



TERMS OF REFERENCE

CONSULTING SERVICES FOR UNDERTAKING DETAILED DESIGNS AND CONSTRUCTION OF PORT VICTORIA AND SISENYE (BUSIA HILLS) WATER SUPPLY PROJECT

1. Background

Safe drinking water and adequate sanitation are important pillars of human health and wellbeing. In Kenya, the provision of water is a shared responsibility between the national government and the county governments. The Department of Water and sewerage services in the county government of Busia is responsible for ensuring the progressive attainment of universal and equitable access to water for domestic use and expansion of sewerage infrastructure coverage. The department's strategic objective is to increase access to clean and safe water for the population. Currently, access to clean and safe water in the county is estimated at 60% of the population. In the financial year 2024/25, the County Government of Busia allocated financial resources for the rehabilitation and expansion of Port Victoria water scheme and Sisenye (Busia Hills) water scheme under one contract.

Port Victoria water supply scheme is a combined pumping and gravity water scheme in Bunyala sub county, Busia county. The water scheme was developed and commissioned in 1972 and handed over to the then Busia District water office. The scheme is currently operated by the Directorate of Water services, Busia county. The population served by the scheme is mainly from 3 sub locations namely Bukani, Sisinga and Bukoma all in Bunyala West ward.

The main urban area in the coverage area is port Victoria town. It is reported that the scheme had an ultimate design capacity of about 2400m³/day by the year 2000. This was never achieved as most of the pumps broke down. Currently, the scheme is only able to provide approximately 400m³/day. The total registered connections stand at 1300 of which only 168 are active.

From the foregoing, it is clear that the daily production falls way below the original design capacity of 2400m³/day by the year 2000. As a result, the community has resorted to unsafe sources of water e.g direct abstraction from the lake thereby exposing them to waterborne diseases and other related health risks.

Sisenye water supply scheme is a combined pumping and gravity water scheme in Bunyala sub county, Busia county. The scheme was also developed and commissioned in 1972. It is currently run by the directorate of water services, Busia county. The water supply scheme serves Bunyala North ward and Bunyala East ward. The population served by the scheme is mainly from 4 sub locations namely, Bulemia, Sisenye, Mundere and Busembe.

The main urban area covered is Budalangi town. The supply area is developing very fast. The coverage area includes Budalangi town, Sisenye shopping centre, Nambengele market and some other small market centers along the pipeline routes. It is reported that the scheme had an ultimate design capacity of approximately 3000m³/day. Currently the scheme is only able to produce 280m³/day. This is attributed to the dilapidated state of the current infrastructure. Chlorination is the only form of treatment at the

scheme though the design had envisaged a conventional composite filtration unit (CFU) which was never constructed to completion. There are 812 registered connections out of which 500 are active.

The proposed rehabilitation of Port Victoria and Sisenye water supplies is meant to address the identified challenges by boosting daily production from 400m³ to 1200m³ for Port Victoria and increase active household connectivity from 168 to 1300. This will reduce cases of water borne diseases among the urban poor. It will also improve living conditions, boost socio-economic status of the people living in the area and generation of revenue for the county government. For Sisenye, the daily production will increase from 280m³ to 1500m³ while active household connectivity will increase from 500 to 1000 households.

The proposed expansion of Port Victoria-Sisenye-Budalangi-Ruambwa Water Supply Project will serve the areas of Bukani, Sisinga and Bukoma sub-locations in Bunyala West location; Bulemia, Sisenye and Mundere sub-locations in Bunyala North location; Budalangi, Mudembi and Ruambwa sub-locations in Bunyala East location. The three locations are in Bunyala sub-county of Busia county. The peri-urban centers that will be served by the two schemes are Port Victoria and Budalangi. The project will also serve all the major institutions in the project area including schools, hospitals, government offices, etc. The population in the areas to be served by the project has been considered in the projection. The contractor is expected to project the population in the project area and water demand up to the ultimate year. However, the design of the infrastructure will be based on the size of the treatment plants specified above.

2. Objectives of the Assignment

The objective of this assignment is to engage a qualified contractor to do a detailed design and construct Port Victoria water scheme and Sisenye water supply. This includes all necessary engineering designs, Environmental and Social Impact Assessments to ensure the project is technically sound and meets all relevant standards and regulations. The first step in conducting the assignment shall be to perform detailed technical review of the previous study on Strategic Drought Mitigation Studies/Plan in LVNWSB, RVWSB and LVSWSB; Final Preliminary Design Report for Expansion of Port Victoria Sisenye-Budalangi-Ruambwa Water Supply Project and thereafter under the second step, prepare detailed designs for the water supply project components. The final output will include detailed (final) designs (water treatment plant, water pumps and pumping station, bulk water transfer pipe networks, water storage tanks, water testing laboratory, and other ancillary water infrastructures), which will form the basis for project implementation. The consultant is required to adhere to international best practice, including the Practice Manual for Water Supply Services in Kenya (2005), among others.

3. General Scope and methodology of the study

The detailed designs will comprise analyses related to: demand assessments, topographic surveys, bulk water pipeline profiles, water treatment plant headworks, pumps, pumping station, water storage tanks in key upcoming urban centers such as Port Victoria and Budalang'i and other hydraulic structures along bulk water transfer pipe lines, geotechnical investigations (where deemed necessary), baseline environmental and social analyses, economic and financial analysis, and project management and sustainability at operation phase.

The contractor shall review and define in due consultation with the client's technical officers the scope of the assignment as defined in the Terms of References, assess the practicability of the development, and provide the basis for decision making on the choice of the most desirable design options. The contractor shall define the benefits and costs, and determine financial feasibility, economic justification, and cost recovery.

In planning and scheduling of the tasks, the contractor should note that not all tasks will be conducted in linear fashion and that several of the tasks need to be conducted in parallel and phased to enable information and results to be shared and utilized in an integrated way to meet the objectives of the assignment.

Task 1: Formulation of Project Plans and Layout Scenarios

Task 1-1: Data and information collection

The Contractor should collect relevant studies, data and information, review Strategic Drought Mitigation Studies/Plan in LVNWSB, RVWSB and LVSWSB; Final Preliminary Design Report for Expansion of Port Victoria Sisenye-Budalangi-Ruambwa Water Supply Project. The consultant should screen and synthesize the data and establish a project databank related to policies, institutions, existing infrastructure, hydrology and meteorology, topography and maps, soils and materials, multipurpose aspects, environmental (positive and negative) and socio-economic conditions.

Task 1-2: Socio-economic assessment

The purpose of this assessment is to provide an understanding of the socio-economic profile of potentially **affected communities (water supply service area)**, to enable project design to meet their development needs and mitigate negative impacts. This assessment should serve both diagnostic monitoring and impact evaluation purposes that should result into:- (i) understanding of the area's social and economic history, socio-economic profile of the communities and the social structure and institutions; (ii) understanding of the process of socio-economic differentiation, impoverishment and wealth such as livestock, land etc.; (iii) understanding of the constraints that inhibit livelihoods and livelihood development which can be potentially addressed by targeted water supply project interventions; and (iv) collection of statistically reliable descriptive data on those parameters which the project intends to influence, such as health, education level, gender and age, livelihood production activities and household incomes at the baseline and project completion.

Task 2: Stakeholder Analysis

The Contractor shall for the water service area: (i) undertake a stakeholder analysis of the project area; (ii) carry out broad socio-economic surveys using appropriate methodologies; (iii) carry out a broad analysis of gender issues; (iv) profile the potential beneficiaries to be benefitted from the proposed Water Resources Development activities and those to be negatively affected by the project; (v) identify categories of vulnerable groups specific to impacts from the project and activities that will adversely affect them; (vi) review land policy, land cadastre, land use and possible impacts on land-based livelihoods; and (vii) recognize specific socio-economic, institutional and other constraints that can be potentially addressed in the proposed project, (viii) identify possible barriers to project execution and completion, (ix) generate a list of all key project stakeholders, categorize them and thereafter develop a stakeholder analysis matrix in terms of stakeholder importance and significance; (X) use the above information to identify the project communication needs more so on how to engage stakeholders key to the success or failure of the project. The information obtained from the surveys will be used as a basis for conducting a project socio-economic impact assessment. The outcomes of this task should be adequate to be used in “with project” and “without project” scenario evaluations at feasibility level economic and financial analysis.

Task 3: Water resources assessment

Task 3-1: Assessment of water resources availability

The task objective is to assess the water resources availability to satisfy the estimated uses and demands, i.e., for water supply etc. The Contractor shall: (i) determine the current and potential future water uses and demands for the identified water uses at the project area, together with their seasonality, levels of service and priority of use and cumulative effects; (ii) undertake water quality assessment of the surface water; (iv) estimate optimal domestic water demands, and compare with the available water resources. Based on the analysis the Contractor will estimate availability of water to meet the water demands for each time segment at different levels of probability using appropriate and standard methods.

Task 3-2: Water Quality Assessment

The consultant shall undertake water quality assessments using applicable methods such as chemical analysis and microbiological analysis to test for the presence of pollutants with potential to cause health risks to humans and animals. The expected results from water quality assessments will among others include: (i) Identification of pollutants and contaminants present in the water and their concentrations; (ii) determine the

level of treatment needed to ensure that the water is safe for consumption; and (iii) recommendations for best practices and management strategies to improve water quality and protect aquatic ecosystems.

Task 4: Preparation of Topographical Surveys

The topographical survey will capture the water supply service area features such as existing infrastructure (roads, buildings, bridges, power lines, etc.) and planned water supply infrastructure components including water treatment plant, pump house, laboratory facilities, bulk water transmission pipelines, water storage tanks, and mark-stones (small pillars) demarcating locations of transmission lines along roads and in urban centers. The methods and results of topographic field surveys and mapping shall be duly reported. The maps will be shared with the independent ESIA & RAP consultancy study team when required.

Task 4-1: Survey of Water Treatment Plant site location

The Consultant will review existing Port Victoria and Sisenye water supply site drawings showing the locations or positions of specific site features such as the treatment works, locations of proposed bulk water supply infrastructure, and storage. The survey map shall be prepared at a scale 1:2,000 or any other suitable scale.

Task 4-2: Bulk Water Transmission Pipeline alignment and Survey

The contractor determines and map (layout drawings including contours) the most appropriate route and alignment of bulk water transmission main lines, including location of water storage tanks and Pressure Break Tanks (PBT) (where applicable), from the water treatment plant to various major water distribution points in urban centers. The consultant will also undertake surveys for main pipeline profiles and distribution pipe network. Based on this survey, plan-profile drawings will be produced and used to spot structures. Information on the plan and profile should include alignment, stationing, roads, streams, and swamps, and any other features that can inform estimation of Bills of Quantities of Materials (BoQs) and implementation of construction phase, among others.

Task 5: Infrastructure Design for Water Resources use

The contractor shall undertake detailed engineering designs for the domestic water supply infrastructure. The Consultant will also incorporate technical, environmental, and socio-economic aspects, to guarantee the sustainable use of the available resources. The detailed tasks will include:

Task 5-1: Infrastructure Design for Water Supply Development

This sub-task will focus on detailed engineering design of the water supply system components for domestic, municipal, and industrial uses, at and around the project area covering critical areas in Bukani, Sisinga and Bukoma all in Bunyala West ward, Busia County. The Contractor shall review the findings of the previous studies undertaken for Port Victoria Sisenye-Budalangi-Ruambwa Water Supply Project and bridge the existing gaps regarding: (i) the current levels of access to water for domestic use, etc (ii) the functionality or service level of any existing water supply systems or water sources; and (iii) the preliminary design layouts for bulk water transmission pipes. After the review, the consultant will be required to undertake the following sub tasks:

Task 5-2-1: Water Quality Analysis

The contractor shall undertake water analysis for a wide range of water contaminants, including bacteria, viruses, protozoa, chemical compounds, and physical parameters such as pH, turbidity, hardness, alkalinity, and dissolved solids. Based on the water analysis results, the consultant shall determine the appropriate treatment process and equipment needed to remove the specific contaminants found in the water.

Task 5-2-2: Water Treatment Plant

The contractor shall first determine the most applicable water treatment processes based on the water analysis results. The water treatment processes, such as sedimentation, filtration, disinfection, and chemical treatment, will require specific equipment and facilities, which should be appropriately sized (designed) and located

within the plant. The contractor shall provide the detailed engineering drawings and layout of the water treatment process, including detailed specifications for each of the processes. Furthermore, the consultant shall establish a list key equipment required in the water treatment process. The contractor shall select appropriate equipment considering factors such as flow rate, pressure, and chemical compatibility. The contractor shall provide detailed engineering designs for the water pumps, filters, disinfection systems, and other equipment to meet the demands of the treatment process and the volume of water being treated. Also, in the design process, the contractor should consider sustainability factors such as energy efficiency, renewable energy sources, and water conservation measures. For example, high-efficiency motors and pumps, and solar panels may be included in the design to minimize the plant's environmental impact. The outputs of this task shall be detailed specifications for the water treatment process, including engineering drawings prepared in AUTOCAD or any other appropriate software.

Task 5-2-3: Design of water transmission pipes

The contractor shall provide detailed designs for the bulk water transmission main pipes considering factors such as topography, hydraulic characteristics, pressure losses, and surge protection. The pipeline network should be designed to optimize the flow of water from the treatment plant to the distribution system and minimize the risk of leaks or breaks. Furthermore, the consultant shall design water storage tanks to be positioned at appropriate locations considering factors such as tank capacity, height, diameter, material, and location. The tanks should be designed to safely store the treated water and should be equipped with appropriate valves, pumps, and instrumentation for level monitoring and control.

Task 5-2-4: Water Abstraction Permits

The contractor in collaboration with the client and the County Government of Busia, department of water shall facilitate the process of obtaining necessary water abstraction permits. The contractor shall review the legal frameworks that govern the use of the water resources and ensure compliance with all relevant laws and regulations. The contractor shall follow the necessary regulatory procedures to secure permits and approvals for water withdrawal from the relevant authorities in Kenya.

Task 6: Climate Change impact on water supply infrastructure

The objective is to assess the risk of climate change impact in the project area, potential damages from future climate change impacts such as floods, droughts, etc. to the proposed water supply infrastructure such as water pumps, water storage tanks, water transmission pipes, hydraulic structures, and the water treatment plant. The Contractor should: (i) collect all information available in records from the government institutions on the history of climatic variables (precipitation, floods, droughts, temperatures, evapo-transpirations, etc.), severity and damage caused in the project areas; (ii) analyze climatic data such as hydro-meteorological records to assess the risk of climate change impacts (floods and droughts) in the project areas with project situation; and design the infrastructure to withstand adverse climate change impacts. The contractor should undertake the climate change risk assessment according to ISO 31000 (Risk management) and ISO 31010 (Risk assessment). The Risk Assessment process should consist of Risk Identification and Screening, Risk analysis and Risk evaluation. The Climate Change Risk Assessment should be considered at detailed design, and operation phase of the project.

Task 7: Baseline Environmental and Social Impact Assessment (ESIA)

The Contractor will analyse the environmental and social aspects in the project area and, through the consideration of alternate routes for bulk water transmission, propose ideal routes for bulk water transmission lines that avoid or minimize potential adverse environmental impacts. Specifically, the contractor should: (i) assess environmental and social impacts that could make the project non-feasible, or result in costs likely to exceed the intended benefits when mitigation is taken into account; (ii) examine alternatives main pipeline routes such as changes in alignment, access road alignment, etc. and make comparison of such alternatives, in technical, economic, social and environmental terms, so that the best recommendations are considered in the final design plans for implementation. The assessments will be guided by the national environmental, land acquisition and resettlement related legislation. The depth of the assessment will be sufficient to adequately

inform the development of alternate project designs, the selection and justification of the preferred alternative routes for domestic water supply. The alternative routes for main pipes that substantially convert or degrade important natural habitats should not be considered unless they include equivalent habitat restoration and maintenance within the project area or elsewhere. Design features to avoid adverse impacts, minimize land acquisition and involuntary resettlement, or enhance environmental/natural resource services are to be clearly noted in the description of preferred alternative routes, with suitable maps. Acceptability of the final layout designs will depend not only on its technical and financial feasibility, but also on its environmental and social suitability.

Task 8: Construction Plan and Implementation Scheduling

The Contractor shall establish construction schedules for the implementation of the water supply project. The schedules shall include mobilisation, construction of access roads (where applicable), availability of construction materials in the markets, establishment of the construction camp site, provision of housing and transport facilities for supervising staff from the nearest government premises where temporal field offices can be located, construction packaging, work methods and preliminary labour force requirements. In the schedules the Critical Path Method shall be applied. Based on this the disbursement schedule of the project main components will be estimated as an input for the financial and economic analysis.

Task 9: Economic and Financial Analysis

The contractor shall undertake detailed analysis of the costs and benefits of the proposed project. This analysis will involve identifying and valuing all costs and benefits associated with the project, including financial, economic, tangible, and intangible costs and benefits. The contractor will also prepare financial cost estimates and expenditure schedules for all project activities and services, including capital costs, replacement costs, operation and maintenance, and management costs. The consultant will provide a summary of the financial and economic cost estimates in a tabular form, appropriately classified, and discussed. The estimates must identify taxes and subsidies, and quantify physical and price contingency allowances for each component/activity of the project. The contractor will estimate project benefits, including direct and indirect benefits, tangible benefits, and intangible benefits such as new job opportunities and improved access to rural water supply. Secondary benefits created or costs incurred outside the project will also be estimated using shadow pricing techniques or non-market valuation.

Furthermore, the consultant will conduct project economic and financial analysis using standard techniques, including determination of the Net Present Value (NPV), Cost-Benefit Analysis (CBA), Net Benefit-Investment ratio (N/K), payback period, and Financial and Economic Internal Rates of Return (FIRR and EIRR) at different discount rates. The assumptions made and key developments needed to reach FIRR and EIRR must be clearly listed during the computations. Sensitivity analysis will also be performed on important parameters to check their impact on the financial and economic viability. The consultant will provide documented analysis in Excel spreadsheets to the client to allow for technical review of the financial and economic computations.

Task 10: Feasibility Study Report

The Consultant will prepare a separate feasibility study report which shall document the feasibility study investigations carried out, findings and project data and information. The reports shall contain firm statements on project's viability in terms of the technical, economic/financial, and environmental and social sustainability, and recommendations on project suitability and outlook, if necessary, through a multi-criteria analysis. The reports shall include concise executive summaries to make the report more accessible to the public.

Task 11: Final Detailed Design

For the final selected and agreed design layout, the Contractor shall prepare detailed final designs and tender documents. The design report should include assumptions, analyses, conclusions, and recommendations for the detailed designs for the water supply system components, as well as calculations and justification of the methods used for design, detailed organizational charts and schedules for implementation, drawings, bill of quantities, etc. Relevant annexure including the standard engineering layout drawings and profiles; and a draft Operation & Maintenance (O&M) Plan (containing: General Information; Salient Project Features; Operation Guidelines and Procedures; Monitoring Programme; Safety Inspections; Directory of Drawings, Records, Suppliers and Vendor Manuals and Appendices) should be included.

4. Methodology and Standards and Design Criteria

The Contractor will be expected to employ the most effective methodology and standards to achieve results with optimal county stakeholder involvement. In addition, the Contractor will be expected to: (i) collect most data from review and analysis of existing secondary sources of information such as the Strategic Drought Mitigation Studies/Plan in LVNWSB, RVWSB and LVSWSB; Final Preliminary Design Report for Expansion of Port Victoria Sisenye-Budalangi-Ruambwa Water Supply Project; (ii) prepare clear, concise, and focused reports; and (iii) ensure reports are submitted to the client as per the agreed schedule and contract agreement.

5. List of Reports, Schedule of Deliveries, and Period of Performance

The Contractor will produce the following reports and attend the related meetings. In addition, electronic copies of background materials and drawings should be submitted as part of the reporting.

Report	Description	No of Copies
An Inception Report (Month 2)	Contains the updated work plan, state of mobilization, refined work methodology and understanding of assignment, specify submission dates for each of the required technical reports in draft form, issues identified for Client's attention, proposed content, and structure of the various reports. The proposed project schedule shall be broken down by tasks and sub-tasks and presented in Gantt chart form. A physical stakeholders' meeting will be held after month 2 to review and approve the report.	Submission by electronic mail
Interim Report (1 week from the commencement date)	The report will contain progress made, including details of the project area, links with existing institutions, lessons from similar projects, an assessment of constraints and opportunities, preliminary results from field investigations and surveys, socio-economic and environmental survey findings, water resources assessments, preliminary findings of the various water use/water demand assessments, and relevant annexes. A virtual stakeholders' meeting will be held at the end of week 1 to review the report.	Submission by electronic mail
Draft Preliminary design Report (end of week 2)	Covering Preliminary design study of the selected design alternatives. It will contain a complete technical description of the recommended water supply system including justification, analysis, computation, drawings, figures, and maps as well as detailed reports on all subjects treated in the scope of the study, such as social and environmental impacts of the project. A physical stakeholders' review meeting will be held at the end of week 2 to discuss this report. The contractor will then incorporate the comments of the stakeholders and prepare a final preliminary design report.	Submission by electronic mail
Draft Detailed Design Report (Week 3)	Details will include detail design report for the agreed Engineering works (water treatment plant layout designs/ pumping station, bulk water transmission infrastructure, and system layout, Design report and Construction drawings. A virtual stakeholders' review meeting will be held after week 3 to discuss this report.	Submission by electronic mail
Final Detailed Design Report (Week 4)	Covering Detailed design study of the selected design alternatives (incorporating stakeholders' comments). A physical stakeholders' review meeting will be held after week 4 to discuss this report. The final revised detailed design reports will be submitted at the end of week 5.	Submission by electronic mail
Monthly	1-2 pages maximum comprising a narrative and bar charts or other graphic	Submission by

Report	Description	No of Copies
progress reports – 1 st week of every month	presentation, showing details of the Contractors’ progress, changes in the assignment schedule, impediments and proposed remedies will be submitted on a monthly basis. Reports should also include a financial summary, indicating amounts invoiced, amounts disbursed, and any other pertinent financial details.	electronic mail

6. Data and Services to be Provided by the Client

Data and documentation on previous studies covering feasibility study and preliminary design reports will be availed to the contractor; however, the contractor has the ultimate responsibility for collecting all the required data and documentation which cannot be made available by the project from official sources. The Client will: (i) Facilitate in establishing communication with the relevant institutions, (ii) Liaise and assist the contractor in obtaining any other information and documents required from other government agencies which the Client considers essential for conducting of the assignment, (iii) Arrange consultative meetings and ensure linkage with relevant regional authorities. The Contractor shall operate their own project office and shall bear all accommodation, local transportation and other costs necessary to carry out the assignment.

7. Qualification of the Contractor’s personnel or Consultant

The study team should comprise experienced professionals to ensure study relevance and effectiveness considering prevailing local conditions. The team should reflect an appropriate mix of disciplines, education, skills and experience, an understanding of underlying development issues, and regional experience. The team should be made up of specialists each with an under graduate degree in the relevant discipline and at least 5 years of experience in undertaking studies related to Water Resources Development. The areas of expertise required include Municipal / urban water supply, rural water supply development, civil/infrastructure/water engineering, hydrology, financial and economic analysis, institutional analysis, and environmental and social impact assessment. The Contractor may optimize their personnel to demonstrate the competences required for the assignment. The qualifications of the key experts are as follows:

Position	Competences
Team leader Civil/Water Engineer	A degree in Civil/Water Engineering, with a minimum of 10 years’ experience in water resources planning and design and construction supervision of hydraulic structures including water supply systems. Must be registered as a Professional Engineer with the Engineers Board of Kenya and in possession of a valid practicing license.
Civil/Water Resources Engineer	A degree Civil/Water Engineering, with a minimum of 5 years’ experience in the design and construction supervision of urban and rural water supply systems, more specifically water treatment works, water pumps, bulk water transmissions, and other associated infrastructures. Must be registered as a Graduate Engineer with the Engineers Board of Kenya.
Geotechnical Engineer	A degree in Civil/Geotechnical Engineering and at least 5 years of experience in geotechnical investigations, design, and construction supervision of hydraulic infrastructure projects.
Electrical Engineer	A degree in Electrical Engineering with a minimum of 5 years of experience in the design and supervision of the installation of electrical and mechanical equipment in water supply.
Economist/ Financial Specialist	A degree in economics, and at least 5 years of work experience on development projects, specifically in economic and financial analysis of water resources development projects.
Surveyor	A bachelors’ degree or equivalent qualifications in surveying with demonstrated experience in use of remote sensing/GIS applications and latest conventional survey equipment. Minimum of 5 years’ survey experience in Water or related engineering projects.
Environmental and Social Safeguard expert.	A degree in Environmental Science or related fields and at least 7 years work experience in Environmental Assessments. Must be a registered as a Lead Expert with National Environment Management Authority.
CAD Technician/Draughtsman	At least a diploma or certificate in Civil Engineering or related field with 3-year experience and Expertise in CAD software

8. Contract Details

It is estimated that the work will take a period of **1 calendar months**. Proposals should indicate how the funds will be best utilized to achieve the objectives of the assignment. Consultant'/contractor's costs incurred in their participation, supporting the arrangement, and running of workshops must be included in the contractor's financial proposal. The costs of holding the workshops themselves (costs of venue, participants' expenses such as transport and accommodation, materials etc.) will be met by the Contractor. The costs of all other consultations, meetings etc. required by the Contractor to adequately complete the assignment must be included in the financial proposals.

9. Supervision Arrangements

The Client is the County Government of Busia through the Directorate of Water will directly supervise the Contractor. Several technical experts will be involved in reviewing the Contractor's project study outputs. The Client will hold occasional discussions with the Contractor at various stages of the consultancy to assess work progress, discuss constraints and possible interventions to ensure timely submission of high-quality study outputs.

Appendix 1: Summary of key strategies and policies

Policy /Strategy	Overview
Kenya's Vision 2030	It's the country's road map for Kenya's economic and social development for the next two decades and aims transform Kenya into a "newly industrializing, middle-income country providing a high quality of life to all its citizens by 2030 in a clean and secure environment. The Vision is based around three "pillars": Economic, Social, and Political and emphasizes on healthy ecosystems, poverty reduction, and sustainable growth.
Kenya's 2012 water policy	The objective of the policy to ensure a comprehensive framework for promoting optimal, sustainable, and equitable development and use of water resources for improved livelihoods of Kenyans'. It aims at achieving universal rights to water supply and sanitation for all by 2030 in the rural and urban areas.
Kenya's water sector strategic plan (WSSP) 2009-2014	It aims at protection of water resources, sustainable harnessing, and management to ensure availability and accessibility to all water uses for present and future generations with an overall goal of ensuring environmentally sustainable social and economic benefits from the nation's water resources".
Busia County Draft Water Policy	The overall objective is to promote an efficient and effective management system and environmentally sound development of all water resources in Busia County. Specific objectives are formulated in a way to be directly used for strategic planning and monitoring. Each subsector objective will be associated with its indicators, time-bound targets and implementation responsibilities

Appendix 2: Reference documentation

Study/Documentation	Description
1.0 Strategic Drought Mitigation Studies/Plan in LVNWSB, RVWSB and LVSWSB (2017)	<p>Atkins was commissioned by Lake Victoria North Water Services Board (LVNWSB) to provide Strategic Drought Mitigation Studies/Plans to the Lake Victoria North Water Services (LVNWSB), Rift Valley Water Service Board (RVWSB) and Lake Victoria South Water Service Board (LVSWSB). The Contract for provision of the services was signed on 28th October 2016. The Consultant prepared and submitted the final Combined Water Demand, Supply and Availability report on 25th September 2017. This report provided the baseline assessment of drought vulnerability, locations of populations at risk of frequent widespread drought risk, an indication of frequency of drought in each of the 'hotspot' sub-regions identified and scoped the size of the supply/demand imbalance in each hotspot.</p> <p>The projects cover Bunyala Sub-County (formerly Budalangi Division). From the preliminary assessment and after defining the project scope which was jointly undertaken with the Bunyala Sub-County and County Government of Busia, there are two defined independent Water Supply Schemes namely; Port Victoria Water Supply Scheme and Sisenye Water Supply Scheme</p>

Appendix 3: Location of Port Victoria Water Supply Project

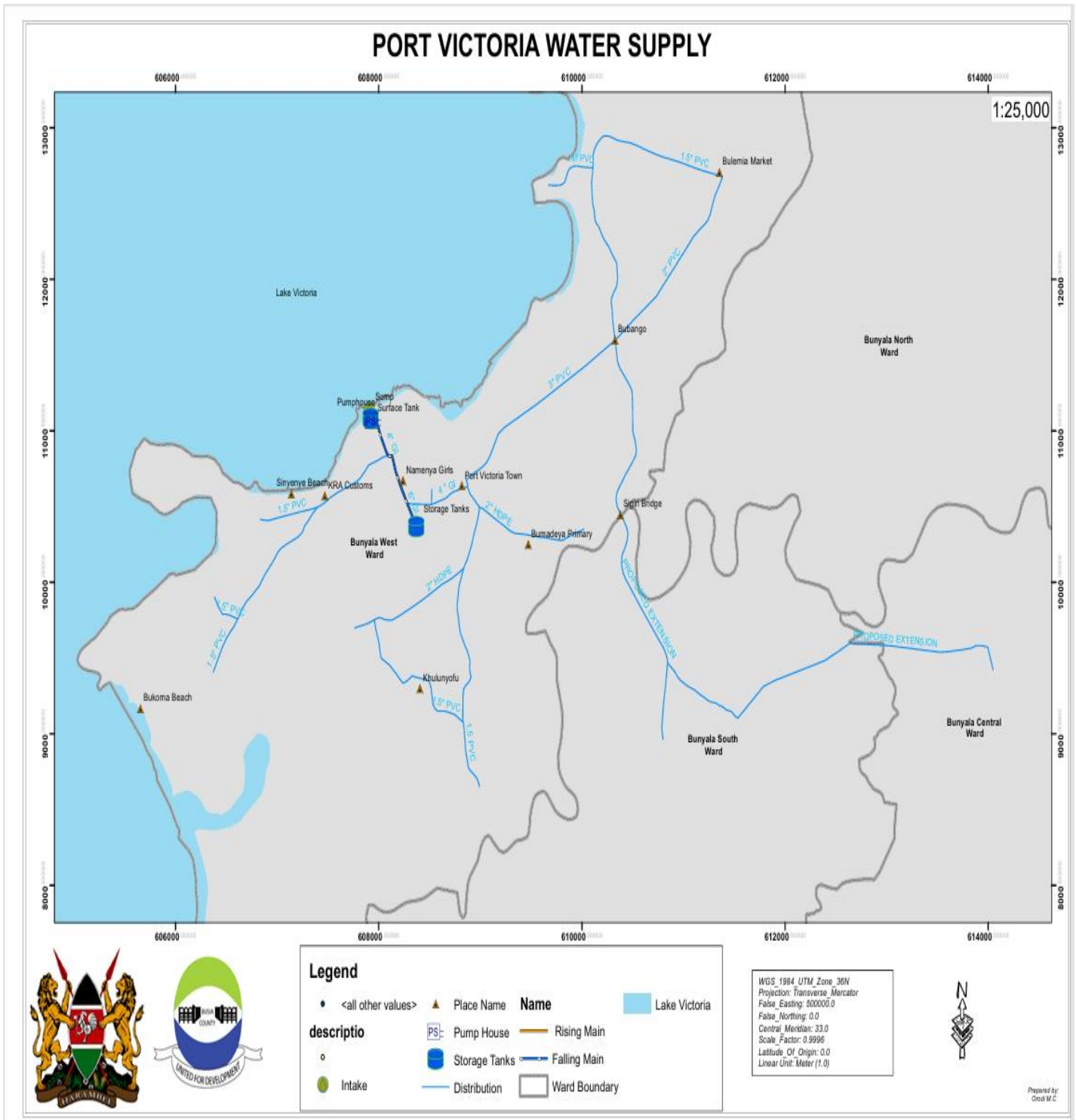


Figure III- 1: Port Victoria Water Supply Project area

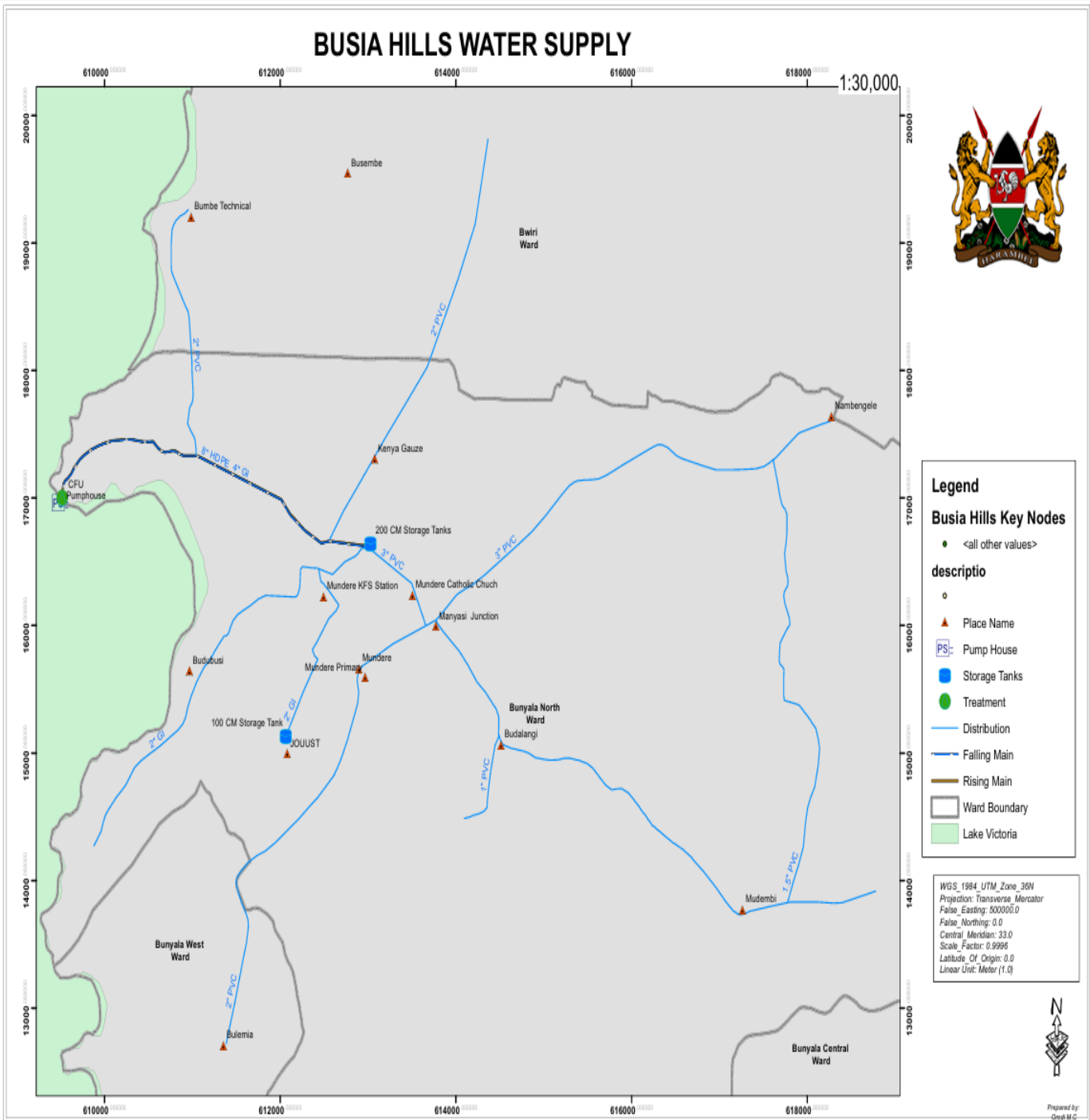


Figure III- 2: Layout of Sisenye/ Busia hills water supply system component