# RAlogo

***Accelerating Malawi’s Economic Growth***

# Terms of Reference

**CONSULTANCY SERVICES FOR DETAILED DESIGN AND SUPERVISION OF ROAD TOLL GATES CONSTRUCTION WORKS IN THE CENTRAL AND NORTHERN REGIONS OF MALAWI**

1. **Background**

The Roads Authority (RA) is a Government of Malawi statutory body established by an Act of Parliament No. 3 of 2006 and charged with the responsibility to:

1. ensure that public roads are constructed, maintained or rehabilitated at all times; and
2. advise the Minister of Transport and Public Works, and where appropriate, the Minister responsible for Local Government on the preparation and the efficient and effective implementation of the Annual National Roads Programme.

The RA now wishes to engage the services of qualified construction consultant to undertake a detailed design and supervision of Toll Gates construction works in the Central and Northern Regions of Malawi. The construction works will be financed by the Road Fund Administration, a Government of Malawi statutory body responsible for the mobilization of financial resources for road infrastructure development and maintence.

1. **Objectives of the assignment**

The main objective of this assignment is to carry out detailed design and Supervision of Road Toll Gates Construction Works in the Central and Northern Regions of Malawi

The specific objectives of the Consultancy services are as follows:

1. Carry out an Environmental and Social Impact Assessment including Resettlement Action Plan;
2. Carry out detailed Architectural and Engineering designs for the road Toll Gates Construction Works;
3. Carry out detailed design for the installation of enterprise local area network (LAN); access control system (ACS); closed circuit television system (CCTV); and server room design;
4. Preparation of cost estimates for the proposed works and bills of quantities;
5. Preparation and production of specifications and tender documents in accordance with the PPDA Act (2017) and PPDA Regulation (2020); and
6. Provide construction supervision services.
7. **Scope of Consultancy Services**

The consultancy services shall entail design and supervision of appropriate structures for the operation of a road toll facility. It shall include a minimum of the following structures a canopy; 3 No. toll booths, (one shall be a double service booth); a 4-lane carriage way with associated traffic barriers and road furniture; office block comprising offices for the supervisor, the cashiers, kitchen, security wing, strong room, control room, server room, store room, utility room (solar battery room), and washrooms. The Control room shall be required to face directly the canopy for easy monitoring of the toll booth operations. The office shall be enclosed in a palisade fence with a guard house.

It is expected that the facility shall operate primarily on solar power with backup power from the electricity grid and generator. All booths and the office for the supervisor shall be air-conditioned.

The water supply system shall be portable water supply from a water utility and a borehole with an elevated water reservoir tank.

The design shall also provide for traffic speed calming facilities and any other safety measures that shall contribute to safety of the facility and the operators (including but not limited to bullnose and island barriers).

The road pavement on the approach to the facility shall be in reinforced concrete. Unreinforced concrete pads shall be constructed around the booth areas to control the magnetic effect on the ICT facilities.

The Office Block shall have a carpark accessible to the main road. Solar street lighting shall be provided to the approaches to the tollgates, access road and carpark.

The office block shall have service ducts that will connect the booths in the canopy to the server room and control room for electrical and network connectivity. Conduiting for network and electrical connectivity shall be installed for linkage between the canopy and office block.

The office block shall have a provision for a Server room in a flood-proof environment above ground and must be placed towards the back of the office building and away from the main road.

The services are expected to be performed in two phases, namely:

**Phase 1** - Detailed Architectural and Engineering Design for the identified road toll gates sites, and production of Bidding Documents suitable for National Competitive Bidding.

**Phase 2 –** Construction supervision of the toll gates.

1. **Phase 1 - Engineering Design Stage**

### **Preliminary Engineering Design**

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### **Preliminary Engineering Design Investigations**

The Consultant shall carry out the tasks as follows:

1. **Topographic Surveys**

Topographic surveys for the three possible sites shall be undertaken to define the existing situation and to design the works to be carried out. The survey must be tied to the National Grid system (UTM) and be plotted to a scale of 1:500 with contours at 0.5 metre intervals.

The Consultant shall promptly initiate and carry out the surveys of the project road. Surveys shall use the UTM co-ordinate system and the ARC-1950 datum consistent with Malawian topographical national mapping.

1. **Road Condition and Materials Investigation Survey**

The consultant shall carry out geotechnical investigations on any proposed new lanes and conduct all necessary soils tests to facilitate the construction of the additional lanes.

### **Environmental and Social Impact Assessment**

The Consultant shall prepare an Environmental and Social Impact Assessment in accordance with the Environment Management Act (1996).

It is the duty of the consultant to ensure that the proposed design satisfies the requirements as prescribed by the Government’s relevant environmental and social regulations and the designs as well as the tender documents should incorporate any proposal to mitigate adverse environmental and social impacts and that designs shall be submitted to relevant Government authorities for approval.

### **Preparation of preliminary drawings**

The consultant shall prepare preliminary drawings for all proposed facilities to be constructed at each of the three proposed road toll gates.

### **Detailed Architectural and Engineering Design**

### **Scope of services**

The Consultant shall undertake the detailed Architectural and Engineering design as outlined below.

### **Topographic surveys**

The Consultant shall carry out detailed topographic survey of the recommended site for the traffic road toll gates.

### **Detailed Soils and Materials Investigations**

The consultant shall carry out detailed soil investigations where additional road lanes shall be constructed. The consultant shall also carry out detailed investigations for foundations of the all structures to be built at the toll gates. The investigations shall include sources of materials to be used on the site.

### **Bill of Quantities, Bidding Document and Cost Estimate**

**(a) Bill of Quantities**

Calculated quantities for the items of work to be executed shall be based on the finalized construction drawings. The bills of quantities shall be prepared in accordance with the Standard Methods of Measurements for road and bridge works (SATCC) and for building works (NRM) respectively. Where items don’t fall within the Standard Specifications, these shall be clarified in the Particular Specifications, based on the final detailed design.

**(b) Bidding Document**

The Bidding document shall be prepared in accordance with the PPDA Standard Bidding Document.

**(c) Engineering and Architectural Drawings**

The Consultant shall prepare the following detailed Architectural and Engineering drawings in A1 and A3 sizes for each section for which a detailed design is prepared:-

1. Location plans as part of or whole of Malawi at a scale of 1: 1,000,000
2. Plan and profile drawings to a scale of 1:1,000 horizontal and 1:100 vertical for A1 size drawings, and 1:2,000 horizontal and 1:200 vertical for A3 size drawings showing running chainages, natural ground levels and design levels all at 40m intervals, horizontal and vertical curve details, side drain locations, descriptions and references to all drainage and bridge works, location and values of benchmarks and traverse stations, location of road furniture, contour lines superimposed on plans, the boundaries of the road reserve and any other relevant information, in a format approved by the client.
3. Architectural Drawings (including 3Ds) for tollgate canopy, office block and guard house
4. Structural Drawings for tollgate canopy, office block, generator house and guard house.
5. Mechanical and Electrical Drawings for tollgate canopy, office block, generator house and guard house.
6. Solar System Electrical Schematic drawings
7. Water supply drawings for pump and water tank
8. Waste water drawings
9. Fire fighting system drawings (including of fire hydrants)
10. Ethernet Local Area Network (LAN) floor plan
11. CCTV and Access Control Systems drawings
12. Drawings for Heating Ventilation Air Conditioning Drawings
13. Any other drawing which may be necessary.

**(d) Confidential Cost Estimate**

The Consultant shall prepare a confidential cost estimate of the construction cost based on the final bills of quantities.

# Key Professional Staff

The Consultant shall provide sufficient resources to carry-out all the services required under this assignment and the input together with minimum requirements for the key professional staff are as indicated below. All the key professional staff should have graduate/first degrees as a minimum qualifications and the experts must be registered with professional bodies within their fields of expertise. The Consultant will be required to apportion the key professionals’ contingent and inputs to the technical proposal.

|  |  |  |
| --- | --- | --- |
| **Item** | **Description** | **Man**  **Month** |
| a | Team Leader | 3 |
| b | Architect | 2 |
| c | ICT Specialist | 1 |
| d | Materials/ Pavement Engineer | 2 |
| e | Structural Engineer | 2 |
| f | Environmental and Social Expert | 1 |
| g | Land Surveyor | 1 |
| h | Quantity Surveyor | 2 |
| i | Building Services Engineer | 2 |

The Consultant's personnel, nominated for this project, shall be suitably qualified and experienced. As a guide, the following is an indication of the minimum level of training and experience expected of the key members of the design team:

* + - 1. Team Leader – Lead Designer with a minimum qualification of B.Sc. in Civil Engineering or Architecture, and registered with the relevant professional body, and must have at least 15 years of working experience and at least 3 projects as a Team Leader in the last 10 years.
      2. Architect – with a minimum qualification of BSc. in Architecture, and registered with the relevant professional body, and must have at least 10 years of working experience in design works and should have undertaken at least 3 major commercial building projects in the last 10 years.

ICT Specialist with a minimum qualification of BSc. in Computer related field and must have at least 10 years of working experience in ICT and should have undertaken at least 3 projects related to the design and implementation of an enterprise Local Area Network.

* + - 1. Materials Engineer with a minimum qualification of BSc. in Civil Engineering or Geotechnical Engineering, and registered with the relevant professional body, and must have at least 10 years of working experience in road works, and should have undertaken 3 design projects as a materials engineer.
      2. Structural Engineer with a minimum qualification of BSc. in Civil or Structural Engineering, and registered with the relevant professional body, and must have at least 10 years of working experience in design works and structures, and should have undertaken 3 design projects as a structural engineer.
      3. Environmental and Social Expert with a BSc Degree in either Environmental Science and Technology or BSc Degree in Social Sciences or its equivalent; and must have 5 years working experience. He must have undertaken at least three assignments as an Environmental or Social Expert.
      4. Land Surveyor: with BSc in Land Surveying and registered with a relevant professional body; and must have 5 years of work experience. He or She must have undertaken at least 3 construction projects as a Land Surveyor.
      5. Quantity Surveyor: with BSc in Quantity Surveying and 5 years of work experience and registered with a relevant professional body; and must have 5 years of work experience. He or She must have undertaken at least 3 construction projects as a Quantity Surveyor.
      6. Building Services Engineer with a minimum qualification of BSc. in Electrical/Mechanical Engineering, and registered with a relevant professional body; and must have 5 years of work experience. He or She must have undertaken at least 3 construction projects as a Building Services Engineer.

# Timing

The Consultant shall draw up his own proposal for a time schedule, but shall make due allowance for time required by the Roads Authority to assess and approve documents submitted by the Consultant before subsequent project tasks can be commenced. The following schedule is to be used as a guide:

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **Deliverables** | **Duration**  **(Weeks)** | **Cumulative**  **(From Effective Date)** |
| i | Inception Report Submission | 2 | 2 |
| ii | Preliminary Design Report | 3 | 5 |
| iii | Comments on Preliminary Design Report | 2 | 7 |
| iv | Draft Detailed Design Report Submission | 5 | 12 |
| v | Comments on Draft Detailed Design Report | 2 | 14 |
| vi | Final Detailed Design Report Submission | 3 | 17 |
|  | Total weeks | 17 | 13 weeks of Consultants Input and 4 weeks for Client’s comments |

The Consultant shall commence the services within 7 calendar days after the Effective Date of Contract.

The detailed engineering design phase is expected to be completed not later than Seventeen weeks (17) weeks, including comments and approvals by the Roads Authority and Environmental Affairs Department.

# Reporting Requirements

The Consultant shall prepare and submit the following reports and documents, in English, in an approved format to the Roads Authority. The comments of the Client shall be incorporated in the final version of the reports and documentation.

Seven (7) hard copies and one (1) soft copy of each of the reports/documents listed below shall be sent to the Client.

In addition, One (1) set of the final bidding documents in hard copy and one set in electronic copy (ms word and ms excel), shall also be provided. Two (2) sets of drawings shall be provided with A1 size drawings and two (2) sets with A3 size drawings. In addition, all drawings shall be submitted in AutoCAD and PDF formats

**4.5.1 Phase I: Engineering Design**

1. **Inception Report:**

The Consultant shall submit an inception report, including a quality assurance plan, within two weeks of the effective date. This report shall outline the status of Consultant’s mobilization, revised work plan, strategy, methodology and timetable of the entire assignment.

1. **Preliminary Engineering Design Report**

A Preliminary Engineering Design Report covering all the elements included under Section 4.1 shall be submitted. The report shall include details of the services carried out and the outcomes of the preliminary design with emphasis on proposed preliminary designs including proposed layout of the toll facility, soils and material investigation results, and cost estimates. The Report should attempt to comment and discuss all the elements of the entire Preliminary Design study over and above the preliminary design issues and processes.

The report shall include the findings of the preliminary designs and cost estimates, planning requirements of the socio-economic and environment impact assessments. It shall include an executive summary, summarizing all the findings and recommendations. This report will be presented including survey data, drawings, maps, plans and diagrams in A3 size to be included in the Final Report. This report has to be submitted 12 weeks after Comments on Preliminary Design Report from the date of commencement of the study

1. **Draft Detailed Design Report and Bidding Documents**

The consultant shall submit a draft detailed engineering design report including soil and material investigation and pavement design report complete with cost estimates and accompanied by a set of the draft bidding documents and all drawings, maps, plans and diagrams in A1 size. For major structures, the consultant will submit all the calculations for the design as an appendix to the report. This report has to be submitted 12 weeks after Comments on Preliminary Design Report from the date of commencement of the study.

1. **Final Detailed Design Report**

After approval of the draft detailed design report, the consultant shall submit the final report with a set of bidding documents, acceptable to the Client and the Financiers. The drawings that will form part of the bidding documents shall be in A1 size as well as reduced to A3 size. Thirteen (13) sets of the final bidding documents in hard copy and one set in electronic copy shall be provided. Two (2) sets of drawings shall be provided with A1 size drawings and two (2) sets with A3 size drawings. In addition, all drawings shall be submitted in AutoCAD and PDF formats

This report shall be submitted within two weeks after receipt of the client’s comments. The consultant will also be required to submit an electronic copy (in a flash drive) of the Final Detailed Design Report and bidding documents.

Note: The consultant shall make a presentation of the Inception report, preliminary design report and draft detailed design report to the Roads Authority and other relevant stakeholders at a meeting to be arranged in consultation with the Roads Authority.

# Data, services and facilities to be provided by the client

The Client shall provide the consultant with all requested and available data.

The Client will also assist in the facilitation for the co-operation of other government ministries and agencies, departments and other agencies as required for carrying out the works and in liaison as necessary for the same purpose. The Client will give the Consultant assistance to gain access to all information required for the proper conduct and completion of the studies.

# Obligations of the consultant

The consultant’s obligations shall include, but not be limited to the following:-

* + - 1. The Consultant shall employ well qualified and competent professional staff at all times in the execution of this assignment.

1. The Consultant shall make his own arrangements for all necessary office and living accommodation, transportation, and other supplies, computers, computer software, survey equipment, engineering investigations, materials testing, printing of reports and drawings etc. in connection with the services to be provided. All costs have to be included in the Financial Proposal.
2. Prior to commencement of the actual services, the Consultant shall formulate a quality management system and procedures for implementation of these services in accordance with these Terms of Reference and accepted professional practice.

# Payment Schedule

The services will be executed on a Lump Sum Contract basis and the payment schedule shall be as follows:-

* 10% of the Contract Price shall be paid on submission and acceptance of the Inception Report
* 20% of the Contract Price shall be paid on submission and acceptance by the client of the Preliminary Design Report.
* 40% of the Contract Price shall be paid on submission and acceptance by the client of the Draft Detailed Design Report, Draft ESIA Report and Draft Bidding Document.
* 30% of the Contract Price shall be paid on submission and acceptance by the client of the Final Detailed Engineering Design Report, ESIA Report and Bidding Document.

1. **Phase 2: Construction Supervision Stage**
   1. **Services Execution**

The services expected are mainly the supervision of the construction works whose details are outlined below:

* 1. **Consultant’s Representative on Site**

1. The Consultant shall undertake full time contract administration during construction and shall appoint a Resident Engineer acceptable to the Client for the continuous on-site construction supervision of the project; and
2. The Resident Engineer shall be the Engineer’s Representative and will act as directed by and under the supervision of the Consultant. The Consultant shall notify in writing to the Client and the Contractor the duties and limitation of authority delegated to the Resident Engineer.
   1. **Contract Preliminaries and General**
3. The Consultant shall review the qualifications of the proposed key personnel of the Contractor and make appropriate recommendations to the Client;
4. The Consultant shall receive from the Contractor, check for compliance with Contract requirements, approve and forward to the Client all performance bonds, insurance certificates and policies and guarantees relating to the Contract before submitting to the Client for acceptance; and
5. The Consultant shall monitor the contractor’s progress against programme in the mobilization of all equipment, the contractor’s camp and the contractor’s personnel.
   1. **Work Programme**

The Consultant shall:

1. Review the programme submitted by the Contractor for the execution of the Works to establish whether the methods, arrangements, order and timing of the activities are realistic and coherent in relation to the conditions pertaining on Site.
2. Identify from the approved programme the information needed by the Contractor for the execution of the works and ensure that such information is made available to the Contractor in a timely manner. The requirement for detailed drawings and information related to the drainage works should be given adequate consideration. In addition, the Consultant shall advise the Contractor on timely procurement of construction materials
   1. **Contractor’s Quality Control Plan**

The Consultant shall:

1. Review the Contractor’s quality control plan on its first submission and ensure that it is (i) compliant with the contractual requirements and (ii) sufficient for quality assurance;
2. Ensure that the contractor’s quality control plan includes provision for proper staff awareness in workmanship and safety; and
3. Monitor the Contractor’s implementation of his quality control plan and ensure that quality management and assurance is in accordance with the contractual requirements at all times.
   1. **Health and Safety**

The Consultant shall:

1. Ensure that the contractor complies with all national health and safety rules and all health and safety requirements of the contract documents;
2. Ensure that all contractor’s staff and any personnel visiting the site are properly equipped with personal protective equipment;
3. Ensure that the contractor carries sufficient training of his personnel to ensure a safe working environment;
4. Ensure that any accidents are properly reported and investigated and that preventative measures are put in place to prevent recurrence;
5. Monitor the contractor’s implementation of his traffic accommodation to ensure safety of road users including pedestrians and non-motorized traffic during the rehabilitation works;
6. Ensure that the contractor has appointed all safety personnel required by the contract documents, trained them and set up systems to allow them to function properly; and
7. Conduct regular safety meetings with the Contractor’s nominated health and safety officers.
   1. **Surveying, Setting Out and Measurements**

The Consultant shall:

1. Indicate to the contractor the location of all survey control points established during the design stage and where necessary reestablish any points that have been lost or disturbed;
2. Check all alignment and elevation control points provided to the Contractor;
3. Check all setting out of the works undertaken by the Contractor;
4. compile necessary field measurements and calculate quantities of materials incorporated in the interim payment certificates; and
5. Check the setting out of the alignment and elevations and maintain the corresponding documentation. Continuous control of pavement levels, culvert levels and levels of any other structures.
   1. **Review of Work, Rejection of Defective Work and Tests**

The Consultant shall:

1. Conduct on-site observation of the work in progress to determine if the work is proceeding in accordance with the contract schedule, and that the completed work conforms to the contract specifications;
2. Carry out quality control of construction materials through testing on site or in the laboratory, for compliance with the relevant clauses in the technical specifications. Soils and materials testing records shall be kept on site, with comments in the monthly report. The onus for all testing and control rests entirely on the Contractor. The Materials Engineer with the assistance of the Materials Technicians shall supervise all testing procedures to ensure correct testing results;
3. Verify that selection and use of materials is in accordance with the specifications. Establish procedures, criteria, and testing methods to verify the quality of the materials;
4. inform the Contractor when work is to be corrected or rejected or to be uncovered for observation, or special testing, inspection or approval in a timely manner; and
5. suggest or review and approve substitute materials when necessary. Estimate the cost of such materials and make appropriate adjustments in the specifications in consultation with the Client.
   1. **Records**

The Consultant shall:

1. maintain at the project site orderly files for correspondence, interim payment certificates, site instructions, reports, minutes of meetings, product and material submissions, additional drawings issued subsequent to the execution of the Contract, as well as Consultant’s clarifications and interpretations of the documents, progress reports and other related documents;
2. keep a diary or log book, recording Contractor’s staff hours on job site, equipment availability/ operation, weather conditions, data relative to questions of extras or deductions, list of visiting officials, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and
3. maintain a set of drawings (As-built drawings) recording all details of the work as actually executed.
   1. **Interpretation of Construction Contract Documents**

The Consultant shall:

1. Issue in good time additional details and drawings necessary for the proper execution of the contract;
2. Render interpretations necessary for the proper execution and progress of work, with reasonable promptness and in accordance with agreed time limits; and
3. Render written recommendations within a reasonable time, on all claims, disputes and other matters in question relating to the execution or progress of work or the interpretation of the contract documents.
   1. **Modifications**

The Consultant shall:

1. Consider and evaluate the Contractor’s suggestions for modifications in drawing or specifications and report them to the Client with recommendations;
2. Examine Contractor’s proposals for changes in construction and provide recommendations to the Client for approval before the changes which affect cost and quality are implemented. Changes, which do not affect cost or quality may be approved on-site and recorded in the monthly progress reports. Such changes shall be effected by written orders issued by the Consultant; and
3. Prepare any further design and drawings necessary for the information of the Contractor to enable him to carry out the Works. In particular, the Consultant shall issue all instructions related to the works for which the Contract contains only provisional items and shall be subject to approval by the Client
   1. **Measurement**

The Consultant shall:

1. Carry out measurement of the works completed on site together with the Surveyors of the contractor to be used in checking contractor’s payment and progress claims; and
2. Keep an up-to-date record of measured works on site.
   1. **Payment Certificates**

The Consultant shall review monthly interim payment applications submitted by the Contractor in accordance with the conditions of contract and upon approval forward five copies of the approved payment certificates plus all supporting measurements sheets and supporting documentation within two weeks of receipt from the Contractor with recommendations regarding payment to the Client, who will approve them and send to the Roads Fund Administration for checking and payment. The certificate shall detail the actual quantities of work items completed to date compared with the total billed quantity for each item together with the contract unit rates for each work item, materials on site, details of dayworks, any other payments to which the Contractor may be entitled to under the contract, and deductions for retentions and advance repayments.

* 1. **Financial Progress Monitoring**

The consultant shall:

1. Ensure that the contractor provides regular cash flow updates in accordance with the requirements of the works contract;
2. Monitor actual cash flows against programme; and
3. Maintain a ‘Final Cost Estimate’ which shall be published at least once per quarter and shall contain the best estimate of the final project cost taking into account changes in quantities, variation orders, claims etc.
   * 1. **Claims Control**

The consultant shall:

1. Conduct regular meetings with the Contractor to identify issues of design, technical and non-technical and commercial challenges that may give rise to delays or claims. Ensure that measures are put in place to address these;
2. Ensure that the Client is kept fully informed of all issues that the consultant believes may result in claims;
3. Identify any correspondence from the Contractor that may be construed as early warning of a claim and ensure proper record keeping is in place to monitor the issue; and
4. Review the Contractor’s ‘early warnings’ submissions and claim submissions and make recommendations in accordance with the requirements of the Contract.
   * 1. **Conferences and Liaison**

The Consultant shall:

1. Arrange a schedule of progress meetings, site inspections and other job conferences as required and notify those expected to attend. In arranging these meetings, he is expected to maintain and circulate minutes thereof; and in advance.
2. Maintain liaison with the Contractor principally through the Contractor’s Contract Manager, and assist them in understanding the construction contract drawings and documents.
   * 1. **Liaison with Local Government and Community**

The Consultant shall:

1. Through the offices of the Client in the project area ensure that the project and the contractor is properly introduced to local officials and community leaders;
2. Establish communication channels with local officials and community leaders;
3. Monitor the contractor’s relations with the local community and ensure that the Client’s local offices are aware of any community relations problems or issues; and
4. Assist the Client’s local representatives in briefing local community leaders and government officers on the progress of the project.
   * 1. **Environmental and Social Management**

The Consultant shall:

1. Check that the contractor has put in place environmental and social management procedures compliant with the contract Environmental and Social Management Plan;
2. Monitor compliance with the Environmental and Social Management Plan; and
3. Report on environmental and social compliance.
   * 1. **HIV and AIDS Awareness**

The Consultant shall:

1. Ensure that the client has put in place an HIV and AIDS awareness programme in accordance with the requirements of the contract;
2. Monitor HIV and AIDS awareness activities to ensure that the programme is being implemented; and
3. Ensure that the Contractor is liaising with local health officials over the implementation of the HIV and AIDS Awareness programme.
   * 1. **COVID 19 Guidelines**
4. Ensure that the Contractor is liaising with local health officials over the implementation of the COVID 19 prevention and awareness guidelines.
   * 1. **Completion of Construction**

The Consultant shall:

* 1. Inspect the works in the company of representatives of the Client, Ministry, Department, Agencies and the Contractor and the Sub-contractor, if any, prior to handing over of any section of the works;
  2. Prepare a final snag list of items to be completed or replaced together with a time schedule for remedying of the same;
  3. Verify that all items on the final snag list have been completed or corrected;
  4. Prior to the commencement of the Defects Liability period for any section, provide written affirmation that the works have been completed in accordance with the requirements of the contract, drawings and technical specifications, and issue a Taking-Over Certificate; and
  5. The Consultant shall maintain and keep updated a set of ‘As-Built Drawings’ on substantial completion these shall be finalized for submission with the final report.
     1. **Defects Liability Period**
  6. The Resident Engineer will provide on-site supervision of the Contractor’s operations for the first month of the Defects Liability Period;
  7. During this period outstanding construction matters will be finalized to the extent possible, and the As-Built drawings completed; and
  8. During the remaining 11 months of the Defects Liability Period, accepted as substantially completed, the Consultant will be responsible for monitoring the Contractor’s operations and for issuing any required certificates subject to the approval of the client.
     1. **Final Completion of Works**

1. Defects Liability Certificate

Immediately prior to the expiration of the Defects Liability Period for which a Taking-Over Certificate has been issued, the Consultant shall in the company of the Client, Ministries, Departments and Agencies and the Contractor inspect and provide written affirmation that the works have been completed and maintained in accordance with the contract, and issue a Defects Liability Certificate for the approval of the client.

1. Final Statement

Upon receipt from the Contractor within 56 days of the issue of the Defects Liability Certificate, the Consultant shall prepare in co-operation with the Contractor the Final Account for the contract.

* 1. **Deliverables** 
     1. **Reports**

The Roads Authority will provide, where available, standard formats for all reports listed in this section. Where such standards are provided the Consultant shall follow them and only alter the standard format with the prior approval of the Client.

* + 1. **Monthly Reports**

The Monthly Reports shall be submitted by the 25th of each month for the duration of the works and up to and including 2 months after the issuance of the Taking Over Certificate. Each shall contain as a minimum:

1. Progress Report, making use of a tracking Gant chart and with description of key events/ milestones in the applicable month, delays etc. The report shall include an assessment of the impact of accumulated delays, if any, and a projected date for completion of the project. In the event that the projected date is later than a revised date, which will result from approved time extensions, the report shall include an evaluation of a Contractor’s proposed plan for corrective measures to be implemented to increase the rate of progress and complete the project on time.
2. Financial Report including certified amounts, state of payments etc. A chart of programmed vs. actual cash flow shall be included.
3. Quality Report summarizing quality control testing and approvals issued or withheld with summaries of test results and any remedial measures.
4. Contractual Report outlining all contractual issues and disputes as well as potential areas for dispute and status of any dispute resolutions or Engineer’s adjudications.
5. Health, Safety and Environmental Report (HSE) summarizing state of compliance with the environmental management plan and environmental clauses of the specification and any site safety issues and violations.
6. Consultancy Report. Status of the consultancy contract, state of mobilization of consultant’s personnel during the month of reporting, status of invoices and payments and status of contractual issues regarding the consultancy contract including extensions of time, claims for additional cost and requests to change staff.
7. Progress photos covering key works shall be included.

The report submission shall include:

1. Two (2) hard copies of the complete report including any appendices
2. One **e-mailed** soft copy of the report containing one complete copy of the report and all appendices contained in a single PDF file per volume. This shall be copied to a list of e-mail addresses that will be provided and occasionally modified by the Client’s Representative.
   * 1. **Final Report**

Within 28 days of the issuance of the Taking Over Certificate, the Consultant shall prepare a Final Report, which shall highlight all major points of interest that arose during the Contract. The report will also include the summary of the type, quality, quantities and sources of materials used on the project; Contractor’s plant and personnel; problems encountered and solutions employed; changes in design and specifications and the reasons therefore; a breakdown of the final cost item by item; a summary of variation orders and expenditures of provisional sums and contingency sums.

The Final Report shall include the as built drawings.

In general, the final report shall follow the same format as the Monthly Reports.

The report submission shall include:

Draft Submission

1. Five (5) hard copies of the complete report including any appendices
2. Five (5) A3 size hard copies of the as built drawings
3. One **e-mailed** soft copy of the report containing one complete copy of the report and all appendices contained in a single PDF file per volume. This shall be copied to a list of e-mail addresses that will be provided and occasionally modified by the Client’s Representative.

Final Submission

Within one month of receipt of the Draft Report the Client shall issue his comments to the Consultant who shall then finalise the report. The final report shall be submitted no later than 28 days following the receipt of the Client’s comments. Submission shall be as follows:

1. Two (2) hard copies of the complete report including any appendices
2. Two (2) A3 Size hard copies of the as built drawings
3. Two (2) flash drive soft copies of the report containing:
   1. Copies of all word, excel, AutoCAD or other similar files used in compiling the report and as built drawings
   2. One complete copy of the report and all appendices contained in a single PDF file per volume.
      1. **Accident Reports**

A report of the circumstances of any significant accidents occurring on the site shall be forwarded to the Client with all due dispatch. Submission shall be as follows:

1. One **e-mailed** soft copy of the report containing one complete copy of the report and all appendices contained in a single PDF file per volume. This shall be copied to a list of e-mail addresses that will be provided and occasionally modified by the Client’s Representative.
2. One (1) hard copy of the complete report including any appendices submitted not later than 7 days following the e-mail delivery.
   * 1. **Claims and Extension of Time Reports**

A report detailing the Engineer’s assessment of all claims notified by the Contractor shall be prepared and submitted to the Client. Submission shall be as follows:

1. Five (5) hard copies of the complete report including any appendices
2. One **e-mailed** soft copy of the report containing one complete copy of the report and all appendices contained in a single PDF file per volume. This shall be copied to a list of e-mail addresses that will be provided and occasionally modified by the Client’s Representative.
   * 1. **Minutes of Meetings**

The Consultant shall be responsible for preparing minutes for all progress meetings and other formal meetings with the Contractor. These shall be delivered to all meeting participants as soon as possible after the meeting and never more than 7 days following the meeting. Submission shall be as follows:

1. One **e-mailed** soft copy of the minutes in word and PDF format. This shall be copied to a list of e-mail addresses that will be provided and occasionally modified by the Client’s Representative;
2. Three (3) hard copies of the signed minutes.
   1. **Interim Payment Certificates**

The Consultant shall be responsible for certifying interim payment certificates in accordance with the requirements of the Works Contract. Interim Payment Certificates will be delivered to the client not later than seven (7) days after the Contractor submits his interim statement to the Consultant:

1. One **e-mailed** soft copy of the payment certificate in MS-EXCEL and PDF format. This shall be copied to a list of e-mail addresses that will be provided and occasionally modified by the Client’s Representative; and
2. Five (5) hard copies of the payment certificate.
   1. **Final Payment Certificate**

The Consultant shall be responsible for certifying the final payment certificate in accordance with the requirements of the works contract. The Final Payment Certificates will be delivered to the client not later than 28 days after the Contractor submits his final statement to the Consultant:

1. One **e-mailed** soft copy of the payment certificate in MS-EXCEL and PDF format. This shall be copied to a list of e-mail addresses that will be provided and occasionally modified by the Client’s Representative.
2. Five (5) hard copies of the final payment certificate.
   1. **Consultants’ Personnel**

The Consultant shall provide sufficient resources to carry-out all the services required under this assignment and the input together with minimum requirements for the key professional staff are as indicated below. All the key professional staff should have graduate/first degrees as a minimum and the first three experts must be registered with professional bodies within their fields of expertise. The Consultant will be required to apportion the key professionals’ contingent and inputs to the technical proposal.

* + 1. **Construction Period (8 months)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Description** | **N0** | **Man-Month** |
| a | Resident Engineer | 1 | 8 |
| b | Architect | 1 | 4 |
| d | Materials/ Pavement Engineer | 2 | 8 |
| e | Structural Engineer | 1 | 4 |
| f | Environmental and Social Expert | 1 | 8 |
| h | Quantity Surveyor | 1 | 8 |
| i | Building Services Engineer | 1 | 4 |
| j | Clerk of Works | 2 | 8 |
| k | Materials Technician | 2 | 8 |

* + 1. **Defects Liability Period (12 months)**

|  |  |  |
| --- | --- | --- |
| **Item** | **Description** | **Man-Month** |
| 1 | Resident Engineer | 1 |
| 2 | Clerk of Works | 1 |

* + 1. **Qualification of Personnel**

The Consultant's personnel, nominated for this project, shall be suitably qualified and experienced. As a guide, the following is an indication of the minimum level of training and experience expected of the key members of the design team:

1. Team Leader – with a minimum qualification of B.Sc. in Civil Engineering or Architecture, and registered with the relevant professional body, and must have at least 15 years of working experience and at least 3 projects as a Team Leader in the last 10 years.
2. Architect – with a minimum qualification of BSc. in Architecture, and registered with the relevant professional body, and must have at least 10 years of working experience in design works and should have undertaken at least 3 major commercial building projects in the last 10 years.
3. ICT Specialist with a minimum qualification of BSc. in Computer related field and must have at least 10 years of working experience in ICT and should have undertaken at least 3 projects related to the design and implementation of an enterprise Local Area Network.
4. Materials Engineer with a minimum qualification of BSc. in Civil Engineering or Geotechnical Engineering, and registered with the relevant professional body, and must have at least 10 years of working experience in road works, and should have undertaken 3 design projects as a materials engineer.
5. Structural Engineer with a minimum qualification of BSc. in Civil or Structural Engineering, and registered with the relevant professional body, and must have at least 10 years of working experience in design works and structures, and should have undertaken 3 design projects as a structural engineer.
6. Environmental and Social Expert with a BSc Degree in either Environmental Science and Technology or BSc Degree in Social Sciences or its equivalent; and must have 5 years working experience. He must have undertaken at least three assignments as an Environmental or Social Expert.
7. Land Surveyor: with BSc in Land Surveying and registered with a relevant professional body; and must have 5 years of work experience. He or She must have undertaken at least 3 construction projects as a Land Surveyor.
8. Quantity Surveyor: with BSc in Quantity Surveying and 5 years of work experience and registered with a relevant professional body; and must have 5 years of work experience. He or She must have undertaken at least 3 construction projects as a Quantity Surveyor.
9. Building Services Engineer with a minimum qualification of BSc. in Electrical/Mechanical Engineering, and registered with a relevant professional body; and must have 5 years of work experience. He or She must have undertaken at least 3 construction projects as a Building Services Engineer.
10. Clerk of Works with a minimum qualification of Diploma in any of the following: Civil Engineering, Architectural Studies, Construction Technology or an equivalent qualification obtained from Accredited Institutions and must have at least 10 years of working experience in supervision of similar works;
11. Materials Technician with a Diploma in Civil Engineering or its equivalent and must have at least 10 years’ experience in carrying out field laboratory tests;
    * 1. **Leave, Resignations, Transfers and Replacements**

The Consultant's staff shall arrange their annual leave to coincide with the Contractor's annual recess. Should a staff member however be granted special leave outside the Contractor's annual close-down, the Consultant shall provide at no additional cost to the Employer an equally qualified person to stand in for the period that the permanent site staff member is on special leave. The special leave of a permanent site staff member as well as the person relieving a permanent site staff member shall be approved by the Employer prior to such leave being taken. The Consultant shall not transfer any staff without prior written permission of the Employer. The Consultant shall replace personnel, if deemed necessary by the Employer and fill vacancies which are created for whatever reason, e.g. resignation, illness, etc., at no additional costs to the Employer, with equally or better qualified persons approved by the Employer.

* 1. **Timing of the Assignment**

The assignment is expected to be a executed in 8 months construction period followed by a 12 month defects liability period.

* 1. **Assistance to the Consultant by the Contracting Authority** 
     1. **General Assistance during Site Supervision**

The Contracting Authority will make available the following information and support to the Consultant:

* Introduction letters to facilitate the access of the Consultant’s staff to Ministries, Government administrations, public organizations, authorities and agencies, etc, whose activities and role are relevant to the consultancy assignment; and
  + 1. **Specific Assistance during Site Supervision** 
       1. **Laboratory**

A fully equipped laboratory for all construction materials testing shall be established on site. The laboratory building, equipped as described in Section 1400 of SATCC Standard Specifications is as listed but not limited to furniture, work benches, shelving, soaking baths, extractor fans, air-conditions, roofed and open working spaces and reinforced equipment foundations will be supplied by the Contractor

To carry out the testing, the Consultant will be provided with semi-skilled- labourers under the works contract as specified in Section 1400 of SATCC Standard Specifications,

* + - 1. **Survey Equipment**

Survey work is required to ensure that works are carried out to the specifications. Quantity surveys with relevance for payment shall be carried out by the Contractor in co-operation with the Consultant.

The survey equipment required during the construction phase of the project will be supplied through the Civil Works Contract.

All electronic equipment for the processing of surveyed data shall be provided by the Consultant. The costs have to be included in his financial proposal.

* 1. **Contact Person**

The Consultant shall liaise on this project with the Roads Authority.

* 1. **Payments**

Payment of the services shall be on monthly basis and shall depend on the actual time inputs of the various staff on site.

For reimbursable claims, the Consultant shall attach expenditure supporting documents including Vehicle log books.