the local economy by creating demand for goods and services. Local businesses, including suppliers, contractors, and service providers, would benefit from increased activity and new business opportunities. The multiplier effect of the project would extend beyond the park, invigorating the broader regional economy.

7.2.1.2 Infrastructure Improvement

Enhanced Infrastructure: The development of the industrial park includes substantial investments in critical infrastructure such as roads, electricity, and water supply systems. These infrastructure improvements are not only vital for the functioning of the industrial park but also beneficial for the wider community. Improved roads will enhance connectivity and accessibility,

while reliable electricity and water supply systems will support both industrial and residential needs. Without this project, Siaya County may continue to suffer from inadequate infrastructure, which can impede economic activities and quality of life.

Attraction of Additional Investments: Improved infrastructure is a key factor in attracting further investments. Potential investors are more likely to consider Siaya County as a viable location for their businesses if the necessary infrastructure is in place. By not proceeding with the project, the region could miss out on additional investment opportunities that are crucial for long-term economic growth and diversification.

7.2.2 Limited Industrial Growth

The Siaya County Aggregation and Industrial Park project is poised to play a pivotal role in the region's industrial development. Without this project, the growth and expansion of the industrial sector would be severely hampered, affecting the overall economic progress of the area.

7.2.2.1 Industrial Sector Expansion

Conducive Environment for Industrial Activities: The industrial park is designed to provide a state-of-the-art environment tailored for industrial activities. This includes access to modern facilities, reliable utilities such as electricity and water, and comprehensive logistical support. Such an environment is essential for attracting new industries and supporting the expansion of existing ones. In its absence, the industrial sector in Siaya County would likely stagnate, as businesses would struggle to find the necessary infrastructure and support services required for growth.

Increased Production Capabilities: The availability of dedicated industrial space within the park would enable companies to scale up their production capabilities, leading to greater output and efficiency. This is crucial for enhancing the competitiveness of local industries both domestically and internationally.

7.2.2.2 Investment Attraction

Magnet for Investment: Industrial parks are well-known for attracting significant domestic and foreign investment due to the comprehensive infrastructure and support services they offer. These parks create a business-friendly environment that reduces operational risks and costs for investors. Without this project, Siaya County would likely struggle to attract such investments, which are vital for economic growth and development.

Economic Diversification and Resilience: The lack of investment would impede the region's efforts to diversify its economy. A diversified economy is more resilient to sector-specific downturns and external shocks. Without the industrial park, Siaya County would remain heavily reliant on traditional sectors like agriculture, making it vulnerable to economic fluctuations and climate change impacts.

Boosting Local Entrepreneurship: The industrial park would not only attract external investors but also encourage local entrepreneurship by providing the necessary infrastructure and support for start-ups and small enterprises. This would foster innovation and create a dynamic business ecosystem in the region.

7.2.3 Unmet Development Needs

The Siaya County Aggregation and Industrial Park project is crucial for addressing the region's pressing development needs. Without the project, significant opportunities for economic and social advancement would be lost, perpetuating existing challenges and vulnerabilities.

7.2.3.1 Employment Generation

Direct and Indirect Employment Opportunities: The industrial park is projected to create thousands of jobs, both directly within the park and indirectly through related sectors. These employment opportunities span various skill levels and industries, including manufacturing, logistics, and services. High unemployment rates in the region have led to economic stagnation and increased poverty levels. The jobs generated by this project are essential for providing stable income sources, enhancing living standards, and reducing poverty. Without the project, the region would continue to struggle with limited job opportunities, leaving many residents without prospects for better livelihoods.

Youth Employment: A significant portion of the unemployed population in Siaya County comprises young people. The industrial park would offer them a chance to gain employment, acquire skills, and build careers. This is vital for preventing the socioeconomic issues associated with high youth unemployment, such as crime and social unrest.

7.2.3.2 Economic Diversification

Introduction of New Industries: Siaya County's economy is predominantly dependent on agriculture and other traditional sectors, making it susceptible to sector-specific downturns and external shocks, such as climate change impacts on agriculture. The industrial park presents an opportunity to introduce new industries and technologies, fostering economic diversification. This diversification is crucial for creating a more resilient economy, capable of withstanding various economic challenges.

Technology and Innovation: By attracting industries that utilize modern technologies, the project would facilitate the transfer of technology and innovation to the region. This would not only improve productivity and efficiency in various sectors but also create a knowledge-based economy that can adapt to future challenges and opportunities.

Supply Chain Development: The industrial park would stimulate the growth of local supply chains, providing new business opportunities for small and medium enterprises (SMEs). This would lead to increased economic activity and a more robust local economy, less dependent on a few sectors.

7.2.4 Social and Community Benefits

The Siaya County Aggregation and Industrial Park project is poised to deliver substantial social and community benefits, significantly uplifting the quality of life for local residents. By not proceeding with the project, these potential enhancements would be lost, hindering the region's socio-economic development.

7.2.4.1 Enhanced Quality of Life

Improved Social Amenities: The industrial park's development includes the construction and enhancement of vital social amenities. These improvements encompass healthcare facilities, educational institutions, and recreational areas. Modern healthcare facilities will ensure better access to medical services, reducing travel time and costs for residents seeking medical attention. Enhanced educational institutions will provide quality education, fostering a knowledgeable and skilled workforce for the future. Recreational facilities will offer safe and healthy environments for families and individuals to engage in sports, leisure, and cultural activities. Collectively, these enhancements will elevate the overall quality of life for local communities, creating a more vibrant and sustainable living environment.

Infrastructure Development: The project will also spur the development of essential infrastructure such as roads, water supply systems, and electricity networks. Improved infrastructure will facilitate easier access to services, reduce transportation costs, and promote safer and more efficient movement of goods and people. This infrastructural advancement is crucial for economic growth and improving living standards.

7.2.4.2 Community Empowerment

Skills Training Programs: A key component of the project is the implementation of skills training programs aimed at empowering local residents. These programs will provide training in various trades and professions, equipping individuals with the skills needed to secure employment within the industrial park and beyond. This not only enhances employability but also fosters a sense of self-reliance and confidence among community members.

Capacity-Building Initiatives: In addition to skills training, the project includes capacity-building initiatives that focus on community development. These initiatives will involve workshops, seminars, and practical training sessions on topics such as entrepreneurship, financial literacy, and sustainable farming practices. By building the capacity of local communities, the project aims to reduce socio-economic marginalization and promote inclusive growth.

Job Creation: The industrial park is expected to generate numerous job opportunities across various sectors, including manufacturing, logistics, and services. This job creation will reduce unemployment rates and provide stable income sources for local families, thereby improving their socio-economic status.

Support for Local Businesses: The project will create a conducive environment for the growth of local businesses. Small and medium enterprises (SMEs) will have opportunities to supply goods and services to the industrial park, fostering economic interlinkages and enhancing local economic resilience.

7.2.5 Environmental Considerations

One of the core objectives of the Siaya County Aggregation and Industrial Park project is to champion sustainable development, setting a precedent for future industrial activities in the region. The project's design integrates several environmentally friendly practices, aimed at reducing its ecological footprint and promoting long-term environmental health.

7.2.5.1 Sustainable Development

Green Building Practices: The industrial park is planned with green building principles at its core, incorporating energy-efficient designs, the use of sustainable construction materials, and practices that minimize environmental disruption. This includes the use of materials with low environmental impact, construction techniques that reduce waste, and designs that enhance energy efficiency, such as natural lighting and ventilation systems.

Renewable Energy Sources: A significant portion of the project's energy needs will be met through renewable energy sources such as solar and wind power. This not only reduces the dependence on non-renewable energy sources but also sets an example for future projects in the region. The integration of renewable energy will help in reducing greenhouse gas emissions and promote cleaner air.

Efficient Waste Management Systems: The project includes comprehensive waste management strategies designed to minimize waste generation and enhance recycling and reusing materials. These systems will handle both construction and operational waste, ensuring that waste is managed in an environmentally responsible manner. This includes setting up facilities for sorting and recycling waste, composting organic waste, and ensuring that hazardous waste is safely disposed of.

By not implementing the project, Siaya County would miss a vital opportunity to set a benchmark for sustainable industrial development. The absence of this project could lead to the perpetuation of traditional, environmentally detrimental practices in future developments. These practices often include the extensive use of non-renewable energy, inadequate waste management, and construction methods that cause significant ecological disruption.

7.2.5.2 Missed Opportunities for Sustainable Leadership

Regional Example: The project aims to be a model of sustainable industrial development in Siaya County. Its success could inspire other regions and projects to adopt similar practices, fostering a broader culture of sustainability. Without this pioneering project, the region might continue to rely on less sustainable practices, missing out on the long-term benefits of environmental stewardship.

Educational and Community Benefits: The project's focus on sustainability includes educational programs for local communities and workers, promoting awareness and understanding of environmental issues. This education is crucial for building a knowledgeable workforce and community that values and practices sustainability. Without the project, these educational opportunities would be lost, potentially leading to continued environmental degradation due to a lack of awareness and expertise.

Enhanced Ecosystem Services: By incorporating sustainable practices, the project aims to protect and enhance local ecosystems, ensuring that natural resources are used responsibly and remain available for future generations. Without such a project, local ecosystems could continue to degrade, affecting biodiversity, water quality, and overall environmental health.

7.3 Proposed Project Alternative

The proposed Siaya County Aggregation and Industrial Park project stands as a pivotal opportunity to address the region's pressing development needs while upholding sustainability principles. This section elucidates the rationale behind selecting this project alternative, emphasizing its multifaceted benefits and positive impacts on the local economy, infrastructure, and environment. The rationale for this project alternative is outlined based on its potential benefits, including:

7.3.1 Economic Stimulus

The Siaya County Aggregation and Industrial Park project are poised to inject a much-needed stimulus into the local economy, catalyzing robust economic growth and prosperity. By attracting both domestic and foreign investments, the project will serve as an economic engine, generating a ripple effect of job creation, income generation, and business opportunities. The influx of investments will not only bolster industrial development but also stimulate ancillary sectors, such as hospitality, retail, and services, thereby fostering a vibrant and diversified economic landscape.

7.3.2 Infrastructure Enhancement

Integral to the proposed project is the enhancement of critical infrastructure, laying the groundwork for sustainable development and inclusive growth. The development of modern transportation networks, utilities, and public facilities will not only support the industrial park's operations but also uplift the overall infrastructure quality within Siaya County. Improved connectivity, accessibility, and service delivery will facilitate seamless integration with regional and national markets, unlocking new avenues for trade, commerce, and socio-economic advancement.

7.3.3 Sustainable Development

Central to the ethos of the proposed project is a steadfast commitment to sustainable development practices, ensuring harmonious coexistence between industrial activities and the natural environment. Through the implementation of stringent environmental safeguards, resource-efficient technologies, and green infrastructure solutions, the project will minimize its ecological footprint while maximizing resource utilization and conservation efforts. By prioritizing environmental stewardship and social responsibility, the project will set a precedent for responsible industrial development, serving as a beacon of sustainable progress for future generations.

7.4 Alternatives to Site

The rigorous evaluation process conducted to determine the optimal site for the Siaya County Aggregation and Industrial Park project underscores a commitment to informed decision-making and sustainable development principles. Numerous alternative locations underwent meticulous scrutiny, with each site subjected to comprehensive assessments encompassing diverse criteria such as geographical suitability, existing infrastructure capacity, environmental considerations, and potential socio-economic impacts. Through extensive deliberations and meaningful engagement with stakeholders, the chosen site emerged as the clear frontrunner, distinguished by its exceptional attributes and potential to synergistically align with the project's objectives.

The selected site's strategic advantages are manifold, encompassing its favorable geographical positioning, robust infrastructure networks, and conducive socio-economic milieu. Situated at the nexus of key transportation routes and logistical hubs, the site offers unparalleled connectivity and accessibility, facilitating seamless movement of goods and personnel. Furthermore, its proximity to urban centers and commercial zones augurs well for market access and business viability, propelling economic growth and competitiveness.

Crucially, the chosen site's environmental suitability and capacity to mitigate adverse impacts played a pivotal role in its selection. Rigorous environmental assessments were conducted to evaluate potential ecological sensitivities and devise targeted mitigation strategies. By integrating state-of-the-art environmental safeguards and best practices, the project aims to minimize its footprint and uphold ecological integrity, thereby ensuring sustainable coexistence with the surrounding ecosystem.

In summation, the chosen site for the Siaya County Aggregation and Industrial Park project epitomizes a harmonious convergence of developmental imperatives and environmental stewardship. By adhering to rigorous evaluation criteria and fostering collaborative decision-making processes, the project exemplifies a holistic approach to sustainable development, wherein economic progress is intricately intertwined with environmental preservation and community well-being. In essence, the selected site embodies a vision of progress that transcends short-term gains, laying the groundwork for enduring prosperity that is inclusive, equitable, and environmentally sustainable.

7.5 Construction Materials and Technology

In the meticulous evaluation of construction materials and technologies for the Siaya County Aggregation and Industrial Park project, a comprehensive analysis was undertaken to gauge their environmental and social implications. Key considerations encompassed resource efficiency, energy consumption, emissions profiles, and waste generation, with the overarching objective of fostering sustainable development practices and mitigating adverse impacts on both the environment and local communities.

Sustainable Alternatives: Embracing a forward-thinking ethos, the project prioritized sustainable alternatives to conventional construction materials and technologies. Recycled materials, sourced from reclaimed sources or repurposed from existing structures, emerged as viable options to minimize resource extraction and reduce waste accumulation. By harnessing the potential of renewable energy sources, such as solar or wind power, the project endeavors to curtail reliance on fossil fuels and mitigate greenhouse gas emissions associated with construction activities.

Eco-Friendly Practices: In tandem with sustainable material choices, the project embraced eco-friendly construction practices aimed at optimizing resource utilization and minimizing environmental disturbance. Innovations such as green building techniques, which emphasize energy efficiency, natural lighting, and passive heating and cooling systems, were integrated into the project's design framework to enhance operational sustainability and reduce long-term energy costs.

Community Engagement: Recognizing the importance of community engagement and stakeholder involvement, the selection of construction materials and technologies also considered their social impacts and community perceptions. Preference was accorded to materials and technologies that fostered local employment opportunities, supported small-scale enterprises, and upheld cultural sensitivities, thereby fostering a sense of ownership and inclusivity within the project's vicinity.

In conclusion, the conscientious evaluation of construction materials and technologies for the Siaya County Aggregation and Industrial Park project exemplifies a commitment to holistic sustainability principles and responsible resource stewardship. By embracing sustainable alternatives and eco-friendly practices, the project endeavors to minimize its ecological footprint, enhance operational efficiency, and foster socio-economic development that is both environmentally sound and socially equitable. Through collaborative partnerships and forward-looking initiatives, the project aspires to set a precedent for responsible development practices that balance the imperatives of progress with the imperative of preserving our planet for future generations.

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

8.1 Environmental and Social Impacts Management and Monitoring Plan

The Environmental & Social Impacts Management and Monitoring Plan (ESMMP) serves as a comprehensive framework for managing and monitoring the environmental and social impacts associated with the Siaya County Aggregation and Industrial Park project. This plan outlines strategies, protocols, and responsibilities to mitigate adverse impacts and promote sustainable practices throughout the project lifecycle. The key components of the ESMMP include:

8.1.1 Impact Identification:

Through a systematic process, potential environmental and social impacts associated with project activities are identified, analyzed, and evaluated. This includes impacts during the construction, operation, and decommissioning phases, encompassing factors such as air and water quality, biodiversity, land use, and community well-being.

8.1.2 Mitigation Measures

Detailed mitigation measures and strategies are developed to minimize adverse impacts and promote environmental and social sustainability. These measures include pollution prevention measures, habitat restoration efforts, community engagement initiatives, and health and safety protocols for workers and local residents.

8.1.3 Monitoring Protocols

Robust monitoring protocols are established to track the effectiveness of mitigation measures and ensure compliance with regulatory requirements and project commitments. This involves the systematic collection of data on key environmental and social indicators, such as air and water quality, noise levels, biodiversity, and community health.

8.1.4 Reporting Mechanisms

Transparent and accountable reporting mechanisms are implemented to document environmental and social performance and communicate findings to stakeholders. Regular reporting ensures that project stakeholders are kept informed about project progress, challenges, and achievements, fostering transparency and trust.

8.1.5 Capacity Building

Training and capacity-building initiatives are provided for project personnel and stakeholders to enhance understanding of environmental and social issues and promote best practices. This includes training on environmental management techniques, community engagement strategies, and health and safety protocols, empowering stakeholders to actively contribute to project success.

8.1.6 Adaptive Management

Mechanisms for adaptive management are integrated into the ESMMP, allowing for flexible and responsive decision-making based on monitoring data, changing conditions, and stakeholder feedback. This iterative approach ensures that mitigation measures remain effective and appropriate throughout the project lifecycle, maximizing positive outcomes and minimizing risks.

8.1.7 Stakeholder Engagement

Continuous engagement with stakeholders, including local communities, regulatory agencies, and civil society organizations, is prioritized throughout the project. Stakeholder feedback is solicited, concerns are addressed, and collaboration is fostered to ensure that the ESMMP is effectively implemented and that project outcomes align with stakeholder expectations and priorities.

8.2 Emergency Response Plan (ERP)

The Emergency Response Plan (ERP) is a critical component of the Environmental & Social Impacts Management and Monitoring Plan (ESMMP) for the Siaya County Aggregation and Industrial Park project. The ERP is designed to ensure a swift and effective response to potential emergencies that may occur during the project's implementation phases. This comprehensive plan outlines the protocols, procedures, and resources necessary to address various emergency scenarios, such as accidents, natural disasters, and hazardous material spills, ensuring the safety and well-being of all stakeholders. The Key Elements of the ERP include:

8.2.1 Risk Assessment

Effective risk assessment is the cornerstone of the Emergency Response Plan (ERP) for the Siaya County Aggregation and Industrial Park project. This process involves a thorough identification and analysis of potential emergency scenarios, followed by an evaluation of their likelihood and severity. By systematically assessing risks, the ERP ensures that the project is well-prepared to handle emergencies, minimizing potential impacts on people, property, and the environment.

8.2.1.1 Identification and Analysis

Comprehensive Hazard Identification: The first step in risk assessment is to identify all possible emergency scenarios that could occur during the construction, operation, and decommissioning phases of the project. This includes:

> **Fire Outbreaks:** Identifying sources of ignition, flammable materials, and potential fire hazards within the industrial park.
>
> **Chemical Spills:** Assessing areas where hazardous chemicals are stored or used, and the potential for accidental releases.

Machinery Accidents: Evaluating the risks associated with the operation and maintenance of heavy machinery and equipment.

Natural Disasters: Considering the likelihood of natural events such as floods, earthquakes, and storms that could impact the project site.

Security Threats: Analyzing potential security risks, including theft, vandalism, and other malicious activities.

Scenario Analysis: Each identified hazard is further analyzed to understand its potential impact on the project. This involves:

- **Pathways of Exposure:** Determining how an emergency scenario could unfold, including the sequence of events and the pathways through which people, property, and the environment might be exposed.
- **Consequences:** Assessing the potential consequences of each scenario, such as injuries, fatalities, property damage, environmental contamination, and operational disruptions.

8.2.1.2 Severity and Likelihood

Likelihood Assessment: Each risk is evaluated for its probability of occurrence. This involves historical data analysis, expert judgment, and consideration of site-specific factors.

- **Frequency Categories:** Risks are categorized based on their likelihood, such as rare, unlikely, possible, likely, or almost certain.

Severity Assessment: The potential severity of each risk is assessed, considering the magnitude of its impact. This involves:

- **Impact Categories:** Classifying the severity of impacts, such as minor, moderate, major, or catastrophic.
- **Prioritization Matrix:** Combining the likelihood and severity assessments to prioritize risks. High-priority risks are those with both high likelihood and high severity, necessitating immediate attention and resource allocation.

8.2.2 Emergency Preparedness

Emergency preparedness is a critical component of the Emergency Response Plan (ERP) for the Siaya County Aggregation and Industrial Park project. This section outlines the establishment of response teams, designation of emergency coordinators, and the overall framework to ensure an effective and coordinated response to emergencies.

8.2.2.1 Response Teams

Formation of Teams: Dedicated emergency response teams are established to manage various types of emergencies. These teams are composed of personnel trained in specific response activities, ensuring that each type of emergency can be handled effectively.

- **Fire Response Team:** Trained to handle fire emergencies, including fire suppression, evacuation procedures, and coordination with local fire services.
- **Chemical Spill Response Team:** Equipped to manage chemical spills, including containment, neutralization, and cleanup efforts.
- **Medical Response Team:** Focused on providing first aid and medical care during emergencies, stabilizing injured persons, and coordinating with medical facilities.
- **Security Response Team:** Responsible for managing security threats, including unauthorized access, theft, and other security-related incidents.
- **Technical Response Team:** Handles machinery accidents and other technical emergencies, ensuring the safe shutdown and repair of equipment.

Role Definition: Each team has clearly defined roles and responsibilities, ensuring that all members know their duties during an emergency.

- **Team Leaders:** Appointed for each response team, responsible for coordinating the actions of team members and liaising with the emergency coordinator.
- **Team Members:** Assigned specific tasks based on their training and expertise, ensuring an organized and efficient response.

8.2.2.2 Emergency Coordinators

Designation of Coordinators: Emergency coordinators are designated to oversee the implementation of the ERP and ensure preparedness. These individuals play a pivotal role in maintaining readiness and ensuring that all procedures are correctly followed during an emergency.

- **Primary Emergency Coordinator:** The main point of contact for all emergency response activities, responsible for overall coordination and decision-making.
- **Deputy Emergency Coordinator:** Assists the primary coordinator and steps in if the primary coordinator is unavailable.

Responsibilities:

i. **Plan Implementation:** Ensuring that all elements of the ERP are implemented effectively, including regular updates and revisions based on new information or changing circumstances.

ii. **Readiness Assurance:** Conducting regular checks and drills to ensure that all response teams are prepared and that all equipment and resources are in working order.

iii. **Communication Oversight:** Maintaining clear and effective communication channels during emergencies, ensuring that information flows smoothly between response teams, external agencies, and stakeholders.

iv. **Training Coordination:** Organizing and overseeing training programs for all emergency response personnel, ensuring they are well-prepared to handle their specific responsibilities.

8.2.3 Communication Protocols

Alert Systems: Development of clear communication channels and protocols for promptly alerting all relevant stakeholders, including on-site personnel, emergency services, regulatory authorities, and local communities.

Notification Procedures: Procedures for notifying stakeholders about the nature of the emergency, the immediate actions being taken, and any required evacuation or protective measures.

8.2.4 Response Procedures

Response procedures are crucial for ensuring a swift, organized, and effective response to emergencies within the Siaya County Aggregation and Industrial Park project. This section delineates the standard operating procedures (SOPs) and hazard containment protocols to be followed during different types of emergencies.

8.2.4.1 Standard Operating Procedures (SOPs)

- **Comprehensive Guidelines:** SOPs are meticulously developed for various emergency scenarios, providing step-by-step instructions for response actions.
- **Immediate Response Actions:** Clear directives for immediate response actions, including evacuation procedures, emergency shutdown protocols, and initial hazard assessment.
- **Evacuation Routes:** Well-defined evacuation routes and assembly points to ensure the safe and orderly evacuation of personnel from affected areas.
- **First Aid Procedures:** Detailed procedures for administering first aid and medical assistance to injured individuals until professional medical help arrives.

8.2.4.2 Hazard Containment

- **Containment Strategies:** Specific protocols for containing and mitigating the effects of hazardous material spills or releases.
- **Containment Barriers:** Utilization of appropriate containment barriers, such as berms or booms, to prevent the spread of hazardous substances.

- **Neutralizing Agents:** Identification and application of suitable neutralizing agents to mitigate the effects of chemical spills and prevent further environmental contamination.

8.2.5 Resource Allocation

Resource allocation is essential for ensuring that the Siaya County Aggregation and Industrial Park project is adequately equipped to respond effectively to emergencies. This section outlines the identification and allocation of emergency equipment, supplies, and personnel required for emergency response efforts.

8.2.5.1 Emergency Equipment

- **Identification:** Identification of necessary emergency equipment, including fire extinguishers, first aid kits, spill containment materials, and personal protective equipment (PPE).
- **Location:** Strategic placement of emergency equipment throughout the project site, ensuring easy accessibility in the event of an emergency.
- **Maintenance:** Regular inspection and maintenance of emergency equipment to ensure functionality and readiness.

8.2.5.2 Supplies and Personnel

- **Adequacy:** Ensuring an adequate supply of emergency response materials, including medical supplies, firefighting equipment, and communication devices.
- **Training:** Training of project personnel in emergency response procedures and the proper use of emergency equipment to enhance readiness and effectiveness.
- **Availability:** Ensuring the availability of trained personnel at all times to respond promptly to emergencies and manage response efforts efficiently.

By meticulously defining response procedures and allocating necessary resources, the Siaya County Aggregation and Industrial Park project aims to minimize the impact of emergencies and prioritize the safety and well-being of project personnel, surrounding communities, and the environment.

8.2.6 Training and Drills

Regular Training: Conducting regular training sessions for all project personnel to ensure familiarity with emergency procedures and the proper use of emergency equipment.

Simulation Drills: Organizing periodic emergency drills and simulations to test the readiness and effectiveness of the ERP, allowing for the identification and correction of any deficiencies.

8.2.7 Coordination with Authorities

Collaboration: Establishing strong lines of communication and collaboration with local authorities, emergency services, and other relevant agencies. This ensures a coordinated response and facilitates access to additional resources when necessary.

Joint Exercises: Participating in joint emergency response exercises with local authorities to enhance coordination and readiness.

The table below provides the ESMMP of the outlined environmental and social impacts;

No	Nature of Negative environmental/social Impacts	Mitigation Measures	Responsibility	Performance Indicators Monitoring activity	Cost per year (KES)
1.	**CONSTRUCTION PHASE**				
A.	**ENVIRONMENTAL IMPACTS**				
i.	Environmental Degradation -Clearing vegetation -Disruption of fauna and flora Habitat	**Conservation and Preservation**: Protecting natural habitats, such as forests and shrubs **Ecological Restoration**: Restoring degraded ecosystems through reforestation, , and habitat rehabilitation helps revitalize biodiversity and ecosystem services. **Education and Awareness**: Increasing public awareness about environmental issues and promoting environmentally friendly behaviors can foster a culture of sustainability and conservation.	County Government and Contractor	-No of trees planted -No of community education workshops held	2,000,000
ii.	Noise and Excessive Vibration	• Use modern equipment, which produces the least noise. Any unavoidably noisy equipment should be identified and located in an area where it has least impact; • Noise shielding screens should be used and the operation of such machinery restricted to when required; • For mobile equipment, fit efficient silencers and enclose engine compartments in plant vehicles; • For fixed plants, isolate source by enclosure in acoustic structure; • Raise barriers around noisy equipment; • Notify the public of construction activities that may be perceived as noisy and intrusive prior to starting construction; • Establish means for the public to contact the engineers-in-charge (i.e., provide telephone number, email, etc.) and provide methods to handle complaints;		•Noise Survey Audit •Permissible noise levels during constructions •No noise Complaints	100,000

		• The use of hearing protection gears by workers when exposed to noise levels above 85 dB(A); • Ensure that noise & excessive vibration from construction activities are within permissible levels as per the provision of the Environmental Management and Coordination (Noise and Excessive Vibration Pollution) (Control) Regulations, 2009. This includes among others adhering to permissible noise and vibration level; • Care should be exercised when selecting equipment to avoid use of time worn or damaged machinery with high level of noise emissions that would have a negative impact in the environment.			
iii.	Airborne Emissions	• Construction equipment will be maintained in good operating condition to reduce exhaust emissions; • Construction sites, transportation routes, diversions and materials handling sites to be water-sprayed on dry and windy days, especially if near sensitive receptors, such as the Moi stadium area; • Haulage trucks must be covered or the aggregates sprayed with water before loading the haulage trucks; • All diesel fuel in use should be ultra-low sulphur diesel; • The project area will be cordoned off to minimize dust migration to nearby	Contractor / Engineer in charge .	Regular Air quality monitoring -No material spillage on the roads -Number of complaints from neighbours	100,000
		facilities by wind; • Speed controls by temporary speed bumps on diversions where necessary within the construction site; • Staff working in dust generating activities e.g. site preparation, excavation, concrete mixing, stone dressing should be provided with personal protective equipment (PPE) the use of PPE shall be enforced; • Avoiding open burning of solid wastes.			

iv.	**Soil and water pollution**	• Open stockpiles of construction materials on site should be covered with tarpaulin or similar fabric during rainy season; • Prevent the washing away of construction materials, soil, silt or debris into any drainage system; • All machinery and equipment should be regularly maintained and serviced to avoid leak oils; • Maintenance and servicing of vehicle, machinery and equipment must be carried out in a designated area (protected service bays) and where oil is completely restrained from reaching the ground; • Oil products and materials should be stored in site stores or in the contractor's yard; • Car wash areas and other places handling oil related activities within the site must be well managed, and the drains from these areas controlled. Oil interceptors must be installed along the drainage channels leading from such areas; • There should be no flooding within the site at all to prevent seepage of contaminated water into underground water sources; • All applicable national laws, regulations and standards for the safe use, handling, storage and disposal of hazardous waste to be followed; • Storage sites for petroleum products should be secured and signage posted, which include hazard warnings, who to contact in case of a release (spill), access restrictions and under whose authority the access is restricted will be posted; • Label products and store in weather-proof containers on spill containment pallets and under a weather-proof tarp. The contractor/spill response coordinator will monitor periodically for leaks, and check to ensure that labels are still present and legible; and • Implementation of erosion and sediment control measures such as silt fences;	Contractor / Engineer in charge .	Soil test analysis in spill occurrence areas	**100,000**

No	Nature of Negative environmental/social Impacts	Mitigation Measures	Responsibility	Performance Indicators Monitoring activity	Cost per year (KES)
v.	Increased solid waste.	• Adopt the method of selective demolition (for existing buildings) to the extent possible; • Waste (such as metal scrap or wood waste) that can be reused/ recycled may be donated to local people; • Segregate waste onsite; • Ensure that waste is disposed of according to EMCA (Waste Management) Regulations, 2006 and the County Government by – laws; • Contracted waste handlers should be licensed to transport and dispose waste at approved dumpsites only • During transportation of waste, it should be covered to avert dispersion along the way; and • Hazardous waste will not be mixed with other solid waste generated and should be managed by way of incineration or land-filling	Contractor / Engineer in charge .	-Contract licensed waste handlers -Waste disposal at designated sites -No reports of illegal waste dumping	200,000
B. SOCIAL IMPACTS					
vi.	Temporary scenic blight	• Ensure minimal footprint of construction activities. • Project workers and activities restricted to construction site	Contractor / Engineer in charge	Fenced construction site	

vii.	Traffic snarl up along adjoining roads	•Construction activities that might substantially disrupt traffic e.g. delivery of materials should not be performed during peak travel periods to the maximum extent practicable; • Warning signs should be used as appropriate to provide notice of road hazards and other pertinent information to motorists and the general public; • Signage and barricades should be used as part of the typical construction traffic controls; • Temporary manual traffic control should be used when construction vehicles are entering and leaving the site through valley road gate along Valley road; and • Adherence to County Government Traffic By-Laws and Kenya Traffic Laws.	Contractor / Engineer in charge .	•Well flowing traffic •Traffic marshal site access by large vehicles likely to obstruct traffic •Logs of traffic offences	100,000

No	**Nature of Negative environmental/social Impacts**	**Mitigation Measures**	**Responsibility**	**Performance Indicators Monitoring activity**	**Cost per year (KES)**

viii.	Increased Safety and Health Risks	• Regular drills shall be undertaken to test the response of the involved stakeholders; • Use signage to warn staff and/ or visitors that are not involved in construction activities of areas that pose risk; • Strict instructions shall be given for drivers of heavy equipment; • Supervision of works shall be done regularly to ensure that safety conditions are met while any deviation from safety regulations is immediately reclaimed following the best practices regarding safety at work; • Develop evacuation procedures to handle emergency situations; • Truck drivers should maintain a speed limit of not more than 20Km/hr.; • Speed controls by temporary speed bumps where necessary shall be undertaken within the construction site; • Compliance to all international, national and local health and safety standards that may exist; • Clear marking of work site hazards and training in recognition of hazard symbols; • Training of all personnel in fire prevention and protection; • Regular inspection, testing and maintenance of equipment and machinery; • Provide full first aid kits at the construction yard; • Use of water sprays to arrest dust; • Containment of hazardous materials; and • Provide adequate protective gear to construction workers	Contractor / Engineer in charge .	OSH training records •Presence of informative signage •Safety and Health audits •Provision of first aid boxes, firefighting equipment •Maintenance of equipment and plants logs •Material safety data sheets	200,000

ix.	Gender Inequality	• Equal employment opportunities will be provided for both men and women; • Expose and involve women in road construction and maintenance activities in an effort to transfer required skills to them; • Involve women groups in activities that they are good at such as landscaping; and • Enhance gender sensitivity and reduce gender discrimination in construction activities	Contractor / Engineer in charge .	Gender equality	Gender Inequality
No.	**Nature of Negative environmental/social Impacts**	**Mitigation Measures**	**Responsibility**	**Performance Indicators Monitoring activity**	**Cost per year (KES)**
2. OPERATION PHASE					
A). ENVIRONMENTAL IMPACTS					

i.	Waste water generation	• Process waste water must be treated with chemical disinfectants, neutralized and then flushed into the sewage system; • Chemical waste should first be neutralized with appropriate reagents and then flushed into the sewer system; • The treated effluent being discharged to the sewer line should conform to the limits as provided for under Environmental Management Co-ordination (Water Quality) Regulations, 2006; Standards for effluent discharge into public sewers-Schedule five; • Sewage from health care facilities should never be used for agricultural, aqua-cultural, drinking water, or recreational purposes; • Minimize entry of solid waste into the waste water stream by collecting separately urine, faeces, blood, and vomit from patients treated with genotoxic drugs to avoid their entry into the wastewater stream; and • Ensure that sewerage discharge pipes are not blocked or damaged.	Proponent	• Efficient waste water management • Quarterly effluent test results • Waste segregation initiatives	300,000

No.	Nature of Negative environmental/social Impacts	Mitigation Measures	Responsibility	Performance Indicators Monitoring activity	Cost per year (KES)

ii.	Solid Waste Generation	• Consider waste minimization practices; • Segregate waste at the point of generation; • All waste to be handled and managed in accordance with the EMCA (Waste management) Regulations of 2006; • All waste containers to be labelled/ color-coded depending on waste category; • Waste storage areas to have the following design consideration: Hard, impermeable floor with drainage, and designed for cleaning / disinfection with available water supply, secured by locks with restricted access, designed for access and regular cleaning by authorized cleaning staff and vehicle, protected from sun, and inaccessible to animals / rodents, equipped with appropriate lighting and ventilation, segregated from food supplies and preparation areas; equipped with supplies of protective clothing, and spare bags / containers; • Appoint a waste handler who is licensed by NEMA and permitted by the local government to handle, transport and treat biomedical wastes at approved treatment sites using recommended treatment procedures laid down by the legal framework and respective government agencies; • Waste destined for off-site treatment facilities should be transported according to the guidelines for transport of hazardous wastes / biomedical wastes in EMCA(Waste Management) Regulations, 2006; • Package for infectious waste should include an inner, watertight layer of metal or plastic with a leak-proof seal. Outer packaging should be of adequate strength and capacity for the specific type and volume of waste; • Packaging containers for sharps should be puncture-proof; • Waste should be labeled appropriately, noting the substance class, packaging symbol (e.g. infectious waste, radioactive waste), waste category, mass / volume, place of origin within hospital, and final destination; and	Proponent	Efficient solid waste management Contractual documents with waste handler Logs of solid waste quantities Waste management training programs	300,000

		• Transport vehicles should be dedicated to waste and the vehicle compartments carrying waste sealed.			
No.	**Nature of Negative environmental/social Impacts**	**Mitigation Measures**	**Responsibility**	**Performance Indicators Monitoring activity**	**Cost per year (KES)**

iii	Increased Water demand	•Water abstractions should be as per the Water Resources Management Authority (WRMA) permit; • Conduct an EIA for the proposed borehole and acquire a WRMA permit to abstract water; • Conduct a hydrogeological survey for the proposed borehole; Monitor water use; • Implement water saving devices for domestic water use e.g. dual flush toilets, automatic shut-off taps, etc.; • Portable water should not be used for irrigation purposes and landscapes must be designed to absorb rainwater run-off rather than having to carry it off-site in storm water drains; • Indigenous vegetation to be used for landscaping to minimise watering requirements; • Cleaning methods utilised for the cleaning of vehicles, floors, containers, yards etc. must aim to minimise water use; • Maintenance of proper pressure within fire water systems to limit water use; • Practice rain water harvesting; • Conducting of regular audits of water systems to identify and rectify any possible water leakages; and • Implementing a system for the proper metering and measurement of water use to enable proper performance review and management	Proponent	•Borehole EIA license •Water meter readings •Practice of water saving techniques	300,000

iv	Increased Surface/Storm Runoff Generation	• Ensure that no surface wastewater is directed into the sewer system to avoid overloading the sewerage system; • Monitor effluent quality regularly to ensure that the stipulated discharge rules and standards are not violated; and • Harvest rainwater from roof for non-portable uses e.g. cleaning and watering plants	Proponent	•Efficient storm water management •Unobstructed drainage •Incidences of flooding	100,000
No.	**Nature of Negative environmental/social Impacts**	**Mitigation Measures**	**Responsibility**	**Performance Indicators Monitoring activity**	**Cost per year (KES)**
B) SOCIO ECONOMIC IMPACTS					
v.	Increased Traffic Volume	• Designate vehicle registration and checkpoint inside the premise to avert unnecessary traffic snarl up along adjacent roads caused by vehicles waiting to access the hospital. • There will be parking spot in front of the facility. • There are dedicated exits and entries and dedicated for emergencies and ambulance access only;	Proponent	Well flowing Traffic	50,000
vi	Influx of people and increased demand for infrastructure	Provide adequate social and other infrastructure to meet needs of the tenants, visitors and customers;	Proponent	No overcrowding Adequate amenities for all	300,000

vi	Increased Risk of Occupational Health and Safety Incidences	• Conduct basic occupational training programs and specialty courses as needed; • Ensure that workers are oriented to the specific hazards of individual work assignments. Training should generally be provided to management, supervisors, workers, and occasional visitors to areas of risks and hazards; • Conduct statutory assessments i.e. risk assessments, fire safety audits and Occupational Safety and Health audits annually through licensed advisors and auditors by the directorate of occupational safety and health services (DOSHS); • Conduct statutory trainings under OSHA, 2007 and Rules under it. i.e. basic first aid, fire safety training, and Occupational Safety and Health committee training through approved training institutions by the Directorate of Occupational Safety and Health Services (DOSHS); • Provide adequate lighting in all workrooms; Passageways for pedestrians and vehicles within and outside buildings should be segregated and should provide for easy, safe, and appropriate access; • Provision of fire fighting equipment in strategic and well labelled sites; • Conduct drills at reasonable intervals to test the disaster preparedness level at the workplace, using the results to improve the response mechanisms; • Provide eye-wash stations and/or emergency showers should be provided close to all workstations where immediate flushing with water is the recommended first-aid response;	Proponent	Occupational Safety and Health audits - Annual •Fire risk assessments •Biosafety, •occupational safety and health trainings •Safety and health committees - Incidents monitoring •No Injuries or cross- infections •Safety and health management and monitoring plan	300,000

No.	Nature of Negative environmental/social Impacts	Mitigation Measures	Responsibility	Performance Indicators Monitoring activity	Cost per year (KES)

		• Train workers on safe work practices, and provide appropriate PPE; • Enforcement of use of PPE such as gloves, dustcoats, nose masks in all workrooms requiring use; •Restriction of access to high risk areas to authorised personnel only i.e. radiation rooms, surgery rooms; • Operate places with radiations in accordance with in accordance with the radiation protection Act Cap 243 Radiation Protection (Standards) Regulations, 1986 and recognized international safety standards and guidelines on radiation; • Orient all staff on safe work practices and guidelines and ensure that they adhere to them; • Training staff on how to prevent and manage incidences. This should involve proper handling of electricity, water etc. and sensitization on various modes of escape, conduct and responsibility during such incidences; • Regular safety drills to constantly follow on various possible incidences; • Use signage to warn staff and/ or visitors of dangerous places. The signage must be visible and placed strategically; Set up (fire) assembly points; and • Develop evacuation procedures to handle emergency situations.			

CHAPTER NINE: CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusions

After thorough assessment and analysis, the following conclusions have been drawn regarding the Siaya County Aggregation and Industrial Park project:

1. **Environmental and Social Impacts:** The project has the potential to generate both positive and negative environmental and social impacts, including economic development, employment generation, and infrastructure improvement, as well as concerns related to environmental degradation, community disruption, and health and safety risks.

2. **Compliance with Legal Framework:** The project is designed to comply with relevant legal and regulatory frameworks, including the Environmental Management and Coordination Act (EMCA), ensuring that environmental and social considerations are integrated into project planning and implementation processes.

3. **Public Participation:** Public participation has been a vital component of the ESIA process, providing opportunities for stakeholders to voice their concerns, contribute local knowledge, and engage in decision-making processes, thereby enhancing transparency, accountability, and inclusivity.

4. **Mitigation Measures:** A comprehensive set of mitigation measures has been proposed to address potential adverse impacts identified during the ESIA process, including pollution prevention, habitat restoration, community engagement, and health and safety protocols, with a focus on sustainable development principles.

5. **Monitoring and Management:** Robust monitoring and management mechanisms have been established to track the effectiveness of mitigation measures, ensure compliance with regulatory requirements, and facilitate adaptive management, allowing for adjustments based on monitoring data and stakeholder feedback.

9.2 Recommendations

Based on the findings and conclusions of the ESIA report, the following recommendations are proposed for the successful implementation of the Siaya County Aggregation and Industrial Park project:

1. **Continued Stakeholder Engagement:** Maintain ongoing dialogue and collaboration with stakeholders, including local communities, regulatory agencies, and civil society

organizations, to address concerns, solicit feedback, and foster partnerships throughout all stages of project implementation.

2. **Enhanced Monitoring and Reporting:** Strengthen monitoring and reporting mechanisms to systematically track environmental and social performance indicators, assess the effectiveness of mitigation measures, and ensure transparency and accountability in project management.

3. **Capacity Building and Training:** Provide training and capacity-building initiatives for project personnel and stakeholders to enhance understanding of environmental and social issues, promote best practices, and facilitate effective implementation of the ESMMP and ERP.

4. **Adaptive Management:** Implement adaptive management practices to respond proactively to changing conditions, emerging risks, and stakeholder feedback, allowing for timely adjustments to mitigation measures and project strategies as needed.

5. **Long-Term Sustainability:** Prioritize long-term sustainability considerations, including ecosystem conservation, community resilience, and socio-economic benefits, to ensure that the project contributes positively to the well-being of both present and future generations.

REFERENCES

Barnes, J., O'Hanlon, B., Feeley, F., McKeon, K and Gitonga, N., and Decker C (2010) Private Health Sector Assessment in Kenya. World Bank: Washington D.C .

GOK (Government of Kenya) (2015) Environmental Management and Coordination (Amendment) Act CAP 387. Nairobi: Government printers.

GOK. (Government of Kenya) (2003). the Environmental (Impact Assessment and Audit). Nairobi: Government printers.

GOK. (Government of Kenya) (1999). Environment Management and Coordination Act. Nairobi: Government printers.

GOK. (Government of Kenya) (2009). Government of Kenya, 2009.Kenya Vision 2030: Nairobi: Government printer.

GOK. (Government of Kenya) (1994). National Environmental Action Plan. Nairobi: Government Printer.

GOK (Government of Kenya) (2010) Ministry of Public Health and Sanitation and Ministry of Medical Services, Republic of Kenya. National Infection Prevention and Control Guidelines for Health Care Services in Kenya.

GOK (Government of Kenya) (1999) Sessional paper No 6 of 1999 on Environmental and Development. Government Printers

Good land, R., Mercier, J.R., and Shimwayi M (EdS) 1995. Environmental Assessment in Africa. World Bank Commitment.

NEMA (National Environment Management Authority) (2009). Environmental Management and Coordination Noise and Excessive Vibrations Pollution) (Control) Regulations. Nairobi: government printer.

NEMA (National Environment Management Authority) (2006). Environmental Management and Coordination (Waste Management) Regulations. Nairobi: Government printer.

NEMA (National Environment Management Authority) (2006). The Environmental Management and Coordination (Water quality) Regulations. Nairobi: Government printer.

Open Capital Advisors (2012) The Next 33,000,000: How the private sector is reforming health care for Kenya's Mass market. Nairobi.

World Bank (2007). Environmental, Health, and Safety General Guidelines.

Nairobi: Kenya UNEP (United Nations Environment Programme), Secretariat of the Basel Convention (SBC) and World Health Organization (WHO) (2000-2004) (Preparation of National Health-Care Waste Management Plans in Sub-Saharan Countries; Guidance manual.

AWE (Air Water Earth Limited), MOH (Ministry of Health-Uganda) (2014) Environmental and Social Impact Assessment for the Construction/Rehabilitation of the National TB Reference Laboratory and Five Satellite Laboratories in Uganda. Kampala: Uganda.

APPENDIXES:

APPENDIX 1: STANDARDS OF EFFLUENT DISCHARGE TO PUBLIC SEWER

PARAMETER	Maximum levels permissible
Suspended solids (mg/L)	250
Total dissolved solids (mg/L)	2000
Temperature ^{0}C	20 - 35
pH	6-9
Oil and Grease (mg/L) -where conventional treatment shall be used	10
Oil and Grease (mg/L)- where ponds is a final treatment method	5
Ammonia Nitrogen (mg/L)	20
Substances with an obnoxious smell	Shall not be discharged into the sewers
Biological Oxygen Demand BOD5 days at 20 ^{o}C (mg/L)	500
Chemical Oxygen Demand COD (mg/L)	1000
Arsenic (mg/L)	0.02
Mercury (mg/L)	0.05
Lead (mg/L)	1.0
Cadmium (mg/L)	0.5
Chromium VI (mg/L)	0.05
Chromium (Total) (mg/L)	2.0
Copper (mg/L)	1.0
Zinc (mg/L)	5.0
Selenium (mg/L)	0.2
Nickel (mg/L)	3.0
Nitrates (mg/L)	20
Phosphates (mg/L)	30
Cyanide Total (mg/L)	2
Sulphide (mg/L)	2
Phenols (mg/L)	10
Detergents (mg/L)	15
Colour	Less than 40 Hazen units
Alkyl Mercury	Not Detectable (nd)
Free and saline Ammonia as N (mg/L)	4.0
Calcium Carbide	Nil
Chloroform	Nil
Inflammable solvents	Nil
Radioactive residues	Nil
Degreasing solvents of mono-di-trichloroethylene type	Nil

APPENDIX 2: WHO BILMEDICAL WASTE COLOUR CODES

Colour code for Biomedical adopted from the WHO colour code

	Type of Waste	Colour of Container and Markings	Type of Container
1.	Infectious	**Yellow**	Strong leak proof-plastic bag with biohazard symbol
2	Pathological	**Yellow**	Strong leak proof-plastic bag with biohazard symbol
3	Sharps	**Yellow – (marked sharps)**	Puncture proof
4	Chemical and Pharmaceutical	**Brown**	Plastic bag or container
5	Non-infectious/non hazardous (Non-clinical)	**Black**	Plastic bag or container
6	Radioactive waste		Lead box, labeled with radioactive symbol
7	Non-infectious/non hazardous (Non-clinical)	**Black**	Plastic bag or container

Infectious, Pathological and Sharp waste should also be marked with the international biohazard symbol.

Chemicals should also be marked with the appropriate international chemical hazard symbol

APPENDIX 3 : TITLE DEEDS

REPUBLIC OF KENYA

THE LAND REGISTRATION ACT

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

THE REGISTERED LAND ACT

(*Chapter* 300) (REPEALED)

Title Deed

Title Number SIAYA/OJWANDO 'A'/933

Approximate Area (1.16)Ha

Registry Map Sheet No. 17

This is to certify that COUNTY GOVERNMENT OF SIAYA

(P. O. BOX 803-40600, SIAYA)

. . .

. . .

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

GIVEN under my hand and the seal of the SIAYA District Land Registry this 16TH day of MARCH, 20 21

Land Registrar

A. A. Mutua 247

(To be completed only when the applicant has paid the fee of Sh. 125)

At the date stated on the front hereof, the following entries appeared in the register relating to the land:

EDITION: 1
OPENED: 3/3/21

PART A—PROPERTY SECTION

REGISTRATION SECTION	EASEMENTS, ETC.	NATURE OF TITLE
SIAYA/OJWANDO 'A'	RESERVED FOR DEPARTMENT OF COUNTY GOVERNANCE AND ADMINISTRATION	
PARCEL NUMBER		
933		
APPROXIMATE AREA ~~1.165~~ Ha.		ABSOLUTE
REGISTRY MAP SHEET No.		
17		

PART B—PROPRIETORSHIP SECTION

ENTRY NO.	DATE	NAME OF REGISTERED PROPRIETOR	ADDRESS AND DESCRIPTION OF REGISTERED PROPRIETOR	CONSIDERATION AND REMARKS	SIGNATURE OF REGISTRAR
6	9/10/2020	COUNTY GOVERNMENT OF SIAYA			
7	16/3/2021	TITLE DEED ISSUED		A. A. Mutua 247	

PART C—E

ENTRY NO.	DATE	NATURE OF ENCUMBRANCE	

REPUBLIC OF KENYA

THE LAND REGISTRATION ACT

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

THE REGISTERED LAND ACT

(*Chapter* 300) (REPEALED)

Title Deed

Title Number SIAYA/OJWANDO 'A'/1622

Approximate Area (0.8)Ha

Registry Map Sheet No. 17

This is to certify that COUNTY GOVERNMENT OF SIAYA

(P. O. BOX 803-40600, SIAYA)

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

GIVEN under my hand and the seal of the SIAYA District Land Registry this 16TH day of MARCH, 20 21

Land Registrar

A. A. Mutua 247

(To be completed only when the applicant has paid the fee of Sh. 125)

At the date stated on the front hereof, the following entries appeared in the register relating to the land:

EDITION: 1
OPENED: 3/3/97

PART A—PROPERTY SECTION

REGISTRATION SECTION	EASEMENTS, ETC.	NATURE OF TITLE
SIAYA/OJWANDO 'A'	RESERVED FOR DEPARTMENT OF GOVERNANCE AND ADMINISTRATION	
PARCEL NUMBER		
1622		
APPROXIMATE AREA (0.8) Ha.		ABSOLUTE
REGISTRY MAP SHEET No.		
17		

PART B—PROPRIETORSHIP SECTION

ENTRY NO.	DATE	NAME OF REGISTERED PROPRIETOR	ADDRESS AND DESCRIPTION OF REGISTERED PROPRIETOR	CONSIDERATION AND REMARKS	SIGNATURE OF REGISTRAR
5	9/10/2020	COUNTY GOVERNMENT OF SIAYA		TRANSFER	
6	16/3/2021	TITLE DEED ISSUED			

A. A. Mutua 247

PART

ENTRY NO.	DATE	NATURE OF ENCUMBRANCE

REPUBLIC OF KENYA

THE LAND REGISTRATION ACT

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

THE REGISTERED LAND ACT

(*Chapter* 300) (REPEALED)

Title Deed

Title Number SIAYA/OJWANDO 'A'/1624

Approximate Area (1.78)Ha

Registry Map Sheet No. 17

This is to certify that COUNTY GOVERNMENT OF SIAYA

(P.O. BOX 803-40600, SIAYA)

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

GIVEN under my hand and the seal of the SIAYA District Land Registry this 16TH day of MARCH, 20 21

Land Registrar

A. A. Mutua 247

(To be completed only when the applicant has paid the fee of Sh. 125)

At the date stated on the front hereof, the following entries appeared in the register relating to the land:

EDITION: 1
OPENED: 3/3/97

PART A—PROPERTY SECTION

REGISTRATION SECTION	EASEMENTS, ETC.	NATURE OF TITLE
SIAYA/OJWANDO 'A'	RESERVED FOR DEPARTMENT OF GOVERNANCE AND ADMINISTRATION	
PARCEL NUMBER		
1624		
APPROXIMATE AREA (1.78) Ha.		ABSOLUTE
REGISTRY MAP SHEET No. 17		

PART B—PROPRIETORSHIP SECTION

ENTRY NO.	DATE	NAME OF REGISTERED PROPRIETOR	ADDRESS AND DESCRIPTION OF REGISTERED PROPRIETOR	CONSIDERATION AND REMARKS	SIGNATURE OF REGISTRAR
6	9/10/2020	COUNTY GOVERNMENT OF SIAYA		TRANSFER	
7	15/3/2021	TITLE DEED ISSUED			A. A. Mutua · 247

ENTRY NO.	DATE	NATURE OF ENCUMBRANCE

REPUBLIC OF KENYA

THE LAND REGISTRATION ACT

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

THE REGISTERED LAND ACT

(*Chapter* 300) (REPEALED)

Title Deed

Title Number SIAYA/OJWANDO 'A'/1625

Approximate Area (0.57)Ha

Registry Map Sheet No. 7 & 22

This is to certify that COUNTY GOVERNMENT OF SIAYA

(P. O. BOX 803-40600, SIAYA)

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

GIVEN under my hand and the seal of the SIAYA District Land Registry this 16TH day of MARCH, 20 21

Land Registrar

A. A. Mutua - 247

(To be completed only when the applicant has paid the fee of Sh. 125)

At the date stated on the front hereof, the following entries appeared in the register relating to the land:

EDITION: 1
OPENED: 3/3/97

PART A—PROPERTY SECTION

REGISTRATION SECTION	EASEMENTS, ETC.	NATURE OF TITLE
SIAYA/OJWANDO 'A'	RESERVED FOR DEPARTMENT OF GOVERNANCE AND ADMINISTRATION	
PARCEL NUMBER: 1625		
APPROXIMATE AREA: (0.57) Ha.		ABSOLUTE
REGISTRY MAP SHEET No.: 7 & 22		

PART B—PROPRIETORSHIP SECTION

ENTRY NO.	DATE	NAME OF REGISTERED PROPRIETOR	ADDRESS AND DESCRIPTION OF REGISTERED PROPRIETOR	CONSIDERATION AND REMARKS	SIGNATURE OF REGISTRAR
5	9/10/2020	COUNTY GOVERNMENT OF SIAYA		TRANSFER	
6	16/3/2021	TITLE DEED ISSUED			A. A. Mutua 247

ENTRY NO.

REPUBLIC OF KENYA

THE LAND REGISTRATION ACT

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

THE REGISTERED LAND ACT

(*Chapter* 300) (REPEALED)

Title Deed

Title Number SIAYA/OJWANDO 'A'/1634

Approximate Area (0.42)Ha

Registry Map Sheet No. 7

This is to certify that COUNTY GOVERNMENT OF SIAYA

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

GIVEN under my hand and the seal of the SIAYA District Land Registry this 16TH day of MARCH, 20 21

Land Registrar

A. A. Mutua 247

(To be completed only when the applicant has paid the fee of Sh. 125)

At the date stated on the front hereof, the following entries appeared in the register relating to the land:

EDITION: 1 OPENED: 3/3/97	**PART A—PROPERTY SECTION**	
REGISTRATION SECTION SIAYA/OJWANDO 'A'	EASEMENTS, ETC.	NATURE OF TITLE
	RESERVED FOR DEPARTMENT OF GOVERNANCE AND ADMINISTRATION	
PARCEL NUMBER 1634		
APPROXIMATE AREA (0.42) Ha.		ABSOLUTE
REGISTRY MAP SHEET No. 7		

PART B—PROPRIETORSHIP SECTION

ENTRY NO.	DATE	NAME OF REGISTERED PROPRIETOR	ADDRESS AND DESCRIPTION OF REGISTERED PROPRIETOR	CONSIDERATION AND REMARKS	SIGNATURE OF REGISTRAR
6	9/10/2020	COUNTY GOVERNMENT OF SIAYA		TRANSFER	
7	16/3/2021	TITLE DEED ISSUED(BOX 803-40600 SIAYA)		A. A. Mutua . 247	

REPUBLIC OF KENYA

THE LAND REGISTRATION ACT

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

THE REGISTERED LAND ACT

(*Chapter* 300) (REPEALED)

Title Deed

Title Number SIAYA/OJWANDO 'A'/3294

Approximate Area (0.77)Ha

Registry Map Sheet No. 17

This is to certify that COUNTY GOVERNMENT OF SIAYA

(P.O. BOX 803-40600, SIAYA)

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

GIVEN under my hand and the seal of the SIAYA District Land Registry this 16TH day of MARCH, 20 21

Land Registrar

A. A. Mutua - 247

(To be completed only when the applicant has paid the fee of Sh. 125)

At the date stated on the front hereof, the following entries appeared in the register relating to the land:

EDITION: 1
OPENED: 3/3/97

PART A—PROPERTY SECTION

REGISTRATION SECTION	EASEMENTS, ETC.	NATURE OF TITLE
SIAYA/OJWANDO 'A'	RESERVED FOR DEPARTMENT OF GOVERNANCE AND ADMINISTRATION	
PARCEL NUMBER		
3294		
APPROXIMATE AREA		
(0.77) Ha.		ABSOLUTE
REGISTRY MAP SHEET No.		
17		

PART B—PROPRIETORSHIP SECTION

ENTRY NO.	DATE	NAME OF REGISTERED PROPRIETOR	ADDRESS AND DESCRIPTION OF REGISTERED PROPRIETOR	CONSIDERATION AND REMARKS	SIGNATURE OF REGISTRAR
7	9/10/2020	COUNTY GOVERNMENT OF SIAYA		TRANSFER	
8	16/3/2021	TITLE DEED ISSUED			
				A. Mutua 247	

ENTRY NO.	DATE	NA ENCU

REPUBLIC OF KENYA

THE LAND REGISTRATION ACT

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

THE REGISTERED LAND ACT

(*Chapter* 300) (REPEALED)

Title Deed

Title Number SIAYA/OJWANDO 'A'/3296

Approximate Area (7.55)Ha

Registry Map Sheet No. 22

This is to certify that COUNTY GOVERNMENT OF SIAYA

(P. O. BOX 803-40600, SIAYA)

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

GIVEN under my hand and the seal of the SIAYA District Land Registry this 16TH day of MARCH, 20 21

Land Registrar

A. A. Mutua 247

(To be completed only when the applicant has paid the fee of Sh. 125)

At the date stated on the front hereof, the following entries appeared in the register relating to the land:

EDITION: 1
OPENED: 3/3/97

PART A—PROPERTY SECTION

REGISTRATION SECTION	EASEMENTS, ETC.	NATURE OF TITLE
SIAYA/OJWANDO 'A'	RESERVED FOR DEPARTMENT OF GOVERNANCE AND ADMINISTRATION	
PARCEL NUMBER: 3296		
APPROXIMATE AREA: (7.55) Ha.		ABSOLUTE
REGISTRY MAP SHEET No.: 22		

PART B—PROPRIETORSHIP SECTION

ENTRY NO.	DATE	NAME OF REGISTERED PROPRIETOR	ADDRESS AND DESCRIPTION OF REGISTERED PROPRIETOR	CONSIDERATION AND REMARKS	SIGNATURE OF REGISTRAR
9	9/10/2020	COUNTY GOVERNMENT OF SIAYA		TRANSFER	
10	16/3/2021	TITLE DEED ISSUED			A. A. Mutua 247

APPENDIX 5; ARCHITECHTURAL DRAWING

COUNTY GOVERNMENT OF SIAYA
COUNTY EXECUTIVE COMMITTEE MEMBER
LANDS, PHYSICAL PLANNING, HOUSING & URBAN DEVT.
21 AUG 2023
APPROVED
P. O. BOX 40600, SIAYA

Checked
COUNTY GOVERNMENT OF SIAYA
P. O. Box 803 - 40300, S
DIRECTOR ROADS, PUBLIC WORKS &
Date: 11/8/2023

NOTES

General
This drawing is to be read in conjuction with engineers' drawings.
All dimensions are in mm unless otherwise specified.
Drawings are not to be scaled. Only figured dimensions to be used. The contractor must check & verify all the dimensions before commencement of the work.

REVISIONS

e.no	date	details	initials	sign

PROJECT:
PROPOSED COUNTY AGGREGATION INDUSTRIAL WAREHOUSES

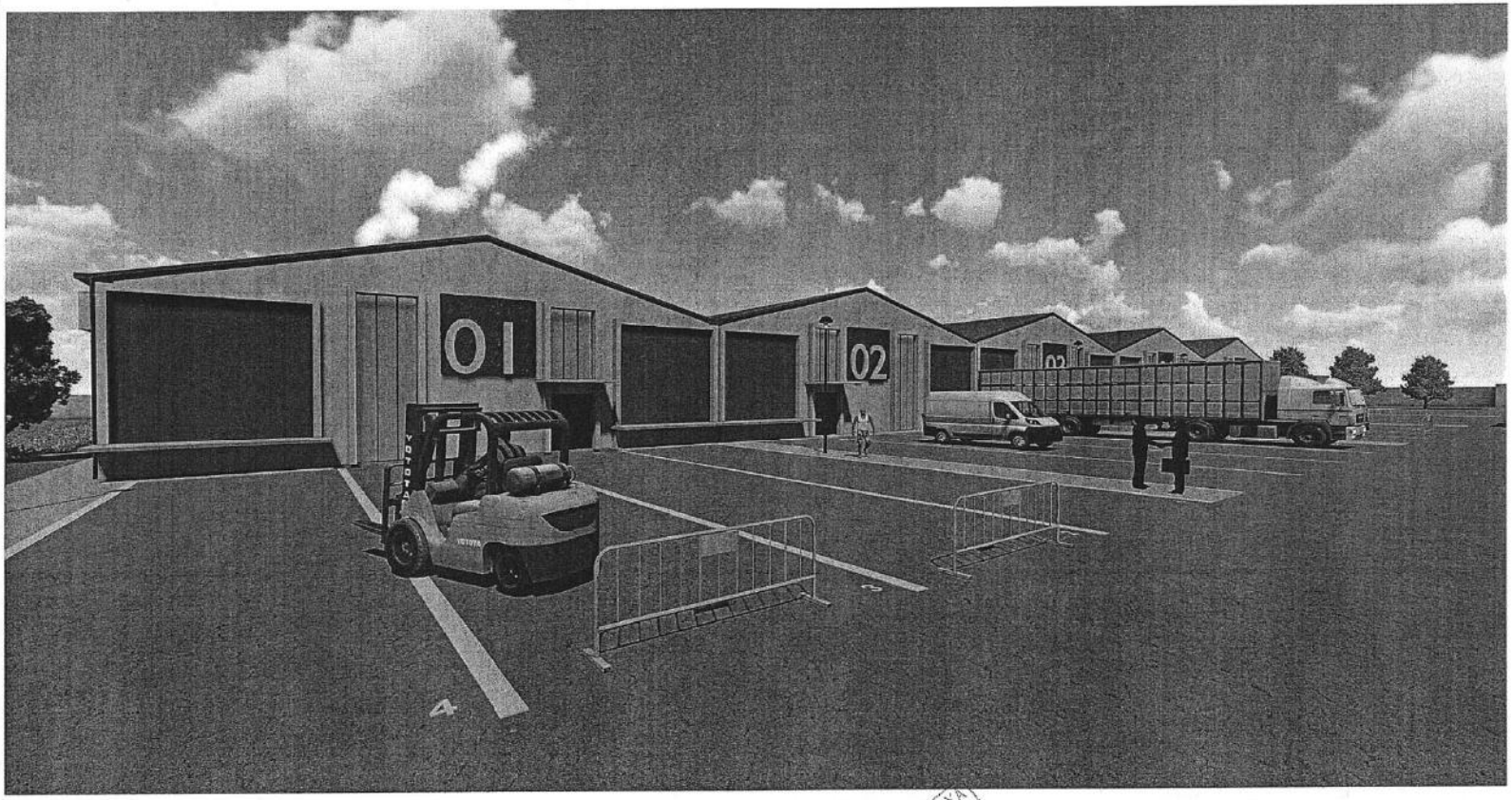
Drawing title
Renders 03

Client

Scale :		Drawing No.	
Drawn	Name	Signed	Date
S.S.A	K.Chege		
Checked			
S.S.A	K.Chege		
S.P.S.A	J.M Mwiga		

APPROVED
Arch. L.M. Mochama CHIEF ARCHITECT

MINISTRY OF LANDS, PUBLIC WORKS, HOUSING & URBAN DEVELOPMENT
THE GOVERNMENT OF THE REPUBLIC OF KENYA



NOTES

General
This drawing is to be read in conjuction with engineers' drawings.
All dimensions are in mm unless otherwise specified.
Drawings are not to be scaled. Only figured dimensions to be used. The contractor must check & verify all the dimensions before commencement of the work.

REVISIONS

s.no	date	details	initials	sign

PROJECT:
PROPOSED COUNTY AGGREGATION INDUSTRIAL WAREHOUSES

Drawing title
Renders 02

Client

Scale :		Drawing No.	
Drawn	Name	Signed	Date
S.S.A	K.Chege		
Checked			
S.S.A	K.Chege		
S.P.S.A	J.M Mutiu		

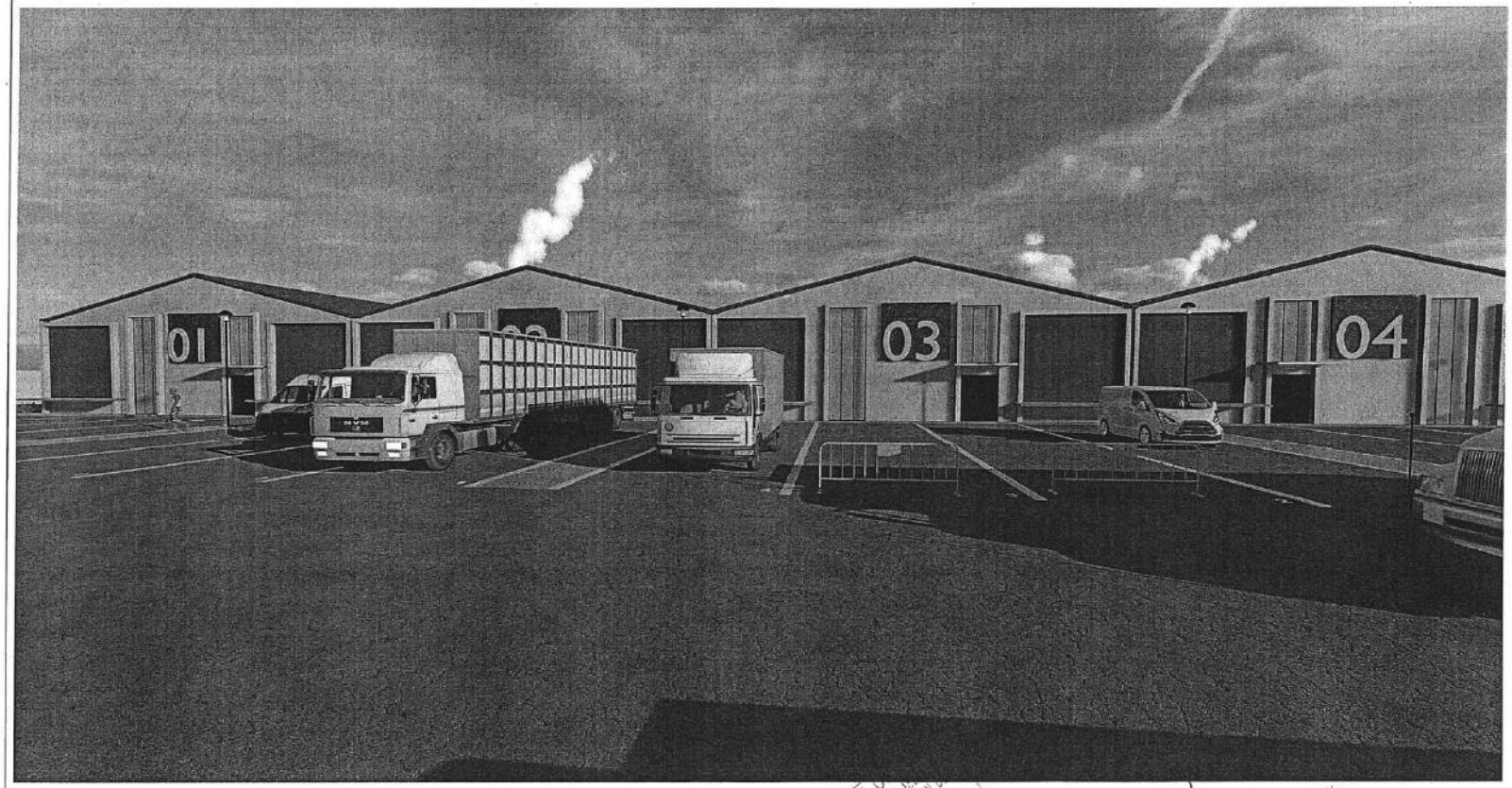
APPROVED
Arch. L.M. Mocharna CHIEF ARCHITECT

MINISTRY OF LANDS, PUBLIC WORKS, HOUSING & URBAN DEVELOPMENT

THE GOVERNMENT OF THE REPUBLIC OF KENYA

COUNTY GOVERNMENT OF SIAYA
COUNTY EXECUTIVE COMMITTEE MEMBER
LANDS, PHYSICAL PLANNING, HOUSING & URBAN DEVT.
21 NOV 2023
APPROVED
P.O. BOX 603 - 40600, SIAYA

Checked
COUNTY GOVERNMENT OF SIAYA
P.O. Box 603 - 40600, S.
DIRECTOR ROADS, PUBLIC WORKS & TRANSPORT
Date 11/8/2023



COUNTY GOVERNMENT OF SIAYA
COUNTY EXECUTIVE COMMITTEE MEMBER
LANDS, HOUSING, PHYSICAL PLANNING, URBAN DEVELOPMENT
21 AUG 2023
APPROVED
P.O. Box 603 - 40606, SIAYA

Checked
COUNTY GOVERNMENT OF SIAYA
P. O. Box 603 - 40606, SIAYA
DIRECTOR, PHYSICAL PLANNING
Date: 11/8/2023

NOTES

General
This drawing is to be read in conjuction with engineers' drawings.
All dimensions are in mm unless otherwise specified.
Drawings are not to be scaled. Only figured dimensions to be used. The contractor must check & verify all the dimensions before commencement of the work.

REVISIONS

num	date	details	initials	sign

PROJECT:
PROPOSED COUNTY AGGREGATION INDUSTRIAL WAREHOUSES

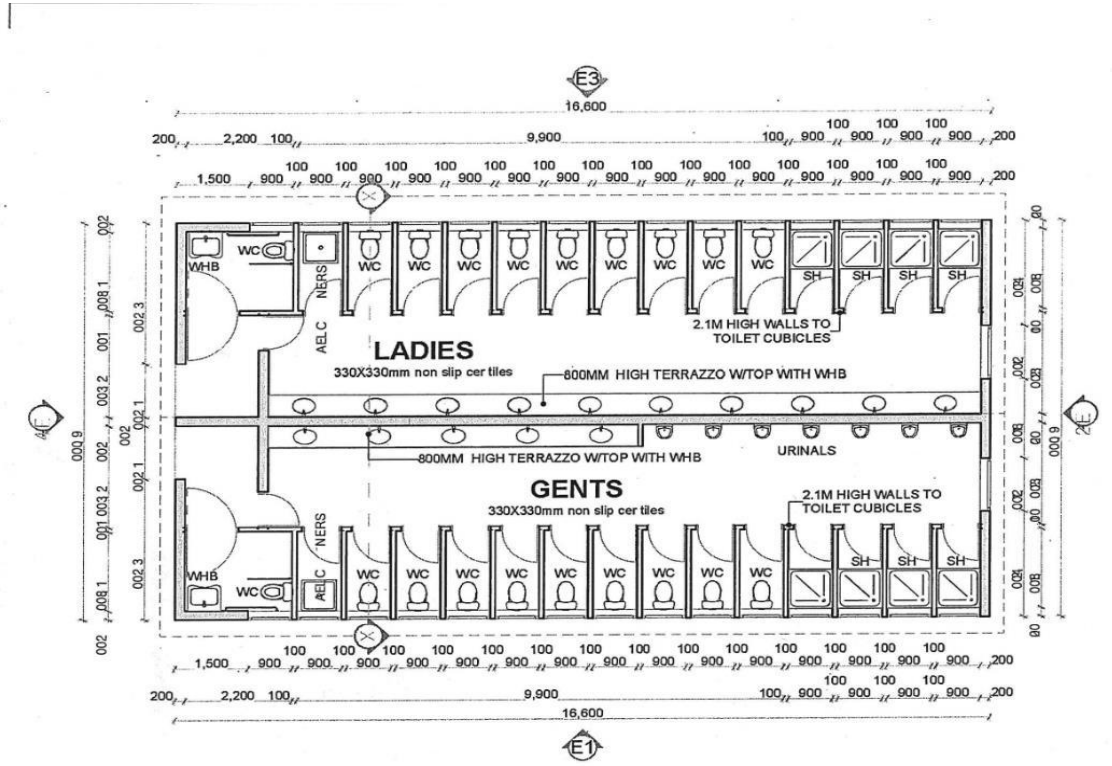
Drawing title
Renders 01

Client

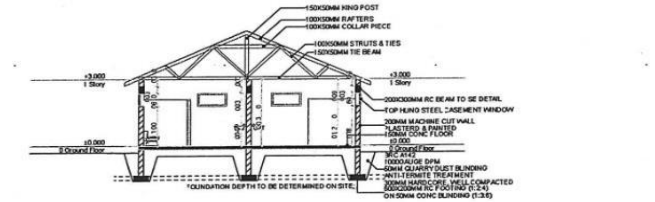
Scale:		Drawing No.	
Drawn	Name	Signed	Date
S.S.A	K.Chege		
Checked			
S.S.A	K.Chege		
S.P.S.A	J.M Muigu		
APPROVED			
Arch. L.M. Wachema		CHIEF ARCHITECT	

MINISTRY OF LANDS, PUBLIC WORKS, HOUSING & URBAN DEVELOPMENT
STATE DEPARTMENT FOR PUBLIC WORKS

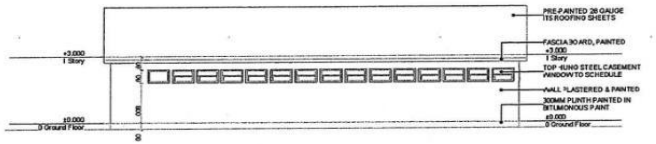
THE GOVERNMENT OF THE REPUBLIC OF KENYA



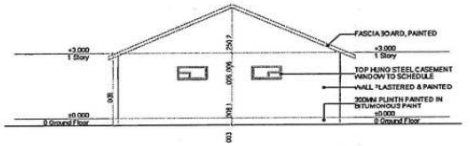
0. Ground Floor 1:100



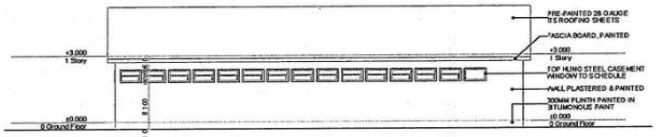
X Building Section 1:100



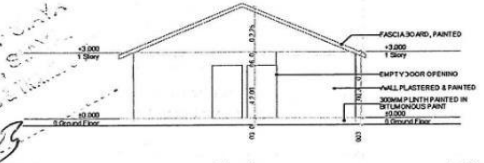
E1 Elevation 1:100



E2 Elevation 1:100



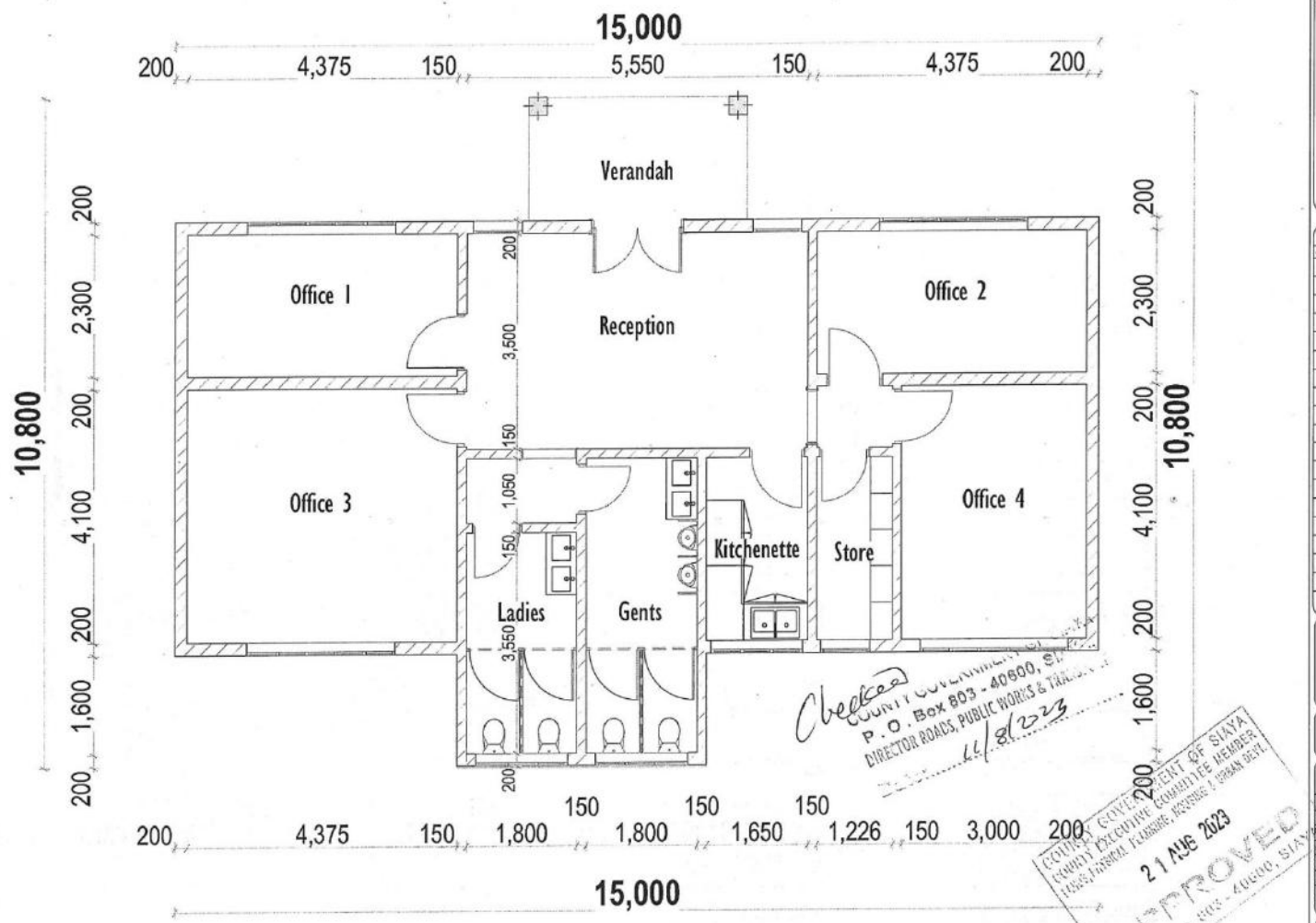
E3 Elevation 1:100



E4 Elevation 1:100

COUNTY GOVERNMENT OF SIAYA
EXECUTIVE COMMITTEE MEMBER
LANDS, ENERGY, HOUSING & URBAN DEV.
21 AUG 2023
APPROVED
P. O. Box 903 - 40600, SIAYA

Checked
COUNTY GOVERNMENT OF SIAYA
P. O. Box 903 - 40600, SIAYA
DIRECTOR, ROADS, PUBLIC WORKS & TRANSPORT
14/8/2023



NOTES

General

This drawing is to be read in conjuction with engineers' drawings.
All dimensions are in mm unless otherwise specified.
Drawings are not to be scaled. Only figured dimensions is to be used. The contractor must check & verify all the dimensions before commencement of the work.

REVISIONS

no.	date	details	initials	sign

PROJECT:
PROPOSED COUNTY AGGREGATION INDUSTRIAL WAREHOUSES

Drawing title
Office Block

Client

Scale:		Drawing No.	
Drawn	Name	Signed	Date
S.S.A	K.Chege		
Checked			
S.S.A	K.Chege		
S.P.S.A	J.M Mariju		

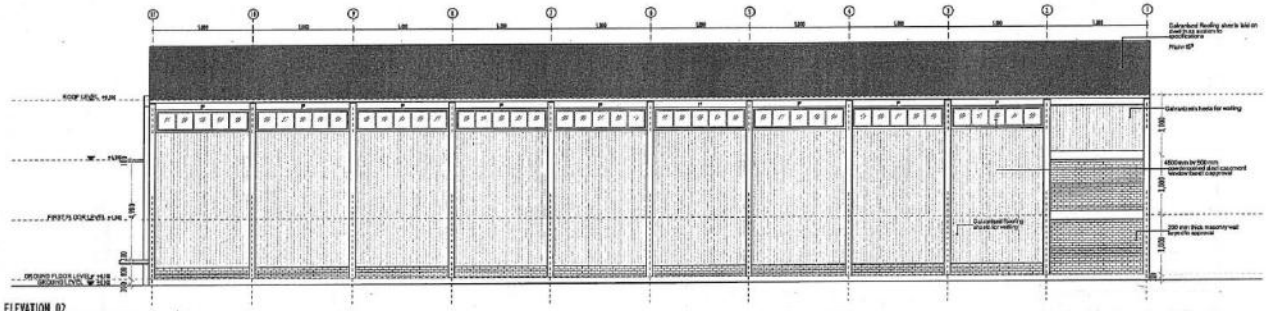
APPROVED
Arch. L.M. Macharia CHIEF ARCHITECT

MINISTRY OF LANDS, PUBLIC WORKS, HOUSING, URBAN DEVELOPMENT

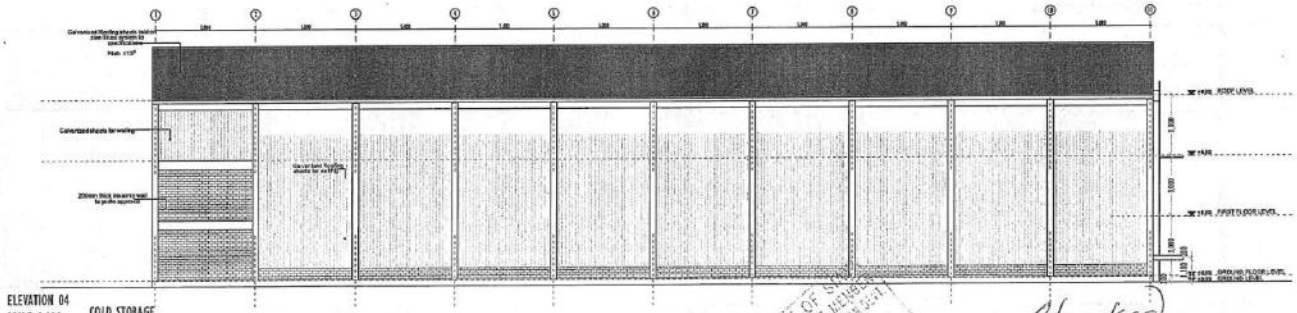
THE GOVERNMENT OF THE REPUBLIC OF KENYA

Chelfico
COUNTY GOVERNMENT OF SIAYA
P.O. Box 603 - 40600, SIAYA
DIRECTOR ROADS, PUBLIC WORKS & THE...
11/8/2023

COUNTY GOVERNMENT OF SIAYA
COUNTY EXECUTIVE COMMITTEE MEMBER
INFRASTRUCTURE, ENERGY & URBAN DEVT.
21 AUG 2023
APPROVED
P. O. Box 603 - 40600, SIAYA



ELEVATION 02
SCALE 1:100 COLD STORAGE



ELEVATION 04
SCALE 1:100 COLD STORAGE

COUNTY GOVERNMENT OF SIAYA
COUNTY EXECUTIVE COMMITTEE MEMBER
PUBLIC SERVICE, HOUSING & URBAN DEVELOPMENT
21 AUG 2023
APPROVED
P. O. BOX 603 - 40600, SIAYA

Checked
COUNTY GOVERNMENT OF SIAYA
P. O. Box 603 - 40600, SIAYA
DIRECTOR WORKS, PUBLIC WORKS & TRANSPORT
4/8/2023

NOTES

General
This drawing is to be read in conjuction with engineers' drawings.
All dimensions are in mm unless otherwise specified.
Drawings are not to be scaled. Only figured dimensions is to be used. The contractor must check & verify all the dimensions before commencement of the work.

REVISIONS

e.no	date	details	initials	sign

PROJECT:
PROPOSED COUNTY AGGREGATION INDUSTRIAL WAREHOUSES

Drawing title
Section/Elevations

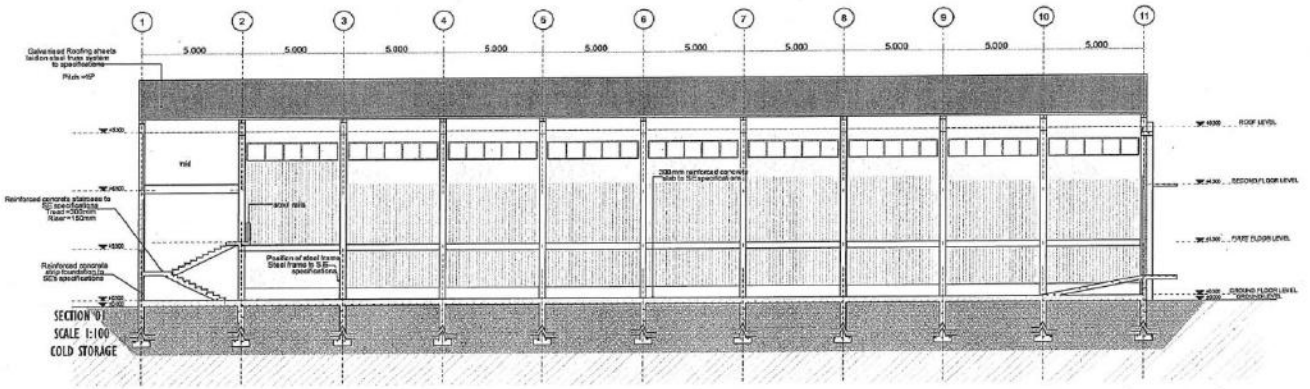
Client

Scale:		Drawing No.	
Drawn	Name	Signed	Date
S.S.A	K.Chege		
Checked			
S.S.A	K.		
S.P.S.A	I.M.Mwigu		

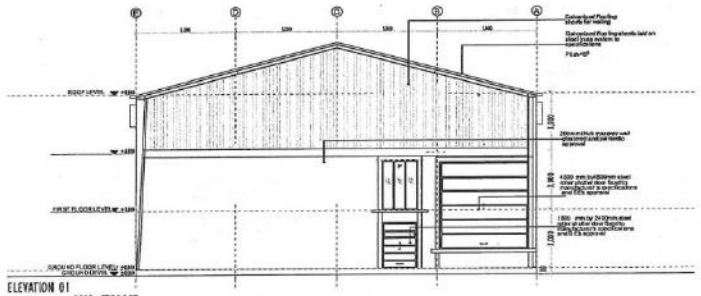
APPROVED
Arch. L.M. Mochama CHIEF ARCHITECT

MINISTRY OF LANDS, PUBLIC WORKS, HOUSING & URBAN DEVELOPMENT
DESIGN INVESTMENT FOR PUBLIC WORKS

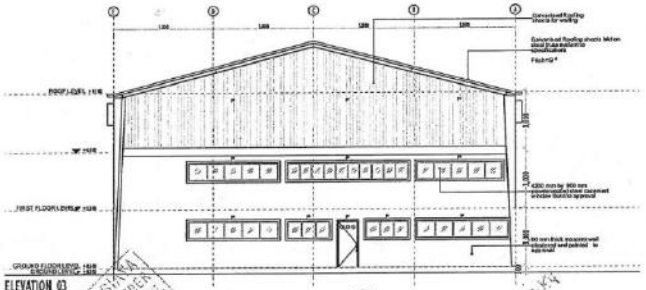
THE GOVERNMENT OF THE REPUBLIC OF KENYA



SECTION 01
SCALE 1:100
COLD STORAGE



ELEVATION 01
SCALE 1:100 COLD STORAGE



ELEVATION 03
SCALE 1:100 COLD STORAGE

NOTES

General

1.No drawing is to be read in conjuction with engineers' drawings.
All dimensions are in mm unless otherwise specified.
Drawings are not to be scaled. Only figured dimensions is to be used. The contractor must check & verify all the dimensions before commencement of the work.

REVISIONS

no.	date	details	initials	dips

PROJECT:
PROPOSED COUNTY AGGREGATION INDUSTRIAL WAREHOUSES

Drawing title
Section/Elevations

Client

Scale :		Drawing No.	
Drawn	Name	Signed	Date
S.S.A	K.Chege		
Checked			
S.S.A	K.Chege		
S.P.S.A	J.M Wafiju		

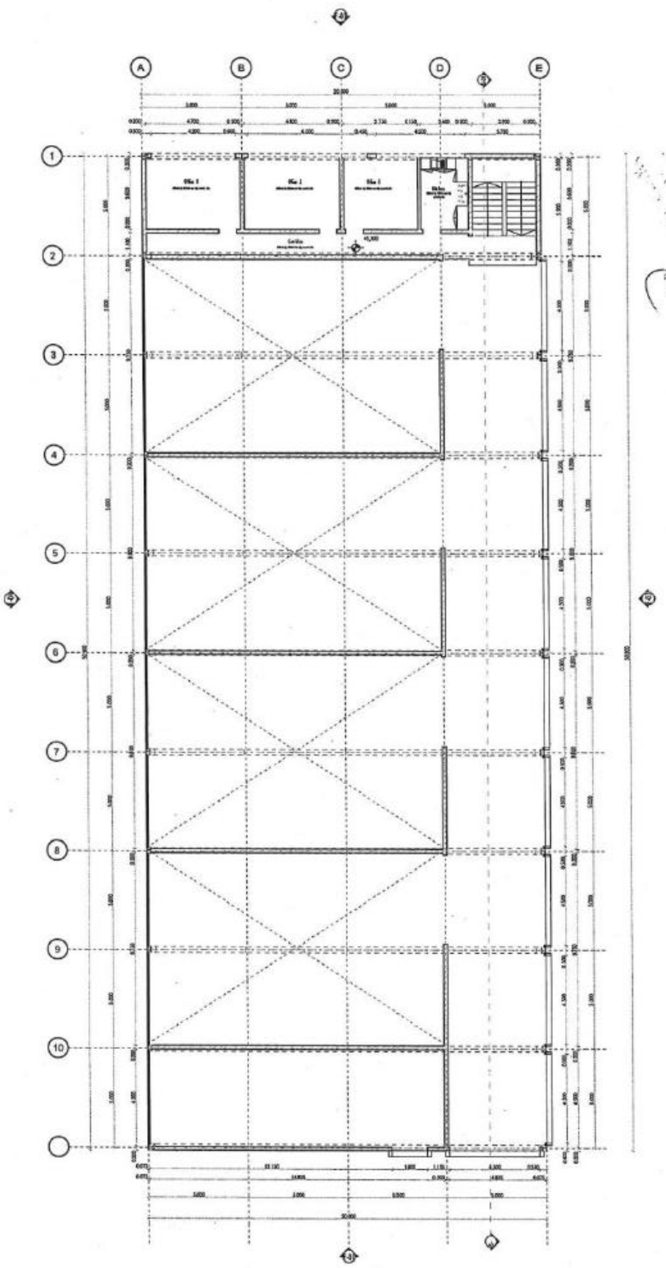
APPROVED
Arch. L.M. Mochama CHIEF ARCHITECT

MINISTRY OF LANDS, PUBLIC WORKS, HOUSING & URBAN DEVELOPMENT
DEPARTMENT OF PUBLIC WORKS

THE GOVERNMENT OF THE REPUBLIC OF KENYA

COUNTY GOVERNMENT OF SIAYA
COUNTY EXECUTIVE COMMITTEE MEMBER
LANDS, PHYSICAL PLANNING, HOUSING & URBAN DEVELOPMENT
21 MAR 2023
APPROVED
P. O. BOX 603 - 40601, SIAYA

Cheeron
COUNTY GOVERNMENT OF SIAYA
P. O. Box 603 - 40601, SIAYA
DIRECTOR ROADS, PUBLIC WORKS & HOUSING
Date: 14/8/2023



Checked
COUNTY GOVERNMENT OF SIAYA
P.O. Box 803 - 40600, SIAYA
DIRECTOR ROADS, PUBLIC WORKS & ...
11/8/2023

COUNTY GOVERNMENT OF SIAYA
COUNTY EXECUTIVE COMMITTEE MEMBER
LANDS, PHYSICAL PLANNING, HOUSING & URBAN DEVT.
21 AUG 2023
APPROVED
P.O. Box 803 - 40600, SIAYA

NOTES

General
This drawing is to be read in conjuction with engineers' drawings.
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REVISIONS

s.no	date	details	initials	sign

PROJECT:
PROPOSED CIAP AGGREGATION WAREHOUSES

Drawing title
Cold Storage - Second Floor

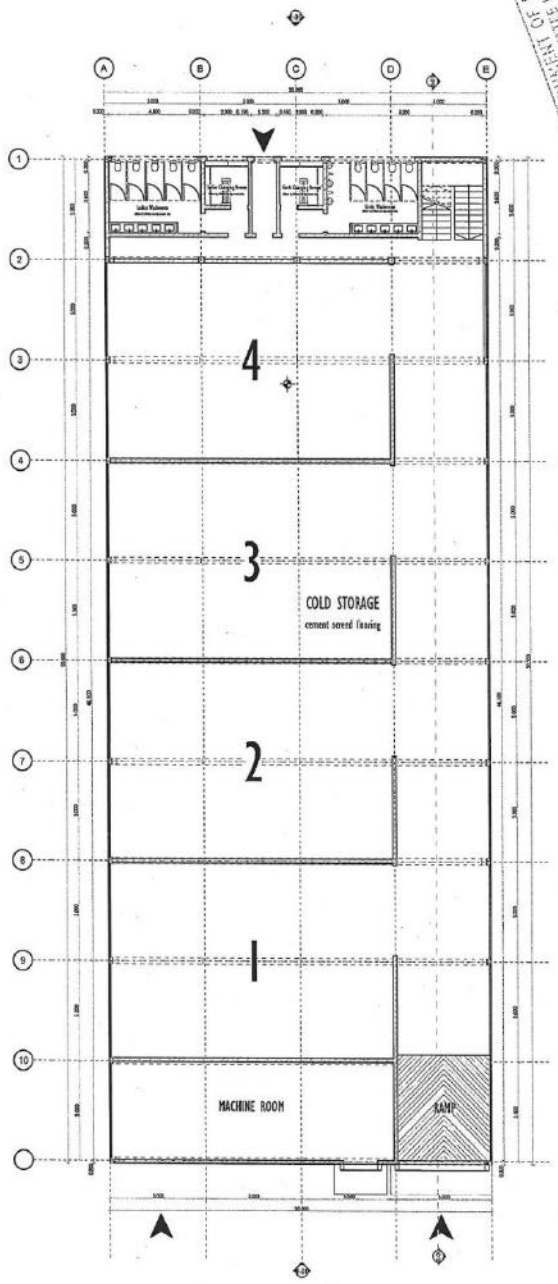
Client

Scale :		Drawing No.	
Drawn	Name	Signed	Date
S.S.A	K.Chege		
Checked			
S.S.A	K.Chege		
S.P.S.A	J.M Modgu		

APPROVED
Arch. L.M. Mochama CHIEF ARCHITECT

MINISTRY OF LANDS, PUBLIC WORKS, HOUSING & URBAN DEVELOPMENT
STATE DEPARTMENT FOR PUBLIC WORKS

THE GOVERNMENT OF THE REPUBLIC OF KENYA



APPROVED
2 1 JUNE 2023
COUNTY EXECUTIVE COMMITTEE MEMBER
GOVERNMENT OF SIAYA

NOTES

General
This drawing is to be read in conjuction with engineers' drawings.
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REVISIONS

no	date	details	initials	sign

PROJECT:
PROPOSED CIAP AGGREGATION WAREHOUSES

Drawing title
Cold Storage - Ground Floor

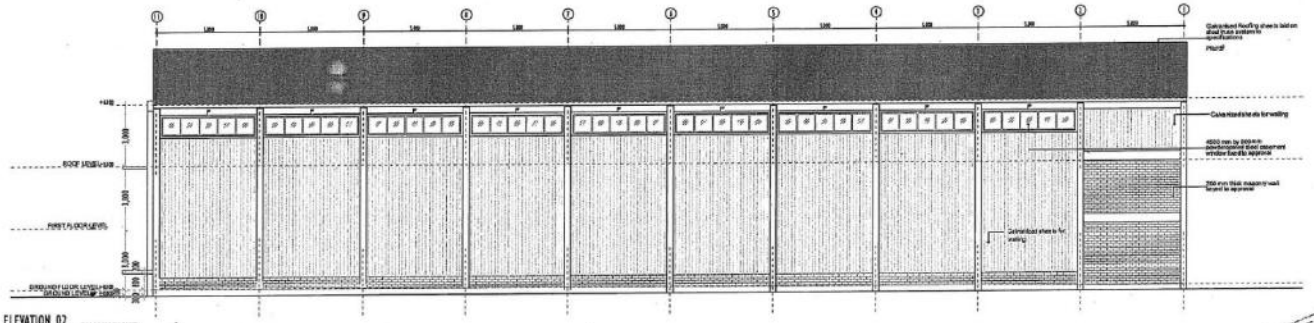
Client

Scale:			Drawing No.	
Drawn	Name		Signed	Date
S.S.A	K.Chege			
Checked				
S.S.A	K.Chege			
S.P.S.A	M.Mutiga			

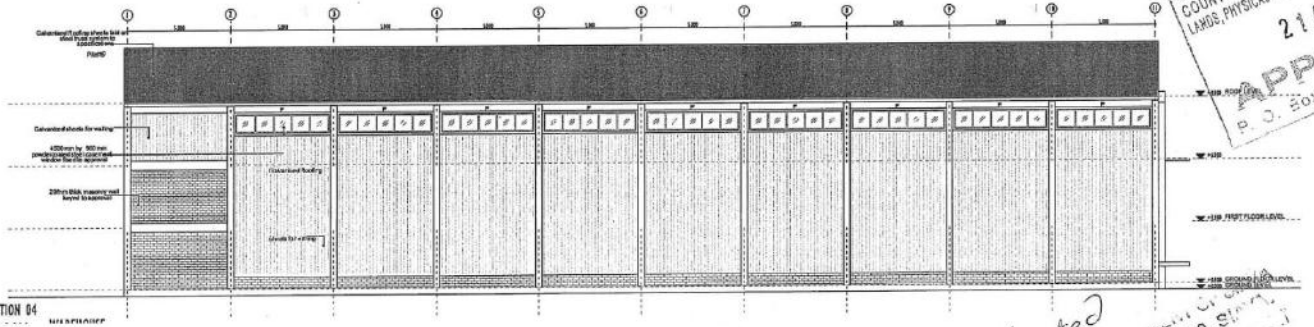
APPROVED
Arch. L.M. Mocharna — CHIEF ARCHITECT

MINISTRY OF LANDS, PUBLIC WORKS, HOUSING & URBAN DEVELOPMENT
STATE DEPARTMENT FOR PUBLIC WORKS

THE GOVERNMENT OF THE REPUBLIC OF KENYA



ELEVATION 02
SCALE 1:100 WAREHOUSE



ELEVATION 04

COUNTY GOVERNMENT OF SIAYA
COUNTY EXECUTIVE COMMITTEE MEMBER
LANDS, PHYSICAL PLANNING, HOUSING & URBAN DEV.
21 AUG 2023
APPROVED
P. O. Box 803 - 40600, SIAYA

Checked
COUNTY GOVERNMENT OF SIAYA
P. O. Box 803 - 40600, SIAYA
DIRECTOR ROADS, PUBLIC WORKS & TRANSPORT
Date: 14/8/2023

NOTES

General
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REVISIONS

no.	date	details	initials	sign

PROJECT:
PROPOSED COUNTY AGGREGATION INDUSTRIAL WAREHOUSES

Drawing title
Section/Elevations

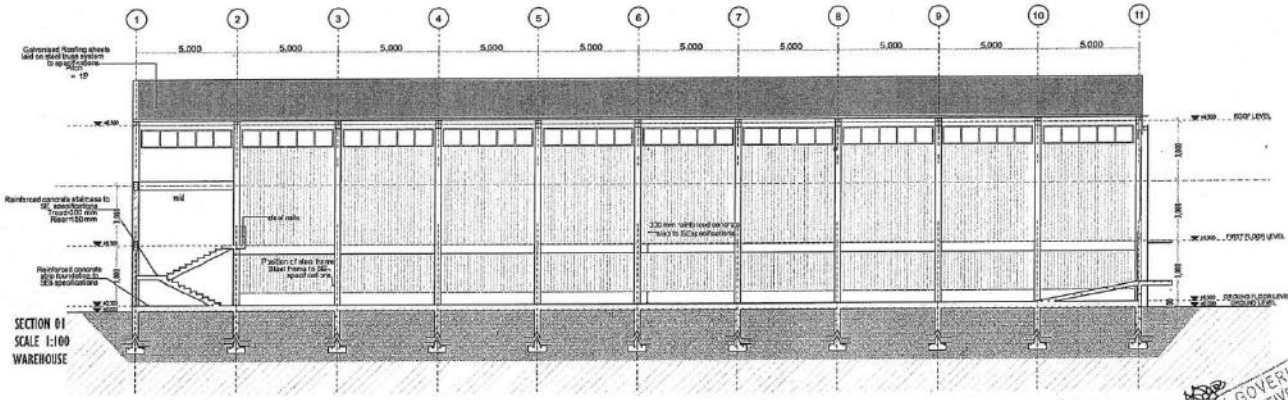
Client

Scale :		Drawing No.	
Drawn	Name	Signed	Date
S.S.A	K.Chege		
Checked			
S.S.A	K.Chege		
S.P.S.A	J.M.Murigu		

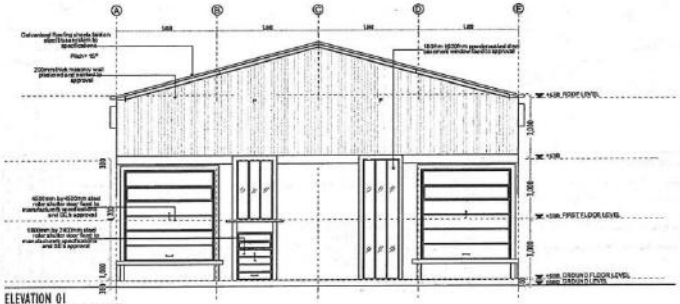
APPROVED
Arch. L.M. Mocheme CHIEF ARCHITECT

MINISTRY OF LANDS, PUBLIC WORKS, HOUSING & URBAN DEVELOPMENT
STATE DEPARTMENT FOR PUBLIC WORKS

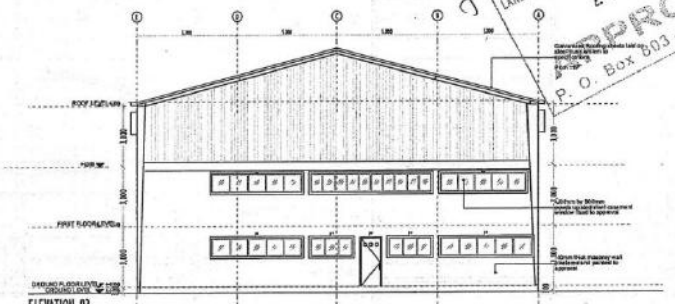
THE GOVERNMENT OF THE REPUBLIC OF KENYA



SECTION 01
SCALE 1:100
WAREHOUSE



ELEVATION 01
SCALE 1:100 WAREHOUSE



ELEVATION 03
SCALE 1:100 WAREHOUSE

COUNTY GOVERNMENT OF SIAYA
COUNTY EXECUTIVE COMMITTEE MEMBER
LANDS, PHYSICAL PLANNING, HOUSING & URBAN DEV.
21 AUG 2023
APPROVED
P. O. Box 803 - 40600 SIAYA

COUNTY GOVERNMENT OF SIAYA
P. O. Box 803 - 40600 SIAYA
DIRECTOR WORKS, PUBLIC HOUSING & PHYSICAL PLANNING
Date 14/8/2023

NOTES

General
This drawing is to be read in conjuction with engineers' drawings.
All dimensions are in mm unless otherwise specified.
Drawings are not to be scaled. Only figured dimensions to to be used. The contractor must check & verify all the dimensions before commencement of the work.

REVISIONS

no.	date	details	initials	dgn.

PROJECT:
PROPOSED COUNTY AGGREGATION INDUSTRIAL WAREHOUSES

Drawing title
Section/Elevations

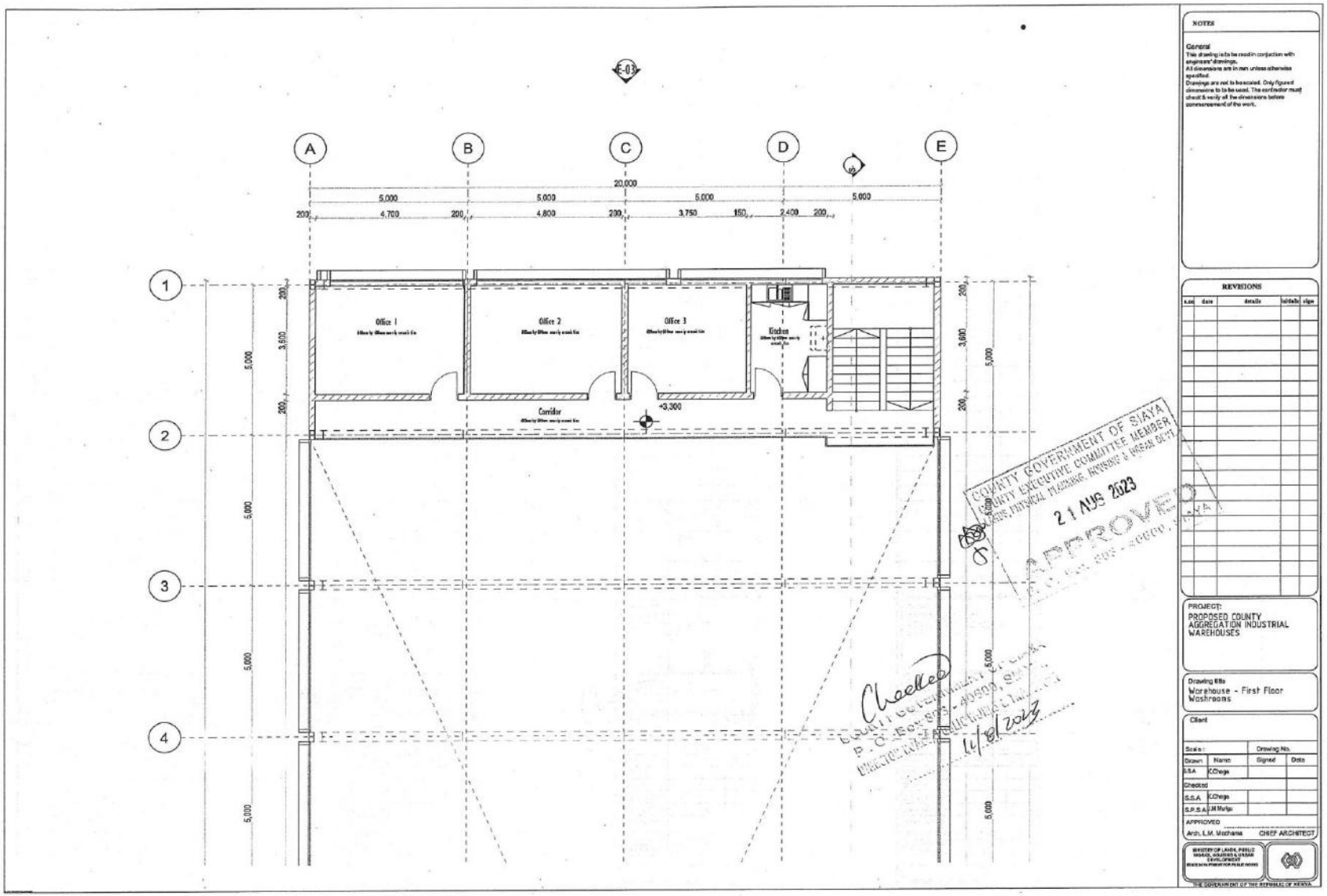
Client

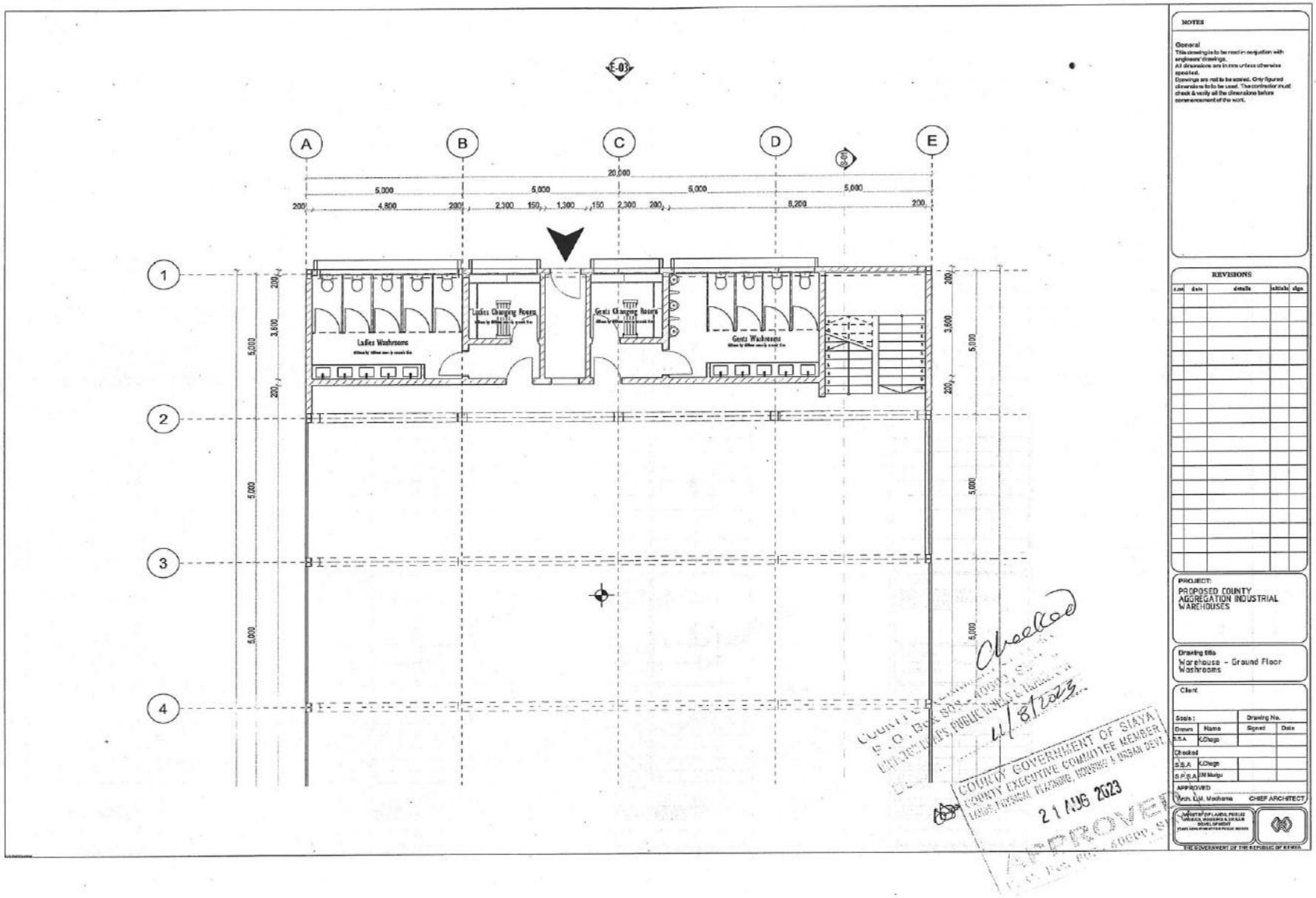
Scale :		Drawing No.	
Drawn	Name	Signed	Date
S.S.A	K.Otego		
Checked			
S.S.A	K.Otego		
S.P.S.A	J.M Mulga		

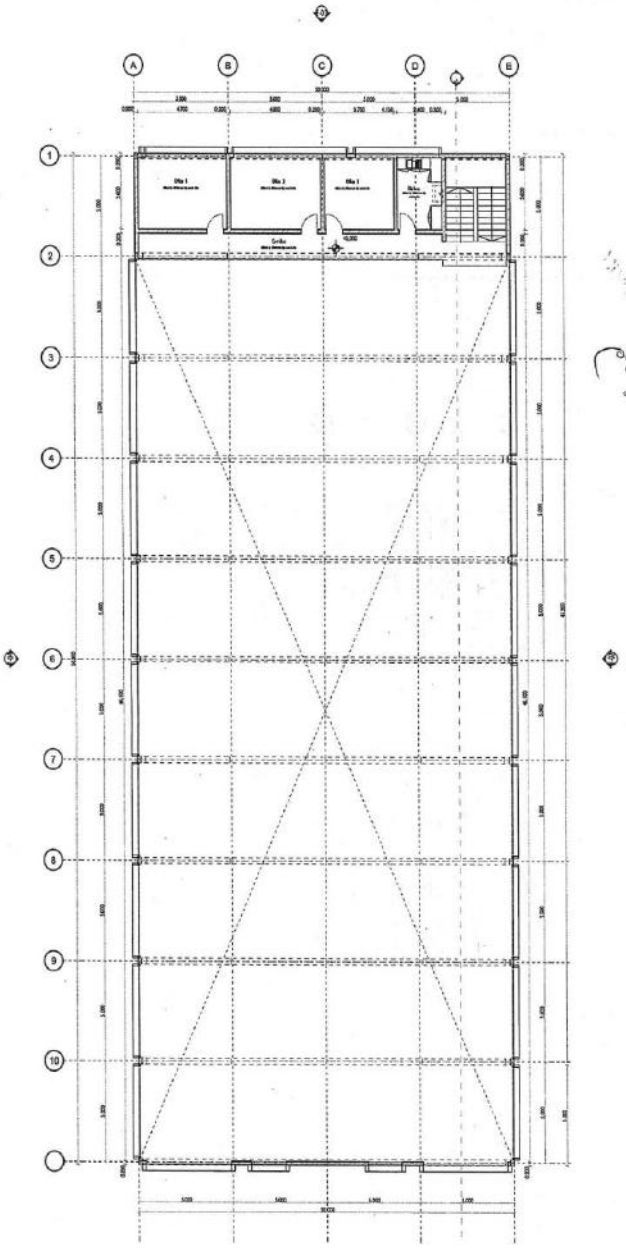
APPROVED
Arch. L.M. Mocharia CHIEF ARCHITECT

MINISTRY OF LAND, PUBLIC WORKS, HOUSING & URBAN DEVELOPMENT
STATE DEPARTMENT FOR PUBLIC WORKS

THE GOVERNMENT OF THE PEOPLE FOR THE PEOPLE


NOTES
General
This drawing is to be read in conjuction with engineers' drawings.
All dimensions are in mm unless otherwise specified.
Drawings are not to be scaled. Only figured dimensions is to be used. The contractor must check & verify all the dimensions before commencement of the work.
REVISIONS
no. date details initials sign
A
B
C
D
E
1
2
3
4
20,000
5,000
4,700
4,800
3,750
2,400
Office 1
Office 2
Office 3
Kitchen
Corridor
+3,300
COUNTY GOVERNMENT OF SIAYA
COUNTY EXECUTIVE COMMITTEE MEMBER
21 Aug 2023
APPROVED
PROJECT:
PROPOSED COUNTY AGGREGATION INDUSTRIAL WAREHOUSES
Drawing title
Warehouse - First Floor Washrooms
Client
Scale:
Drawing No.
Drawn
Name
Signed
Date
Checked
APPROVED
Arch. L.M. Wachana
CHIEF ARCHITECT


A
B
C
D
E
1
2
3
4
20,000
5,000
5,000
5,000
5,000
200
4,800
200
2,300
150
1,300
150
2,300
200
8,200
200
Ladies Washrooms
Ladies Changing Room
Gents Changing Room
Gents Washrooms
3,600
5,000
NOTES
General
This drawing is to be read in conjuction with engineers' drawings.
All dimensions are in mm unless otherwise specified.
Drawings are not to be scaled. Only figured dimensions to to be used. The contractor must check & verify all the dimensions before commencement of the work.
REVISIONS
PROJECT:
PROPOSED COUNTY AGGREGATION INDUSTRIAL WAREHOUSES
Drawing title
Warehouse - Ground Floor Washrooms
Client
Scale :
Drawing No.
Drawn
Name
Signed
Date
S.S.A
K.Chege
Checked
S.S.A
K.Chege
S.P.S.A
J.M Mutiyi
APPROVED
Arch. L.M. Machoka
CHIEF ARCHITECT
THE GOVERNMENT OF THE REPUBLIC OF KENYA
COUNTY GOVERNMENT OF SIAYA
COUNTY EXECUTIVE COMMITTEE MEMBER
LANDS, HOUSING, PHYSICAL PLANNING, PUBLIC WORKS & URBAN DEVT.
21/08/2023
APPROVED



NOTES

General
This drawing is to be read in conjunction with engineers' drawings.
All dimensions are in millimeters otherwise specified.
Drawings are not to be scaled. Only figured dimensions to to be used. The contractor must check & verify all the dimensions before commencement of the work.

REVISIONS

s.no	date	details	initials	sign

PROJECT:
PROPOSED CIAP AGGREGATION WAREHOUSES

Drawing title
Warehouse - First Floor

Client

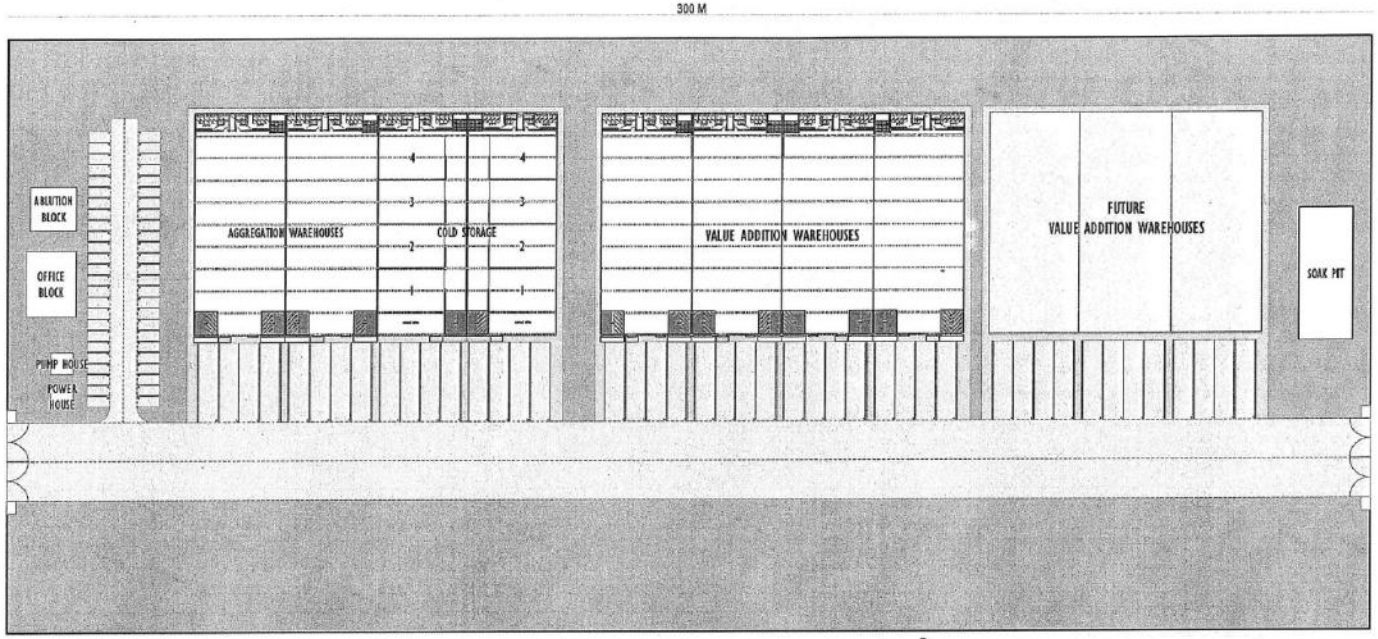
Scale:		Drawing No.	
Drawn	Name	Signed	Date
S.S.A	K.Chege		
Checked			
S.S.A	K.Chege		
S.P.S.A	J.M Mutiga		
APPROVED			
Arch. L.M. Mochama		CHIEF ARCHITECT	

MINISTRY OF LABOUR, PUBLIC WORKS, HOUSING & URBAN DEVELOPMENT
STATE DEPARTMENT FOR PUBLIC WORKS

THE GOVERNMENT OF THE REPUBLIC OF KENYA

COUNTY GOVERNMENT OF SIAYA
COUNTY EXECUTIVE COMMITTEE MEMBER
LANDS, PHYSICAL PLANNING, HOUSING & URBAN DEVELOPMENT
P. O. Box 893 - 40600, SIAYA
APPROVED
21 AUG 2023

WAREHOUSE
cement screed flooring
RAMP
RAMP
COUNTY GOVERNMENT OF SIAYA
COUNTY EXECUTIVE COMMITTEE MEMBER
LANDS, PHYSICAL PLANNING, HOUSING & URBAN DEVT.
APPROVED
21 AUG 2023
P.O. Box 803 - 40600, SIAYA
Checked
P.O. Box 803 - 40600, SIAYA
11/8/2023
NOTES
REVISIONS
PROJECT:
PROPOSED GAP AGGREGATION WAREHOUSES
Drawing title
Warehouse - Ground floor
Client
Scale
Drawn
Checked
Drawing No.
Date
APPROVED
CHIEF ARCHITECT



041/23H/245

COUNTY GOVERNMENT OF SIAYA
COUNTY EXECUTIVE COMMITTEE MEMBER
LANDS, PHYSICAL PLANNING, HOUSING & URBAN DEVT.
21 AUG 2023
APPROVED
P. O. Box 803 - 40600, SIAYA

Checked
COUNTY GOVERNMENT OF SIAYA
P. O. Box 803 - 40600, SIAYA
DIRECTOR ROADS, PUBLIC WORKS & TRANSPORT
11/8/2023

NOTES

General
This drawing is to be read in conjuction with engineers' drawings.
All dimensions are in mm unless otherwise specified.
Drawings are not to be scaled. Only figured dimensions to to be used. The contractor must check & verify all the dimensions before commencement of the work.

REVISIONS

no.	date	details	initials	sign

PROJECT:
PROPOSED COUNTY AGGREGATION INDUSTRIAL WAREHOUSES

Drawing title
Revised Site Layout 02

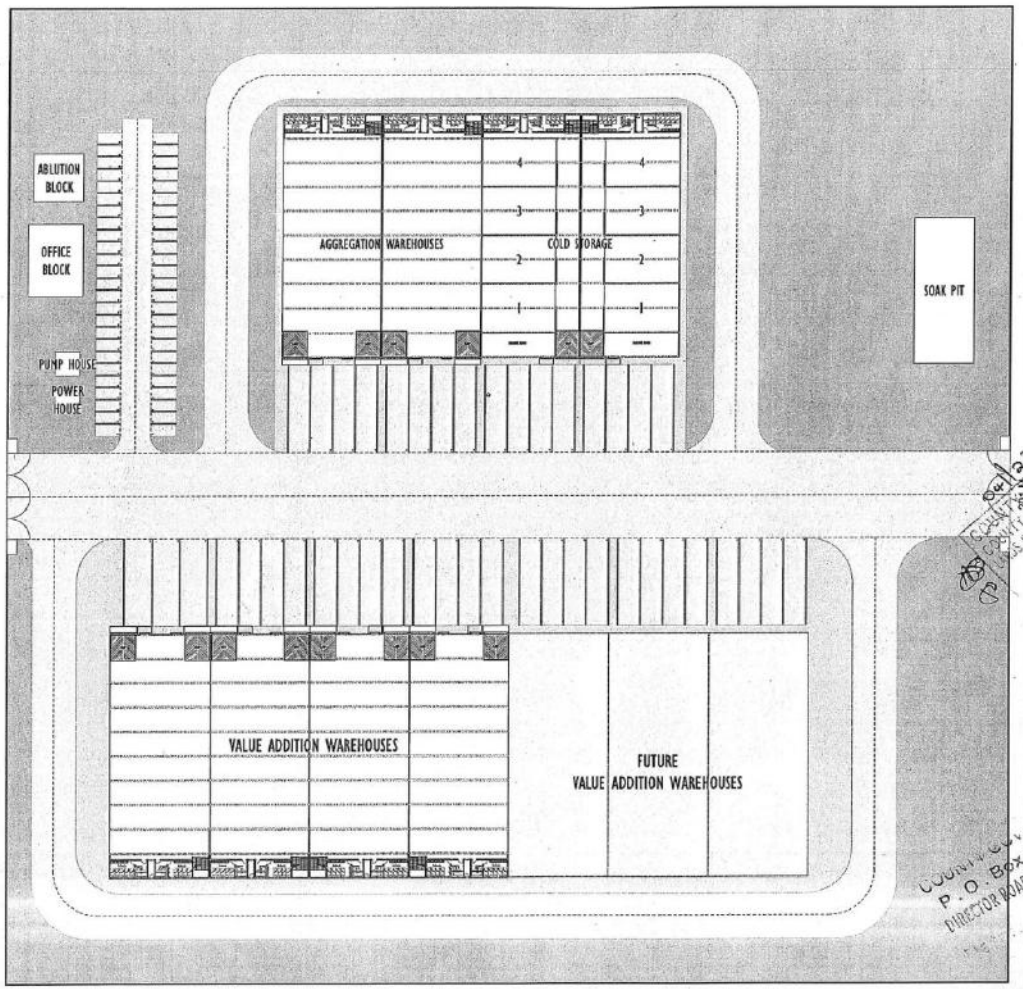
Client

Scale :		Drawing No.	
Drawn	Name	Signed	Date
S.S.A	K.Chege		
Checked			
S.S.A	K.Chege		
S.P.S.A	J.M Munja		

APPROVED
Arch. L.N. Mochama CHIEF ARCHITECT

MINISTRY OF LANDS, PUBLIC WORKS, HOUSING & URBAN DEVELOPMENT
STATE DEPARTMENT FOR PUBLIC WORKS

THE GOVERNMENT OF THE REPUBLIC OF KENYA



COUNTY GOVERNMENT OF SIAYA
COUNTY EXECUTIVE COMMITTEE MEMBER
LAND, HOUSING, PHYSICAL PLANNING & URBAN DEVT.
21 AUG 2023
APPROVED
P. O. Box 803 - 40600, SIAYA

COUNTY GOVERNMENT OF SIAYA
P. O. Box 803 - 40600, SIAYA
DIRECTOR ROADS, PUBLIC WORKS & TRANSPORT
14/8/2023

NOTES

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REVISIONS

no.	date	details	initials	sign

PROJECT:
PROPOSED COUNTY AGGREGATION INDUSTRIAL WAREHOUSES

Drawing title
Revised Site Layout 01

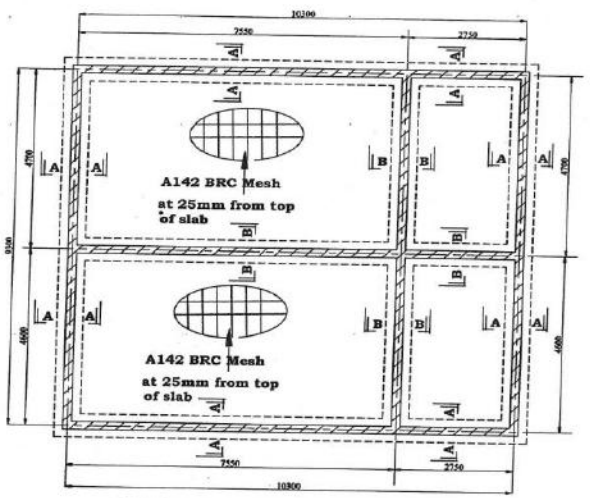
Client

Scale :		Drawing No.	
Drawn	Name	Signed	Date
S.S.A	K.Diega		
Checked			
S.S.A	K.Diega		
S.P.S.A	M Mungu		

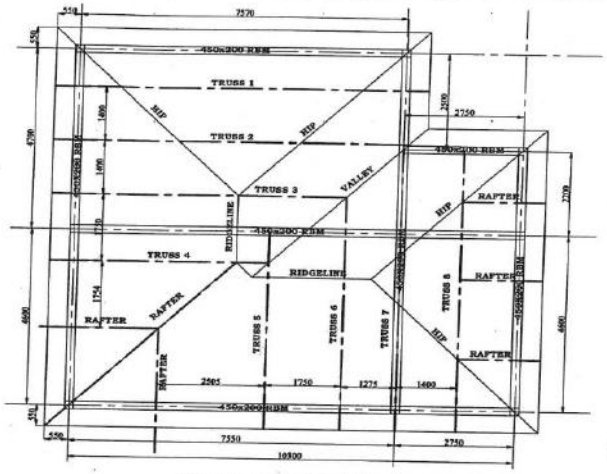
APPROVED
Arch. L.M. Mochama CHIEF ARCHITECT

MINISTRY OF LANDS, PUBLIC WORKS, HOUSING & URBAN DEVELOPMENT
STATE DEPARTMENT FOR PUBLIC WORKS

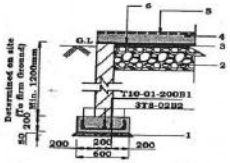
THE GOVERNMENT OF THE REPUBLIC OF KENYA



ABLUTION BLOCK FOUNDATION LAYOUT (SCALE 1:50) - 1 No.



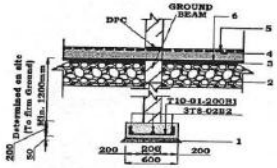
ROOF LAYOUT SCALE 1:50



SECTION A--A (1:25)
EXTERNAL STRIP

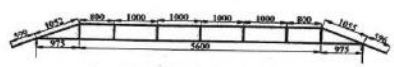
KEY TO FOUNDATION SECTION DETAILS

1. -Blinding concrete (1:4:8)
2. - 300mm Well Compacted Approved Hardcore (Compacted in layers of 150mm)
3. - 50mm Murram Blinding
4. - 150mm Thick Slab
5. - A142 BRC Mesh
6. - 500mm Gauge Damp Proof Membrane (DPM)

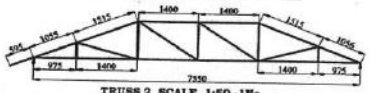


SECTION B--B (1:25)
INTERNAL STRIP

Checked
COUNTY GOVERNMENT OF SIAYA
P. O. Box 803 - 40600, SIAYA
DIRECTOR ROADS, PUBLIC WORKS & TRANSPORT
Date: 11/8/2023



TRUSS 1 SCALE 1:50 -1No.
ALL MEMBERS:-100x50mm Timber.



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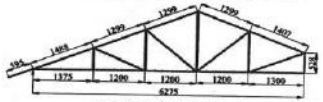

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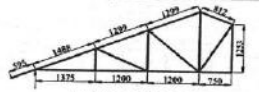

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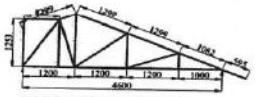
ALL MEMBERS:-100x50mm Timber.



TRUSS 5 SCALE 1:50 -1No.
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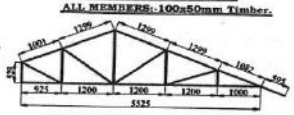
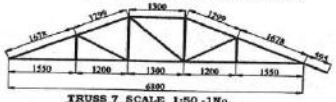
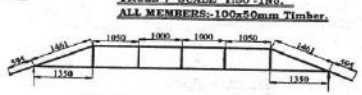


TRUSS 6 SCALE 1:50 -1No.
ALL MEMBERS:-100x50mm Timber.



TRUSS 7 SCALE 1:50 -1No.
ALL MEMBERS:-100x50mm Timber.



TRUSS 8 SCALE 1:50 -1No.
ALL MEMBERS:-100x50mm Timber.

NOTES

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4. Structural Concrete to be class 20/20 Concrete cover to reinforcement including links;
   - Foundations = 50mm
   - Columns = 40mm
   - Beams = 25mm
   - Slabs = 20mm
5. Reinforcement steel to be; Y-square twisted high yield bars to BS 4461. R-round mild bars to BS 4449.
6. Foundation depth to be determined on site but to be a minimum of 1200mm and MUST be to safe ground bearing pressure of 150KN/M^2 minimum.
7. Blinding Concrete to be 1:4:8 mix.
8. All Reinforcement steel must be approved by the Structural Engineer before casting.
9. All excavations to be inspected and approved by the Structural Engineer.

COUNTY GOVERNMENT OF SIAYA
COUNTY EXECUTIVE COMMITTEE MEMBER
LANDS, PHYSICAL PLANNING, HOUSING & URBAN DEVT.
21 AUG 2023
APPROVED
P. O. Box 803 - 40600, SIAYA

DATE	APPLICATION
2-10	

REVISIONS					
No.	DATE	BY	DESCRIPTIONS	CHP. LDR.	C.S. ENG.

REFERENCE DRAWINGS

No.	DESCRIPTIONS

CLIENT: MINISTRY OF INVESTMENTS, TRADE AND INDUSTRY — JOB No.

PROJECT TITLE: PROPOSED COUNTY AGGREGATION AND INDUSTRIAL PARKS

DRAWING TITLE: ABLUTION BLOCK STRUCTURAL DETAILS

FOR THE GOVERNMENT OF THE REPUBLIC OF KENYA

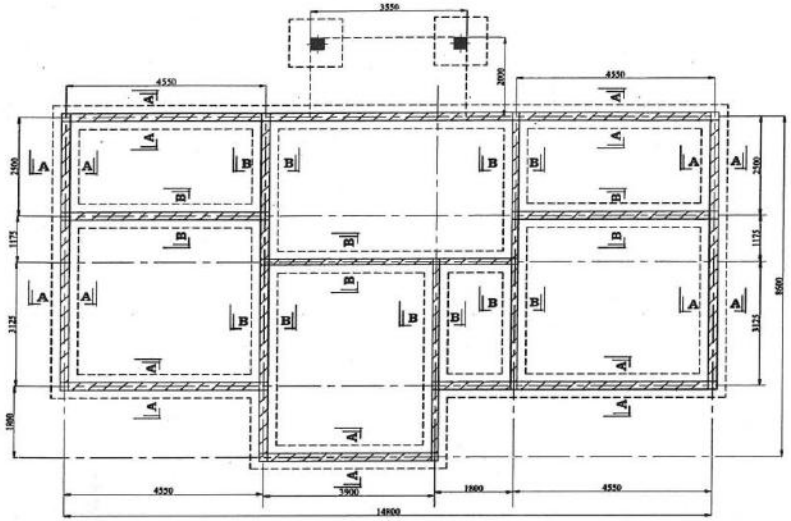
C1/5b		
M.O.P.W.	DRG No. / FILE No.	STR.01
SCALE(S): 1:20 & 1:50.		FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING

APPROVED BY

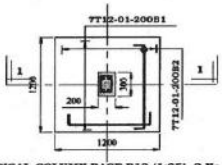
THE CHIEF ENGINEER (STRUCTURAL), M.O.P.W.

	NAME	SIGNATURE	DATE
DESIGN/DRAWN	J.M		

STATE DEPARTMENT OF PUBLIC WORKS
STRUCTURAL DEPARTMENT

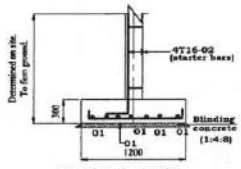


OFFICE BLOCK FOUNDATION LAYOUT (SCALE 1:50) - 1 No.

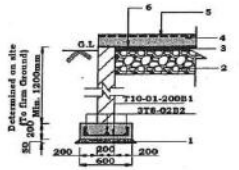


TYPICAL COLUMN BASE B12 (1:25)- 2 No.
1200x1200x300 mm deep base

RING BEAM DETAIL



SECTION 1--1 (1:25).



SECTION A--A (1:25)
EXTERNAL STRIP

KEY TO FOUNDATION SECTION DETAILS

1. -Blinding concrete (1:4:8)
2. - 300mm Well Compacted Approved Hardcore (Compacted to layers of 150mm)
3. - 50mm Murram Blinding
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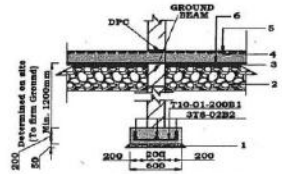
5. - A142 BRC Mesh
6. - 500mm Gauge Damp Proof Membrane (DPM)



SECTION B--B (1:25)
INTERNAL STRIP

NOTES

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COUNTY GOVERNMENT OF SIAYA
COUNTY EXECUTIVE COMMITTEE MEMBER
LANDS, PHYSICAL PLANNING, HOUSING & URBAN DEVT.
21 AUG 2023
APPROVED
P. O. Box 803 - 40600, SIAYA
Checked
COUNTY GOVERNMENT OF SIAYA
P. O. Box 803 - 40600, SIAYA
DIRECTOR ROADS, PUBLIC WORKS & TRANSPORT
Date: 4/8/2023

ISSUES

DATE	TO	APPLICATION	

REVISIONS

	DATE	BY	DESCRIPTIONS	CHK. LDR.	C.S. ENG.

REFERENCE DRAWINGS

No.	DESCRIPTIONS

CLIENT
MINISTRY OF INVESTMENTS, TRADE AND INDUSTRY

JOB No.

PROJECT TITLE
PROPOSED COUNTY AGGREGATION AND INDUSTRIAL PARKS

DRAWING TITLE
OFFICE BLOCK STRUCTURAL DETAILS

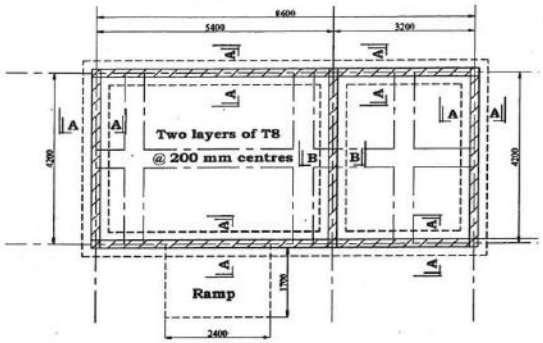
FOR THE GOVERNMENT OF THE REPUBLIC OF KENYA

C1/Sfb		
M.O.P.W.	DRG No. / FILE No.	STR 01
SCALE(S) 1:25 & 1:50.		FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING

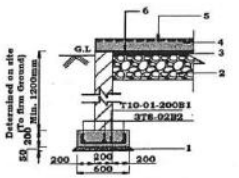
APPROVED BY
THE CHIEF ENGINEER (STRUCTURAL), M.O.P.W.

	NAME	SIGNATURE	DATE
DESIGN/DRAWN	J.M		

STATE DEPARTMENT OF PUBLIC WORKS
STRUCTURAL DEPARTMENT



POWER HOUSE FOUNDATION LAYOUT (SCALE 1:50) - 1 No.



SECTION A–A (1:25)
EXTERNAL STRIP

KEY TO FOUNDATION SECTION DETAILS

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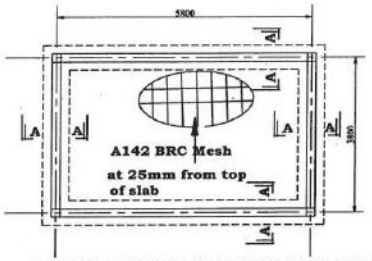
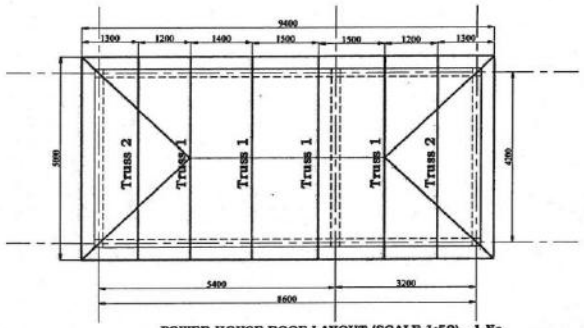
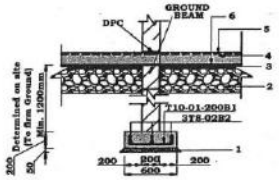


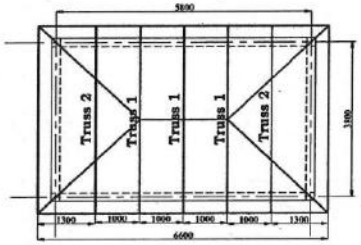
PUMP HOUSE FOUNDATION LAYOUT (SCALE 1:50) - 1 No.



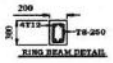
POWER HOUSE ROOF LAYOUT (SCALE 1:50) - 1 No.

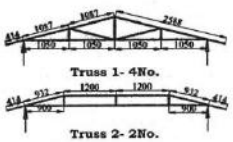


SECTION B–B (1:25)
INTERNAL STRIP



PUMP HOUSE ROOF LAYOUT (SCALE 1:50) - 1 No.

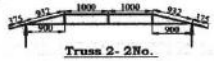




Truss 1- 4No.

Truss 2- 2No.

Truss 1- 4No.



Truss 2- 2No.

COUNTY GOVERNMENT OF SIAYA
COUNTY EXECUTIVE COMMITTEE MEMBER
LANDS, PHYSICAL PLANNING, HOUSING & URBAN DEVT.
21 AUG 2023
APPROVED
P. O. Box 803 - 40600, SIAYA

Checked

COUNTY GOVERNMENT OF SIAYA
P. O. Box 803 - 40600, SIAYA.
DIRECTOR ROADS, PUBLIC WORKS & TRANSPORT

Date: 21/8/2023

NOTES

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3. Figured dimensions only to be taken and all dimensions are in millimetres unless stated otherwise.
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   Concrete cover to reinforcement including links;
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ISSUES

DATE	TO	APPLICATION

REVISIONS

	DATE	BY	DESCRIPTIONS	GRP. LDR.	C.S. ENG.

REFERENCE DRAWINGS

No.	DESCRIPTIONS

CLIENT
MINISTRY OF INVESTMENTS, TRADE AND INDUSTRY

JOB No.

PROJECT TITLE
PROPOSED COUNTY AGGREGATION AND INDUSTRIAL PARKS

DRAWING TITLE
POWER HOUSE AND PUMP HOUSE STRUCTURAL DETAILS

FOR THE GOVERNMENT OF THE REPUBLIC OF KENYA

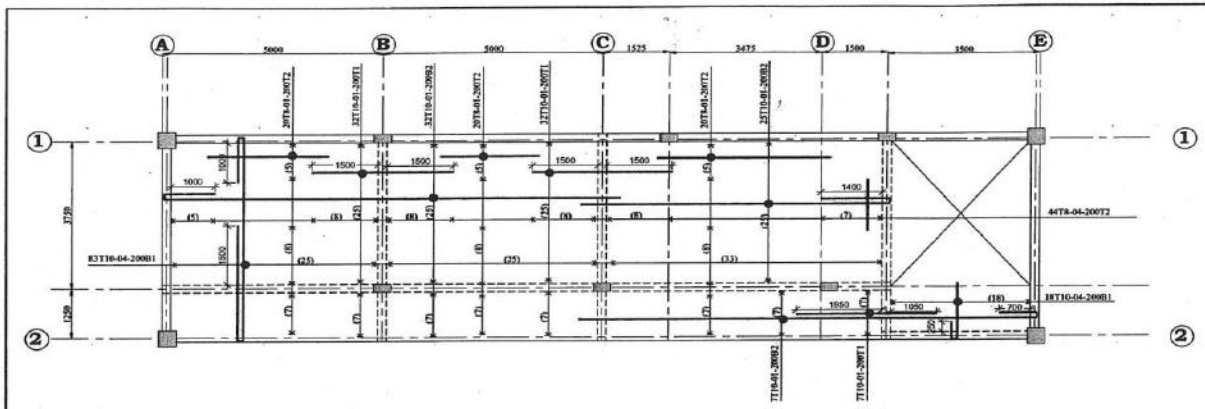
C1/Sfb		
M.O.P.W.	DRG No. / FILE No.	STR 01
SCALE(S) 1:25 & 1:50.		FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING

APPROVED BY

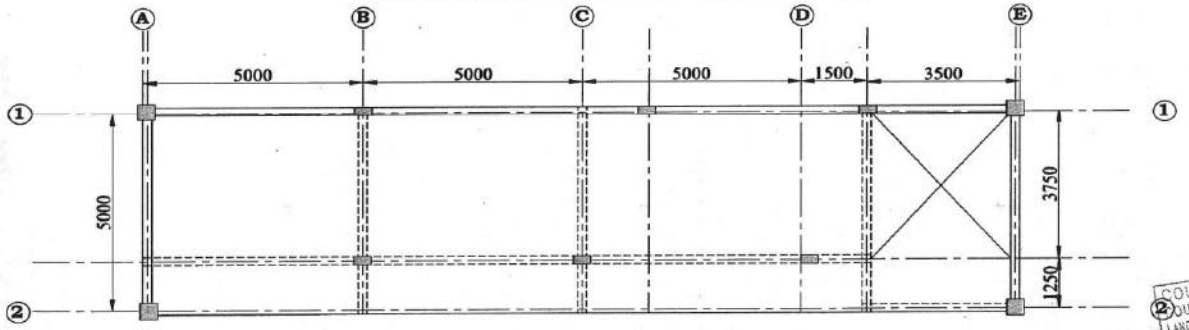
THE CHIEF ENGINEER (STRUCTURAL), M.O.P.W.

	NAME	SIGNATURE	DATE
DESIGN/DRAWN	J.M		

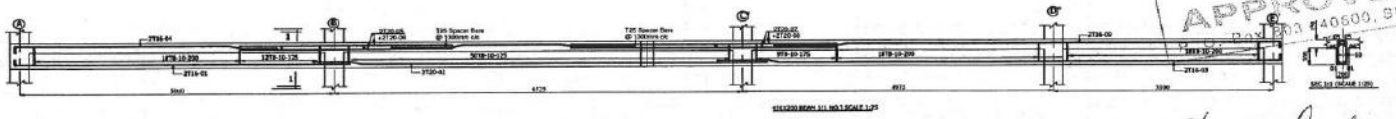
STATE DEPARTMENT OF PUBLIC WORKS
STRUCTURAL DEPARTMENT

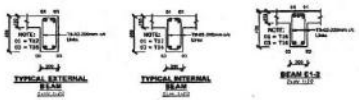


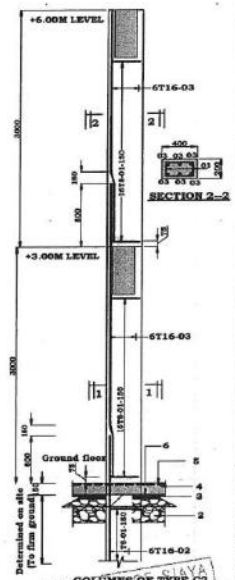
SLAB REINFORCEMENT DETAILS (SCALE 1:50)



BEAM GENERAL ARRANGEMENT (SCALE 1:50)







COUNTY GOVERNMENT OF SIAYA
COUNTY EXECUTIVE COMMITTEE MEMBER
LANDS, PHYSICAL PLANNING, HOUSING & URBAN DEVT.
21 AUG 2023
APPROVED
P.O. Box 803 - 40600, SIAYA

COUNTY GOVERNMENT OF SIAYA
P. O. Box 803 - 40600, SIAYA
DIRECTOR ROADS, PUBLIC WORKS & TRANSPORT
Date: 11/8/2023

NOTES

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3. Figured dimensions only to be taken and all dimensions are in millimetres unless stated otherwise.
4. Structural Concrete to be class 20/20 Concrete cover to reinforcement including links;
   Foundations = 50mm
   Columns = 40mm
   Beams = 25mm
   Slabs = 20mm
5. Reinforcement steel to be;
   Y-square twisted high yield bars to BS 4461.
   R-round mild bars to BS 4449.
6. Foundation depth to be determined on site but to be a minimum of 1200mm and MUST be to safe ground bearing pressure of 150KN/M^2 minimum.
7. Blinding Concrete to be 1:4:8 mix.
8. All Reinforcement steel must be approved by the Structural Engineer before casting.
9. All excavations to be inspected and approved by the Structural Engineer .

ISSUES

DATE	TO	APPLICATION

REVISIONS

	DATE	BY	DESCRIPTIONS	CHK. LDR.	C.S. ENG.

REFERENCE DRAWINGS

NO.	DESCRIPTIONS

CLIENT: MINISTRY OF INVESTMENTS, TRADE AND INDUSTRY — JOB No.

PROJECT TITLE: PROPOSED COUNTY AGGREGATION AND INDUSTRIAL PARKS

DRAWING TITLE: WAREHOUSE STRUCTURAL DETAILS

FOR THE GOVERNMENT OF THE REPUBLIC OF KENYA

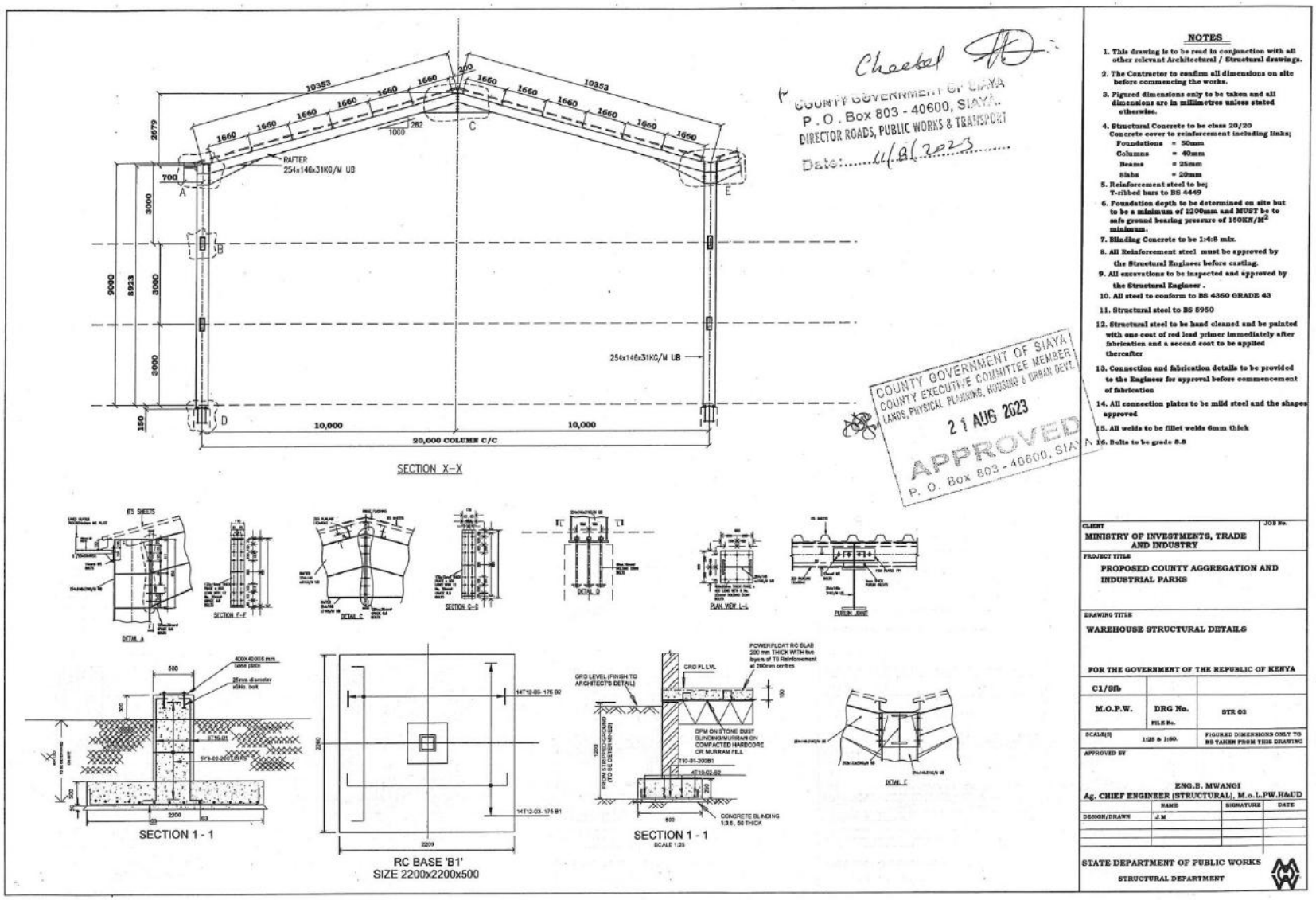
C1/Sft		
M.O.P.W.	DRG No. / FILE No.	STR 02
SCALE(S): 1:25 & 1:50.		FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING

APPROVED BY

THE CHIEF ENGINEER (STRUCTURAL), M.O.P.W.

	NAME	SIGNATURE	DATE
DESIGN/DRAWN	J.M		

STATE DEPARTMENT OF PUBLIC WORKS
STRUCTURAL DEPARTMENT



NOTES

1. This drawing is to be read in conjunction with all other relevant Architectural / Structural drawings.
2. The Contractor to confirm all dimensions on site before commencing the works.
3. Figured dimensions only to be taken and all dimensions are in millimetres unless stated otherwise.
4. Structural Concrete to be class 20/20
   Concrete cover to reinforcement including links;
   Foundations = 50mm
   Columns = 40mm
   Beams = 25mm
   Slabs = 20mm
5. Reinforcement steel to be; T-ribbed bars to BS 4449
6. Foundation depth to be determined on site but to be a minimum of 1200mm and MUST be to safe ground bearing pressure of 150KN/m^2 minimum.
7. Blinding Concrete to be 1:4:8 mix.
8. All Reinforcement steel must be approved by the Structural Engineer before casting.
9. All excavations to be inspected and approved by the Structural Engineer .
10. All steel to conform to BS 4360 GRADE 43
11. Structural steel to BS 5950
12. Structural steel to be hand cleaned and be painted with one coat of red lead primer immediately after fabrication and a second coat to be applied thereafter
13. Connection and fabrication details to be provided to the Engineer for approval before commencement of fabrication
14. All connection plates to be mild steel and the shapes approved
15. All welds to be fillet welds 6mm thick
16. Bolts to be grade 8.8

CLIENT: MINISTRY OF INVESTMENTS, TRADE AND INDUSTRY

JOB No.

PROJECT TITLE: PROPOSED COUNTY AGGREGATION AND INDUSTRIAL PARKS

DRAWING TITLE: WAREHOUSE STRUCTURAL DETAILS

FOR THE GOVERNMENT OF THE REPUBLIC OF KENYA

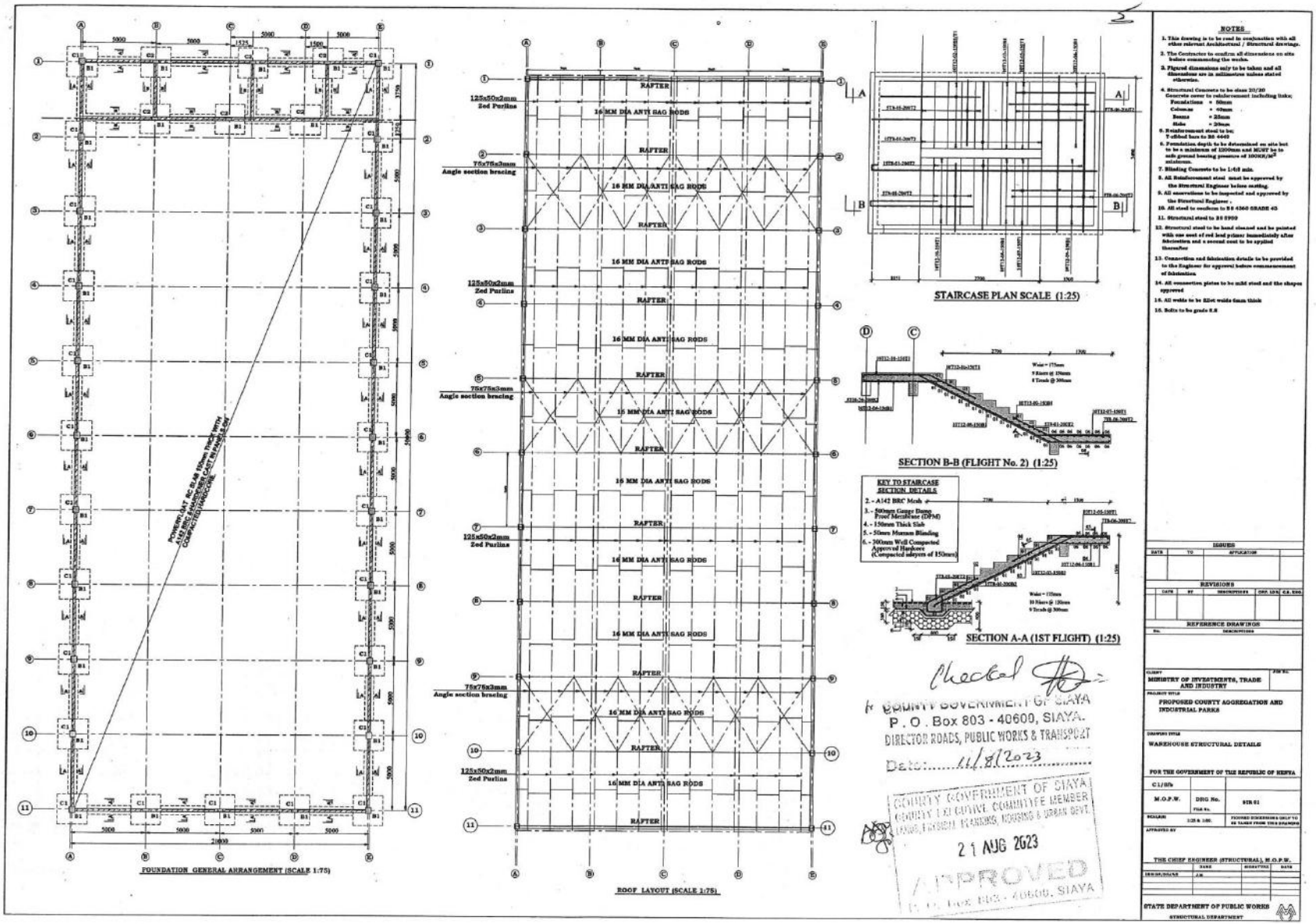
C1/Sfb		
M.O.P.W.	DRG No. STR 03	
	FILE No.	
SCALE(S) 1:25 & 1:50.		FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING

APPROVED BY

ENG.S. MWANGI
Ag. CHIEF ENGINEER (STRUCTURAL), M.o.L.PW.H&UD

	NAME	SIGNATURE	DATE
DESIGN/DRAWN	J.M		

STATE DEPARTMENT OF PUBLIC WORKS
STRUCTURAL DEPARTMENT


FOUNDATION GENERAL ARRANGEMENT (SCALE 1:75)
ROOF LAYOUT (SCALE 1:75)
STAIRCASE PLAN SCALE (1:25)
SECTION B-B (FLIGHT No. 2) (1:25)
SECTION A-A (1ST FLIGHT) (1:25)
KEY TO STAIRCASE SECTION DETAILS
2.- A142 BRC Mesh
3.- 500mm Gauge Damp Proof Membrane (DPM)
4.- 150mm Thick Slab
5.- 50mm Murram Blinding
6.- 300mm Well Compacted Approved Hardcore (Compacted layers of 150mm)
NOTES
1. This drawing is to be read in conjunction with all other relevant Architectural / Structural drawings.
2. The Contractor to confirm all dimensions on site before commencing the works.
3. Figured dimensions only to be taken and all dimensions are in millimeters unless stated otherwise.
4. Structural Concrete to be class 20/20
Concrete cover to reinforcement including links;
Foundations = 50mm
Columns = 40mm
Beams = 25mm
Slabs = 20mm
5. Reinforcement steel to be;
T-ribbed bars to BS 4449
6. Foundation depth to be determined on site but to be a minimum of 1200mm and MUST be to safe ground bearing pressure of 100KN/m2 minimum.
7. Blinding Concrete to be 1:4:8 mix.
8. All Reinforcement steel must be approved by the Structural Engineer before casting.
9. All excavations to be inspected and approved by the Structural Engineer ;
10. All steel to conform to BS 4360 GRADE 43
11. Structural steel to BS 5950
12. Structural steel to be hand cleaned and be painted with one coat of red lead primer immediately after fabrication and a second coat to be applied thereafter
13. Connection and fabrication details to be provided to the Engineer for approval before commencement of fabrication.
14. All connection plates to be mild steel and the shapes approved
15. All welds to be 5Dot welds 6mm thick
16. Bolts to be grade 8.8
ISSUED
REVISIONS
REFERENCE DRAWINGS
CLIENT: MINISTRY OF INVESTMENTS, TRADE AND INDUSTRY
PROJECT TITLE: PROPOSED COUNTY AGGREGATION AND INDUSTRIAL PARKS
DRAWING TITLE: WAREHOUSE STRUCTURAL DETAILS
FOR THE GOVERNMENT OF THE REPUBLIC OF KENYA
C1/88
M.O.P.W.
DRG No. STR 01
APPROVED BY
THE CHIEF ENGINEER (STRUCTURAL), M.O.P.W.
STATE DEPARTMENT OF PUBLIC WORKS
STRUCTURAL DEPARTMENT
Checked
COUNTY GOVERNMENT OF SIAYA
P. O. Box 803 - 40600, SIAYA.
DIRECTOR ROADS, PUBLIC WORKS & TRANSPORT
Date: 11/8/2023
COUNTY GOVERNMENT OF SIAYA
COUNTY EXECUTIVE COMMITTEE MEMBER
ROADS, TRANSPORT, PLANNING, HOUSING & URBAN DEVT.
21 AUG 2023
APPROVED
P. O. Box 803 - 40600, SIAYA

APPENDIX 6; BILLS OF QUANTITIES

APPENDIX 7; PUBLIC PARTICIPATION MINUTES AND ATTENDANCE LIST

MINUTES OF THE PUBLIC PARTICIPATION MEETING HELD ON THE ENVIRONMENTAL IMPACT ASSESSMENT OF THE PROPOSED COUNTY AGGREGATED AND INDUSTRIAL PARKS PROJECT (CAIP) HELD AT CAIP SITE ON 10TH JUNE 2024

Minute	Details of Discussion	Action
Min 1.0 **Agenda**	1. Introduction 2. Brief overview of the project and its impact on the local community 3. Matters arising 4. Way forward 5. Closing remarks	**Info**
Preliminaries **Min 1.1** **Introduction and Prayers**	• The Environmental Specialist (Belinda Nyakinya) called the meeting to order at 11:20 AM, commencing with a prayer from Catherine Atieno. Environmental Specialist introduced herself. This was followed by brief introductions from the county officials and the community members.(Attendance List Attached)	**All**
Min 1.2 **Brief overview of the project**	The Environmental specialist indicated that the County Aggregated and Industrial Parks Project (CAIP) will house an aggregation center with a section for collection, sorting, grading, cleaning, packaging, and cold storage facilities. She also stated that the park section will have value addition, processing equipment, and common user facilities. The project components discussed were as follows • Aggregation Warehouse & Cold Storage • Foul Water Drainage • Septic Tanks • Access Road and Parking • Storm Water Drainage • Value Addition Warehouses • Boundary wall • Ablution Block • Borehole Drilling	**Environmental Specialist**

	In addition, the County team elaborated on the project objective to grow manufacturing and agro-industrial investments and enhance the agricultural sector's competitiveness sustainably, hence creating inclusive decent jobs, promoting productivity at the farm level, increasing farmers' income; and increasing foreign exchange and economic growth. The community members listed the project impacts as follows **<u>Positive Impacts</u>** • Employment creation • Infrastructure development • Market accessibility • Money Circulation **<u>Negative impacts</u>** • Noise pollution • Air pollution • Insecurity • Environmental degradation **Mitigation Measures:** • Conservation and protection programs e.g Re-afforestation p • Community education and involvement • Enhanced security • ESMP prepared to deal with all the challenges After a comprehensive discussion of the project, the community members were given time to raise their concerns on the project.	**County Official** **Members of the community**
<u>Min 1.3</u> **Matters arising**	One of the community members asked what the County Government would do to ensure access to the existing Marrum road when the project is in progress since it will	**Community member**

	be exposed to heavy trucks which would later have a radical impact on them. **Response** The County official promised to do routine road maintenance to enhance road accessibility. One of the community members asked the County Government to subsidize the cost of farming to make the project viable in the long run. **Response** The county official encouraged the community members especially farmers to form SACCOS after which the County Government will release the funding to the SACCOS One of the community members enquired about the allocation of the land left for them to continue with their normal activities like grazing **Response** The environmental specialist advised the County Government to create different access to the forest to enable the community members to continue with their normal grazing operations One of the community members asked about the safety of those employed by the contractor during working hours since they are exposed to a lot of harm **Response** The environmental specialist advised the County Government officials to ensure that the contractor is registered with the Directorate of Occupational Safety and Health Services (DOSH) and insures workers through WIBA to ensure safety	

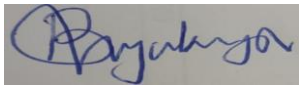
	A concern was raised by one of the community members regarding the importation of 90% of the casual laborers by the contractor. **Response** The county officials in charge of the project promised to caution the contractor to employ the local community members. The environmental specialists emphasized the gender balance during the recruitment . One of the community members enquired whether they could plant cassava **Response** The county Government official promised to conduct feasibility studies to identify the right crops to be planted by the community members to ensure the project is viable. One of the community members asked what the County Government would do to curb the Environmental Degradation that was yet to be experienced especially the clearing of the forest which was a habitat for wild animals such as monkeys, leopards, hyenas, and antelopes to pave the way for the project site **Response** The environmental specialist advised the County Government to partner with the Ministry of Environment and Agriculture and the community at large to ensure more trees are planted and conservation initiatives are continuously carried out.	

Project Approval	• After the plenary Session, the Environmental Specialist asked the community if they supported the project. • By a show of hands, all the members present raised their hands in support of the project.	**ALL**
Min 1.4 **Way forward**	The County officials in conclusion promised to liaise with others departments such as Lands and agriculture to ensure sustainability of the project. The County to adhere with all the actions indicated in the ESMP to ensure mitigation of all the negative impacts.	
Min 1.5 **Closing remarks**	There being no other business; The County Government official thanked the community members for their participation. The meeting adjourned at 1.35 PM with a prayer from George Okoth.	**All**

Signed ;

Christopher (Director Trade) Chairman Signature 

Date 10th June 2024

Secretary; Belinda Nyakinya (Environmental Expert) Signature 

Date 10th June 2024

PHOTOS

ATTENDANCE LIST; PUBLIC PARTICIPATION MEETING

PROJECT NAME PROPOSED COUNTY AGGREGATED INDUSTRIAL PARK (CAIP)

VENUE: CAIP SITE SIAYA COUNTY **DATE: 6TH JUNE 2024**

	NAME	1D;NO	VILLAGE/OCCUPATION	PHONE; NO	SIGNATURE
1	Okaro Charles	38684070	Uhanya	0112435555	[signature]
2	Clement Omondi	40 59344	LIERA	0798900611	[signature]
3	Joseph owiti	[illegible]	—	[illegible]	[signature]
4	Omondi Tobias	—	LIERA	0740764402	[signature]
5	Okaro James Omondi	38684070	Uhanya.	0783847645	[signature]
6	George Odhiambo	27133798	Kalenjuok.	0110464219	[signature]
7	Tobias Otieno	28343366	[illegible]	0700771627	[signature]
8	Kennedy omondi	35994064	Kalenjuok	0717006419	[signature]
9	Winstone Omondi Ouma	37056214	Kalenjjuok	0743433324	[signature]
10	Wycliff Odhiambo Ouguyo	39407963	Kalenyjuok	0742192552	[signature]
11					
12					

ATTENDANCE LIST; PUBLIC PARTICIPATION MEETING

PROJECT NAME PROPOSED COUNTY AGGREGATED INDUSTRIAL PARK (CAIP)

VENUE: CAIP SITE SIAYA COUNTY **DATE: 6TH JUNE 2024**

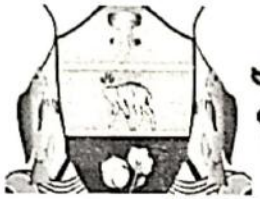
	NAME	1D;NO	VILLAGE/OCCUPATION	PHONE; NO	SIGNATURE
1	Kevin Omondi Odhor	28310233	Liera	0707903006	
2	Brevin Ouma	35509368	Liera	0799053962	
3	Joseph Ochieng	24916326	Liera	0715208725	
4	George Jomo	3740936	Liera	0752975907	
5	Meshack Odinga	37937293	Liera	0113449613	
6	Gabriel Okello	34681244	Lerue	0707810436	
7	Alphonce Odor	36022379	Liera	0758999472	
8	George Ochieng	35964303	Liera	0788218698	
9	Geoffrey Odinga	29507484	Liera	0710308766	
10	OSCAR ODHIAMBO	33577609	Liera	0740660648	
11	Daniel Otieno	19850226l	Liera	0745892165	
12					

ATTENDANCE LIST; PUBLIC PARTICIPATION MEETING

PROJECT NAME PROPOSED COUNTY AGGREGATED INDUSTRIAL PARK (CAIP)

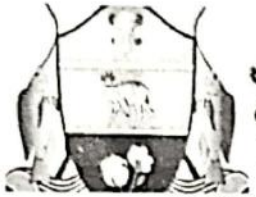
VENUE: CAIP SITE SIAYA COUNTY **DATE: 6TH JUNE 2024**

	NAME	1D;NO	VILLAGE/OCCUPATION	PHONE; NO	SIGNATURE
1	GEORGE OMONDI OTIRO	5316010	Kalenjuok (Watchman/Soldier)	0114262592	
2	VINCENT OKOTH	36340462	Kalenjuok	0705165515	
3	MOSES Onyango	24797210	Kalenjuok	0700066442	
4	ALOIS Omondi	0509044	Kalenjuok		
5	BENEDIC OdHIAMBO	27125958	—	0717619944	
6	GEORGE OKARO	9463467	UHANYA.	0720109538	
7	BENARD OMOLO	22136247	KALENYJUOK	0703663034	
8	ROSE . O BILO	24444766	KALENJUOK	0726447062	
9	LILIAN ACHIENG	27037423	KALENJUOK	0710514913	LA
10	LILIAH OUMA	30011906	KALENYJUOK	0719236572	
11	PATRICIA LEHYA		KALENYJUOK		
12	Roy Omondi	28671039	KALENYJUOK	0792957323	



ATTENDANCE LIST; PUBLIC PARTICIPATION MEETING
PROJECT NAME PROPOSED COUNTY AGGREGATED INDUSTRIAL PARK (CAIP)
VENUE: CAIP SITE SIAYA COUNTY **DATE: 6TH JUNE 2024**

	NAME	1D;NO	VILLAGE/OCCUPATION	PHONE; NO	SIGNATURE
1	CATHRINE ATIENO	21656145	KALONYJUOK	0769942804	
2	LUCAS OTIENO OJIWA	23612447	KALENJUOK		
3	LUCY Achieng	29488352	KALENJUOK	0712692005	
4	MONICA AKINO JOMO	13600042	KALENJUOK	0136488 28	
5	Arnold Odhiambo	38654123	K.J	0769942804	
6	George okoth	31306179	Kalenjuok	0735657531	
7	Gabriel Otieno Okinya	10922358	Kalenyjuok	0798601625	
8	Julius Odwar Owuja	11045896	Kalenyjuok	0111741879	
9	Joseph otieno ndege	29406499	Liera	0740457533	
10	Vincent Odhiambo Otieno	30449926	Liera	0712981674	
11	ONGILI MILTON OTIENO	21396276	LIERA	0722112030	
12	WICKLIFE ABONDO	31707948	LIERA	0798548723	




ATTENDANCE LIST; PUBLIC PARTICIPATION MEETING
PROJECT NAME PROPOSED COUNTY AGGREGATED INDUSTRIAL PARK (CAIP)

VENUE: CAIP SITE SIAYA COUNTY **DATE: 6TH JUNE 2024**

	NAME	1D;NO	VILLAGE/OCCUPATION	PHONE; NO	SIGNATURE
1	JAMES OCHIENG OKOLA	29605542	KALENYJUOK	0797592941	
2	MESHACK OCHIENG ODHIAMBO	38023712	KALENYJUOK	0758508907	
3	Joseph Ouma Otto	25542465	Kalenjuok? Driver	0769575	
4	JACKSON OWINO OGOLA	39032410	KALENYJUOK	0710930104	
5	Wadiff Owallo Odhiambo	25718440	Kalenjuok	0792788697	
6	George Onyango		Kalenjuok	0715827767	
7	Kennedy Opiyo	25992948	Kalenjuok	0715402192	
8	Kelvin Odongo Achieng	28534008	kalenjuok/welder	0110261997	
9	Habwike Dellan	39138808	Kalenjuok	0705591815	
10	kennedy onyango	31195984	KALENJUOK	0786	
11	IRENE ACHIENG	29242952	03 Kalenjuok	0710281326	
12	CELINE AUMA JUMA	26416981	KALENYJUOK	0751029239	

ATTENDANCE LIST; PUBLIC PARTICIPATION MEETING

PROJECT NAME PROPOSED COUNTY AGGREGATED INDUSTRIAL PARK (CAIP)

VENUE: CAIP SITE SIAYA COUNTY **DATE: 6TH JUNE 2024**

	NAME	1D;NO	VILLAGE/OCCUPATION	PHONE; NO	SIGNATURE
1	BENARD OWINGA	29525017	P.I.D.O -CGS	0712435146	
2	BENNDA NYAKINYA	22646473	INTERIM TD. NEMA	0721401351	
3	ALPHONCE OGULLA	33200153	NEMA.	0758967498	
4	[illegible]	20492258	CGS-TRADE	0703548317	
5					
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