Kenya National Highways Authority

Quality Highways, Better Connections

TENDER No. KeNHA/R5/205/2023

CONSTRUCTION OF LESONGOY RIVER BRIDGE AND APPROACH ROADS ALONG NAMANGA - AMBOSELI GATE (B54) ROAD

RESERVED FOR YOUTH

AUGUST 2023

DIRECTOR HIGHWAY DESIGN & SAFETY **KENYA NATIONAL HIGHWAYS AUTHORITY** **P.O. BOX 49712-00100** **NAIROBI**	**DIRECTOR GENERAL** **KENYA NATIONAL HIGHWAYS AUTHORITY** **P.O. BOX 49712-00100** **NAIROBI**

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SECTION I INVITATION TO TENDER

TENDER No. KeNHA/R5/205/2023 – *CONSTRUCTION OF LESONGOY RIVER BRIDGE AND APPROACH ROADS.*

The Kenya National Highways Authority (KeNHA) is a State Corporation established under the Kenya Roads Act, 2007, with the responsibility for the management, development, rehabilitation and maintenance of national roads.

The Authority invites bids from eligible construction companies registered with the **National Construction Authority (NCA) in Category NCA 1 or NCA 2** for the **CONSTRUCTION OF LESONGOY RIVER BRIDGE AND APPROACH ROADS** to be funded through Government of Kenya Road Maintenance Levy Fund.

SCOPE OF WORK

The scope of works shall be as described in the tender document.

QUALIFICATION FOR TENDERING

Mandatory Requirements

The following **MUST** be submitted together with the bid.

1. Copy of Certificate of incorporation
2. Copy of **Valid** Annual Practising Licence with the National Construction Authority in the classes specified above
3. Copy of Completion Certificate (s) (End of Defects Certificate) in similar works.
4. Copy of **Valid** Tax Compliance Certificate
5. Copy of recent CR 12 form (Issued within the last Six 6 months from the Tender Opening Date).
6. Copy of Valid Registration Certificate for Access to Government Procurement Opportunities – (AGPO) in the category of [**Youth**] as specified in the Tender Notice.
7. Bidders shall **sequentially serialize** all pages of each tender submitted - A Guide Note on Serialization is outlined in the Notes below.

Other Requirements

As specified in the respective tender documents covering the following: -

1. Similar previous experience where applicable.
2. Professional and Technical Personnel.
3. Current work load.
4. Litigation history Current Sworn Affidavit (i.e., within three months of the tender opening date)
5. Eligibility
    a. Bidders with history of Non-performance (e.g., failure to complete the projects for the last three (3) Financial Years, notice of termination or termination of contracts in the last three (3) Financial Years will be disqualified.
    b. Only those bidders registered in the NCA 1 or NCA 2 category as indicated in the tender document shall bid for the respective tenders
    c. Any form of Canvassing will lead to disqualification

Note: All submitted Documents may be verified from the issuing agencies, KeNHA Reserves the right to verify all submitted documents

Note: Incase of Joint Venture (JV) the above mandatory requirements shall be met by all JV partners unless stated otherwise. The Youth Company in the JV shall be the lead partner and the NCA category requirements shall be NCA 1 or NCA 2.

Procurement shall be based on the post qualification method and the above details will be submitted with the priced bid.

The bidder is informed that a **pre-BID site visit is mandatory** and he/she shall examine the Site of Works and its surroundings and obtain for himself all information that may be necessary for preparing the bid and entering into a contract for construction of the Works

NOTE:

Every Bidder shall be represented by one Technical Person with a Minimum qualification of a Diploma in Civil/Highway Engineering. The Individual SHALL Bring along the following in hard copies:

1. **Original ID/Passport and a CERTIFIED Copy**
2. **CERTIFIED copy of Diploma/H. Dip./Degree Certificate**
3. **CERTIFIED Copy of Registration Certificate and proof of current subscription by Engineers Board of Kenya (EBK)/ Kenya Engineering Technology Registration Board (KETRB)/ Institute of Engineering Technologists and Technicians (IET)**
4. **Original Introductory letter bearing the Company letterhead and an Official Stamp authorizing them to represent them in the specific pre-tender site visit/Pre Tender Conference. The letter shall be duly signed. Photocopies or any other media shall not be accepted.**

    - The copies of ID/Passport, Academic Certificates, Professional Registration Certificate, proof of current subscription **SHALL** be certified by commissioner of oaths or Notaries public
    - All the above documents shall be retained by the Procuring Entity's and may be verified later for authenticity**.**

One (1) person shall only represent one (1) company per Tender.

The detailed tender notice is available in the KeNHA website and Public Procurement Information Portal (PPIP). Clarifications and Questions may be sent to **procurement@kenha.co.ke** as indicated in the Tender Notice**.**

Clarity on Serialization of Tender Documents by Prospective Bidders

Please note that all pages of the tender documents submitted by bidders shall be sequentially serialized numerically that is; 1, 2, 3, 4, 5… etc. The serialization shall be undertaken by the bidder, by doing fresh numbering on its documents. The pagination of the tender documents as downloaded from the KeNHA website should not be used as a means of Serialization. The bidder's serialization should follow the same logical sequence from the first page to the end.

Interested eligible candidates may obtain further information and inspect tender documents from the **Supply Chain Management Office, Kenya National Highways Authority, Head Office 2nd Floor, Block C Barabara Plaza, JKIA, Off Mazao Road (Opposite Aviation House)** as indicated in the Tender Notice during normal working hours.

A complete set of tender documents may be obtained by interested tenderers from the Kenya National Highways Authority website: ***www.kenha.co.ke*** or PPIP portal: ***www.tenders.go.ke*** free of charge. Bidders are encouraged to download tender documents to minimise physical visits to the **KeNHA Head Offices.**

Completed tender documents are to be enclosed in plain sealed envelope clearly marked with tender name, reference number and submitted to: -

Office of the Regional Director - Nairobi

Kenya National Highways Authority,

P. O. Box 200 - 000507,

NAIROBI, KENYA

or

deposited in the Tender Box at **KeNHA Nairobi Region, Ministry of Works Offices, Machakos Road** so as to be received on or before **the Date and Time as indicated in the Long Tender Notice.** Electronic Tenders **will not** be permitted.

All interested bidders are required to continually check the Kenya National Highways Authority website: www.kenha.co.ke for any tender addendums or clarifications that may arise before submission date.

Tenders will be opened immediately thereafter in the presence of Tenderers/Representatives who wish to attend at **KeNHA Nairobi Region, Ministry of Works Offices, Machakos Road.**

Deputy Director, Supply Chain Management
For: DIRECTOR GENERAL

PART 1 TENDERING PROCEDURES

SECTION II - INSTRUCTIONS TO TENDERERS

A. GENERAL PROVISIONS

1. Scope of Tender

The Procuring Entity as defined in the Appendix to Conditions of Contract invites tenders for Works Contract as described in the tender documents. The name, identification, and number of lots (contracts) of this Tender Document are **specified in the TDS.**

2. Fraud and Corruption

2.1 The Procuring Entity requires compliance with the provisions of the Public Procurement and Asset Disposal Act, 2015, Section 62 "Declaration not to engage in corruption". The tender submitted by a person shall include a declaration that the person shall not engage in any corrupt or fraudulent practice and a declaration that the person or his or her sub-contractors are not debarred from participating in public procurement proceedings.

2.2 The Procuring Entity requires compliance with the provisions of the Competition Act 2010, regarding collusive practices in contracting. Any tenderer found to have engaged in collusive conduct shall be disqualified and criminal and/or civil sanctions may be imposed. To this effect, Tenders shall be required to complete and sign the "Certificate of Independent Tender Determination" annexed to the Form of Tender.

2.3 Tenderers shall permit and shall cause their agents (where declared or not), subcontractors, sub-consultants, service providers, suppliers, and their personnel, to permit the Procuring Entity to inspect all accounts, records and other documents relating to any initial selection process, pre-qualification process, tender submission, proposal submission, and contract performance (in the case of award), and to have them audited by auditors appointed by the Procuring Entity.

2.4 Unfair Competitive Advantage -Fairness and transparency in the tender process require that the firms or their Affiliates competing for a specific assignment do not derive a competitive advantage from having provided consulting services related to this tender. To that end, the Procuring Entity shall indicate in the **Data Sheet** and make available to all the firms together with this tender document all information that would in that respect give such firm any unfair competitive advantage over competing firms.

3. Eligible Tenderers

3.1 A Tenderer may be a firm that is a private entity, a state-owned enterprise or institution subject to ITT 3.8, or an individual or any combination of such entities in the form of a joint venture (JV) under an existing agreement or with the intent to enter into such an agreement supported by a letter of intent. In the case of a joint venture, all members shall be jointly and severally liable for the execution of the entire Contract in accordance with the Contract terms. The JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the members of the JV during the tendering process and, in the event the JV is awarded the Contract, during contract execution. Members of a joint venture may not also make an individual tender, be a subcontractor in a separate tender or be part of another joint venture for the purposes of the same Tender. The maximum number of JV members shall be specified in the **TDS.**

3.2 Public Officers of the Procuring Entity, their Spouses, Child, Parent, Brothers or Sister. Child, Parent, Brother or Sister of a Spouse, their business associates or agents and firms/organizations in which they have a substantial or controlling interest shall not be eligible to tender or be awarded a contract. Public Officers are also not allowed to participate in any procurement proceedings.

3.3 A Tenderer shall not have a conflict of interest. Any tenderer found to have a conflict of interest shall be disqualified. A tenderer may be considered to have a conflict of interest for the purpose of this tendering process, if the tenderer:

a) Directly or indirectly controls, is controlled by or is under common control with another tenderer; or

b) Receives or has received any direct or indirect subsidy from another tenderer; or

c) Has the same legal representative as another tenderer; or

d) Has a relationship with another tenderer, directly or through common third parties, that puts it in a position to influence the tender of another tenderer, or influence the decisions of the Procuring Entity regarding this tendering process; or

e) Any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the goods or works that are the subject of the tender; or

f) any of its affiliates has been hired (or is proposed to be hired) by the Procuring Entity as a consultant for Contract implementation; or

g) Would be providing goods, works, or non-consulting services resulting from or directly related to consulting services for the preparation or implementation of the contract specified in this Tender Document; or

h) Has a close business or personal relationship with senior management or professional staff of the Procuring Entity who has the ability to influence the bidding process and:
   i) are directly or indirectly involved in the preparation of the Tender document or specifications of the Contract, and/or the Tender evaluation process of such contract; or
   ii) May be involved in the implementation or supervision of such Contract unless the conflict stemming from such relationship has been resolved in a manner acceptable to the Procuring Entity throughout the tendering process and execution of the Contract.

3.4 A tenderer shall not be involved incorrupt, coercive, obstructive or fraudulent practice. A tenderer that is proven to have been involved in any of these practices shall be automatically disqualified.

3.5 A Tenderer (either individually or as a JV member) shall not participate in more than one Tender, except for permitted alternative tenders. This includes participation as a subcontractor in other Tenders. Such participation shall result in the disqualification of all Tenders in which the firm is involved. Members of a joint venture may not also make an individual tender, be a subcontractor in a separate tender or be part of another joint venture for the purposes of the same Tender. A firm that is not a tenderer or a JV member may participate as a subcontractor in more than one tender.

3.6 A Tenderer may have the nationality of any country, subject to the restrictions pursuant to ITT3.9. A Tenderer shall be deemed to have the nationality of a country if the Tenderer is constituted, incorporated or registered in and operates inconformity with the provisions of the laws of that country, as evidenced by its articles of incorporation (or equivalent documents of constitution or association) and its registration documents, as the case may be. This criterion also shall apply to the determination of the nationality of proposed subcontractors or sub-consultants for any part of the Contract including related Services.

3.7 A Tenderer that has been debarred from participating in public procurement shall be ineligible to tender or be awarded a contract. The list of debarred firms and individuals is available from the website of PPRA www.ppra.go.ke.

3.8 A Tenderer that is a state-owned enterprise or a public institution in Kenya may be eligible to tender and be awarded a Contract(s) only if it is determined by the Procuring Entity to meet the following conditions, i.e. if it is:
   i) A legal public entity of Government and/or public administration,
   ii) financially autonomous and not receiving any significant subsidies or budget support from any public entity or Government, and
   iii) Operating under commercial law and vested with legal rights and liabilities similar to any commercial enterprise to enable it compete with firms in the private sector on an equal basis.

3.9 Firms and individuals shall be ineligible if their countries of origin are:

a) as a matter of law or official regulations, Kenya prohibits commercial relations with that country, or

b) by an act of compliance with a decision of the United Nations Security Council taken under

Chapter VII of the Charter of the United Nations, Kenya prohibits any import of goods or contracting of works or services from that country, or any payments to any country, person, or entity in that country.

A tenderer shall provide such documentary evidence of eligibility satisfactory to the Procuring Entity, as the Procuring Entity shall reasonably request.

3.10 Foreign tenderers are required to source at least forty (40%) percent of their contract inputs (in supplies, local subcontracts and labor) from citizen suppliers and contractors. To this end, a foreign tenderer shall provide in its tender documentary evidence that this requirement is met. Foreign tenderers not meeting this criterion will be automatically disqualified. Information required to enable the Procuring Entity determine if this condition is met shall be provided for this purpose in *"SECTION III-EVALUATION AND QUALIFICATION CRITERIA, Item 9"*.

3.11 Pursuant to the eligibility requirements of ITT4.10, a tender is considered a foreign tenderer, if the tenderer is not registered in Kenya or if the tenderer is registered in Kenya and has less than 51 percent ownership by Kenyan citizens. JVs are considered as foreign tenderers if the individual member firms are not registered in Kenya or if are registered in Kenya and have less than 51 percent ownership by Kenyan citizens. The JV shall not subcontract to foreign firms more than 10 percent of the contract price, excluding provisional sums.

3.12 The National Construction Authority Act of Kenya requires that all local and foreign contractors be registered with the National Construction Authority and be issued with a Registration Certificate before they can undertake any construction works in Kenya. Registration shall not be a condition for tender, but it shall be a condition of contract award and signature. A selected tenderer shall be given opportunity to register before such award and signature of contract. Application for registration with National Construction Authority may be accessed from the website www.nca.go.ke.

3.13 The Competition Act of Kenya requires that firms wishing to tender as Joint Venture undertakings which may prevent, distort or lessen competition in provision of services are prohibited unless they are exempt in accordance with the provisions of Section 25 of the Competition Act, 2010. JVs will be required to seek for exemption from the Competition Authority. Exemption shall not be a condition for tender, but it shall be a condition of contract award and signature. A JV tenderer shall be given opportunity to seek such exemption as a condition of award and signature of contract. Application for exemption from the Competition Authority of Kenya may be accessed from the website www.cak.go.ke.

4.14 A Kenyan tenderer shall be eligible to tender if it provides evidence of having fulfilled his/her tax obligations by producing a valid tax compliance or valid tax certificate issued by the Kenya Revenue Authority.

4. Eligible Goods, Equipment, and Services

4.1 Goods, equipment and services to be supplied under the Contract may have their origin in any country that is not ineligible under ITT3.9. At the Procuring Entity's request, Tenderers may be required to provide evidence of the origin of Goods, equipment and services.

4.2 Any goods, works and production processes with characteristics that have been declared by the relevant national environmental protection agency or by other competent authority as harmful to human beings and to the environment shall not be eligible for procurement.

5. Tenderer's Responsibilities

5.1 The tenderer shall bear all costs associated with the preparation and submission of his/her tender, and the Procuring Entity will in no case be responsible or liable for those costs.

5.2 The tenderer, at the tenderer's own responsibility and risk, is encouraged to visit and examine and inspect the Site of the Works and its surroundings and obtain all information that may be necessary for preparing the tender and entering into a contract for construction of the Works. The costs of visiting

the Site shall be at the tenderer's own expense.

5.3 The Tenderer and any of its personnel or agents will be granted permission by the Procuring Entity to enter up on its premises and lands for the purpose of such visit. The Tenderer shall indemnify the Procuring Entity against all liability arising from death or personal injury, loss of or damage to property, and any other losses and expenses incurred as a result of the examination and inspection.

5.4 The tenderer shall provide in the Form of Tender and Qualification Information, a preliminary description of the proposed work method and schedule, including charts, as necessary or required.

B. CONTENTS OF TENDER DOCUMENTS

6. Sections of Tender Document

6.1 The tender document consists of Parts 1, 2, and 3, which includes all the sections specified below, and which should be read in conjunction with any Addenda issued in accordance with ITT10.

PART 1: **Tendering Procedures**
Section I: Instructions to Tenderers
Section II: Tender Data Sheet (TDS)
Section III: Evaluation and Qualification Criteria Section
Section IV: Tendering Forms

PART 2: **Works' Requirements**
Section V: Bills of Quantities
Section VI: Specifications Section
VII: Drawings

PART3: **Conditions of Contract and Contract Forms**
Section VIII: General Conditions (GCC)
Section IX: Particular Conditions of Contract
Section X: Contract Forms

6.2 The Invitation to Tender Notice issued by the Procuring Entity is not part of the Contract documents.

6.3 Unless obtained directly from the Procuring Entity, the Procuring Entity is not responsible for the completeness of the Tender document, responses to requests for clarification, the minutes of a pre-arranged site visit and those of the pre-Tender meeting (if any), or Addenda to the Tender document in accordance with ITT 10. In case of any contradiction, documents obtained directly from the Procuring Entity shall prevail.

6.4 The Tenderer is expected to examine all instructions, forms, terms, and specifications in the Tender Document and to furnish with its Tender all information and documentation as is required by the Tender document.

7. Clarification of Tender Document, Site Visit, Pre-Tender Meeting

7.1 Tenderer requiring any clarification of the Tender Document shall contact the Procuring Entity in writing at the Procuring Entity's address **specified in the TDS** or raise its enquiries during the pre-Tender meeting if provided for in accordance with ITT 7.2. The Procuring Entity will respond in writing to any request for clarification, provided that such request is received no later than the period specified in the **TDS p**rior to the deadline for submission of tenders. The Procuring Entity shall forward copies of its response to all tenderers who have acquired the Tender D documents in accordance with ITT 7.4, including a description of the inquiry but without identifying its source. If so specified **in the TDS**, the Procuring Entity shall also promptly publish its response at the web page identified in the **TDS**. Should the clarification result in changes to the essential elements of the Tender Documents, the Procuring Entity shall amend the Tender Documents following the procedure under ITT 8 and ITT 22.2.

7.2 The Tenderer, at the Tenderer's own responsibility and risk, is encouraged to visit and examine and inspect the site(s) of the required contracts and obtain all information that may be necessary for preparing a tender. The costs of visiting the Site shall be at the Tenderer's own expense. The Procuring Entity shall specify in the **TDS** if a pre- arranged Site visit and or a pre-tender meeting will be held, when and where. The Tenderer's designated representative is invited to attend a pre-arranged site visit and a pre-tender meeting, as the case may be. The purpose of the site visit and the pre-tender meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

7.3 The Tenderer is requested to submit any questions in writing, to reach the Procuring Entity not later than the period specified in the **TDS** before the meeting.

7.4 Minutes of a pre-arranged site visit and those of the pre-tender meeting, if applicable, including the text of the questions asked by Tenderers and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Tenderers who have acquired the Tender Documents. Minutes shall not identify the source of the questions asked.

7.5 The Procuring Entity shall also promptly publish anonymized (*no names*) Minutes of the pre-arranged site visit and those of the pre-tender meeting at the web page identified **in the TDS**. Any modification to the Tender Documents that may become necessary as a result of the pre-arranged site visit and those of the pre-tender meeting shall be made by the Procuring Entity exclusively through the issue of an Addendum pursuant to ITT 8 and not through the minutes of the pre-Tender meeting. Non-attendance at the pre-arranged site visit and the pre-tender meeting will not be a cause for disqualification of a Tenderer.

8. Amendment of Tender Documents

8.1 At any time prior to the deadline for submission of Tenders, the Procuring Entity may amend the Tender Documents by issuing addenda.

8.2 Any addendum issued shall be part of the Tender Documents and shall be communicated in writing to all who have obtained the Tender Documents from the Procuring Entity. The Procuring Entity shall also promptly publish the addendum on the Procuring Entity's website in accordance with ITT 7.5.

8.3 To give Tenderers reasonable time in which to take an addendum into account in preparing their Tenders, the Procuring Entity should extend the deadline for the submission of Tenders, pursuant to ITT 22.2.

C. PREPARATION OF TENDERS

9. Cost of Tendering

The Tenderer shall meet all costs associated with the preparation and submission of its Tender, and the Procuring Entity shall not be responsible or liable for those costs, regardless of the conduct or outcome of the tendering process.

10. Language of Tender

The Tender, as well as all correspondence and documents relating to the tender exchanged by the tenderer and the Procuring Entity, shall be written in the English Language. Supporting documents and printed literature that are part of the Tender may be in another language provided they are accompanied by an accurate and notarized translation of the relevant passages into the English Language**,** in which case, for purposes of interpretation of the Tender, such translation shall govern.

11. Documents Comprising the Tender

11.1 The Tender shall comprise the following:

a) Form of Tender prepared in accordance with ITT 12;
b) Schedules including priced Bill of Quantities, completed in accordance with ITT 12 and ITT 14;

c) Tender Security or Tender-Securing Declaration, in accordance with ITT 19.1;
d) Alternative Tender, if permissible, in accordance with ITT 13;
e) Authorization: written confirmation authorizing the signatory of the Tender to commit the Tenderer, in accordance with ITT 20.3;
f) Qualifications: documentary evidence in accordance with ITT 17 establishing the Tenderer's qualifications to perform the Contract if its Tender is accepted;
g) Conformity: a technical proposal in accordance with ITT 16;
h) Any other document required in the TDS.

11.2 In addition to the requirements under ITT 11.1, Tenders submitted by a JV shall include a copy of the Joint Venture Agreement entered into by all members. Alternatively, a letter of intent to execute a Joint Venture Agreement in the event of a successful Tender shall be signed by all members and submitted with the Tender, together with a copy of the proposed JV Agreement. Change of membership and conditions of the JV prior to contract signature will render the tender liable for disqualification.

12. Form of Tender and Schedules

12.1 The Form of Tender and Schedules, including the Bill of Quantities, shall be prepared using the relevant forms furnished in Section IV, Tendering Forms. The forms must be completed without any alterations to the text, and no substitutes shall be accepted except as provided under ITT 20.3. All blank spaces shall be filled in with the information requested. The Tenderer shall chronologically serialize all pages of the tender documents submitted.

12.2 The Tenderer shall furnish in the Form of Tender information on commissions and gratuities, if any, paid or to be paid to agents or any other party relating to this Tender.

13. Alternative Tenders

13.1 Unless otherwise specified in the TDS, alternative Tenders shall not be considered.

13.2 When alternative times for completion are explicitly invited, a statement to that effect will be included in the **TDS**, and the method of evaluating different alternative times for completion will be described in Section III, Evaluation and Qualification Criteria.

13.3 Except as provided under ITT13.4 below, Tenderers wishing to offer technical alternatives to the requirements of the Tender Documents must first price the Procuring Entity's design as described in the Tender Documents and shall further provide all information necessary for a complete evaluation of the alternative by the Procuring Entity, including drawings, design calculations, technical specifications, breakdown of prices, and proposed construction methodology and other relevant details. Only the technical alternatives, if any, of the Tenderer with the Winning Tender conforming to the basic technical requirements shall be considered by the Procuring Entity.

13.4 When specified in the **TDS**, Tenderers are permitted to submit alternative technical solutions for specified parts of the Works, and such parts will be identified in the **TDS**, as will the method for their evaluating, and described in Section VII, Works' Requirements.

14. Tender Prices and Discounts

14.1 The prices and discounts (including any price reduction) quoted by the Tenderer in the Form of Tender and in the Bill of Quantities shall conform to the requirements specified below.

14.2 The Tenderer shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by the Tenderer shall be deemed covered by the rates for other items in the Bill of Quantities and will not be paid for separately by the Procuring Entity. An item not listed in the priced Bill of Quantities shall be assumed to be not included in the Tender, and provided that the Tender is determined substantially responsive notwithstanding this omission, the average price of the item quoted by substantially responsive Tenderers will be added to the Tender price and the equivalent total cost of the Tender so determined will be used for price comparison.

14.3 The price to be quoted in the Form of Tender, in accordance with ITT 12, shall be the total price of the Tender, including any discounts offered.

14.4 The Tenderer shall quote any discounts and the methodology for their application in the Form of Tender, in accordance with ITT 12

14.5 It will be specified in the **TDS** if the rates and prices quoted by the Tenderer are or are not subject to adjustment during the performance of the Contract in accordance with the provisions of the Conditions of Contract, excepting cases where the contract is subject to fluctuations and adjustments, not fixed price. In such a case, the Tenderer shall furnish the indices and weightings for the price adjustment formulae in the Schedule of Adjustment Data and the Procuring Entity may require the Tenderer to justify its proposed indices and weightings.

14.6 Where tenders are being invited for individual lots (contracts) or for any combination of lots (packages), tenderers wishing to offer discounts for the award of more than one Contract shall specify in their Tender the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Discounts shall be submitted in accordance with ITT 14.4, provided the Tenders for all lots (contracts) are opened at the same time.

14.7 All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 30 days prior to the deadline for submission of Tenders, shall be included in the rates and prices and the total Tender Price submitted by the Tenderer.

15. Currencies of Tender and Payment

15.1 The currency (ies) of the Tender and the currency (ies) of payments shall be the same**.**

15.2 Tenderers shall quote entirely in Kenya Shillings. The unit rates and the prices shall be quoted by the Tenderer in the Bill of Quantities, entirely in Kenya shillings

a) A Tenderer expecting to incur expenditures in other currencies for inputs to the Works supplied from outside Kenya (referred to as "the foreign currency requirements") shall (if so allowed in the **TDS**) indicate in the Appendix to Tender the percentage(s) of the Tender Price (excluding Provisional Sums), needed by the Tenderer for the payment of such foreign currency requirements, limited to no more than two foreign currencies.

b) The rates of exchange to be used by the Tenderer in arriving at the local currency equivalent and the percentage(s) mentioned in (a) above shall be specified by the Tenderer in the Appendix to Tender and shall be based on the exchange rate provided by the Central Bank of Kenya on the date 30 days prior to the actual date of tender opening. Such exchange rate shall apply for all foreign payments under the Contract.

15.3 Tenderers may be required by the Procuring Entity to justify, to the Procuring Entity's satisfaction, their local and foreign currency requirements, and to substantiate that the amounts included in the unit rates and prices and shown in the Schedule of Adjustment Data in the Appendix to Tender are reasonable, in which case a detailed breakdown of the foreign currency requirements shall be provided by Tenderers.

16. Documents Comprising the Technical Proposal

The Tenderer shall furnish a technical proposal including a statement of work methods, equipment, personnel, schedule and any other information as stipulated in Section IV, Tender Forms, insufficient detail to demonstrate the adequacy of the Tenderer's proposal to meet the work's requirements and the completion time.

17. Documents Establishing the Eligibility and Qualifications of the Tenderer

17.1 Tenderers shall complete the Form of Tender, included in Section IV, Tender Forms, to establish Tenderer's eligibility in accordance with ITT 4.

17.2 In accordance with Section IV, Evaluation and Qualification Criteria, to establish its qualifications to

perform the Contract the Tenderer shall provide the information requested in the corresponding information sheets included in Section V, Tender Forms.

17.3 If a margin of preference applies as specified in accordance with ITT33. 1, national tenderers, individually or in joint ventures, applying for eligibility for national preference shall supply all information required to satisfy the criteria for eligibility specified in accordance with ITT 33.1.

17.4 Tenderers shall be asked to provide, as part of the data for qualification, such information, including details of ownership, as shall be required to determine whether, according to the classification established by the Procuring Entity, a particular contract or group of contractors qualifies for a margin of preference. Further the information will enable the Procuring Entity identify any actual or potential conflict of interest in relation to the procurement and/or contract management processes, or possibility of collusion between tenderers, and there by help to prevent any corrupt influence in relation to the procurement process or contract management.

17.5 The purpose of the information described **in ITT 17.2** above overrides any claims to confidentiality which a tenderer may have. There can be no circumstances in which it would be justified for a tenderer to keep information relating to its ownership and control confidential where it is tendering to undertake public sector work and receive public sector funds. Thus, confidentiality will not be accepted by the Procuring Entity as a justification for a Tenderer's failure to disclose, or failure to provide required information on its ownership and control.

17.6 The Tenderer shall provide further documentary proof, information or authorizations that the Procuring Entity may request in relation to ownership and control which information on any changes to the information which was provided by the tenderer under ITT 6.4. The obligations to require this information shall continue for the duration of the procurement process and contract performance and after completion of the contract, if any change to the information previously provided may reveal a conflict of interest in relation to the award or management of the contract.

17.7 All information provided by the tenderer pursuant to these requirements must be complete, current and accurate as at the date of provision to the Procuring Entity. In submitting the information required pursuant to these requirements, the Tenderer shall warrant that the information submitted is complete, current and accurate as at the date of submission to the Procuring Entity.

17.8 If a tenderer fails to submit the information required by these requirements, its tender will be rejected. Similarly, if the Procuring Entity is unable, after taking reasonable steps, to verify to a reasonable degree the information submitted by a tenderer pursuant to these requirements, then the tender will be rejected.

17.9 If information submitted by a tenderer pursuant to these requirements, or obtained by the Procuring Entity (whether through its own enquiries, through notification by the public or otherwise), shows any conflict of interest which could materially and improperly benefit the tenderer in relation to the procurement or contract management process, then:

i) If the procurement process is still on going, the tenderer will be disqualified from the procurement process,
ii) If the contract has been awarded to that tenderer, the contract award will be set aside,
iii) the tenderer will be referred to the relevant law enforcement authorities for investigation of whether the tenderer or any other persons have committed any criminal offence.

17.10 If a tenderer submits information pursuant to these requirements that is incomplete, inaccurate or out-of-date, or attempts to obstruct the verification process, then the consequences ITT 17.8 will ensue unless the tenderer can show to the reasonable satisfaction of the Procuring Entity that any such act was not material, or was due to genuine error which was not attributable to the intentional act, negligence or recklessness of the tender.

18. Period of Validity of Tenders

18.1. Tenders shall remain valid for the Tender Validity period specified in the **TDS**. The Tender Validity period starts from the date fixed for the Tender submission deadline (as prescribed by the Procuring Entity in accordance with ITT 22). A Tender valid for a shorter period shall be rejected by the Procuring Entity as non-responsive.

18.2 In exceptional circumstances, prior to the expiration of the Tender validity period, the Procuring Entity may request Tenderers to extend the period of validity of their Tenders. The request and the responses shall be made in writing. If a Tender Security is requested in accordance with ITT 19, it shall also be extended for thirty (30) days beyond the deadline of the extended validity period. A Tenderer may refuse the request without forfeiting its Tender security. A Tenderer granting their quest shall not be required or permitted to modify its Tender.

19. Tender Security

19.1 The Tenderer shall furnish as part of its Tender, either a Tender-Securing Declaration or a Tender Security as specified in the **TDS**, in original form and, in the case of a Tender Security, in the amount and currency **specified in the TDS**. A Tender-Securing Declaration shall use the form included in Section IV, Tender Forms.

19.2 If a Tender Security is specified pursuant to ITT19.1, the Tender Security shall be a demand guarantee in any of the following forms at the Tenderer's option:

i) a bank guarantee;
ii) a guarantee issued by a financial institution approved and licensed by the Central Bank of Kenya, from a reputable source, and an eligible country.

19.3 If an unconditional bank guarantee is issued by a bank located outside Kenya, the issuing bank shall have a correspondent bank located in Kenya to make it enforceable. The Tender Security shall be valid for thirty (30) days beyond the original validity period of the Tender, or beyond any period of extension if requested under ITT 18.2.

19.4 If a Tender Security or Tender-Securing Declaration is specified pursuant to ITT 19.1, any Tender not accompanied by a substantially responsive Tender Security or Tender-Securing Declaration shall be rejected by the Procuring Entity as non-responsive.

19.5 If a Tender Security is specified pursuant to ITT 19.1, the Tender Security of unsuccessful Tenderers shall be returned as promptly as possible upon the successful Tenderer's signing the Contract and furnishing the Performance Security and any other documents required in the TDS. The Procuring Entity shall also promptly return the tender security to the tenderers where the procurement proceedings are terminated, all tenders were determined non-responsive or a bidder declines to extend tender validity period.

19.6 The Tender Security of the successful Tenderer shall be returned as promptly as possible once the successful Tenderer has signed the Contract and furnished the required Performance Security, and any other documents required in the TDS.

19.7 The Tender Security may be forfeited or the Tender-Securing Declaration executed:

a) if a Tenderer withdraws its Tender during the period of Tender validity specified by the Tenderer on the Form of Tender, or any extension there to provided by the Tenderer; or
b) if the successful Tenderer fails to:
i) sign the Contract in accordance with ITT 47; or
ii) furnish a Performance Security and if required in the TDS, and any other documents required in the TDS.

19.8 Where tender securing declaration is executed, the Procuring Entity shall recommend to the PPRA that PPRA debars the Tenderer from participating in public procurement as provided in the law.

19.9 The Tender Security or the Tender-Securing Declaration of a JV shall be in the name of the JV that submits the Tender. If the JV has not been legally constituted into a legally enforceable JV at the time of tendering, the Tender Security or the Tender-Securing Declaration shall be in the names of all future members as named in the letter of intent referred to in ITT 4.1 and ITT 11.2.

19.10 A tenderer shall not issue a tender security to guarantee itself.

20. Format and Signing of Tender

20.1 The Tenderer shall prepare one original of the documents comprising the Tender as described in ITT 11 and clearly mark it "ORIGINAL." Alternative Tenders, if permitted in accordance with ITT 13, shall be clearly marked "ALTERNATIVE." In addition, the Tenderer shall submit copies of the Tender, in the number **specified in the TDS** and clearly mark them "COPY." In the event of any discrepancy between the original and the copies, the original shall prevail.

20.2 Tenderers shall mark as "CONFIDENTIAL" all information in their Tenders which is confidential to their business. This may include proprietary information, trade secrets, or commercial or financially sensitive information.

20.3 The original and all copies of the Tender shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Tenderer. This authorization shall consist of a written confirmation as specified in the **TDS** and shall be attached to the Tender. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the Tender where entries or amendments have been made shall be signed or initialed by the person signing the Tender.

20.4 In case the Tenderer is a JV, the Tender shall be signed by an authorized representative of the JV on behalf of the JV, and so as to be legally binding on all the members as evidenced by a power of attorney signed by their legally authorized representatives.

20.5 Any inter-lineation, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the Tender.

D. SUBMISSION AND OPENING OF TENDERS

21. Sealing and Marking of Tenders

21.1 The Tenderer shall deliver the Tender in a single sealed envelope, or in a single sealed package, or in a single sealed container bearing the name and Reference number of the Tender, addressed to the Procuring Entity and a warning not to open before the time and date for Tender opening date. Within the single envelope, package or container, the Tenderer shall place the following separate, sealed envelopes:

a) in an envelope or package or container marked "ORIGINAL", all documents comprising the Tender, as describedinITT11; and

b) in an envelope or package or container marked "COPIES" all required copies of the Tender; and

c) if alternative Tenders are permitted in accordance with ITT 13, and if relevant:

   i) in an envelope or package or container marked "ORIGINAL - ALTERNATIVE TENDER", the alternative Tender; and

   ii) in the envelope or package or container marked "COPIES-ALTERNATIVE TENDER", all required copies of the alternative Tender.

The inner envelopes or packages or containers shall:

a) Bear the name and address of the Procuring Entity.

b) Bear the name and address of the Tenderer; and

c) Bear the name and Reference number of the Tender.

21.2 If an envelope or package or container is not sealed and marked as required, the *Procuring Entity* will assume no responsibility for the misplacement or premature opening of the Tender. Tenders that were misplaced or opened prematurely will not be accepted.

22. Deadline for Submission of Tenders

22.1 Tenders must be received by the Procuring Entity at the address specified in the **TDS** and no later

than the date and time also specified in the **TDS.** When so specified in the **TDS**, Tenderers shall have the option of submitting their Tenders electronically. Tenderers submitting Tenders electronically shall follow the electronic Tender submission procedures specified in the **TDS**.

22.2 The Procuring Entity may, at its discretion, extend the deadline for the submission of Tenders by amending the Tender Documents in accordance with ITT 8, in which case all rights and obligations of the Procuring Entity and Tenderers previously subject to the deadline shall thereafter be subject to the deadline as extended.

23. Late Tenders

The Procuring Entity shall not consider any Tender that arrives after the deadline for submission of tenders, in accordance with ITT 22. Any Tender received by the Procuring Entity after the deadline for submission of Tenders shall be declared late, rejected, and returned unopened to the Tenderer.

24. Withdrawal, Substitution, and Modification of Tenders

24.1 A Tenderer may withdraw, substitute, or modify its Tender after it has been submitted by sending a written notice, duly signed by an authorized representative, and shall include a copy of the authorization in accordance with ITT 20.3, (except that withdrawal notices do not require copies). The corresponding substitution or modification of the Tender must accompany the respective written notice. All notices must be:

a) prepared and submitted in accordance with ITT 20 and ITT 21 (except that withdrawals notices do not require copies), and in addition, the respective envelopes shall be clearly marked "WITHDRAWAL," "SUBSTITUTION," "MODIFICATION;" and

b) received by the Procuring Entity prior to the deadline prescribed for submission of Tenders, in accordance with ITT 22.

24.2 Tenders requested to be withdrawn in accordance with ITT 24.1 shall be returned unopened to the Tenderers.

24.3 No Tender may be withdrawn, substituted, or modified in the interval between the deadline for submission of Tenders and the expiration of the period of Tender validity specified by the Tenderer on the Form of Tender or any extension thereof.

25. Tender Opening

25.1 Except in the cases specified in ITT 23 and ITT 24.2, the Procuring Entity shall publicly open and read out all Tenders received by the deadline, at the date, time and place specified **in the TDS**, in the presence of Tenderers' designated representatives and anyone who chooses to attend. Any specific electronic Tender opening procedures required if electronic Tendering is permitted in accordance with ITT 22.1, shall be as specified in the **TDS.**

25.2 First, envelopes marked "WITHDRAWAL" shall be opened and read out and the envelopes with the corresponding Tender shall not be opened but returned to the Tenderer. No Tender withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out attender opening.

25.3 Next, envelopes marked "SUBSTITUTION" shall be opened and read out and exchanged with the corresponding Tender being substituted, and the substituted Tender shall not be opened, but returned to the Tenderer. No Tender substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at Tender opening.

25.4 Next, envelopes marked "MODIFICATION" shall be opened and read out with the corresponding Tender No. Tender modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at Tender opening.

25.5 Next, all remaining envelopes shall be opened one at a time, reading out: the name of the Tenderer

and whether there is a modification; the total Tender Price, per lot (contract) if applicable, including any discounts and alternative Tenders; the presence or absence of a Tender Security or Tender-Securing Declaration, if required; and any other details as the Procuring Entity may consider appropriate.

25.6 Only Tenders, alternative Tenders and discounts that are opened and read out at Tender opening shall be considered further for evaluation. The Form of Tender and pages of the Bill of Quantities (to be decided on by the tender opening committee) are to be initialed by the members of the tender opening committee attending the opening.

25.7 At the Tender Opening, the Procuring Entity shall neither discuss the merits of any Tender nor reject any Tender (except for late Tenders, in accordance with ITT 23.1).

25.8 The Procuring Entity shall prepare minutes of the Tender Opening that shall include, as a minimum:

a) The name of the Tenderer and whether there is a withdrawal, substitution, or modification;
b) The Tender Price, per lot (contract) if applicable, including any discounts;
c) any alternative Tenders;
d) the presence or absence of a Tender Security, if one was required.
e) number of pages of each tender document submitted.

25.9 The Tenderers' representatives who are present shall be requested to sign the minutes. The omission of a Tenderer's signature on the minutes shall not invalidate the contents and effect of the minutes. A copy of tender opening register shall be issued to a tenderer upon request.

E. Evaluation and Comparison of Tenders

26. Confidentiality

26.1 Information relating to the evaluation of Tenders and recommendation of contract award shall not be disclosed to Tenderers or any other persons not officially concerned with the Tender process until information on Intention to Award the Contract is transmitted to all Tenderers in accordance with ITT 43.

26.2 Any effort by a Tenderer to influence the Procuring Entity in the evaluation of the Tenders or Contract award decisions may result in the rejection of its tender.

26.3 Notwithstanding ITT 26.2, from the time of tender opening to the time of contract award, if a tenderer wishes to contact the Procuring Entity on any matter related to the tendering process, it shall do so in writing.

27. Clarification of Tenders

27.1 To assist in the examination, evaluation, and comparison of the tenders, and qualification of the tenderers, the Procuring Entity may, at its discretion, ask any tenderer for a clarification of its tender, given a reasonable time for a response. Any clarification submitted by a tenderer that is not in response to a request by the Procuring Entity shall not be considered. The Procuring Entity's request for clarification and the response shall be in writing. No change, including any voluntary increase or decrease, in the prices or substance of the tender shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Procuring Entity in the evaluation of the tenders, in accordance with ITT 31.

27.2 If a tenderer does not provide clarifications of its tender by the date and time set in the Procuring Entity's request for clarification, its Tender may be rejected.

28. Deviations, Reservations, and Omissions

28.1 During the evaluation of tenders, the following definitions apply:

a) "Deviation" is a departure from the requirements specified in the tender document;

b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the tender document; and

c) "Omission" is the failure to submit part or all of the information or documentation required in the Tender document.

29. Determination of Responsiveness

29.1 The Procuring Entity's determination of a Tender's responsiveness is to be based on the contents of the tender itself, as defined in ITT 11.

29.2 A substantially responsive Tender is one that meets the requirements of the Tender document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that, if accepted, would:

a) Affect in any substantial way the scope, quality, or performance of the Works specified in the Contract; or

b) limit in any substantial way, inconsistent with the tender document, the Procuring Entity's rights or the tenderer's obligations under the proposed contract; or

c) if rectified, would unfairly affect the competitive position of other tenderers presenting substantially responsive tenders.

29.3 The Procuring Entity shall examine the technical aspects of the tender submitted in accordance with ITT 16, to confirm that all requirements of Section VII, Works' Requirements have been met without any material deviation, reservation or omission.

29.4 If a tender is not substantially responsive to the requirements of the tender document, it shall be rejected by the Procuring Entity and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.

30. Non-material Non-conformities

30.1 Provided that a tender is substantially responsive, the Procuring Entity may waive any non-conformities in the tender.

30.2 Provided that a Tender is substantially responsive, the Procuring Entity may request that the tenderer submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial non- conformities in the tender related to documentation requirements. Requesting information or documentation on such non-conformities shall not be related to any aspect of the price of the tender. Failure of the tenderer to comply with the request may result in the rejection of its tender.

30.3 Provided that a tender is substantially responsive, the Procuring Entity shall rectify quantifiable nonmaterial non-conformities related to the Tender Price. To this effect, the Tender Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component in the manner specified **in the TDS.**

31. Arithmetical Errors

31.1 The tender sum as submitted and read out during the tender opening shall be absolute and final and shall not be the subject of correction, adjustment or amendment in anyway by any person or entity.

31.2 Provided that the Tender is substantially responsive, the Procuring Entity shall handle errors on the following basis:

a) Any error detected if considered a major deviation that affects the substance of the tender, shall lead to disqualification of the tender as non-responsive.

b) Any errors in the submitted tender arising from a miscalculation of unit price, quantity, subtotal

and total bid price shall be considered as a major deviation that affects the substance of the tender and shall lead to disqualification of the tender as non-responsive. and

c) If there is a discrepancy between words and figures, the amount in words shall prevail

31.3 Tenderers shall be notified of any error detected in their bid during the notification of award.

32. Conversion to Single Currency

For evaluation and comparison purposes, the currency (ies) of the Tender shall be converted into a single currency **as specified in the TDS**.

33. Margin of Preference and Reservations

33.1 A margin of preference may be allowed only when the contract is open to international competitive tendering where foreign contractors are expected to participate in the tendering process and where the contract exceeds the value/threshold specified in the Regulations.

33.2 A margin of preference shall not be allowed unless it is specified so in the **TDS**.

33.3 Contracts procured on basis of international competitive tendering shall not be subject to reservations exclusive to specific groups as provided in ITT 33.4.

33.4 Where it is intended to reserve a contract to a specific group of businesses (these groups are Small and Medium Enterprises, Women Enterprises, Youth Enterprises and Enterprises of persons living with disability, as the case may be), and who are appropriately registered as such by the authority to be specified in the **TDS**, a procuring entity shall ensure that the invitation to tender specifically indicates that only businesses or firms belonging to the specified group are eligible to tender. No tender shall be reserved to more than one group. If not so stated in the Invitation to Tender and in the Tender documents, the invitation to tender will be open to all interested tenderers.

34. Nominated Subcontractors

34.1 **Unless** otherwise stated **in the TDS,** the Procuring Entity does not intend to execute any specific elements of the Works by subcontractors selected/nominated by the Procuring Entity. Incase the Procuring Entity nominates a subcontractor, the subcontract agreement shall be signed by the Subcontractor and the Procuring Entity. The main contract shall specify the working arrangements between the main contractor and the nominated subcontractor.

34.2 Tenderers may propose subcontracting up to the percentage of total value of contracts or the volume of works as specified **in the TDS**. Subcontractors proposed by the Tenderer shall be fully qualified for their parts of the Works.

34.3 Domestic subcontractor's qualifications shall not be used by the Tenderer to qualify for the Works unless their specialized parts of the Works were previously designated so by the Procuring Entity **in the TDS** as can be met by subcontractors referred to hereafter as 'Specialized Subcontractors', in which case, the qualifications of the Specialized Subcontractors proposed by the Tenderer may be added to the qualifications of the Tenderer.

35. Evaluation of Tenders

35.1 The Procuring Entity shall use the criteria and methodologies listed in this ITT and Section III, Evaluation and Qualification Criteria. No other evaluation criteria or methodologies shall be permitted. By applying the criteria and methodologies the Procuring Entity shall determine the Lowest Evaluated Tender in accordance with ITT 40.

35.2 To evaluate a Tender, the Procuring Entity shall consider the following:

a) Price adjustment in accordance with ITT 31.1(iii); excluding provisional sums and contingencies, if any, but including Day work items, where priced competitively;

b) Price adjustment due to discounts offered in accordance with ITT 14.4;
c) converting the amount resulting from applying (a) and (b) above, if relevant, to a single currency in accordance with ITT 32;
d) price adjustment due to quantifiable non-material non-conformities in accordance with ITT 30.3; and
e) any additional evaluation factors specified **in the TDS** and Section III, Evaluation and Qualification Criteria.

35.3 The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be considered in tender evaluation.

36. Comparison of Tenders

The Procuring Entity shall compare the evaluated costs of all substantially responsive Tenders established in accordance with ITT 35.2 to determine the Tender that has the lowest evaluated cost.

37. Abnormally Low Tenders and Abnormally High

Tenders Abnormally Low Tenders

37.1 An Abnormally Low Tender is one where the Tender price, in combination with other elements of the Tender, appears so low that it raises material concerns as to the capability of the Tenderer in regards to the Tenderer's ability to perform the Contract for the offered Tender Price or that genuine competition between Tenderers is compromised.

37.2 In the event of identification of a potentially Abnormally Low Tender, the Procuring Entity shall seek written clarifications from the Tenderer, including detailed price analyses of its Tender price in relation to the subject matter of the contract, scope, proposed methodology, schedule, allocation of risks and responsibilities and any other requirements of the Tender document.

37.3 After evaluation of the price analyses, in the event that the Procuring Entity determines that the Tenderer has failed to demonstrate its capability to perform the Contract for the offered Tender Price, the Procuring Entity shall reject the Tender.

Abnormally High Tenders

37.4 An abnormally high tender price is one where the tender price, in combination with other constituent elements of the Tender, appears unreasonably too high to the extent that the Procuring Entity is concerned that it (the Procuring Entity) may not be getting value for money or it may be paying too high a price for the contract compared with market prices or that genuine competition between Tenderers is compromised.

37.5 In case of an abnormally high price, the Procuring Entity shall make a survey of the market prices, check if the estimated cost of the contract is correct and review the Tender Documents to check if the specifications, scope of work and conditions of contract are contributory to the abnormally high tenders. The Procuring Entity may also seek written clarification from the tenderer on the reason for the high tender price. The Procuring Entity shall proceed as follows:
i) If the tender price is abnormally high based on wrong estimated cost of the contract, the Procuring Entity may accept or not accept the tender depending on the Procuring Entity's budget considerations.
ii) If specifications, scope of work and/or conditions of contract are contributory to the abnormally high tender prices, the Procuring Entity shall reject all tenders and may retender for the contract based on revised estimates, specifications, scope of work and conditions of contract, as the case may be.

37.6 If the Procuring Entity determines that the Tender Price is abnormally too high because genuine competition between tenderers is compromised (*often due to collusion, corruption or other*

manipulations), the Procuring Entity shall reject all Tenders and shall institute or cause competent Government Agencies to institute an investigation on the cause of the compromise, before retendering.

38. Unbalanced and/or Front-Loaded Tenders

38.1 If in the Procuring Entity's opinion, the Tender that is evaluated as the lowest evaluated price is seriously unbalanced and/or front loaded, the Procuring Entity may require the Tenderer to provide written clarifications. Clarifications may include detailed price analyses to demonstrate the consistency of the tender prices with the scope of works, proposed methodology, schedule and any other requirements of the Tender document.

38.2 After the evaluation of the information and detailed price analyses presented by the Tenderer, the Procuring Entity may as appropriate:

a) accept the Tender; or

b) require that the total amount of the Performance Security be increased at the expense of the Tenderer to a level not exceeding a 10% of the Contract Price; or

c) agree on a payment mode that eliminates the inherent risk of the Procuring Entity paying too much for undelivered works; or

d) reject the Tender,

39. Qualifications of the Tenderer

39.1 The Procuring Entity shall determine to its satisfaction whether the eligible Tenderer that is selected as having submitted the lowest evaluated cost and substantially responsive Tender, meets the qualifying criteria specified in Section III, Evaluation and Qualification Criteria.

39.2 The determination shall be based upon an examination of the documentary evidence of the Tenderer's qualifications submitted by the Tenderer, pursuant to ITT 17. The determination shall not take into consideration the qualifications of other firms such as the Tenderer's subsidiaries, parent entities, affiliates, subcontractors (other than Specialized Subcontractors if permitted in the Tender document), or any other firm(s) different from the Tenderer.

39.3 An affirmative determination shall be a prerequisite for award of the Contract to the Tenderer. A negative determination shall result in disqualification of the Tender, in which event the Procuring Entity shall proceed to the Tenderer who offers a substantially responsive Tender with the next lowest evaluated price to make a similar determination of that Tenderer's qualifications to perform satisfactorily.

40. Lowest Evaluated Tender

Having compared the evaluated prices of Tenders, the Procuring Entity shall determine the Lowest Evaluated Tender. The Lowest Evaluated Tender is the Tender of the Tenderer that meets the Qualification Criteria and whose Tender has been determined to be:

a) Most responsive to the Tender document; and

b) The lowest evaluated price.

41. Procuring Entity's Right to Accept Any Tender, and to Reject Any or All Tenders.

The Procuring Entity reserves the right to accept or reject any Tender and to annul the Tender process and reject all Tenders at any time prior to Contract Award, without there by incurring any liability to Tenderers. In case of annulment, all Tenders submitted and specifically, Tender securities, shall be promptly returned to the Tenderers.

F. AWARD OF CONTRACT

42. Award Criteria

The Procuring Entity shall award the Contract to the successful tenderer whose tender has been determined to be the Lowest Evaluated Tender.

43. Notice of Intention to enter into a Contract

Upon award of the contract and Prior to the expiry of the Tender Validity Period the Procuring Entity shall issue a Notification of Intention to Enter into a Contract/Notification of award to all tenderers which shall contain, at a minimum, the following information:

a) the name and address of the Tenderer submitting the successful tender;
b) the Contract price of the successful tender;
c) a statement of the reason(s) the tender of the unsuccessful tenderer to whom the letter is addressed was unsuccessful, unless the price information in (c) above already reveals the reason;
d) the expiry date of the Standstill Period; and
e) instructions on how to request a debriefing and/or submit a complaint during the stand still period;

44. Stand still Period

42.1 The Contract shall not be signed earlier than the expiry of a Standstill Period of 14 days to allow any dissatisfied tender to launch a complaint. Where only one Tender is submitted, the Standstill Period shall not apply.

42.2 Where a Standstill Period applies, it shall commence when the Procuring Entity has transmitted to each Tenderer the Notification of Intention to Enter into a Contract with the successful Tenderer.

45. Debriefing by the Procuring Entity

45.1 On receipt of the Procuring Entity's Notification of Intention to Enter into a Contract referred to in ITT 43, an unsuccessful tenderer may make a concern(s) regarding their tender. The Procuring Entity shall provide the debriefing within five days of receipt of the request.

45.2 Debriefings of unsuccessful Tenderers may be done in writing or verbally. The Tenderer shall bear its own costs of attending such a debriefing meeting.

46. Letter of Award

Prior to the expiry of the Tender Validity Period and upon expiry of the Standstill Period specified in ITT 42.1, upon addressing a complaint that has been filed within the Standstill Period, the Procuring Entity shall transmit the Letter of Award to the successful Tenderer. The letter of award shall request the successful tenderer to furnish the Performance Security within 21 days of the date of the letter.

47. Signing of Contract

47.1 Upon the expiry of the fourteen days of the Notification of Intention to enter into contract and upon the parties meeting their respective statutory requirements, the Procuring Entity shall send the successful Tenderer the Contract Agreement.

47.2 Within fourteen (14) days of receipt of the Contract Agreement, the successful Tenderer shall sign, date, and return it to the Procuring Entity.

47.3 The written contract shall be entered into within the period specified in the notification of award and before expiry of the tender validity period.

48. Performance Security

48.1 Within twenty-one (21) days of the receipt of the Letter of Award from the Procuring Entity, the successful Tenderer shall furnish the Performance Security and, any other documents required in the

TDS, in accordance with the General Conditions of Contract, subject to ITT 38.2 (b), using the Performance Security and other Forms included in Section X, Contract Forms, or another form acceptable to the Procuring Entity. A foreign institution providing a bank guarantee shall have a correspondent financial institution located in Kenya, unless the Procuring Entity has agreed in writing that a correspondent bank is not required.

48.2 Failure of the successful Tenderer to submit the above-mentioned Performance Security and other documents required in the **TDS** or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Tender Security. In that event the Procuring Entity may award the Contract to the Tenderer offering the next Best Evaluated Tender.

48.3 Performance security shall not be required for contract estimated to cost less than the amount specified in the Regulations.

49. Publication of Procurement Contract

Within fourteen days after signing the contract, the Procuring Entity shall publish the awarded contract at its notice boards and websites; and on the Website of the Authority. At the minimum, the notice shall contain the following information:

a) name and address of the Procuring Entity;
b) name and reference number of the contract being awarded, a summary of its scope and the selection method used;
c) the name of the successful Tenderer, the final total contract price, the contract duration.
d) dates of signature, commencement and completion of contract;
e) names of all Tenderers that submitted Tenders, and their Tender prices as read out at Tender opening.

50. Procurement Related Complaint

The procedures for making Procurement-related Complaints shall be specified in the **TDS.**

SECTION III - TENDER DATA SHEET (TDS)

The following specific data for the Works and Services to be procured shall complement, supplement, or amend the provisions in the Instructions to Tenderers (ITT). Whenever there is a conflict, the provisions herein shall prevail over those in ITT.

A. General	
ITT 2.1	The name of the contract is: **CONSTRUCTION OF LESONGOY RIVER BRIDGE AND APPROACH ROADS ALONG NAMANGA – AMBOSELI GATE (B54) ROAD** The Reference number of the Contract is: **KeNHA/R5/205/2023**
ITT2.3	The information made available to competing firms is as follows: NONE
ITT2.4	The firms that provided consultancy services for the contract being tendered for are: NONE
ITT3.1	**Incase of Joint Venture (JV) the above mandatory requirements shall be met by all JV partners unless stated otherwise. The Youth Company in the JV shall be the lead partner and the NCA category requirements shall be NCA 1 or NCA 2.**
B.	
ITT 7.1	i) The Tenderer will submit any request for clarification in writing at the Address: ***Provided in the detailed Tender Notice*** To reach the Procuring Entity not later than ten (10) days prior to the deadline of bid submission. ii) The Procuring Entity will publish the response at the Website www.kenha.co.ke
ITT 7.2	A) A **MANDATORY Pre-tender site visit** shall take place on **the day and time specified in the Long Tender Notice** at the existing Lesongoy drift located at Km19+000 from Namanga Junction**.**
ITT 7.3	The Tenderer will submit any questions in writing, to reach the Procuring Entity not later than **10 days to the submission date** The Procuring Entity will publish its response at the website www.kenha.co.ke
C. Preparation of Tenders	
ITP 11.1 (h)	The Tenderer shall submit the following additional documents in its Tender: *As indicated in the **Long Tender Notice***
ITT 13.1	Alternative Tenders shall not be considered.
ITT 13.2	Alternative times for completion shall not be permitted.
ITT 13.4	Alternative technical solutions shall not be permitted for any parts of the Works.
ITT 14.5	The prices quoted by the Tenderer shall be: **Subject to adjustment**

ITT 15.2	Foreign currency requirements not allowed.
ITT 18.1	The Tender validity period shall be **140** days from the specified date of opening as indicated in the invitation to Tender
ITT 18.2	a) The Number of days beyond the expiry of the initial tender validity period will be 60 days. The Tender price shall be adjusted by the following percentages of the tender price: *(i)* By 0 % of *the local currency portion of the Contract price adjusted to reflect local inflation during the period of extension,* *and* ***(ii)** By 0 % the foreign currency portion of the Contract price adjusted to reflect the international inflation during the period of extension.*
ITT 19.1	A tender securing declaration **shall be** required as per the prescribed form
ITT 19.2 (IV)	The other security is **Not Applicable**
ITT 19.5	Other documents required are as specified in **Form No. 3; Contract Agreement**
ITT 19.9	NOT APPLICABLE
ITT 20.1	In addition to the original of the Tender, the number of copies is: **ONE ORIGINAL BID DOCUMENT(HARDCOPY)**
ITT 20.3	The written confirmation of authorization to sign on behalf of the Tenderer shall consist of: *Certificate of Independent Tender Determination* ***Part B of Form of Tender***
D. Submission and Opening of Tenders	
ITT 21.3	A tender package or container that cannot fit in the tender box shall be received as follows: shall be received at the Supply Chain Management Offices of the location specified in the tender notice.
ITT 22.1	The Tender opening shall take place at the time and the address for Opening of Tenders provided below: **Office of the Regional Director - Nairobi** **Kenya National Highways Authority,** **P. O. Box 200 - 000507,** **NAIROBI, KENYA** Date and time of tender opening **as specified in the Tender Notice.**
ITT 25.1	Tenders **shall not be submitted** electronically.
ITT 25.6	The number of representatives of the Procuring Entity to sign is ***at least four***
E. Evaluation, and Comparison of Tenders	
ITT 30.3	The adjustment shall be based on the average price of the item or component as quoted in other substantially responsive Tenders. If the price of the item or component cannot be derived from the price of other substantially responsive Tenders, the Procuring Entity shall use its Lowest estimate.
ITT 31.2	The error shall be considered a major deviation that leads to disqualification of the tender if the percentage of the error (error over the tender price quoted) is: **± 0.1%**
ITT 32.1	The currency that shall be used for Tender evaluation and comparison

	purposes to convert at the selling exchange rate all Tender prices expressed in various currencies into a single currency is-: **Kenya Shillings**
ITT 33.2	A margin of preference *shall* apply as provided in PPAD Act 2015 and Regulations 2020
ITT 33.4	The invitation to tender is extended to all groups and does not qualify for reservations.
ITT 34.1	At this time, the Procuring Entity does not intend to execute certain specific parts of the Works by subcontractors selected in advance.
ITT 34.2	Contractor's may propose subcontracting: Maximum percentage of subcontracting permitted is: 40% *of the total contract amount.* Tenderers planning to subcontract more than 10% of total volume of work shall specify, in the Form of Tender, the activity (ies) or parts of the Works to be subcontracted along with complete details of the subcontractors and their qualification and experience.
ITT 34.3	The parts of the Works for which the Procuring Entity permits Tenderers to propose Specialized Subcontractors are designated as follows: **1.** PILING WORKS/FOUNDATION WORKS **2.** SUPERSTRUCTURE LAUNCHING For the above-designated parts of the Works that may require Specialized Subcontractors, the relevant qualifications of the proposed Specialized Subcontractors will be added to the qualifications of the Tenderer for the purpose of evaluation.
ITT 35.2 (d)	Additional requirements apply. These are detailed in the evaluation criteria in Section III, Evaluation and Qualification Criteria.
ITT 48.2	Additional requirements are: As detailed in the Qualification Criteria/Form
ITT 49.1	The procedures for making a Procurement-related Complaint are available from the PPRA website info@ppra.go.ke or complaints @ppra.go.ke. If a Tenderer wishes to make a Procurement-related Complaint, the Tenderer should submit its complaint following these procedures, in writing (by the quickest means available, that is either by hand delivery or email to: For the attention: ***Director General*** Procuring Entity: ***Kenya National Highways Authority (KeNHA)*** Email address: ***dg@kenha.co.ke*** In summary, a Procurement-related Complaint may challenge any of the following: (i) the terms of the Tender Documents; and (ii) the Procuring Entity's decision to award the contract.

SECTION IV- EVALUATION AND QUALIFICATION CRITERIA

General Provisions

1 General Provisions

1.1 This section contains the criteria that the Employer shall use to evaluate tender and qualify tenderers. No other factors, methods or criteria shall be used other than specified in this tender document. The Tenderer shall provide all the information requested in the forms included in Section IV, Tendering Forms. The Procuring Entity shall use **the Standard Tender Evaluation Document for Goods and Works** for evaluating Tenders.

1.2 Wherever a Tenderer is required to state a monetary amount, Tenderers should indicate the Kenya Shilling equivalent using the rate of exchange determined as follows:

a) For construction turnover or financial data required for each year - Exchange rate prevailing on the last day of the respective calendar year (in which the amounts for that year is to be converted) was originally established.
b) Value of single contract - Exchange rate prevailing on the date of the contract signature.
c) Exchange rates shall be taken from the publicly available source identified in the ITT 14.3. Any error in determining the exchange rates in the Tender may be corrected by the Procuring Entity.

1.3 Evaluation and contract award Criteria

The Procuring Entity shall use the criteria and methodologies listed in this Section to evaluate tenders and arrive at the Lowest Evaluated Tender. The tender that (i) meets the qualification criteria, (ii) has been determined to be substantially responsive to the Tender Documents, and (iii) is determined to have the Lowest Evaluated Tender price shall be selected for award of contract.

2. Preliminary examination for Determination of Responsiveness

The Procuring Entity will start by examining all tenders to ensure they meet in all respects the eligibility criteria and other requirements in the ITT, and that the tender is complete in all aspects in meeting the requirements of *"Part 2 – Procuring Entity's Works Requirements"*, including checking for tenders with unacceptable errors, abnormally low tenders, abnormally high tenders and tenders that are front loaded. The Standard Tender Evaluation Report for Goods and Works for evaluating Tenders provides clear guidelines on how to deal with review of these requirements. Tenders that do not pass the Preliminary Examination will be considered irresponsive and will not be considered further.

3. Tender Evaluation (ITT 35)

Price evaluation: In addition to the criteria listed in ITT 35.2 (a) – (d) the following criteria shall apply:

i) **Alternative Completion Times,** if permitted under ITT 13.2, will be evaluated as follows:

N/A

ii) **Alternative Technical Solutions** for specified parts of the Works, if permitted under ITT 13.4, will be evaluated as follows:

N/A

iii) **Other Criteria; i**f permitted under ITT 35.2(d):

N/A

4. Alternative Tenders (ITT 13.1)

An alternative if permitted under ITT 13.1, will be evaluated as follows:

The Procuring Entity shall consider Tenders offered for alternatives as specified in Part2-Works Requirements. Only the technical alternatives, if any, of the Tenderer with the Best Evaluated Tender conforming to the basic technical requirements shall be considered by the Procuring Entity.

5. Margin of Preference

7.1 If the TDS so specifies, the Procuring Entity will grant a margin of preference of fifteen percent (15%) to be loaded one valuated price of the foreign tenderers, where the percentage of shareholding of Kenyan citizens is less than fifty-one percent (51%).

7.2 Contractors applying for such preference shall be asked to provide, as part of the data for qualification, such information, including details of ownership, as shall be required to determine whether, according to the classification established by the Procuring Entity, a particular contract or or group of contractors qualifies for a margin of preference.

7.3 After Tenders have been received and reviewed by the Procuring Entity, responsive Tenders shall be assessed to ascertain their percentage of shareholding of Kenyan citizens. Responsive tenders to shall be classified into the following groups:

i) Group A: tenders offered by Kenyan Contractors and other Tenderers where Kenyan citizens hold shares of over fifty one percent (51%).

ii) Group B: tenders offered by foreign Contractors and other Tenderers where Kenyan citizens hold shares of less than fifty one percent (51%).

7.4 All evaluated tenders in each group shall, as a first evaluation step, be compared to determine the lowest tender, and the lowest evaluated tender in each group shall be further compared with each other. If, as a result of this comparison, a tender from Group A is the lowest, it shall be selected for the award. If a tender from Group B is the lowest, an amount equal to the percentage indicated in Item 3.1 of the respective tender price, including unconditional discounts and excluding provisional sums and the cost of day works, if any, shall be added to the evaluated price offered in each tender from Group B. All tenders shall then be compared using new prices with added prices to Group Band the lowest evaluated tender from Group A. If the tender from Group A is still the lowest tender, it shall be selected for award. If not, the lowest evaluated tender from Group B based on the first evaluation price shall be selected.

8. Post qualification and Contract award (ITT 39), more specifically,

a) In case the tender <u>was subject to post-qualification</u>, the contract shall be awarded to the lowest evaluated tenderer, subject to confirmation of pre-qualification data, if so required.

b) In case the tender <u>was not subject to post-qualification</u>, the tender that has been determined to be the lowest evaluated tenderer shall be considered for contract award, subject to meeting each of the following conditions.

i) The Tenderer shall demonstrate that they have access to, or have available, liquid assets, unencumbered real assets, lines of credit, and other financial means (independent of any contractual advance payment) sufficient to meet the construction cash flow estimated at a minimum of **Kenya Shillings Five Hundred (500) Million.**

ii) Minimum <u>average</u> annual construction turnover of **Kenya Shillings Five Hundred (500) Million** equivalent calculated as total certified payments received for contracts in progress and/or completed within the last three (3) years.

iii) At least two (2) contracts of a similar nature executed within Kenya, or the East African Community or abroad, that have been satisfactorily and substantially completed within the last three (3) years as a prime contractor, or joint venture member or sub-contractor each of minimum value **Kenya Shillings Five Hundred (500) Million**

iv) Contractor's Representative and Key Personnel, which are specified as a site agent with a minimum Qualification of Bachelors in Civil/Highway Engineering, Registered as a Professional Engineer with the Engineering Board of Kenya (EBK) and at least 5 years' experience as a Site Agent. Must be Kenyan citizen.

v) Contractor's Key equipment listed on the table "Contractor's Equipment" below:

Contractor's Equipment

PLANT AND EQUIPMENT		**Max 21**
Relevant Equipment	Owned (Max 21marks) The following equipment will attract marks as indicated below; • 1No. Piling Equipment – 3mks • 1No. Concrete Batching Plant (Min Cap 10 m^3/hr)– 4mks • 1No. 50 Ton Crane – 2mks • 2No. Excavator – 2mks • 4No. Tippers (Each capacity 14 Tons)– 1mks • 1No. Dump Truck (Capacity 28 Tons)– 1mks • 1No. Flat Bed Lorry – 1mks • 1No. Wheel Loader – 2mks • 2 No. Water Bowser (Each capacity 10,000Litres)– 1mk • 1No. Pulvimixer – 2mks • 1No. Paver – 2mks	0-21
	Leased (Max 11 marks) – 1 point for set of each equipment type leased	0 - 11

vi) Other conditions depending on their seriousness.

c) **History of non-performing contracts**:
Tenderer and each member of JV incase the Tenderer is a JV, shall demonstrate that Non-performance of a contract did not occur because of the default of the Tenderer, or the member of a JV in the last three (3) years. The required information shall be furnished in the appropriate form.

d) Pending Litigation
Financial position and prospective long-term profitability of the Single Tenderer, and in the case the Tenderer is a JV, of each member of the JV, shall remain sound according to criteria established with respect to Financial Capability under Paragraph (i) above if all pending litigation will be resolved against the Tenderer. Tenderer shall provide information on pending litigations in the appropriate form.

e) Litigation History
There shall be no consistent history of court/arbitral award decisions against the Tenderer, in the last three (3) years. All parties to the contract shall furnish the information in the appropriate form about any litigation or arbitration resulting from contracts completed or ongoing under its execution over the year's specified. A consistent history of awards against the Tenderer or any member of a JV may result in rejection of the tender.

SECTION IV: EVALUATION AND QUALIFICATION CRITERIA CONTD…

This Section contains all the factors, methods and criteria that the Employer shall use to evaluate applications. The information to be provided in relation to each factor and the definitions of the corresponding terms are included in the respective Application Forms.

1. Eligibility Requirements
2. Historical Contract Non-Performance
3. Financial Situation
4. Technical/Engineering Works Experience
5. Program of Works and Work Methodology
6. Key Professional and Technical Site Staff
7. Major Plant and Equipment to be used in the Project

QUALIFICATION FORM

Item No.	Qualification Subject	Qualification Requirement	*Document To be Completed/provided by Tenderer*	*For Procuring Entity's Use (Qualification met or Not Met)*
A. PRELIMINARY EVALUATION				
1.	Nationality	Nationality in accordance with ITT 3.6	Forms ELI - 1.1, 1.2 and 1.3, with attachments	
2.	Goods, equipment and services to be supplied under the contract	To have their origin in any country that is not determined ineligible under ITT 3.9 & 4.1	Forms ELI - 1.4	
3.	Conflict of Interest	No conflicts of interest in accordance with ITT 3.3	Form of Tender	
4.	**PPRA** Eligibility	Not having been declared ineligible by the PPRA as described in ITT 3.7	Form of Tender - **Form SD 1**	
5.	State- owned Enterprise	Meets conditions of ITT 3.8	Forms ELI - 1.1 and 1.2, with attachments	
6.	Appendix to Form of Bid	Form properly filled & signed	Appendix to Form of Bid in the Prescribed Format	
7.	Suspension Based on Execution of Tender/Proposal Securing Declaration by the Procuring Entity	Not under suspension based on-execution of a Tender/Proposal Securing Declaration pursuant to ITT 3.7.	To be confirmed from Internal records by the procuring entity	
8.	Pending Litigation	Tender's financial position and prospective long-term profitability still sound according to Qualification Criteria 6(d) & 6(e) and assuming that all pending litigation will NOT be	Form CON - 1	

Item No.	Qualification Subject	Qualification Requirement	*Document To be Completed/provided by Tenderer*	*For Procuring Entity's Use (Qualification met or Not Met)*
		resolved against the Tenderer.		
9.	Litigation History	No consistent history of court/arbitral award decisions against the Tenderer for the last three (3) years.	Form CON - 1	
10.	History of Non-Performing Contracts	Non-performance of a contract did not occur as a result of contractor default for the last three (3) years. Non-performance shall be deemed to have occurred by evidence of: • Termination Letter • Liquidated Damages	Form CON-1 If a bidder fails to disclose, shall be **disqualified** Reference to be made to procuring Authority's records	
11.	Declaration of Fair employment laws and practices	Bidders shall declare they are not guilty of any serious violation of fair employment laws and practices and will be bound to abide by the industry CBA at minimum	Form CON - 2	
12.	Declaration of Knowledge of Site /Pre-Bid Conference	Attend Pre-Tender Site Visits as per TDS, ITT 5.2	Form CON - 3	
13.	Tender Security	Tender Securing Declaration document	Form in the Prescribed Format	
14.	Priced Bill of Quantities	- Fill all rates, and amounts, - NO Alterations of the Quantities accepted, - All bidders own Corrections must be Countersigned - NO Errors noted in the Bills of Quantities	Bills of Quantity in the Prescribed Format	
15.	Annual Practicing	Proof of registration with the	Copy of Current NCA	

Item No.	Qualification Subject	Qualification Requirement	*Document To be Completed/provided by Tenderer*	*For Procuring Entity's Use (Qualification met or Not Met)*
	License with the National Construction Authority	National Construction Authority in Class **1 or 2** as Roads/Bridges Contractor	Practicing License	
16.	Registration Certificate for Access to Government Procurement Opportunities (AGPO)	Registration Certificate for Access to Government Procurement Opportunities (AGPO) in ***YOUTH*** category.	Copy of Valid AGPO Certificate in ***YOUTH*** Category	
17.	Tax Obligations for Kenyan Tenderers	Has produced a current tax clearance certificate or tax exemption certificate issued by the Kenya Revenue Authority in accordance with ITT 4.14.	***Provide Valid Tax Compliance Certificate***	
18.	Serialization of the Bid	Bidders shall sequentially serialize all pages of each tender submitted. Any written Pages or document attached or inserted Documents **MUST** be sequentially serialized.	The Serialization MUST be numerically sequential starting from Numeric 1.	
19.	Completeness of tender document	The person or persons signing the bid **shall** initial all pages of the bid where entries have been made.	All pages with entries (Typed or hand written) must be initialed. Any alterations made in the tender document must be countersigned.	

Item No.	Qualification Subject	Qualification Requirement	*Document To be Completed/provided by Tenderer*	*For Procuring Entity's Use (Qualification met or Not Met)*
B. TECHNICAL EVALUATION				
1.	**Financial Capabilities**	(i) Bidders shall provide audited balance sheets or, if not required by the laws of the Tenderer's country, other financial statements acceptable to the Procuring Entity, for the last ***3 years*** shall be submitted and must demonstrate the current soundness of the Tenderer's financial position and indicate its prospective long-term profitability (as demonstrated by Financial Evaluation ratios).	Form FIN - 3.1, with attachments Attachments include: i. Audited accounts All pages must be initialed and stamped by both a practicing Auditor registered with ICPAK and one of the Directors. Auditor's practicing membership number from ICPAK must be indicated and a valid practicing license shall be provided. The Financial ratio Form to be signed by the Auditor registered with ICPAK and one of the Directors ii. Financial Ratios Computation shall be made for the following Ratios and marks awarded to each of the ratios: -Working Capital - Debt to Equity Ratio - Current ratio	(i) 0 – 6 Marks

Item No.	Qualification Subject	Qualification Requirement	*Document To be Completed/provided by Tenderer*	*For Procuring Entity's Use (Qualification met or Not Met)*
		(ii) The Tenderer shall demonstrate that they have access to, or have available, liquid assets, unencumbered real assets, lines of credit, and other financial means (independent of any contractual advance payment) sufficient to meet the construction cash flow **estimated at Ksh Five Hundred (500) Million.** The Tenderers shall also demonstrate, to the satisfaction of the Procuring Entity, that they have adequate sources of finance to meet the cash flow requirements on works currently in progress and for future contract commitments. (iii) Bank statements for six (6) months up to date of tender opening.	- Operating Cash Flow ratio • Line of Credit • Working Capital • Operating Cash Flow ratio • Bank statements Etc.	(ii) 0 – 5 Marks (iii) 0 – 5 Marks
	Average Annual Construction Turnover	i) (iii)Minimum average annual construction turnover of Kenya Shillings **Five Hundred (500) Million.** equivalent calculated as total certified payments received for contracts in progress and/or completed within the last ***3 year*** years, divided by ***3 years***	Form FIN - 3.2 ***Attachments include Financial Statements***	0 – 8 Marks

Item No.	Qualification Subject	Qualification Requirement	*Document To be Completed/provided by Tenderer*	*For Procuring Entity's Use (Qualification met or Not Met)*
2.	**Ongoing Works**	The total value of outstanding works on the on-going contracts should not exceed the average annual turnover for the last three years.	Form FIN - 3.3 Any bidder with more than 2 ongoing projects (not completed) loses two marks.	0 – 4 Marks
	General Construction Experience	Experience under construction contracts in the role as a main contractor or subcontractor for at least the last Five [5] years prior to the applications submission deadline. Grading shall be based on general projects handled. Five projects and above earns maximum points and prorated downwards.	Form EXP -4.1 ***Attach Letters of Award and Completion Certificates***	0 – 5 Marks *(1 Mark for each General Construction project)*
	Specific Construction & Contract Management Experience	Participation as a Road's Contractor, Management Contractor or Subcontractor, in at least two (2) Road/Bridges construction contracts in East Africa Community with a value of at least **Kshs. Five Hundred (500) Million each, successfully and substantially completed within the last 5 years.** The similarity shall be based on the following minimum construction experience; • Construction of concrete bored Piles – 150 m total length • Earthworks (cut or fill) - 27,000 • Improved Gravel or Graded crushed stone for base or - 4,000 m^3.	Form EXP 4.2(a)&(b) ***Provide Letters of Award and Completion Certificates and write-up indicating description of works*** ***For subcontracted works, the bidder should provide the following;*** • ***Award letter of the main contractor*** • ***Award letter of the subcontract.*** • ***Completion letter of the subcontract and write-up indicating description of***	• 0-5 marks • 0-3 marks • 0-3marks

<table>
<tr><th>Item No.</th><th>Qualification Subject</th><th>Qualification Requirement</th><th>Document To be Completed/provided by Tenderer</th><th>For Procuring Entity's Use (Qualification met or Not Met)</th></tr>
<tr><td></td><td></td><td>NB: The above quantities represent the upper limit, any quantity that is less than the above stated will be marked on a pro rata basis.</td><td>works
• Subcontract approval from the Engineer/supervision Authority</td><td>• 0-3marks</td></tr>
<tr><td>3.</td><td>Contractor's Representative and Key Personnel</td><td>Curriculum Vitae (CVs) of the Proposed Key Staff must be presented in the provided format and duly signed by the proposed individual.
Copies of certificates and Annual Practicing Licenses (for Engineers) and Academic Certificates for all staff is mandatory;</td><td>Schedule F (Form PER. 1 and PER. 2)</td><td>16 Marks</td></tr>
<tr><td colspan="5"><table>
<tr><th colspan="3">KEY PERSONNEL</th><th>Max 16</th></tr>
<tr><td rowspan="6">Site Agent (Max 9 marks)
*Must be Kenyan Citizen (0 marks if requirement not met)</td><td>Registration</td><td>Registered Engineer</td><td>3</td></tr>
<tr><td>Qualification</td><td>Degree</td><td>2</td></tr>
<tr><td rowspan="4">Relevant experience</td><td>15 years and above</td><td>4</td></tr>
<tr><td>7-14years</td><td>3</td></tr>
<tr><td>3-6 years</td><td>2</td></tr>
<tr><td>0-3years</td><td>1</td></tr>
<tr><td rowspan="6">Surveyor (Max 4marks)</td><td rowspan="3">Qualification</td><td>Degree</td><td>2</td></tr>
<tr><td>HND</td><td>1.0</td></tr>
<tr><td>Diploma</td><td>1</td></tr>
<tr><td rowspan="4">Relevant experience</td><td>15 years and above</td><td>2</td></tr>
<tr><td>7-14years</td><td>1.0</td></tr>
<tr><td>3-6 years</td><td>1</td></tr>
<tr><td>0-3years</td><td>0.5</td></tr>
<tr><td rowspan="2">Foreman (Max</td><td rowspan="2">Qualification</td><td>Degree</td><td>1.5</td></tr>
<tr><td>HND</td><td>1.0</td></tr>
</table></td></tr>
</table>

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<tr><td></td><td></td><td colspan="3"><table>
<tr><td rowspan="5">3marks)</td><td></td><td>Diploma</td><td>1</td></tr>
<tr><td rowspan="4">Relevant experience</td><td>15 years and above</td><td>1.5</td></tr>
<tr><td>7-14years</td><td>1.5</td></tr>
<tr><td>3-6 years</td><td>1.0</td></tr>
<tr><td>0-3years</td><td>1</td></tr>
</table></td><td></td><td></td></tr>
<tr><td>4.</td><td>Proposed Methodology and Work plan</td><td colspan="3"><table>
<tr><td colspan="2">WORK METHODOLOGY</td><td>Max 16</td></tr>
<tr><td rowspan="5">Adequacy and quality of the proposed methodology</td><td>Program of works & cash flow projection</td><td>0 - 3</td></tr>
<tr><td>Detailed Methodology</td><td>0 - 5</td></tr>
<tr><td>Proposed Equipment Scheduling/Work statement.</td><td>0 - 3</td></tr>
<tr><td>Methodology on safety during the construction period.</td><td>0 - 2</td></tr>
<tr><td>Methodology on Environmental and Social Safeguard issues.</td><td>0- 3</td></tr>
</table></td><td></td><td></td></tr>
<tr><td>5.</td><td>Contractors Key equipment</td><td>Bidders shall declare they have possession/Ownership of various equipment as proposed to be used in the Project by providing Logbooks that demonstrate proof of ownership
For Bidders planning to hire, they shall provide an Active Lease Agreement in Place that can be used during the Project Life. The copy of logbooks of the lessor(s) shall also be provided.</td><td>Schedule D of Technical Proposal</td><td>21 Marks</td></tr>
</table>

<table>
<tr><th>Item No.</th><th>Qualification Subject</th><th>Qualification Requirement</th><th>Document To be Completed/provided by Tenderer</th><th>For Procuring Entity's Use (Qualification met or Not Met)</th></tr>
<tr><td></td><td></td><td colspan="3">
<table>
<tr><td colspan="2">PLANT AND EQUIPMENT</td><td>Max 21</td></tr>
<tr><td>Relevant Equipment</td><td>Owned (Max 21marks)
The following equipment will attract marks as indicated below;
• 1No. Piling Equipment – 3mks
• 1No. Concrete Batching Plant – 4mks
• 1No. 50 Ton Crane – 2mks
• 2No. Excavator – 2mks
• 4No. Tippers – 1mks
• 1No. Dump Truck – 1mks
• 1No. Flat Bed Lorry – 1mks
• 1No. Wheel Loader – 2mks
• 1 No. Water Bowser – 1mk
• 1No. Pulvimixer – 2mks
• 1No. Paver – 2mks</td><td>0 - 21</td></tr>
<tr><td></td><td>Leased (Max 11 marks) – 1 point for each set of equipment type leased</td><td>0 - 11</td></tr>
</table>
</td></tr>
<tr><td colspan="5">Tenderers who score less than the required pass (75%) will be automatically disqualified. Tenderers who pass the technical evaluation will be evaluated further.</td></tr>
<tr><td colspan="5">C. FINANCIAL EVALUATION: Lowest Evaluated Bidder is subjected to Post Qualification Evaluation</td></tr>
<tr><td colspan="5">D. POST QUALIFICATION: The procuring entity shall verify the documents provided by the bidder with the issuing authority.</td></tr>
</table>

Bidders attaining 75% from the Technical Evaluation will proceed to Financial Evaluation

APPENDIX TO THE QUALIFICATION CRITERIA

ITEM		DESCRIPTION			POINT SCALE	SCORE
1	**FINANCIAL CAPACITY**				**Max 24**	
	a	Audited Statements			0-6	
	b	Line of credit			0-5	
	c	Bank statement (Last six months to the date of tender)			0-5	
	d	Turnover			0-8	
2	**EXPERIENCE**				**Max 19**	
		General Experience			0-5	
		Specific experience in related works			0-14	
3		**CURRENT COMMITMENTS**			**Max 4**	
		On-going works			0-4	
4	**KEY PERSONNEL**				**Max 16**	
		Site Agent (Max 9 marks)	Registration	Registered Engineer	3	
			Qualification	Degree	2	
			Relevant experience	15 years and above	4	
				7-14years	3	
				3-6 years	2	
				0-3years	1	
		Surveyor (Max 4marks)	Qualification	Degree	2	
				HND	1.0	
				Diploma	1	
			Relevant experience	15 years and above	2	
				7-14years	1.0	
				3-6 years	1	
				0-3years	0.5	
		Foreman (Max 3marks)	Qualification	Degree	1.5	
				HND	1.0	
				Diploma	1	
			Relevant experience	15 years and above	1.5	
				7-14years	1.5	
				3-6 years	1.0	
				0-3years	1	
5	**PLANT AND EQUIPMENT**				**Max 21**	
		Relevant Equipment	Owned (Max 21marks) The following equipment will attract marks as indicated below; • 1No. Piling Equipment – 3mks • 1No. Concrete Batching Plant (Min Cap 10 m^3/hr)– 4mks • 1No. 50 Ton Crane – 2mks		0 - 21	

ITEM		DESCRIPTION		POINT SCALE	SCORE
			• 2No. Excavator – 2mks • 4No. Tippers (Each capacity 14 Tons)– 1mks • 1No. Dump Truck (Capacity 28 Tons)– 1mks • 1No. Flat Bed Lorry – 1mks • 1No. Wheel Loader – 2mks • 2 No. Water Bowser (Each capacity 10,000Litres)– 1mk • 1No. Pulvimixer – 2mks • 1No. Paver – 2mks		
			Leased (Max 11 marks) – 1 point for each set of equipment type leased	0 - 11	
6	**WORK METHODOLOGY**			**Max 16**	
			Program of works & cash flow projection	0-3	
			Detailed Methodology	0-5	
			Proposed Equipment Scheduling/Work statement.	0-3	
			Methodology on safety during the construction period.	0-2	
			Methodology on Environmental and Social Safeguard issues.	0 -3	
	TOTAL			**MAX 100**	

SECTION V - TENDERING FORMS

1. **TENDERER'S QUALIFICATION FORMS**
   - **Form ELI - 1.1- Tenderer Information Form**
   - **Form ELI - 1.2- Tenderer JV information**
   - **Form ELI - 1.3- Qualification of Foreign Contractors**
   - **Form ELI - 1.4- Declarations of materials, equipment and labor sources**
2. **FORM OF TENDER**
   - **A. TENDERER'S ELIGIBILITY - CONFIDENTIAL BUSINESS QUESTIONNAIRE**
   - **B. CERTIFICATE OF INDEPENDENT TENDER DETERMINATION**
   - **C. SELF-DECLARATION FORMS**
     - **FORM SD1**
     - **FORM SD2**
     - **FORM SD3**
3. **APPENDIX TO FORM OF TENDER**
4. **CONTRACTUAL FORMS**
   - **FORM CON – 1**
   - **FORM CON – 2**
   - **FORM CON – 3**
5. **FINANCIAL FORMS**
   - **FORM FIN - 3 .1**
   - **FORM FIN - 3.2**
   - **FORM FIN - 3.3**
6. **TECHNICAL EXPERIENCE**
   - **FORM EXP - 4.1**
   - **FORM EXP - 4.2 (A)**
   - **FORM EXP - 4.2 (B)**
7. **TECHNICAL PROPOSAL**
   - **SCHEDULE A. Projected Cash Flow**
   - **SCHEDULE B. Site Organizations**
   - **SCHEDULE C. Subcontractors**
   - **SCHEDULE D. Contractor's Equipment**
   - **SCHEDULE E. Initial Tentative Program of Performance**
   - **SCHEDULE F. Key Personnel Proposed**
8. **FORM OF TENDER SECURITY - DEMAND GUARANTEE**
9. **FORM OF TENDER SECURITY (TENDER BOND)**
10. **FORM OF TENDER-SECURING DECLARATION**
11. **FORM OF DECLARATION OF FAIR EMPLOYMENT LAWS AND PRACTICES**
12. **FORM OF DECLARATION OF CONTRACTS TERMINATED IN THE LAST THREE (3) YEARS**

TENDERER'S QUALIFICATION FORMS

FORM ELI-1.1- TENDERER INFORMATION FORM

Form ELI-1.1
Tenderer Information Form
Date:_____ ITT No. and title: _____ Page _____of_____pages
Tenderer's name: ……..
In case of Joint Venture (JV), name of each member:……
Tenderer's actual or intended country of registration: *[indicate country of Constitution]*
Tenderer's actual or intended year of incorporation:
Tenderer's legal address [in country of registration]:
Tenderer's authorized representative information Name: Address: Telephone/Fax numbers: E-mail address:
1. Attached are copies of original documents of: I. *Certificate of Incorporation and CR12* of the legal entity named above, in accordance with ITT 4.1. *II. Copies of National Identification documents for Directors* ☐ In case of a JV, Form of intent to form JV or JV agreement, in accordance with ITT 4.1. ☐ In case of a state-owned enterprise or institution, in accordance with ITT 4.7. documents establishing: • Legal and financial autonomy • Operation under commercial law • Establishing that tenderer is not under the supervision of the Procuring Entity, 2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership (***Not Applicable***).

FORM ELI- 1.2- TENDERER JV INFORMATION

Tenderer's JV Information Form

(to be completed for each member of Tenderer's JV)

Date:_____

ITT No. and title: _____

Page_____of_____pages

Tenderer's JV name:
JV member's name:
JV member's country of registration:
JV member's year of constitution:
JV member's legal address in country of constitution:
JV member's authorized representative information Name: _____ Address: _____ Telephone/Fax numbers:_____ E-mail address:_____
1. Attached are copies of original documents of: i. Certificate of Incorporation and CR 12 of the legal entity named above, including Registered JV agreement (Registration of Documents Act) , in accordance with ITT 4.1. ii. Copies of National Identification documents for all Directors ☐ In case of a state-owned enterprise or institution, documents establishing legal and financial autonomy, operation in accordance with commercial law, and that they are not under the supervision of the Procuring Entity, in accordance with ITT 4.7. 2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership (***Not Applicable***).

FORM ELI - 1.3- QUALIFICATION OF FOREIGN CONTRACTORS

Qualification of Foreign Tenderers

Pursuant to ITT 4.10, a foreign tenderer must complete this form to demonstrate that the tender fulfils this condition (the 40% Rule).

ITEM	Description of Work Item	Describe location of source	COST in K. shillings	Comments, if any
A	Local Labour			
1				
2				
3				
4				
5				
B	Sub contracts from Local sources			
1				
2				
3				
4				
5				
C	Local materials			
1				
2				
3				
4				
5				
D	Use of Local Plant and Equipment			
1				
2				
3				
4				
5				
E	Add any other items			

1				
2				
3				
4				
5				
6				
7				
	TOTAL COST LOCAL CONTENT			
	PERCENTAGE OF CONTRACT PRICE			

FORM ELI - 1.4- DECLARATIONS OF MATERIALS, EQUIPMENT AND LABOUR SOURCES

Pursuant to ITT 5.1, tenderers must complete this form to demonstrate that the tender fulfils this condition

ITEM	Description of Work Item	Describe location of source	Comments, if any
A	**Materials**		
1			
2			
3			
4			
5			
6			
B	Equipment		
1			
2			
3			
4			
5			
C	Labour		
1			
2			
3			
4			
5			
67			
	TOTAL COST LOCAL CONTENT		
	PERCENTAGE OF CONTRACT PRICE		

Kenya National Highways Authority
Quality Highways, Better Connections

SCHEDULE OF ADJUSTMENT DATA

In this Table, the bidder shall fill in columns (d) and (e) and specify a value within the ranges given by the Employer in B, C, D, E, F, G and H of column (f), so that the total weighting equals 1.00.

The Source of Index is the Kenya National Bureau of Statistics (KNBS).

The Base Date is: _____/_____/_____
(Day) (Month) (Year)

(a) Index Code	(b) Index Description	(c) Source of Index	(d) Base Value	(e) Bidder's Proposed Weighting	(f) Range of Weighting
Fixed	Non-adjustable			0.1	A: 0.10
LB	Labour	KNBS Civil Engineering Cost Index			B: 0.01 – 0.10
EQ	Equipment & Spares	KNBS Civil Engineering Cost Index			C: 0.01 – 0.25
FU	Fuel & Lubricants	KNBS Civil Engineering Cost Index			D: 0.01 – 0.25
CE	Cement	KNBS Civil Engineering Cost Index			E: 0.05 – 0.20
RS	Reinforcement & Steel Products	KNBS Civil Engineering Cost Index			F: 0.01 – 0.10
SS	Structural Steel	KNBS Civil Engineering Cost Index			G: 0.07 – 0.10
BI	Bitumen	KNBS Civil Engineering Cost Index			H: 0.15 – 0.25
			Total		**1.00**

Signature: _____ Date: _____

(Failure to sign this schedule will Imply the bidder does not accept the above conditions and hence be disqualified from this tender.)

Note:
Indices prevailing at 28days before the tender submission deadline shall apply.

FORM OF TENDER

INSTRUCTIONS TO TENDERERS

(i) The Tenderer must prepare this Form of Tender on stationery with its letterhead clearly showing the Tenderer's complete name and business address.

(ii) All italicized text is to help Tenderer in preparing this form.

(iii) Tenderer must complete and sign and TENDERER'S ELIGIBILITY- CONFIDENTIAL BUSINESS QUESTIONNAIRE, CERTIFICATE OF INDEPENDENT TENDER DETERMINATION and the SELF DECLARATION OF THE TENDERER, all attached to this Form of Tender.

i) The Form of Tender shall include the following Forms duly completed and signed by the Tenderer.

A) Tenderer's Eligibility- Confidential Business Questionnaire

B) Certificate of Independent Tender Determination

C) Self-Declaration of the Tenderer

FORM OF TENDER

Date of this Tender submission: **As indicated in the Tender Notice**

Invitation to Tender No.: **KeNHA/R5/205/2023** Alternative No.: *[Not Applicable]*

To:

_____

We, the undersigned, declare that:

a) *No reservations:* We have examined and have no reservations to the tendering document, including Addenda issued in accordance with Instructions to Tenderers (ITT) ;

b) *Eligibility:* We meet the eligibility requirements and have no conflict of interest in accordance with ITT4;

c) *Tender-Securing Declaration:* We have not been suspended nor declared ineligible by the Procuring Entity based on execution of a Tender-Securing Declaration or Proposal-Securing Declaration in Kenya in accordance with ITT 4.8.

d) *Conformity:* We offer to execute in conformity with the tendering document and in accordance with the construction or service schedule the following Works:
CONSTRUCTION OF LESONGOY RIVER BRIDGE AND APPROACH ROADS ALONG NAMANGA –AMBOSELI GATE (B54) ROAD

Tender No.: KeNHA/R5/205/2023

Tender Price: The total price of our Tender is [name of currency] (*amount in figures and words*).

……

……

……

……

e) *Combined Price:* We hereby confirm that our combined price for Rehabilitation Works and Improvement Works does not exceed the threshold given in the TDS ITT 37.5, which is [insert percentage of the total contract price].

f) *Tender Validity Period*: Our Tender shall be valid for a period specified in TDS 18.1 (or as amended if applicable) from the date fixed for the Tender submission deadline specified in TDS 22.1 (or as amended if applicable), and it shall remain binding upon us and may be accepted at any time before the expiration of that period;

g) *Performance Security:* If our Tender is accepted, we commit to obtain a Performance Security in accordance with the tendering document;

h) *One Tender per Tenderer:* We are not submitting any other Tender (s) as an individual Tenderer, and we are not participating in any other Tender(s) as a Joint Venture member or as a subcontractor, and meet the requirements of ITT 4.4, other than alternative Tenders submitted in accordance with ITT 13;

a) *Suspension and Debarment:* We, along with any of our subcontractors, suppliers, consultants, manufacturers, or service providers for any part of the contract, are not subject to, and not controlled by any entity or individual that is subject to, a temporary suspension or a debarment imposed by the Procuring Entity. Further, we are not ineligible under Kenya laws or official regulations or pursuant to a decision of the United Nations Security Council;

b) *State-owned enterprise or institution:* [select the appropriate option and delete the other] [We are not a state-owned enterprise or institution] / [We are a state-owned enterprise or institution but meet the requirements of ITT 4.7];

c) *Commissions, gratuities and fees:* We have paid, or will pay the following commissions, gratuities, or fees with respect to the Tendering process or execution of the Contract: [insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity].

Name of Recipient	Address	Reason	Amount
___	___	___	___
___	___	___	___

(If none has been paid or is to be paid, indicate "none.").

d) *Binding Contract:* We understand that this Tender, together with your written acceptance thereof included in your Form of Acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed;

e) *Not Bound to Accept:* We understand that you are not bound to accept the lowest evaluated cost Tender, the Best Evaluated Tender or any other Tender that you may receive;

f) *Fraud and Corruption:* We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf engages in any type of Fraud and Corruption;

g) *Collusive practices:* We hereby certify and confirm that the tender is genuine, non-collusive and made with the intention of accepting the contract if awarded. To this effect we have signed the "Certificate of Independent Tender Determination" attached below.

r) We undertake to adhere by the Code of Ethics for Persons Participating in Public Procurement and Asset Disposal, copy available from www.ppra.go.ke during the procurement process and the execution of any resulting contract.

s) We, the Tenderer, have completed fully and signed the following Forms as part of our Tender:

a) Tenderer's Eligibility; Confidential Business Questionnaire – to establish we are not in any conflict to interest.

b) Certificate of Independent Tender Determination – to declare that we completed the tender without colluding with other tenderers.

a) Self-Declaration of the Tenderer – to declare that we will, if awarded a contract, not engage in any form of fraud and corruption.

b) Declaration and commitment to the Code of Ethics for Persons Participating in Public Procurement and Asset Disposal.

t) Further, we confirm that we have read and understood the full content and scope of fraud and corruption as informed in "Appendix 1- Fraud and Corruption" attached to the Form of Tender.

Name of the Tenderer:

……
…….

Name of the person duly authorized to sign the Tender on behalf of the Tenderer:

……
……

Title of the person signing the Tender:

……
……
Signature of the person named above:

…….....
.....

Date signed…… day of ……, Year ……..

Name in the capacity of_____

Signed

Duly authorized to sign the Tender for and on behalf of

Dated on_____day of_____, _____

A. TENDERER'S ELIGIBILITY - CONFIDENTIAL BUSINESS QUESTIONNAIRE

Instruction to Tenderer

Tender is instructed to complete the particulars required in this Form, one form for each entity if Tender is a JV. Tenderer is further reminded that it is an offence to give false information on this Form.

a) Tenderer's details

	ITEM	
1	Name of Procuring Entity	Kenya National Highways Authority
2	Reference Number of the Tender	
3	Date and Time of Tender Opening	
4	Name of Tenderer	
5	Full Address and Contact Details of the Tenderer	1. Country 2. City 3. Location 4. Building 5. Floor 6. Postal Address 7. Name and email of contact person
6	Current Trade License Registration Number and Expiring date	
	Name, country and full address (postal and physical addresses, email, and telephone number) of Registering Body/Agency	
7	Description of Nature of Business	
8	Maximum value of business which the Tenderer handles	
9	State if Tenders Company is listed in stock exchange, give name and full address (*postal and physical addresses, email, and telephone number*) of state which stock exchange	

General and Specific Details

b) Sole Proprietor, provide the following details

Name in full_____Age_____

Nationality_____Country of Origin_____

Citizenship _____

c) Partnership, provide the following details.

	Name of Partners	**Nationality**	**Citizenship**	**%Shares Owned**
1				
2				
3				

(d) Registered Company, provide the following details.

i) Private or public Company_____

ii) State the nominal and issued capital of the Company-

Nominal Kenya Shillings
(Equivalent).....

Issued Kenya Shillings
(Equivalent).....

iii) Give details of Directors as follows.

	Name of Directors	**Nationality**	**Citizenship**	**%Shares Owned**
1				
2				
3				

e) DISCLOSURE OF INTEREST - Interest of the Firm in the Procuring Entity.

i) Are there any person/persons in…… *(Name of Procuring Entity)* who has/have an interest or relationship in this firm? Yes/No……

If yes, provide details as follows.

	Name of Person	**Designation in the Procuring Entity**	**Interest or Relationship with Tenderer**
1			
2			
3			

ii) Conflict of interest disclosure

	Type of Conflict	**Disclosure YES or NO**	**If YES provide details of the relationship with Tenderer**
1	Tenderer is directly or indirectly controls, is controlled or is under common control with another tenderer.		
2	Tenderer receives or has received any direct or indirect subsidy from another tenderer.		
3	Tenderer has the same legal representative as another tenderer		
4	Tender has a relationship with another tenderer, directly or through common third parties, that puts it in a position to influence the tender of another tenderer, or influence the decisions of the Procuring Entity regarding this tendering process		

	Type of Conflict	Disclosure YES or NO	If YES provide details of the relationship with Tenderer
5	Any of the Tenderer's affiliates participated as a consultant in the preparation of the design or technical specifications of the works that are the subject of the tender.		
6	Tenderer would be providing goods, works, non-consulting services or consulting services during implementation of the contract specified in this Tender Document.		
7	Tenderer has a close business or family relationship with a professional staff of the Procuring Entity who are directly or indirectly involved in the preparation of the Tender document or specifications of the Contract, and/or the Tender evaluation process of such contract.		
8	Tenderer has a close business or family relationship with a professional staff of the Procuring Entity who would be involved in the implementation or supervision of the Contract.		
9	Has the conflict stemming from such relationship stated in item 7 and 8 above been resolved in a manner acceptable to the Procuring Entity throughout the tendering process and execution of the Contract.		

f) Certification

On behalf of the Tenderer, I certify that the information given above is complete, current and accurate as at the date of submission.

Full Name_____

Title or Designation_____

_____ _____

(Signature) (Date)

B. CERTIFICATE OF INDEPENDENT TENDER DETERMINATION

I, the undersigned, in submitting the accompanying Letter of Tender to the **KENYA NATIONAL HIGHWAYS AUTHORITY for: CONSTRUCTION OF LESONGOY RIVER BRIDGE AND APPROACH ROADS ALONG NAMANGA –AMBOSELI GATE (B54) ROAD,** Tender No: **KeNHA/R5/205/2023** in response to the request for tenders made by: **KENYA NATIONAL HIGHWAYS AUTHORITY** do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of_____[Name of Tenderer] that:

1. I have read and I understand the contents of this Certificate;

2. I understand that the Tender will be disqualified if this Certificate is found not to be true and complete in every respect;

3. I am the authorized representative of the Tenderer with authority to sign this Certificate, and to submit the Tender on behalf of the Tenderer;

4. For the purposes of this Certificate and the Tender, I understand that the word "competitor" shall include any individual or organization, other than the Tenderer, whether or not affiliated with the Tenderer, who:

   a) Has been requested to submit a Tender in response to this request for tenders;

   b) could potentially submit a tender in response to this request for tenders, based on their qualifications, abilities or experience;

5. The Tenderer discloses that [check one of the following, as applicable]:

   a) The Tenderer has arrived at the Tender independently from, and without consultation, communication, agreement or arrangement with, any competitor;

   b) the Tenderer has entered into consultations, communications, agreements or arrangements with one or more competitors regarding this request for tenders, and the Tenderer discloses, in the attached document(s), complete details thereof, including the names of the competitors and the nature of, and reasons for, such consultations, communications, agreements or arrangements;

6. In particular, without limiting the generality of paragraphs (5) (a) or (5) (b) above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:

   a) prices;

   b) methods, factors or formulas used to calculate prices;

   c) the intention or decision to submit, or not to submit, a tender; or

   d) the submission of a tender which does not meet the specifications of the request for Tenders; except as specifically disclosed pursuant to paragraph (5) (b) above;

7. In addition, there has been no consultation, communication, agreement or arrangement with any competitor regarding the quality, quantity, specifications or delivery particulars of the works or services to which this request for tenders relates, except as specifically authorized by the procuring authority or as specifically disclosed pursuant to paragraph (5) (b) above;

8. the terms of the Tender have not been, and will not be, knowingly disclosed by the Tenderer, directly or indirectly, to any competitor, prior to the date and time of the official tender opening, or of the awarding of the Contract, whichever comes first, unless otherwise required by law or as specifically disclosed pursuant to paragraph (5) (b) above.

Name_____

Title_____

Date _____

[Name, title and signature of authorized agent of Tenderer and Date]

C. SELF-DECLARATION FORMS

FORM SD 1: SELF DECLARATION THAT THE PERSON/TENDERER IS NOT DEBARRED IN THE MATTER OF THE PUBLIC PROCUREMENT AND ASSET DISPOSAL ACT 2015

I,
.....
.....

of Post Office Box.....being a resident of……..

in the Republic of.....do hereby make a statement as follows: -

1. THAT I am the Company Secretary/ Chief Executive/Managing Director/Principal Officer/Director of

   ……...…… ……. who is a Bidder in respect of Tender No.: **KeNHA/R5/205/2023** for **CONSTRUCTION OF LESONGOY RIVER BRIDGE AND APPROACH ROADS ALONG NAMANGA – AMBOSELI GATE (B54) ROAD** for **Kenya National Highways Authority** and duly authorized and competent to make this statement.

2. THAT the aforesaid Bidder, its Directors and subcontractors have not been debarred from participating in procurement proceeding under Part IV of the Act.

3. THAT what is deponed to herein above is true to the best of my knowledge, information and belief.

……. …… …….
(Title) (Signature) (Date)

Bidder Official Stamp

FORM SD 2: SELF DECLARATION THAT THE TENDERER WILL NOT ENGAGE IN ANY CORRUPT OR FRAUDULENT PRACTICE

I,
.....
.....

of Post Office Box.....being a resident of……..

in the Republic of.....do hereby make a statement as follows: -

4. THAT I am the Company Secretary/ Chief Executive/Managing Director/Principal Officer/Director of

……...…… ……. who is a Bidder in respect of Tender No.: **KeNHA/R5/205/2023** for **CONSTRUCTION OF LESONGOY RIVER BRIDGE AND APPROACH ROADS ALONG NAMANGA – AMBOSELI GATE (B54) ROAD** for **Kenya National Highways Authority** and duly authorized and competent to make this statement.

1. THAT the aforesaid Bidder, its servants and/or agents /subcontractors will not engage in any corrupt or fraudulent practice and has not been requested to pay any inducement to any member of the Board, Management, Staff and/or employees and/or agents of **Kenya National Highways Authority** which is the procuring entity.

2. THAT the aforesaid Bidder, its servants and/or agents /subcontractors have not offered any inducement to any member of the Board, Management, Staff and/or employees and/or agents of **Kenya National Highways Authority.**

3. THAT the aforesaid Bidder will not engage/has not engaged in any corrosive practice with other bidders participating in the subject tender

4. THAT what is deponed to herein above is true to the best of my knowledge information and belief.

…… ……. …….....
(Title) (Signature) (Date)

Bidder's Official Stamp

FORM SD 3: DECLARATION AND COMMITMENT TO THE CODE OF ETHICS

I,
.....
.....

on behalf of…….....
declare that I have read and fully understood the contents of the Public Procurement & Asset Disposal Act, 2015, Regulations and the Code of Ethics for persons participating in Public Procurement and Asset Disposal and my responsibilities under the Code.

I do hereby commit to abide by the provisions of the Code of Ethics for persons participating in Public Procurement and Asset Disposal.

Name of Authorized signatory.....

Sign.....
.

Position.....

Office address.....Telephone.....

E-mail.....

Name of the

Firm/Company.....

Date.....

(Company Seal/ Rubber Stamp where applicable)

Witness

Name.....

Sign.....
...

Date.....

APPENDIX 1-FRAUD AND CORRUPTION

(Appendix 1 shall not be modified)

1. Purpose

1.1 The Government of Kenya's Anti-Corruption and Economic Crime laws and their sanction's policies and procedures, Public Procurement and Asset Disposal Act *(no. 33 of 2015)* and its Regulation, and any other Kenya's Acts or Regulations related to Fraud and Corruption, and similar offences, shall apply with respect to Public Procurement Processes and Contracts that are governed by the laws of Kenya.

2. Requirements

1.2 The Government of Kenya requires that all parties including Procuring Entities, Tenderers, (applicants/proposers), Consultants, Contractors and Suppliers; any Sub-contractors, Sub-consultants, Service providers or Suppliers; any Agents (whether declared or not); and any of their Personnel, involved and engaged in procurement under Kenya's Laws and Regulation, observe the highest standard of ethics during the procurement process, selection and contract execution of all contracts, and refrain from Fraud and Corruption and fully comply with Kenya's laws and Regulations as per paragraphs 1.1 above.

1.3 Kenya's public procurement and asset disposal act *(no. 33 of 2015)* under Section 66 describes rules to be followed and actions to be taken in dealing with Corrupt, Coercive, Obstructive, Collusive or Fraudulent practices, and Conflicts of Interest in procurement including consequences for offences committed. A few of the provisions noted below highlight Kenya's policy of no tolerance for such practices and behavior:

1) a person to whom this Act applies shall not be involved in any corrupt, coercive, obstructive, collusive or fraudulent practice; or conflicts of interest in any procurement or asset disposal proceeding;

2) A person referred to under subsection (1) who contravenes the provisions of that sub-section commits an offence;

3) Without limiting the generality of the subsection (1) and (2), the person shall be—
   a) disqualified from entering into a contract for a procurement or asset disposal proceeding; or
   b) if a contract has already been entered into with the person, the contract shall be voidable;

4) The voiding of a contract by the procuring entity under subsection (7) does not limit any legal remedy the procuring entity may have;

5) An employee or agent of the procuring entity or a member of the Board or committee of the procuring entity who has a conflict of interest with respect to a procurement—
   a) shall not take part in the procurement proceedings;
   b) shall not, after a procurement contract has been entered into, take part in any decision relating to the procurement or contract; and
   c) shall not be a subcontractor for the bidder to whom was awarded contract, or a member of the group of bidders to whom the contract was awarded, but the subcontractor appointed shall meet all the requirements of this Act.

6) An employee, agent or member described in subsection (1) who refrains from doing anything prohibited under that subsection, but for that subsection, would have been within

his or her duties shall disclose the conflict of interest to the procuring entity;

7) If a person contravenes subsection (1) with respect to a conflict of interest described in subsection (5) (a) and the contract is awarded to the person or his relative or to another person in whom one of them had a director indirect pecuniary interest, the contract shall be terminated and all costs incurred by the public entity shall be made good by the awarding officer. Etc.

1.4 In compliance with Kenya's laws, regulations and policies mentioned above, the Procuring Entity:

i) Defines broadly, for the purposes of the above provisions, the terms set forth below as follows: "corrupt practice" is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;

ii) "fraudulent practice" is any act or omission, including misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain financial or other benefit or to avoid an obligation;

iii) "collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party;

iv) "coercive practice" is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;

v) "obstructive practice" is:

- deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede investigation by Public Procurement Regulatory Authority (PPRA) or any other appropriate authority appointed by Government of Kenya into allegations of a corrupt, fraudulent, coercive, or collusive practice; and/or threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or

- acts intended to materially impede the exercise of the PPRA's or the appointed authority's inspection and audit rights provided for under paragraph 2.3 e. below.

b) Defines more specifically, in accordance with the above procurement Act provisions set forth for fraudulent and collusive practices as follows:

"fraudulent practice" includes a misrepresentation of fact in order to influence a procurement or disposal process or the exercise of a contract to the detriment of the procuring entity or the tenderer or the contractor, and includes collusive practices amongst tenderers prior to or after tender submission designed to establish tender prices at artificial non-competitive levels and to deprive the procuring entity of the benefits of free and open competition.

c) Rejects a proposal for award[1] of a contract if PPRA determines that the firm or individual recommended for award, any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/ or their employees, has, directly or indirectly, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices in competing for the contract in question;

d) Pursuant to the Kenya's above stated Acts and Regulations, may sanction or recommend to appropriate authority(ies) for sanctioning and debarment of a firm or individual, as applicable under the Acts and Regulations;

e) Requires that a clause be included in Tender documents and Request for Proposal documents requiring (i) Tenderers (applicants/proposers), Consultants, Contractors, and Suppliers, and their Sub-contractors, Sub- consultants, Service providers, Suppliers, Agents personnel,

permit the PPRA or any other appropriate authority appointed by Government of Kenya to inspect[2] all accounts, records and other documents relating to the procurement process, selection and/or contract execution, and to have them audited by auditors appointed by the PPRA or any other appropriate authority appointed by Government of Kenya; and

f) Pursuant to Section 62 of the above Act, requires Applicants/Tenderers to submit along with their Applications/Tenders/Proposals a "Self-Declaration Form" as included in the procurement document declaring that they and all parties involved in the procurement process and contract execution have not engaged/will not engage in any corrupt or fraudulent practices.

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[1] *For the avoidance of doubt, a party's ineligibility to be awarded a contract shall include, without limitation, (i) applying for pre-qualification, expressing interest in a consultancy, and tendering, either directly or as a nominated sub-contractor, nominated consultant, nominated manufacturer or supplier, or nominated service provider, in respect of such contract, and (ii) entering into an addendum or amendment introducing a material modification to any existing contract.*

[2] *Inspections in this context usually are investigative (i.e., forensic) in nature. They involve fact-finding activities undertaken by the Investigating Authority or persons appointed by the Procuring Entity to address specific matters related to investigations/audits, such as evaluating the veracity of an allegation of possible Fraud and Corruption, through the appropriate mechanisms. Such activity includes but is not limited to: accessing and examining a firm's or individual's financial records and information, and making copies thereof as relevant; accessing and examining any other documents, data and information (whether in hard copy or electronic format) deemed relevant for the investigation/audit, and making copies thereof as relevant; interviewing staff and other relevant individuals; performing physical inspections and site visits; and obtaining third party verification of information.*

APPENDIX TO FORM OF TENDER

(This appendix forms part of the bid)

CONDITIONS OF CONTRACT	CLAUSE	AMOUNT
Tender Securing Declaration document	ITT 19.1	Duly Filled and Signed in the Prescribed format as provided
Amount of Performance Security (Unconditional Bank Guarantee)	10.1	1% of Contract Price in the Form of Unconditional Bank Guarantee.
Submission of Performance Security		Submitted by the 21st day from the date of the award letter
Submission of Performance Security by Foreign Contractors	10.1	Guarantee shall be issued by local bank or authorised financial institution issued by a corresponding bank in Kenya recognised by the Central Bank of Kenya
Programme of Works to be submitted	14.1	Not later than 14 (Fourteen) days after issuance of Order to Commence
Cash flow estimate to be submitted	14.3	Not later than 14 (Fourteen) days after issuance of Order to Commence
Payment of Monthly Salaries/ allowances to Contractor's Employees and allowances due to all officers seconded by the Engineer to the assignment.	16.1	Monthly Payment to be made on or before the Fifth (5th) day of the following month. Any delays shall attract a penalty of **Ksh. 30,000.00** per day for the period salaries/allowances are delayed
Minimum amount of Contractors All Risk Insurance Cover	23.2	Contract Price
Submission of Contractors All Risk Insurance Cover		Submitted by the 28th day from the date of award letter
Period for commencement, from Engineer's order to commence	41.1	14 days
Time for completion	43.1	24 Months
Amount of Liquidated damages	47.1	Kshs. 100,000 per day.
Limit of liquidated damages	47.1	5% of Contract Value
Defects Liability period	49.1	12 Months
Percentage of Retention	60.3	10% of the Interim Payment Certificate
Limit of Retention Money	60.3	5% of the Contract Price
Minimum amount of interim certificates	60.2	Kshs. 30,000,000
Time within which payment to be made after Interim Payment Certificate signed by Engineer	60.10	90 (ninety) days
Time within which payment to be made after Final Payment Certificate signed by Engineer	60.10	90 (ninety) days
Advance Payment	60.12	The Employer **MAY** pay up to a maximum of 10% of Contract Sum after signing of contract, issuance of order to commence and submission of advance payment bank guarantee, subject to availability of funds. (Insurance bonds shall not be accepted)

CONDITIONS OF CONTRACT	CLAUSE	AMOUNT
Appointer of Arbitrator	67(3)	The Chairperson, Chartered Institute of Arbitrators - Kenya.
Notice to Employer and Engineer	68.2	The Employer's address is: **The Director General,** **Kenya National Highways Authority,** **Barabara Plaza, Off Airport South Road,** **Opp. KCAA,** **P.O. Box 49712 - 00100, NAIROBI**
		The Engineer's address is: **Deputy Director (Structures)** **Kenya National Highways Authority,** **Barabara Plaza, Off Airport South Road,** **Opp. KCAA, P.O. Box 49712 - 00100** **NAIROBI** **The Contractor's address is:** Name…. …….……. P.O Box……..…….. **City/Town…….** **Email:……..…….** **Telephone…….……**

Signature of Tenderer……. Date ……

FORM CON – 1 HISTORICAL CONTRACT NON-PERFORMANCE, PENDING LITIGATION AND LITIGATION HISTORY

Tenderer's Name: _____ Date:_____

JV Member's Name_____

ITT No. and title: _____

Non- Performed Contracts in accordance with Section III, Evaluation and Qualification Criteria			
☐Contract non-performance did not occur for the last three (3) years from the day of tender opening. ☐Contract(s) not performed for the last three (3) years from the day of tender opening			
Year	**Non-performed portion of contract**	**Contract Identification**	**Total Contract Amount (Kenya Shilling equivalent)**
[insert year]	*[insert amount and percentage]*	Contract Identification: *[indicate complete contract name/number; and any other identification]* Name of Procuring Entity: *[insert full name]* Address of Procuring Entity: *[insert street/city/country]* Reason(s) for nonperformance: *[indicate main reason(s)]*	*[insert amount]*
Pending Litigation, in accordance with Section III, Qualification Criteria and Requirements			
☐ No pending litigation in accordance with Section III, Qualification Criteria and Requirements, Sub-Factor 8. ☐ Pending Litigation in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 9 as indicated below			
Year of dispute	**Amount in dispute (currency)**	**Contract Identification**	**Total Contract Amount (Kenya Shilling equivalent)**
		Contract Identification: Name of Procuring Entity: Address of Procuring Entity: Matter in dispute: Party who initiated the dispute: Status of dispute:	
		Contract Identification: Name of Procuring Entity: Address of Procuring Entity: Matter in dispute: Party who initiated the dispute: Status of dispute:	
Litigation History in accordance with Section III, Evaluation and Qualification Criteria			
☐ No Litigation History in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.4. ☐ Litigation History in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.4 as indicated below			
Year of award	**Outcome as percentage of Net Worth**	**Contract Identification**	**Total Contract Amount (Kenya Shilling equivalent)**

Signature of Tenderer……. *Date ……*

FORM CON – 2: DECLARATION FORM – FAIR EMPLOYMENT LAW AND PRACTICES

Date

To

The Director General,

Kenya National Highways Authority (KeNHA),

P.O. Box 49712-00100

NAIROBI

We (name and address)_____

_____declare the following:

1. Have not been involved in and will not be involved in violation of fair employment laws and practices.
2. THAT what is declared hereinabove is true to the best of my knowledge, information and belief

---------- ……. ----------

Name of Bidder's authorized Representative Signature Date

(To be signed by authorized representative and officially stamped)

FORM CON – 3: DECLARATION OF KNOWLEDGE OF SITE

This is to certify that

[Name/s]……

……

Being the authorized representative/Agent of [Name of bidder]

……

……

Has familiarised himself/herself with the Site conditions in accordance with the Instructions to bidders and the Tender Notice for purposes of bidding for this road project.

TENDER NO. KeNHA/R5/205/2023 - CONSTRUCTION OF LESONGOY RIVER BRIDGE AND APPROACH ROADS ALONG NAMANGA –AMBOSELI GATE (B54) ROAD

Having studied the tender Documents, and gained knowledge of local conditions on site likely to influence the works and cost thereof, I certify that I am satisfied with the description of the works and understand the scope of works as specified and as implied in this tender.

…… ……..

(Signed and Stamped by Authorised Bidders Agent/ Representative) (Designation)

FORM FIN – 3.1: FINANCIAL SITUATION AND PERFORMANCE

PART 1

Tenderer's Name: _____ Date:_____ JV Member's Name_____ ITT No. and title: __

1. **Financial data**

Type of Financial information (Kenya Shillings)	**Historic information for previous** *years*, **(amount in Millions (Kshs.)**		
	2020	2021	2022
Statement of Financial Position (Information from Balance Sheet)			
Total Assets (TA)			
Total Liabilities (TL)			
Total Equity/Net Worth (NW)			
Current Assets (CA)			
Current Liabilities (CL)			
Working Capital (WC)			
Information from Income Statement			
Total Revenue (TR)			
Profits Before Taxes (PBT)			
Cash Flow Information			
Cash Flow from Operating Activities			

2. **Sources of Finance**

Specify sources of finance to meet the cash flow requirements on works currently in progress and for future contract commitments.

No.	**Source of finance**	**Amount (Kenya Shilling equivalent)**
1	Letter of line of Credit from a recognized Financial Institution	
2	Bank account balance (demonstrated by bank statements)	
3		

3. Financial documents

The Tenderer and its parties shall provide copies of financial statements for the last ***two (2)*** years pursuant Section III, Evaluation and Qualifications Criteria, Sub-factor 3.1. The financial statements shall:

a) Reflect the financial situation of the Tenderer or in case of JV member, and not an affiliated entity (such as parent company or group member).

b) Be independently audited or certified in accordance with local legislation.

c) Be complete, including all notes to the financial statements.

d) Correspond to accounting periods already completed and audited.

Attached are copies of financial statements for the two (2) years required above; and complying with the requirements

PART 2

Detailed Financial Situation Evaluation

No.	Description	Auditors Assessment 2020	Auditors Assessment 2021	Auditors Assessment 2022	Evaluation Score Award Criteria
1.	**Current Ratio=** **Current Assets** **Current Liabilities**				Current Ratio more than 1 = 1 marks
2.	**Debt to Equity Ratio =** **Total Liabilities** **Total Equity**				Equity Capital Ratio less than 1 = 1 Marks
3.	**Working Capital = Current Assets-Current Liabilities**				Positive Working Capital = 1 marks
4.	**Operating Cash Flow Ratio =** **Cash Flow from Operations** **Current Liabilities**				Operating Cash-flow more than 1 = 1 marks
5.	**Working Capital in Ksh. …….**				Working Capital is equal or more than 10% of Engineers Estimate= 4 Marks

The above Financial Ratios have to be derived from first Principles from the Audit Statements. The Auditor who has undertaken the analysis has to demonstrate the financial ratios and append his signature and stamp to the Document as below:

The Auditor shall be required to provide his/her workings and demonstrate the source of the workings from the various Audited statements by including the Page Numbers and references of the source of the figures used in the computation of the assigned values.

The Auditor undertaking the above Financial Analysis MUST duly fill the Contact Sheet below in all aspects and attach current annual practising license.

Financial ratios Computed by a Certified Public Accountant:

CPA: Name	
ICPAK Number	
Telephone Number	
Email Address	
Postal Address	
Physical Address	
Contact Person	
Mobile Contact of the Contact Person	
Signature	
Date	
Personal/Corporate Stamp	

Ratios attested by the Company Director:

Director's Name	
ID/Passport Number	
Telephone Number	
Email Address	
Postal Address	
Physical Address	
Signature	
Date	
Personal/Corporate Stamp	

FORM FIN – 3.2: AVERAGE ANNUAL CONSTRUCTION TURNOVER

Tenderer's Name: _____

Date: _____

JV Member's Name _____

ITT No. and title: _____

	Annual turnover data (construction only)		
Year	**Amount Currency** *[insert amount and indicate currency]*	**Exchange Rate (where applicable)**	**Kenya Shilling equivalent**
2018			
2019			
2020			
Average Annual Construction Turnover*			

* See Section III, Evaluation and Qualification Criteria.

If the most recent set of financial statements is for a period earlier than 12 months from the date of Bid, the reason for this should be justified.

FORM FIN - 3.3: CURRENT CONTRACT COMMITMENTS / WORKS IN PROGRESS

Tenderers and each member to a JV should provide information on their current commitments on all contracts that have been awarded, or for which a Form of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

Current Contract Commitments					
No.	Name of Contract	Procuring Entity's Contact Address, Tel, Fax	Value of Outstanding Work (Kenya Shilling equivalent)	Estimated Completion Date	Average Monthly Invoicing Over Last Six Months [Kshs./month]
1					
2					
3					
4					
5					

FORM EXP - 4.1: GENERAL CONSTRUCTION EXPERIENCE

Tenderer's Name: _____

Date:_____

JV Member's Name_____

ITT No. and title: _____

Starting Year	Ending Year	Contract Identification	Role of Tenderer
		Contract name: **Brief Description of the Works and Services performed by the Tenderer:** **Amount of contract:** **Name of Procuring Entity:** **Address:**	**Main Contractor/ Subcontractor/ Management Contractor**
		Contract name: **Brief Description of the Works and Services performed by the Tenderer:** **Amount of contract:** **Name of Procuring Entity:** **Address:**	
		Contract name: **Brief Description of the Works and Services performed by the Tenderer:** **Amount of contract:** **Name of Procuring Entity:** **Address:**	

FORM EXP - 4.2(A): SPECIFIC CONSTRUCTION AND CONTRACT MANAGEMENT EXPERIENCE

Tenderer's Name: _____

Date: _____

JV Member's Name _____

ITT No. and title: _____

Similar Contract No..	**Information**			
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor ☐	Member in JV ☐	Management Contractor ☐	Sub-Contractor ☐
Total Contract Amount			Kenya Shillings	
If member in a JV or sub-contractor, specify participation in total Contract amount				
Procuring Entity's Name:				
Address: Telephone/fax number E-mail:				
Description of the similarity in accordance with Sub-Factor 4.2(b) of Section III:				
1. Amount				
2. Physical size of required Works and Services items				
3. Complexity				
4. Methods/Technology				
5. Construction rate for key activities				
6. Other Characteristics				

FORM EXP - 4.2(B): CONSTRUCTION EXPERIENCE IN KEY ACTIVITIES

Tenderer's Name:

_____

_____

Date:

_____

Tenderer's JV Member Name:

_____

_____

Sub-contractor's Name (as per ITT 33.2):

_____

_____

ITT No. and title:

_____

_____

Page of_____pages

All Sub-contractors for key activities must complete the information in this form as per ITT 33.2 and Section III, Qualification Criteria and Requirements, Sub-Factor 4.2.

1. Key Activity No One:_____

	Information			
Contract Identification				
Award date				
Completion date				
Role in Contact	Prime Contractor ☐	Member in JV ☐	Management Contractor ☐	Sub-Contractor ☐
Total Contract Amount			Kenya Shillings	
Quantity (Volume, number or rate of production, as applicable) performed under the contract per year or part of the year	Total quantity in the contract (i)		Percentage participation (ii)	Actual Quantity Performed (i)*(ii)
Year 1				
Year 2				
Year 3				
Year 4				

Procuring Entity's Name: Address: Telephone/fax number E-mail:	
Information	
Description of key activities in accordance with Sub-Factor 4.2(b) of Section III:	

If applicable

2 Activity No. Two

3. .....

TECHNICAL PROPOSAL

The Tenderer's Technical Proposal shall include the following elements:

SCHEDULE A. Projected Cash Flow

SCHEDULE B. Site Organizations

SCHEDULE C. Subcontractors

SCHEDULE D. Contractor's Equipment

SCHEDULE E. Initial Tentative Program of Performance

SCHEDULE F. Key Personnel Proposed

SCHEDULE G. Schedule of Material Basic prices

Instructions on how to present the various schedules of the Technical Proposal are given on the following pages

SCHEDULE A

Projected Cash Flow

1) Tenderers shall tabulate below estimates, based on their preliminary work programme, of:
   a) On the expenditure side, the value of the work which will be carried out;
   b) On the revenue side, the net payments to which they will become entitled with due allowance for the advance payment and repayment, materials prepayments, and retention money, but excluding price adjustments for rise and fall and provisional sums for emergency works.
   c) The projected net cash flow during the contract period.

2) The prospective successful Tenderer may be required to submit full details to substantiate his estimates.

3)

Period (Months)	Cost of Maintenance Services	Cost of Rehabilitation and Improvement Works	Net Payment to be received	Net Cash flow
1-6				
7-12				
13-18				
19-24				
25-30				
31-36				
37-42				
43-48				
ETC				

SCHEDULE B

Site Organization

Tenderers shall give below full particulars of the organization they propose to establish, direct, and administer the performance of the Contract. In particular, Tenderers shall indicate the location of site camps and the resources they intend to allocate to Self-Control Units for planning and monitoring purposes.

1. SITE ORGANIZATION CHART

2. NARRATIVE DESCRIPTION OF SITE ORGANIZATION CHART

SCHEDULE C

SUB-CONTRACTORS / PARTNERS

Tenderers shall list below those parts of the Works and Services which they propose to subcontract, and state the approximate value of those parts and the names and addresses of the proposed subcontractors, if those are known at Tendering stage. Tenderers shall also list other business partners involved in the execution of the contract and their respective roles and responsibilities.

Part of Works /
Services:

Approximate
value:

Name and address of proposed subcontractor / partner:

Part of Works /

Services:

Approximate

value:

Name and address of proposed subcontractor / partner:

Part of Works /

Services:

Approximate

value:

Name and address of proposed subcontractor / partner:

Part of Works /

Services:

Approximate

value:

Name and address of proposed subcontractor / partner:

SCHEDULE D

Contractor's Equipment Form EQU

The Tenderer shall provide adequate information to demonstrate clearly that it has the capability to meet the requirements for the key equipment listed in Section III, Evaluation and Qualification Criteria. A separate Form shall be prepared for each item of equipment listed in Section B (Technical Evaluation) of Qualification Form.

Item of equipment		
Equipment information	Name of manufacturer	Model and power rating
	Capacity	Year of manufacture
Current Status	Current Location:	
	Details of current commitments	
Source	Indicate source of equipment ☐ Owned ☐ Rented ☐ Leased ☐ Specially manufactured	

Omit the following information for equipment owned by the Tenderer.

Owner	Name of owner	
	Address of owner	
	Telephone	Contact name and title
	Fax	
Agreements	Details of rental/ lease/ manufacture agreements specific to the project	

SCHEDULE E

Initial Tentative Program of Performance

To demonstrate a clear understanding of the requirements of the Contract, Tenderers shall provide the following:

i) A bar chart sub-divided into sections for each road showing the major activities to be carried out for Maintenance Services, Rehabilitation Works and Improvement Works, if any. The activities shall be shown against time, with linkages shown between related/sequential activities as far as possible and appropriate.

ii) A bar chart or schedule showing the usage of major plant, including those listed in Schedule D (Contractor's Equipment).

SCHEDULE F

Form PER -1 Key Personnel Schedule

Tenderers should provide the names and details of the suitably qualified Key Personnel to perform the Contract. The data on their experience should be supplied using the Form PER-2 below for each candidate.

Key Personnel

1.	**Title of position: Site Agent**	
	Name of candidate:	
	Duration of appointment:	*[insert the whole period (start and end dates) for which this position will be engaged]*
	Time commitment for this position:	*[insert the number of days/weeks/months that has been scheduled for this position]*
	Expected time schedule for this position:	***Full time site presence***
2.	**Title of position: …**	
	Name of candidate:	
	Duration of appointment:	*[insert the whole period (start and end dates) for which this position will be engaged]*
	Time commitment for this position:	*[insert the number of days/weeks/months that has been scheduled for this position]*
	Expected time schedule for this position:	***Full time site presence***

Countersignature of authorized representative of the Tenderer:

Signature: _____

Date: (day month year): _____

Form PER -2

Resume and Declaration – Key Personnel

Name of Tenderer

Position [1]: [*title of position from Form PER-1*]		
Personnel information	**Name:**	**Date of birth:**
	Address:	**E-mail:**
	Professional qualifications:	
	Academic qualifications:	
	Language proficiency: *[language and levels of speaking, reading and writing skills]*	
Details	**Address of Procuring Entity:**	
	Telephone:	**Contact (manager/personnel officer):**
	Fax:	
	Job title:	**Years with present Procuring Entity:**

Summarize professional experience in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

Project	**Role**	**Duration of involvement**	**Relevant experience**
[main project details	*[role and responsibilities on the project]*	*[time in role]*	*[describe the experience relevant to this position]*

Declaration

I, the undersigned Key Personnel, certify that to the best of my knowledge and belief, the information contained in this Form PER -2 correctly describes myself, my qualifications and my experience.

I confirm that I am available as certified in the following table and throughout the expected time schedule for this position as provided in the Tender:

Commitment	**Details**
Commitment to duration of contract:	*[insert period (start and end dates) for which this Key Personnel is available to work on this contract]*
Time commitment:	*[insert the number of days/weeks/months that this Key Personnel will be engaged]*

I understand that any misrepresentation or omission in this Form may:

a) be taken into consideration during Tender evaluation;

b) my disqualification from participating in the Tender;

c) my dismissal from the contract.

Name of Key Personnel: *[insert name]*

Signature:_____

Date: (day month year): _____

Countersignature of authorized representative of the Tenderer:

Signature: _____

Date: (day month year): _____

FORM OF TENDER-SECURING DECLARATION

[The Bidder shall complete this Form in accordance with the instructions indicated]

Date:.....*[insert date (as day, month and year) of Tender Submission]*

Tender No.:.....*[insert number of tendering process]*

To:.....*[insert complete name of*

Purchaser] I/We, the undersigned, declare

that:

1. I/We understand that, according to your conditions, bids must be supported by a Tender-Securing Declaration.

2. I/We accept that I/we will automatically be suspended from being eligible for tendering in any contract with the Purchaser for the period of time of **two(2) years** starting on ……...[**insert date of tender opening**], if we are in breach of our obligation(s) under the bid conditions, because we– (a) have withdrawn our tender during the period of tender validity specified by us in the Tendering Data Sheet; or (b) having been notified of the acceptance of our Bid by the Purchaser during the period of bid validity, (i) fail or refuse to execute the Contract, if required, or (ii) fail or refuse to furnish the Performance Security, in accordance with the instructions to tenders.

3. I/We understand that this Tender Securing Declaration shall expire if we are not the successful Tenderer(s), upon the earlier of:
   a) Our receipt of a copy of your notification of the name of the successful Tenderer; or
   b) Thirty days after the expiration of our Tender.

4. I/We understand that if I am/we are/in a Joint Venture, the Tender Securing Declaration must be in the name of the Joint Venture that submits the bid, and the Joint Venture has not been legally constituted at the time of bidding, the Tender Securing Declaration shall be in the names of all future partners as named in the letter of intent.

Signed:……..…….. Capacity / title (director or

partner or sole proprietor, etc.).…….

Name:……..

Duly authorized to sign the bid for and on behalf of: [insert complete name of

Tenderer] Dated on……. day of…….……. [Insert date of

signing]

Seal or stamp

SCHEDULE G

SCHEDULE OF MATERIALS; -BASIC PRICES

.

ITEM NO	DESCRIPTION	NAME OF SUPPLIER	COUNTRY OF ORIGIN	UNIT	RATE	
					KSHS	CTS
1.	Cut-back Bitumen MC 30 in bulk			Litre		
2.	Cut-back Bitumen MC 30 in drums			Litre		
3.	Bitumen 60/70 in bulk			Kg		
4..	Bitumen 60/70 in drums			Kg		
5..	Bitumen Emulsion K1-60 in bulk			Litre		
6.	Bitumen Emulsion K1-60 in drums			Litre		
7.	Petrol, Regular Grade			Litre		
8.	Petrol, Premium/ super Grade			Litre		
9.	Automotive Diesel Fuel			Litre		
10.	Industrial Diesel Oil			Litre		
11.	Industrial Fuel Oil			Litre		
12.	Kerosene Fuel			Litre		
13.	Cement			Tonne		
14.	Flex beam Guardrail			Metre		
15.	Gabion Mesh			M2		
16.	Reinforcing Steel			Tonne		
17.	Lime			Tonne		

I certify that the above information is correct

…… ……. ……..
(Title) (Signature) (Date)

The prices inserted above shall be those prevailing 30 days before the submission of Tenders and shall be quoted in Kenya Shillings using the prevailing exchange rates by Central Bank Kenya.
Prices of imported materials to be quoted CIF Mombasa or Nairobi as appropriate depending on whether materials are imported by the tenderer directly or through a local agent.

FORM OF DECLARATION OF FAIR EMPLOYMENT LAWS AND PRACTICES

Date _____

To

The Director General,

Kenya National Highways Authority (KeNHA),

P.O. Box 49712-00100

NAIROBI

We (name and address)_____

_____declare the following:

1. Have not been involved in and will not be involved in violation of fair employment laws and practices.
2. THAT what is declared hereinabove is true to the best of my knowledge, information and belief

---

Name of Bidder's authorized Representative Signature Date

(To be signed by authorized representative and officially stamped)

FORM OF DECLARATION OF CONTRACTS TERMINATED IN THE LAST THREE (3) YEARS

NAME OF CONTRACT	NAME OF CLIENT	VALUE OF WORKS (KSHS)	YEAR TERMINATED

Note: Failure to disclose terminated Contracts shall lead to disqualification.

I certify that the above information provided is true to best of my knowledge.

…… **……**

(Signature of Bidder) **(Date)**

PART 2 - WORKS' REQUIREMENTS

SECTION VI - BILLS OF QUANTITIES

PREAMBLE TO BILL OF QUANTITIES

1. The Bill of Quantities shall be read in conjunction with the Instructions to Bidders, General and Particular Conditions, Technical Specifications, and Drawings.

2. The brief description of the items in the Bill of Quantities is purely for the purpose of identification, and in no way modifies or supersedes the detailed descriptions given in the Conditions of Contract and Specifications for the full direction and description of work and materials.

3. The quantities given in the Bill of Quantities are estimated and provisional, and are given to provide a common basis for bidding. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Engineer and valued at the rates and prices bid in the priced Bill of Quantities, where applicable, and otherwise at such rates and prices as the Engineer may fix within the terms of the Contract.

4. There is no guarantee to the Contractor that he will be required to carry out all the quantities of work indicated under any one particular item or group of items in the Bill of Quantities.

5. The rates and prices bid in the priced Bill of Quantities shall, except insofar as it is otherwise provided under the Contract, include all Constructional Plant, labour, supervision, materials, erection, maintenance, insurance, profit, taxes, and duties, together with all general risks, liabilities, and obligations set out or implied in the Contract, transport, electricity and telephones, water, use and replenishment of all consumables, including those required under the Contract by the Engineer and his staff.

6. A rate or price shall be entered against each item in the priced Bill of Quantities, whether quantities are stated or not. The cost of Items against which the Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities.

7. Any entry of “nil” unless deemed justifiably covered elsewhere in the Bill of Quantities, may lead to the entire Bid being rejected.

8. The whole cost of complying with the provisions of the Contract shall be included in the Items provided in the priced Bill of Quantities, and where no Items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Work.

9. General directions and descriptions of work and materials are not necessarily repeated nor summarized in the Bill of Quantities. References to the relevant sections of the Contract documentation shall be made before entering prices against each item in the priced Bill of Quantities.

10. Provisional Sums included and so designated in the Bill of Quantities shall be expended in whole or in part at the direction and discretion of the Engineer in

accordance with Sub-Clauses 13.4 and 13.5 of the General Conditions except with respect to DAAB Fees and Expenses for which no instruction will be required from the Engineer.

11. Prime Cost Sum (PC Sum) is a sum provided for plant, Materials or services to be purchased by the Contractor from nominated Subcontractor (as defined in Sub-Clause 5.2 [Nominated Subcontractors]) and for which there is to be included in the Contract Price:

- The actual amounts paid (or due to be paid) by the Contractor, and;
- A sum for overhead charges and profit, calculated as a percentage of these actual amounts by applying the relevant percentage rate stated in the appropriate schedule. If there is no such rate, the overhead charges and profit shall be deemed to have been included elsewhere in the bill item rates.

12. The method of measurement of completed work for payment shall be in accordance with the specifications.

13. "Authorized", "Directed" or "Approved" shall mean the authority, direction or approval of the Engineer.

14. Unless otherwise stated, all measurements shall be taken on the finished work carried out in accordance with the details shown on the drawings or instructed, with no allowance for extra cuts or fills, waste or additional thickness necessary to obtain the minimum finished thickness or dimensions required in this contract. Any work performed in excess of the requirements of the plans and Specifications will not be paid for, unless ordered in writing by the Engineer.

15. (a) Hard material, in this Contract, shall be defined as the material which, in the opinion of the Engineer, requires blasting, or the use of metal wedges and sledge hammers, or the use of compressed air drilling for their removal, and which cannot be extracted by ripping with a dozer tractor of at least 300 kilowatt power (Caterpillar D9 or equivalent) with a single, rear mounted, hydraulic ripper. Boulders of more than 1.0m3 occurring in soft material shall be classified as hard material.

(b) Soft material shall be all material other than hard material.

17. Units of Measurement

The following units of measurement and abbreviations are recommended for use (unless other national units are mandatory in the country of the Employer).

Unit	Abbreviation	Unit	Abbreviation
cubic meter	m^3 *or* cu m	millimeter	mm
hectare	ha	month	mon
hour	h	number	nr
kilogram	kg	square meter	m^2 *or* sq m
lump sum	sum	square millimeter	mm^2 *or* sq mm

meter metric ton (1,000 kg)	m t	week	wk

The price and rates entered in the Bills of Quantities shall, except insofar as it is otherwise provided under the Contract, include all Constructional plant to be used, labour, insurance, supervision, compliance testing, materials, erection, maintenance of works, overheads and profits, taxes and duties together with all general risks, liabilities and obligations set out or implied in the Contract, transport, electricity and telephones, water, use and replenishment of all consumables, including those required under the contract by the Engineer and his staff.

SUMMARY OF BILL ITEMS LESONGOY RIVER BRIDGE		
BILL NO.	**DESCRIPTION**	**AMOUNT (KES)**
1	Preliminary and supervisory/support services	
4	Site Clearance and Top soil Stripping	
5	Earth Works	
7	Excavation and Filling for Structures	
8	Culverts and Drainage works	
9	Passage of Traffic	
12	Natural material, subbase and base	
14	Cement and Lime treatment	
15	Bituminous Surface Treatment and Surface Dressing	
17	Concrete Works	
20	Road Furniture	
21	Miscellaneous Bridge Works	
21A	Piling Works	
24	Landscaping and Environmental Mitigation Measures	
26	HIV/AIDS awareness	
A	**SUB TOTAL 1 (Footbridge)**	
a	CONTINGENCIES (10% of Sub Total 1)	
b	VARIATION OF PRICE (10% of Sub Total 1)	
D	**SUB TOTAL 2 (A + a + b)**	
E	VALUE ADDED TAX (16% of D)	
F	**TOTAL COST CARRIED FORWARD TO FORM OF BID (D+E)**	

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
BILL NO. 1: PRELIMINARY AND SUPERVISORY SERVICES					
1.01	Provide and install publicity signs	No	2.00		
1.02	Provide survey equipment as per Schedule in Appendix D to be used by the Engineer's Representative for the entire duration of the Contract. Ownership to revert to the Client.	Sum	1		
1.03A	Allow a sum of Kshs. 1,934,600 for quality control material testing by the Material Testing and Research Division (MTRD) as per Schedule C	Sum	1,934,600.00	1.00	1,934,600.00
1.03B	Extra Over Item 1.03A for Contractors Overheads	%	1,934,600		
1.04	Provide and Maintain Engineer's office including provision of furniture, equipment and internet connection as listed in the Special Specifications and as per Schedule F.	Sum	1.00		
1.05A	Provide with driver and maintain (2), minimum 3.2 litre turbocharged 4-wheel drive, twin-cab pickup vehicle or similar approved by the Engineer for the exclusive use of the Engineer inclusive of the first 4,000 km per vehicle month approved in accordance with clause 138 of the special specifications. Ownership to revert to the Contractor.	Veh. Mth	72.00		
1.05B	E.O. item 1.05A for mileage in excess of 4000	km	36,000.00		
1.06A	Provide, fuel and maintain for the duration of the contract, complete with drivers and comprehensive insurance, two (2) fully loaded 4WD SUV Station Wagon of minimum 3000cc Turbo diesel engine capacity complete with weather shields, stainless steel nudge bar, tonneau cover; hard sports type, lockable all as per special specifications and approved by the Engineer, inclusive of the first 4000km per vehicle month. Ownership to revert to the Contractor.	Veh. Mth	72.00		
1.06B	E.O. item 1.06A for mileage in excess of 4000	km	36,000.00		
1.07	Allow sum for the Engineers miscellaneous account to be spent in whole or part as per Schedule in Appendix B	Sum	1.00		
1.08A	Allow Prime Cost sum for relocation of services	PC sum	2,000,000.00	1.00	2,000,000.00
1.08B	Include a percentage of item 1.08A for contractor's overheads and profit	%	2,000,000		
1.09A	Allow sum for training of Employer's Engineers, technicians and other staff as directed by Engineer (See Appendix E)	Sum	4,900,000.00	1.00	4,900,000.00
1.09B	E.O. item 1.09A for training	%	4,900,000		

ITEM	DESCRIPTION	UNIT	QUANTITY	RATE (Kshs)	AMOUNT (Kshs)
1.10A	Payment of Engineer's supervisory staff including overtime in accordance to Clause 137 of the Special Specifications and as per Remuneration Rates in Appendix A as instructed by the Engineer	Sum	35,340,000.00	1.00	35,340,000.00
1.10B	E.O. item 1.10A for payment of supervisory staff	%	35,340,000.00		
1.11A	Allow sum for acquisition of NEMA licenses as instructed by the Engineer	Sum	1,000,000.00	1.00	1,000,000.00
1.11B	E.O. item 1.11A for NEMA licenses	%	1,000,000		
1.12	Undertake confirmatory geotechnical investigations as per Appendix G	Sum	1.00		
1.13A	Allow a Prime Cost Sum of Kshs. 2,000,000 for Environmental measures to be spent as instructed by the Engineer	PC sum	2,000,000.00	1.00	2,000,000.00
1.13B	E.O. item 1.13A for environmental measures	%	2,000,000.00		
Total of Bill No.1 carried forward to Grand Summary page					

BILL NO. 4: SITE CLEARANCE AND TOP SOIL STRIPPING					
4.01	Clear site on road reserve including removal of trees of diameter, hedges, bushes and other vegetation or deleterious organic material, grub up roots and backfilling of holes left by removal of stumps and roots to 100% MDD (AASHTO T99) with approved material in accordance with the specification. And dismantling of structures on roadway including Stone masonry, Plain Concrete ,Reinforced Concrete ,Dismantling of pavement, culverts, Footpaths and medians, fence , bus shelters etc.	Ha.	4.80		
4.02	Removal of unsuitable material / top soil to an approved depth and disposal as directed by the Engineer.	m3	1,920.00		
Total of Bill No.4 carried forward to summary page					

BILL NO.5: EARTH WORKS					
	No separate payment shall be made for the haulage of surplus or unsuitable excavated material and the cost of such haulage shall be included in the rates and/or prices				

5.01	Fill in construction of embankment, benching of shoulders with approved soft material with all lifts and leads, transporting to site, spreading, grading to required slope and compacting to 95% MDD (AASHTO T99) in accordance with the specification.	m3	48,000.00		
5.02	As Item 05-50-001 but in hard material (Provisional)	m3	2,400.00		
5.03	Cut to spoil or fill in soft material in accordance with the Specifications. Includes excavations in swampy areas.	m3	2,000.00		
5.04	As Item 05-50-003 but in hard material (Provisional)	m3	100.00		
5.05	***Compacting original ground*** Scarifying to a depth of 150mm, levelling and compacting original ground to 95% MDD (AASHTO.T99)	m3	396.00		
	Compaction of 300mm below subgrade in cutting				
5.06	Scarify, water and compact existing upper 300mm below formation in cut, using improved subgrade material to form the design subgrade as per specifications.	m3	165.00		
	Improved Subgrade (S2) 400mm				
5.07	Construction of sub-grade and earthen shoulders with approved material with all lifts & leads, transporting to site, spreading, grading to required slope and compacted to 100% MDD (AASHTO T99).	m3	1,056.00		
Total of Bill No.5 carried forward to summary page					

BILL NO. 7: EXCAVATION AND FILLING FOR STRUCTURES					
7.01	Excavate in soft material for structure	m3	920.00		
7.02	As Item 7.01 but Hard Rock (blasting prohibited)	m3	46.00		
7.03	Provide and place hardcore below structures	m3	20.00		
7.04	Water proofing paper under slabs and foundations	m²	350.00		
7.05	50 mm stone dust blinding to surfaces of hardcore to receive concrete	m²	350.00		
7.06	Backfilling for structures behind abutments	m3	960.00		
7.07	Provide filter fill material behind abutments	m2	115.00		
7.08	Provide and fix filter fabric behind porous filter material as per the Drawings and Specifications	m²	232.3		

BILL NO. 7: EXCAVATION AND FILLING FOR STRUCTURES					
7.09	Excavate for gabions in soft material	m3	100.0		
7.1	As Item No 7.09 but in hard material	m3	50.0		
7.11	Provide and place gabion mesh size 2x1x1 or mattresses as instructed by the Engineer.	m3	2,400		
7.12	Provide and place rock fill below structures and rock fill for gabions	m3	800		
7.13	Provide filter fabric geotextile under and/or behind gabions	m3	430		
7.14	Provide, lay and fix 200mm thick stone pitching as shown on the Drawings	m²	580		
7.15	E.O Item 7.14 for grout as per the Specifications	m²	230		
7.16	Allow for water diversion and protection works for structures during construction	L/Sum	1		
Total of Bill No. 7 carried forward to summary page					

BILL NO. 8: CULVERTS AND DRAINAGE WORKS.					
	No separate payment shall be made for the haulage of surplus or unsuitable excavated material and the cost of such haulage shall be included in the rates and/or prices				
8.01	Excavate in soft material to any depth for pipe culverts, subsoil drains, headwalls, wing walls, aprons, toe walls, and drop inlets, mitre drains, catch water drains, median drains including support of trench sides, backfilling and compacting as specified or as directed by the Engineer.	m3	1,500.00		
8.02	As Item 8.01 but in Hard Rock	m3	75.00		
8.03	Provide, lay and joint 900mm diameter Precast Concrete pipes	m	150.00		
8.04	Provide, lay and joint 600mm I.D. Reinforced Cement Concrete pipes	m	50.00		
8.05	Provide and place class 15/20 concrete to beds, surrounds and haunches	m3	120.00		
8.06	Provide and place class 25/20 concrete to headwalls, wing walls, aprons, toe walls, inlets and outlets to pipe culverts including formwork	m3	60.00		
8.08	Provide place and compact Rock fill below culverts	m3	50.00		
Total of Bill No.8 carried forward to summary page					

BILL NO. 9: PASSAGE OF TRAFFIC					
9.01	Maintain the passage of traffic	Lump Sum	1.00		
9.02	Provide signs and barriers in accordance with Clause 907 of the Standard Specifications	Lump Sum	1.00		
Total of Bill No. 9 carried forward to summary					

BILL NO.12: NATURAL MATERIAL BASE AND SUBBASE					
	No separate payments shall be made for the overhaul of material and the cost of such haulage shall be included in the rates and or prices				
12.01	Provide, transport over any distance, place and compact, natural gravel in sub-base and base of main carriage way and shoulders; all in accordance with the specifications or as directed by the Engineer 200mm	m3	9,300.00		
Total of Bill No. 12 carried forward to summary					

BILL NO. 14: CEMENT AND LIME TREATED MATERIAL					
14.01	Provision, storage, hauling, transport and spreading cement on natural material subbase and base.	tonne	700.00		
14.02	Mix in cement in natural subbase and base material (mix-in-place method)	m3	9,300.00		
14.03	Allow for curing and protection of treated subbase and base as specified	m2	54,240.00		
Total of Bill No. 14 carried forward to summary					

BILL NO. 15: BITUMINOUS SURFACE TREATMENTS AND SURFACE DRESSING					
	Prime coat				
15.01	Prepare surface of carriageway, shoulders, bus bays, accesses and junctions, provide, heat and spray bituminous binder type MC30 (prime coat) at a rate of 1.0 - 1.2 l/m^2 as per section 15 Part A and B of the specifications and as directed by the Engineer.	Lts	32,000.00		
	80/100 cut-back bitumen binder for 14/20 Seal for shoulders, accesses, junctions				
15.02	Prepare surface, provide and spray 80/100 bitumen cutback with kerosene as binder for seal at a spray rate of 1.2 - 1.6 lts/m^2 as per section 15 Part A and B of the specifications and as directed by the Engineer.	Lts	41,000.00		

	Precoated chippings class 2 for carriageway, shoulders, accesses, junctions				
15.03	Provide, spread and roll 14/20 mm precoated chippings class 2 as 1st seal surface dressing at a spread rate of as specified as per section 15 Part A and C of the specifications and as directed by the Engineer.	M3	380.00		
	80/100 cut-back bitumen binder for 6/10 Seal to shoulders, accesses, junctions				
15.04	Prepare surface, provide and spray 80/100 bitumen cutback with kerosene as binder for seal at a spray rate of 1.0 - 1.4 lts/m^2 as per section 15 Part A and B of the specifications and as directed by the Engineer.	Lts	39,000.00		
	6/10 mm precoated chippings class 2				
15.05	Provide, spread and roll 6/10 mm precoated chippings class 2 as 2nd seal surface dressing at a spread rate of 80 - 120 m^2/m^3 or as specified as per section 15 Part A and C of the specifications and as directed by the Engineer.	M3	300.00		
Total of Bill No. 15 carried forward to summary					

BILL NO. 17: CONCRETE WORKS					
17.01	Provide, place and compact blinding concrete Class 15 (20) to foundations, rate including form work erection and dismantling.	m3	12.00		
17.02	Provide, place and compact concrete Class 30/20 to base of abutments, piers, deckslabs, approach slabs and all elements of the bridge as directed by the engineer	m3	830.00		
17.03	Provide, place and compact Concrete Class 40/20 to precast beams (including concrete delivery, precasting, transporting, fixing and other necessary works)	m^3	130.00		
17.04	Unformed surface finish class UF2 to top of deck	m^2	797.00		
17.05	Class F3 finish to soffit of deck	m^2			
17.06	Ditto but side and soffit of beams	m^2			
17.07	Vertical formwork to achieve class F2 finish	m^2	1,530.00		
17.08	Vertical formwork to achieve class F3 finish	m^2	800.00		
	REINFORCEMENT				-
	Provide, cut, bend and fix as shown on drawing and as specified in the following items of reinforcement.				-

17.09	High Yield Strength reinforcement bar to BS 4449, of diameter equal to or less than 16mm	Tonne	60.00		
17.1	High Yield Strength reinforcement bar to BS 4449, of diameter more than 16mm	Tonne	135.00		
17.11	Fabric mesh A142 to B.S 4483	m²	500.00		
Total of Bill No. 17 carried forward to summary					

BILL NO 20: ROAD FURNITURE					
	Road Marking and Road Signs				
	Road Marking				
20.01	Providing and laying hot applied thermoplastic road marking compound in approved colour and shade(ASTM 9) for road marking on bituminous surface in center line 100mm,edge line 150mm wide 3.0mm thick using fully automatic extrusion machine and using premelter for melting thermoplastic Material including cleaning the surface of all dirt, dust, and other foreign matter, demarcation at site/ premarking, finishing and managing the traffic control etc. Complete. Marking to be done as per specifications, detailed drawings and as directed.				
	(i) For Lane marking (broken line) with yellow paint-100mm wide and 200mm wide for bus bays	m2	264.00		
	(ii) For Edge lines (continuous line) with white paint-150mm wide	m2	792.00		
	Permanent Road Signs				
20.02	Supplying and fixing cautionary/warning road sign boards made up with high intensity grade retro-reflective type sheeting (ASTM 9)complete as per drawing and technical specifications.	No.	5.00		
20.03	Supplying and fixing regulatory/mandatory road sign boards made up with high intensity grade retro-reflective type sheeting(ASTM 9) complete as per drawing and Technical specifications.	No.	5.00		
20.04	Provide and Install Guard rails complete with posts and 'swarflex' ART 3240 guardrail reflectors every 4m as per drawings and as directed by the Engineer	M	3000.0		
20.05	Supplying and fixing informatory road sign boards made up with high intensity grade retro-reflective type sheeting complete as per drawing and Technical specifications.				
	(i) Area less than 1.0 m2	No.	2.00		

	(ii) Area more than 1.0 m2, but less than 2 m2	No.	1.00		
	(ii) Area more than 2.0 m2, but less than 5 m2	No.	1.00		
20.06	Provide and fix concrete Edge Marker Posts on the outer edge of shoulder as per drawing, specifications and as directed by Engineer.	No.	10.00		
20.07	Provide for branding and painting to the Employer's Specification as directed by the Engineer	Prov. Sum	1.00		
	Road humps and rumble strips				
20.08	Provide material, transport and construct road humps and rumble strips	m	130.00		
	Reflective road studs (cat's eyes)				
20.09	Provide, transport, handle and place approved reflective road studs	No	144.00		
	Kilometre marker posts				
20.1	Provide and erect kilometre posts as shown in the contract drawing	No	6.00		
Total of Bill No. 20 carried forward to summary					

BILL NO. 21: MISCELLANEOUS BRIDGE WORKS					
21.01	Strip Seal type of expansion joint with structural steel, anchorage assembly and joint filling compound complete as per the drawings and specifications including acceptance testing as specified.	m	35.00		
21.02	Reinforced Cement Concrete crash barrier in Grade 30/20 including cost of reinforcement, steel plates and pipes complete as per drawing and Standard Specification for Road and Bridge Construction	m	90.00		
21.03	Providing and erecting handrail, posts and fittings as per clause 2006 of special specifications and 2108(d) of standard specifications	m	120.0		
21.04	Drainage Spouts including 100 dia GI pipes complete as per drawing and Standard Specification for Road and Bridge Construction Specification	No.	12.00		
21.05	Supply, fit and fix in position true to line and level elastomeric bearings complete with all accessories as per the drawings and specifications.	No	20.00		
21.06	Provide and apply two coats of water proofing as per manufacture's specification to Engineer's approval	m²	500.00		
21.07	100mm Diameter down water pipes	m	380.00		

BILL NO. 21: MISCELLANEOUS BRIDGE WORKS					
21.08	Provide weep holes complete as per the drawings and Technical Specifications to structures.	No	50.00		
Total of Bill No. 21 carried forward to summary					

BILL No. 21A: Piling Work					
ITEM	**DESCRIPTION**	**UNIT**	**QUANTITY**	**RATE (KSH)**	**AMOUNT (KSH)**
	Provide equipment and cast insitu piles as shown on the drawings or as directed by the engineer. The rates quoted shall include for pile reinforcement as shown on drawings, projecting reinforcement above the pile cap soffit, provision of concrete class 30/20 to the pile and 1200mm above the pile cap soffit, compaction where required, and other incidentals required for piling other than stated hereunder. Anticipated idle time for the rig shall be included in the rates				
21A.01	Mobilization of piling equipment to and from site	L/Sum	1.00		
21A.02	Form in position as shown on drawings cast insitu vertical piles of 900mm nominal shaft diameter. Pile length as shown on drawings or as determined on site. Piles to be cast 600mm above the pile cap soffit level and trimmed back as instructed by the engineer.	m	135.00		
21A.03	Move piling rig and other equipment from one pile location to another pile location, set up as required for piling	No	9.00		
21A.04	Allow for boring through obstructions such as hard boulders, old foundations etc	Hours	30.00		
21A.05	Allow for trimming piles and cutting /bending projecting reinforcement to required shape and level.	No	9.00		
21A.06	Allow for load testing of working concrete piles to one and a half times the working load as instructed by the engineer including all equipment, anchor piles and labour necessary. Rate to include for three copies of certified test results and report.	No.	2.00		
21A.07	Provide equipment and carry out pile integrity testing as per the specifications to the satisfaction of engineer. The rate to include three copies of certified test results and report	No.	9.00		
BILL 21 A TOTAL CARRIED TO SUMMARY PAGE					

BILL NO. 24: LANDSCAPING AND ENVIRONMENTAL MITIGATION MEASURES					
24.1	Supplying, Stacking and Spreading of good earth and manure up to 0.6m depth	m3	2,500.00		
24.2	Providing, Planting and Developing the plants and shrubs on embankment slopes, inside the embankment in excavated pits of size 0.3 x 0.3 x 0.6 and after planting removal and staking of excavated pits / bed with appropriate material as directed by the Engineer				
	a) Medium Shrubs	No.	100.00		
	b) Small Shrubs	No.	100.00		
24.3	Grassing				
	(a) Planting of springs of approved indigenous type of grass	m2	4,000.00		
Total of Bill No. 24 carried forward to summary					

BILL NO. 26: HIV/AIDS AWARENESS AND EDUCATION					
26.1	Instituting a HIV/AIDS awareness campaign	month	24.00		
26.2	Instituting a HIV/AIDS prevention campaign	month	24.00		
26.3	HIV/AIDS Training				
a)	Allow a Prime Cost Sum for HIV/AIDS Training	PC sum	1.00	500,000.00	500,000.00
b)	Contractor's overheads and profits as a percentage of Sub-item 26.3 (a)	(%)			
Total of Bill No. 26 carried forward to summary					

APPENDIX A

PART I: KeNHA PROJECT STAFF RENUMERATION SCALE					
KeNHA RE's Payment of Engineers Supervisory Staff					
S/No	Description		Wages & Salaries		
		Unit	Duration of Contract	Rate per day/month	Amount (Kshs)
1	Project Engineer - Field Allowances	Man - Days	**624.00**	4,200.00	2,620,800.00
2	Assistant Project Engineer/ARE - Field Allowances	Man - Days	**624.00**	2,800.00	1,747,200.00
3	Resident Engineer - Field Allowances	Man - Days	**624.00**	3,500.00	2,184,000.00
4	Deputy Resident Engineer	Man - Months	**24.00**	206,400.00	4,953,600.00

5	Environmentalist - Field Allowances	Man - Days	**624.00**	2,800.00	1,747,200.0
6	Assistant Environmentalist/ Sociologist	Man - Months	**24.00**	71,500.00	1,716,000.0
7	Graduate Engineers (2No.)	Man - Months	**48.00**	71,500.00	3,432,000.0
	Inspectorate department				
8	Bridge inspector	Man - Months	**24.00**	75,500.00	1,812,000.0
9	Roads Inspector	Man - Months	**24.00**	75,500.00	1,812,000.0
	Materials Department				
10	Project Materials Engineer	Man - Days	**624**	2,800.00	1,747,
10	Lab Technician	Man - Months	**24.00**	75,500.00	1,812,000.0
11	Lab Attendant (2No.)	Man - Months	**48.00**	25,000.00	1,800,000.0
	Survey Department				
12	Surveyor	Man - Months	**24.00**	117,500.00	2,820,000.0
13	Assistant Surveyor	Man - Months	**24.00**	71,500.00	1,716,000.0
14	Chainman (2no.)	Man - Months	**48.00**	25,000.00	1,800,000.0
	Administration				
15	Secretary	Man - Months	**24.00**	67,500.00	1,620,000.0
16	Casuals (2no.)	Man - Months	**48.00**	25,000.00	1,800,000.0
GRAND TOTAL CARRIED FORWARD TO 1.10A					**35,392,**

APPENDIX B

KeNHA RE's OFFICE MISCELLANEOUS EXPENSES					
1. Stationaries & Consumables					
NO.	**DESCRIPTION**	**UNIT**	**Quantity**	**Rate (Ksh)**	**Amount (Ksh)**
1	A3 Photocopy Papers (White)	Reams	10		
2	A4 Photocopy Papers (White)	Reams	350		
3	A4 Photocopy Papers (Coloured)	Reams	120		
4	Paper Conqueror Laid A4 (Blue, Cream)	Reams	10		
5	External Hard Disk 1TB	No.	5		
6	In/Out-tray	No.	10		
7	Flash Disk 64GB (OTG)3.0	No.	10		
8	Reflector Jackets	No	200		
9	Gumboots	No.	50		

10	Rains coats	No.	50		
11	Diaries	No.	50		
12	Scientific Calculator	No	5		
13	Cordless Mouse	No	5		
14	Mouse Pads	No	10		
15	Mouse batteries	Pairs	20		
16	Quality Envelopes (A4)	9gsm	50		
17	Quality Envelopes (A3)	90gsm	30		
18	Stapler Removers	No.	20		
19	Binder clips (medium, Large)	Pkt	100		
20	Binding Spirals (10mm)	pcs	100		
21	Binding spirals (16mm)	pcs	100		
22	Binding Spirals (22mm)	pcs	100		
23	Binding Spirals (25mm)	pcs	100		
24	Binding Spirals (28mm)	pcs	50		
25	Rubber bands	Pkts	3		
26	Highlighters	Pkt	60		
27	Marker Pens	No.	60		
28	Executive Gel Pen (Parker Roller ball)	No.	30		
29	Ball Pens (Fine point) Assorted colours	pks	20		
30	Pen holder	No.	20		
31	Paper clip holder	No.	10		
32	Stick Notes(3*3)	No	200		
33	urgent stickers	Rolls	10		
34	Short Hand Note Books	dozen	100		
35	Biro Pens Sharp Pointed- Black	Pkt	12		
36	Biro Pens Sharp Pointed Blue	No.	12		
37	Biro Pens Sharp Pointed Red	No.	12		
38	Box File Medium (PVC)	No.	200		
39	Counter Books A4 (2 Quire)	No.	50		
40	Envelopes Brown Size 4.3 X 8.7 Inch	No.	200		
41	Envelopes Brown - A3	No.	200		
42	Envelopes Brown-A4	No.	250		
43	Envelopes Brown-A5	No.	200		
44	Highlighting Pens	dozen	10		
45	Paper Punch Medium	No.	5		
46	Paper Punch Giant	No.	3		
47	Measuring Tapes 30fts	No	10		
48	Pelikan ink 273	No.	50		
49	Staple Pins 24/6	Pkts	250		
50	Staple Pins Giant	Pkts	50		
51	Stapler	No	10		
52	Paper Clips 33mm	Pkts	150		
53	White Out	No.	60		

54	Cello tape 1 inch	No.	60		
55	Embossed Covers (Blue & Green)	Reams	100		
56	Binder Clips (32mm)	Pkts	200		
57	Clear Pocket Folder	pcs	150		
58	Glue Stick Pritt	No.	360		
59	Masking tape	No	12		
60	Bulbs	No.	50		
61	Pencils	Box (12 pcs)	5		
62	Delivery Book	No.	12		
63	Stick notes (Sign here)	Psc	12		
64	Hp Toner- for HP Color LaserJet Pro MFP M404dn	No.	10		
65	Hp Toner-Cb541A for HP OfficeJet Pro 8710	sets	10		
66	Hp Toner- for HP Color LaserJet Pro M283fdw	Set	6		
67	Toner for KYOCERA ECOSYS M6235cidn KX	set	10		
68	Toner for KYOCERA TASKALF 2553ci	set	3		
69	Printing Machine (Kyocera Ecosys M6235cidn)	No.	1		
70	Extension Cables with Power Surge	No	10		
71	Floor detergents	No	50		
72	Kitchen detergents	No	50		
73	Washroom detergents	No	50		
74	General cleaning tools	No	20		
75	Kitchen consumables	Box	100		
76	Dust Coats (Branded Twill Material)	No.	50		
77	Milk	Box (12 pcs)	120		
78	Coffee	No.(500gm)	200		
79	Ketepa tea leaves	Pkts	200		
80	Assorted tea leaves	Pkts	30		
81	Chocolate	No	100		
82	Sugar	Kgs	300		
83	Kitchen towels	No	36		
84	Gloves Plastic	Pairs	12		
85	Door mats	No	10		
86	Serviettes	Dozens	24		
87	Dust Bins	No	12		
88	Air fresheners	No	50		
89	Soap Dispenser	No	8		
90	Antibacterial foam soam 1 litre	No	60		
91	Refill sanitizers	No	12		
92	Folded Paper 1 bale	No	12		
93	Jumbo tissues 1 bale	No	12		

94	Assorted beverages	Sum	1		
95	Hand Sanitizers (500) ml	No.	60		
96	Face Masks 3 ply	Pkts	120		
97	Hand washing gels (Dettol).250 ml	No.	60		
98	Refillable Drinking water (20LTS) Bottle	No.	150		
99	Drinking water (Small bottles)	Box (12 pcs)	240		
100	Shredder	No.	2		
101	Room Heater	No.	2		
102	File cabinet	No.	2		
103	Office cabinet(Metal Lockable)	No.	2		
104	First aid kit	No.	3		
105	Office Fumigation	M^2	800		
106	2 No Civil 3D (Latest Version) & 1 No. Civil Cad (Latest Version).The price to include training on the use of softwares as will be directed by the Engineer	No.	2		
108	Microsoft Office (Latest Version)	No.	3		
109	Microsoft Project (Latest Version)	No.	3		
110	UPS 1KVA surge protector	No	10		
111	Fire Extinguisher	No	4		
112	Lunches	SUM	1	2,000,000.00	
113	E.O item for Lunch	%			
114	Airtime	SUM	1	450,000.00	
115	E.O item for Airtime	%			
116	Provide and maintain the Engineer's staff mobile Phones as per Special Specifications	No	4		
117	Provide and maintain one photocopier as per clause 133 of the Special Specifications to the approval of the Engineer to revert to his office at the end of the project.	No	1		
118	Provide and maintain three Laptop computers as per clause 133 of the Special Specifications complete with specified printer and software to the approval of the Engineer to revert to his office at the end of the project.	No	3		
119	Provide and maintain two personal computers as per clause 133 of the Special Specifications to the approval of the Engineer to revert to his office at the end of the project.	No	2		
120	Provide and maintain two mini laptops as per clause 133 of the Special Specifications to the approval of the Engineer to revert to his office at the end of the project.	No	2		
GRAND TOTAL CARRIED FORWARD TO BILL ITEM 1.07					

APPENDIX C

LAB TESTS CHARGE SHEET AS PER MTRD				
CONCRETE CUBES				
S/No.	Description	Cost (Kshs)	No of Test	Total Cost (Kshs)
1	Cube Crushing per Cube	400	48	19,200.00
2	Making and Crushing of cubes (set of 3)	1500	4	6,000.00
AGGREGATES				
1	Flakines Index (FI)	600	6	3,600.00
2	Bulk Density	500	6	3,000.00
3	LAA	1000	6	6,000.00
4	ACV	1000	6	6,000.00
5	Sieve Analysis(Course Aggregates)	500	6	3,000.00
6	Sieve Analysis(Fine Aggregates and Sand)	500	6	3,000.00
7	Water Absorption and Specific Gravity	900	6	5,400.00
8	SG	500	6	3,000.00
9	Silt and Clay Content	500	6	3,000.00
10	AIV	700	6	4,200.00
11	10% Fines	1200	6	7,200.00
12	Weathering 5 cycles(SSS)	3000	6	18,000.00
13	Arithmetical Mix Design(Calculation only)	2500	6	15,000.00
14	Concrete mix Design (Complete)	10000	5	50,000.00
TAR,BITUMEN,ASPHALTS & SEALING COMPOUNDS				
1	Desiltation of volatiles	750	2	1,500.00
2	Water Content in Bitumen	750	2	1,500.00
3	Penetration Test	500	2	1,000.00
4	Softening Point	500	2	1,000.00
5	Viscosity of Petroleum Products	750	2	1,500.00
6	Pre-Mix Design analysis	6000	2	12,000.00
7	Mix Desing including Marshall & Voids	15000	2	30,000.00

8	Crushing Marshall Specimen (Sets of 3)	1800	2	3,600.00
9	Solubility in Trycloroethlene or Carbon Di-sulphide	750	2	1,500.00
10	Ductility Test in Bitumen	500	2	1,000.00
11	Differenciation Between Tar and Bitumen (Spot Test Only)	300	2	600.00
12	Identifiaction of solvents	500	2	1,000.00
13	Fibre Aggregates	500	2	1,000.00
14	Identifaction of deparated fibre, aggregates etc.	500	2	1,000.00
15	Flash Point of Petroleum Products	750	2	1,500.00
16	Ash Content	1000	2	2,000.00
17	EVT (Determination)	500	2	1,000.00
18	Affinity for Bitumen	750	2	1,500.00
19	Mastic Asphalt Analysis	4000	2	8,000.00
20	Loss on Heating Test	1000	2	2,000.00
21	Recovery of Bitumen from Mixes	3000	2	6,000.00
22	Hot Extraction Method	1500	2	3,000.00
23	Analysis of emulsified Bitumen	1500	2	3,000.00
24	Stability of Sand Mixes	1000	2	2,000.00
25	Storage Stability of emulsion(Short Period)	950	2	1,900.00
26	Partical Charge Test on Emulsion	750	2	1,500.00
27	Wet Track Abrasion Test on Bitumen Emulsion Slurry	4000	2	8,000.00
28	Bitumen Content Determination by Use of Nucler Gauge	1000	2	2,000.00
29	Surface Texure Depth Determination	900	2	1,800.00
30	Premix/ Asphaltic Specific gravity Determination	750	2	1,500.00
31	Core Cuttting per core	1500	2	3,000.00
32	Mix Desing by vibrating Hummer Method	15000	2	30,000.00
33	Mix Desing By Gyratory Compactor Method	17500	2	35,000.00

34	Core Analysis Including Binder Recovery and testing	7500	2	15,000.00
35	Surface Dressing Design	5000	2	10,000.00
36	Spread and Spray Rate Measurement per test	1000	4	4,000.00
37	Surry Seal Desing	5000	2	10,000.00
38	CutBack Bitumen Design and Analysis	10000	2	20,000.00
SOIL ANALYSIS				
1	Determination of liquid,plastic and linear shinkage (Atterbergs)	500	6	3,000.00
2	Sieve Analysis Down to 200 Mesh (0.075mm) Dry	400	6	2,400.00
3	Sieve Analysis Down to 200 Mesh (0.075mm) Wet	500	6	3,000.00
4	Complete sieve analysis	1000	6	6,000.00
5	Moisture density (compaction test) BS or MOD, AASHTO T180	1100	6	6,600.00
6	CBR statically compacted to 100% MDD, OMC AT 4 Day soak	800	6	4,800.00
7	CBR dynamically compacted at 3 levels, 95% MDD MOD AASHTO day soak	1800	6	10,800.00
8	CBR for stabilization and 7 day cure and 7 day soak and statically compacted to 95%MDD.MOD.AASHTO	2400	6	14,400.00
9	CBR for stabilized samples	1200	6	7,200.00
10	Determination of specific gravity of medium grained soils	600	6	3,600.00
11	UCS tests on stabilized soil 200 x 100 mm dia. Set of 3 tests only	1500	6	9,000.00
12	Moisture content determination	400	6	2,400.00
13	Sand replacement test for stabilized samples	750	6	4,500.00
14	Moisture/Density content determination (Compaction Test) Proctor T90 - Sample Preparation before testing	300	6	1,800.00
15	Moisture/Density content determination (Compaction Test) Proctor T90 - Vibrating Hammer	1600	6	9,600.00
OTHERS				

1	Thermoplastic Paint Testing with beads	10000	5	50,000.00
2	Guardrail Flex Beam, Post,Bolts and Nuts	6500	2	13,000.00
3	Cat eyes	4400	5	22,000.00
4	Gabion Box	6500	2	13,000.00
5	Major Tests on AC	18000	20	360,000.00
	Sub Total A			**934,600.00**
	Description	**Quantity**	**Rate**	**Amount**
	Allowances for MTRD Team	1,000,000.00	1	1,000,000.00
	Sub Total B			**1,000,000.00**
GRAND TOTAL CARRIED FORWARD TO BILL ITEM 1.03				**1,934,600.00**

APPENDIX D

TECHNICAL SPECIFICATION FOR SURVEY EQUIPMENT				
Item Description	**Unit**	**Quantity**	**Rate**	**Amount**
Base Rover Configuration (RTK) including;	No.	1		
2 No. Receiver Set				
1 No. Data Collector Set + Relevant Field Software and Rotating Tribrach Adapter				
1 No. Tribrach with optical plummet, clamp+vial+compass				
1 No. Quick Release cradles				
1 No. Fiber Glass Round Head Tripod				
1 No. Snap-Lock Rover Rods 2m				
2" Total Staion including;	No.	1		
1 No. Prism Pole				
1 No. Circular Prism				
1 No. Wooden Tripod				
Automatic Level including;	No.	3		
5m leveling Staff				
Aluminum Tripod				
GRAND TOTAL CARRIED TO BILL ITEM 1.02			**Sub-Total**	

APPENDIX E

PART I : PAYMENT FOR TRAINING					
S.No.	**Description**	**Amount**	**No of staff**	**Amount per Month**	
1	Specialized Training as will be instructed by the Engineer	800,000.00	2.00	1,600,000.00	
	Sub Total A			**1,600,000.00**	
S.No.	**Description**	**Unit**	**Duration of Contract**	**Rate per month**	**Amount (Kshs)**
2	Intern Engineers (2No.)	Man - Months	**48.00**	25,000.00	1,200,000.00
3	Intern Surveyors (1No.)	Man - Months	**24.00**	25,000.00	600,000.00
4	Intern Technician (1No.)	Man - Months	**24.00**	25,000.00	600,000.00
5	Attaches (5No.)	Man - Months	**90.00**	10,000.00	900,000.00
	Sub Total B				**3,300,000.00**
	GRAND TOTAL				**4,900,000.00**
GRAND TOTAL CARRIED TO BILL ITEM 1.09					

APPENDIX F					
S/No	**Description**	**Unit**	**Quantity**	**Rate**	**Amount**
1	Executive office desk	No.	1		
2	Executive office chair	No.	1		
3	Conference table 10-seater with chairs	No.	1		
4	Standard office desk 3x2 lockable drawers	No.	1		
5	Standard office chairs	No.	1		
6	Office desks 3x1 lockable drawers	No.	7		
7	Office chairs	No.	12		
8	Filing cabinets 4 drawers	No.	2		
9	Curtains/Blinds	No.	As applicable		
10	Office cupboard	No.	1		
11	Standing Water Dispenser (Hot & Cold)	No.	1		
12	Dust bins	No.	3		
13	Stapling machine (ofrex) and pins	No.	10		
14	Paper punch	No.	10		
15	Scientific calculator	No.	5		
16	Fully equipped first Aid Kit	No.	2		
17	Electric heater fans	No.	2		
18	Wall clocks battery powered	No.	2		
19	Filing trays	No.	7		
20	Waste paper baskets	No.	4		
21	Electric or gas cooker with 4 plates and oven	No.	1		
22	Refrigerator with freezer capacity 180 litres	No.	1		
23	Digital Microwave - 26 Litres - 900W	No.	1		
24	Paper Shredder	No.	2		
GRAND TOTAL					
GRAND TOTAL CARRIED TO BILL ITEM 1.04					

APPENDIX G		
S/No.	Description	Total Cost (Kshs)
1	Provide 3No. Boreholes up to a maximum depth of 15 metres	
GRAND TOTAL CARRIED FORWARD TO BILL ITEM 1.11		

APPENDIX TO BILLS OF QUANTITIES								
APPENDIX A FOR ITEM 1.10								
PART I RATES FOR ENGINEERS SUPERVISORY STAFF								
NO.	**DESIGNATION**	**KeNHA Grade**	**Rates**					
			Wages & Salaries (Monthly)	**Per Diem - Cluster 1 (Daily)**	**Per Diem - Cluster 2 (Daily)**	**Per Diem - Cluster 3 (Daily)**	**Field Allowance (Daily)**	**Transport Allowance (Daily)**
1. Engineers								
1	Director General			18,200.00	12,600.00	10,500	-	-
2	Director			16,800.00	12,600.00	10,500	-	-
3	Resident Engineer (DD)/Deputy Director	3		16,800.00	12,600.00	10,500	-	-
4	Resident Engineer (AD)	4		14,000.00	10,500.00	8,400	-	-
5	Senior Engineer	5		14,000.00	10,500.00	8,400	-	-
6	Engineer	6		11,200.00	8,400.00	7,000	-	-
7	Senior Engineer (Projects)			6,300.00	4,900.00	4,200	-	-
8	Engineer (Projects)			6,300.00	4,900.00	4,200	-	-
9	Assistant Engineer (Projects)			6,300.00	4,900.00	4,200	-	-
10	Intern Engineer (Projects)			6,300.00	4,900.00	4,200	-	-
2. Inspectorate								
1	Roads Superintendent	7		11,200.00	8,400.00	7,000	1,750.00	-

APPENDIX TO BILLS OF QUANTITIES								
APPENDIX A FOR ITEM 1.10								
PART I RATES FOR ENGINEERS SUPERVISORY STAFF								
NO.	**DESIGNATION**	**KeNHA Grade**	**Rates**					
			Wages & Salaries (Monthly)	**Per Diem - Cluster 1 (Daily)**	**Per Diem - Cluster 2 (Daily)**	**Per Diem - Cluster 3 (Daily)**	**Field Allowance (Daily)**	**Transport Allowance (Daily)**
2	Roads Inspector	8		11,200.00	8,400.00	7,000	1,750.00	-
3	Roads Overseer	9		6,300.00	4,900.00	4,200	1,050.00	-
4	Inspector (Projects)			6,300.00	4,900.00	4,200	-	500
5	Assistant Inspector (Projects)			6,300.00	4,900.00	4,200	-	500
3. Laboratory								
1	Material Technologist			11,200.00	8,400.00	7,000	1,750.00	-
2	Lab Technician			6,300.00	4,900.00	4,200	1,050.00	-
3	Lab Attendant			6,300.00	4,900.00	4,200	1,050.00	-
4	Lab Technician (Projects)			6,300.00	4,900.00	4,200	1,050.00	-
5	Lab Attendant (Projects)			6,300.00	4,900.00	4,200	1,050.00	-
4. Survey								
1	Senior Surveyor	5		14,000.00	10,500.00	8,400	2,100.00	-
2	SURVEYOR	6		11,200.00	8,400.00	7,000	1,750.00	-
3	Senior Assistant Surveyor	7		11,200.00	8,400.00	7,000	1,750.00	-
4	Surveyor (Projects)			6,300.00	4,900.00	4,200	-	-
5	Assistant Surveyor (Projects)			6,300.00	4,900.00	4,200	-	-

APPENDIX TO BILLS OF QUANTITIES								
APPENDIX A FOR ITEM 1.10								
PART I RATES FOR ENGINEERS SUPERVISORY STAFF								
NO.	**DESIGNATION**	**KeNHA Grade**	**Rates**					
			Wages & Salaries (Monthly)	**Per Diem - Cluster 1 (Daily)**	**Per Diem - Cluster 2 (Daily)**	**Per Diem - Cluster 3 (Daily)**	**Field Allowance (Daily)**	**Transport Allowance (Daily)**
6	CAD Technician (Projects)			6,300.00	4,900.00	4,200	-	-
7	Leveller (Projects)			6,300.00	4,900.00	4,200	-	-
8	Chainman (Projects)			6,300.00	4,900.00	4,200	-	-
5. Drivers								
1	Senior Driver	8		11,200.00	8,400.00	7,000	1,750.00	-
2	Driver	9		6,300.00	4,900.00	4,200	1,050.00	-
3	Driver (Projects)			6,300.00	4,900.00	4,200	-	-
6. Admin								
1	Senior Officer	5		14,000.00	10,500.00	8,400	-	-
2	Officer	6		11,200.00	8,400.00	7,000	-	-
3	Senior Assistant Officer	7		11,200.00	8,400.00	7,000	-	-
4	Assistant Officer	8		11,200.00	8,400.00	7,000	-	-
5	Senior Office Assistant	9		6,300.00	4,900.00	4,200	-	-
6	Office Assistant	10		6,300.00	4,900.00	4,200	-	-
7	Accountant (Projects)			6,300.00	4,900.00	4,200	-	-
8	Assistant Accountant (Projects)			6,300.00	4,900.00	4,200	-	-

APPENDIX TO BILLS OF QUANTITIES								
APPENDIX A FOR ITEM 1.10								
PART I RATES FOR ENGINEERS SUPERVISORY STAFF								
NO.	**DESIGNATION**	**KeNHA Grade**	**Rates**					
			Wages & Salaries (Monthly)	**Per Diem - Cluster 1 (Daily)**	**Per Diem - Cluster 2 (Daily)**	**Per Diem - Cluster 3 (Daily)**	**Field Allowance (Daily)**	**Transport Allowance (Daily)**
9	Procurement Officer (Projects)			6,300.00	4,900.00	4,200	-	-
10	Assistant Procurement Officer (Projects)			6,300.00	4,900.00	4,200	-	-
11	Environmental Officer (Projects)			6,300.00	4,900.00	4,200	-	-
12	Assistant Environmental Officer (Projects)			6,300.00	4,900.00	4,200	-	-
13	ICT Officer (Projects)			6,300.00	4,900.00	4,200	-	-
14	Assistant ICT Officer (Projects)			6,300.00	4,900.00	4,200	-	-
15	Human Resource Officer (Projects)			6,300.00	4,900.00	4,200	-	-
16	Asst. Human Resource Officer (Projects)			6,300.00	4,900.00	4,200	-	-
17	Secretary (Projects)			6,300.00	4,900.00	4,200	-	-
18	Office Assistant (Projects)			6,300.00	4,900.00	4,200	-	-
19	Office Attendant (Projects)			6,300.00	4,900.00	4,200	-	-
20	Casual Laborer (Daily)			1,000.00	1,000.00	1,000	-	-
21	Intern			6,300.00	4,900.00	4,200	-	-
22	Attachee			6,300.00	4,900.00	4,200	-	-
7. Security (Police Officers)								

APPENDIX TO BILLS OF QUANTITIES								
APPENDIX A FOR ITEM 1.10								
PART I RATES FOR ENGINEERS SUPERVISORY STAFF								
NO.	**DESIGNATION**	**KeNHA Grade**	**Rates**					
			Wages & Salaries (Monthly)	**Per Diem - Cluster 1 (Daily)**	**Per Diem - Cluster 2 (Daily)**	**Per Diem - Cluster 3 (Daily)**	**Field Allowance (Daily)**	**Transport Allowance (Daily)**
1	Inspector	8		11,200.00	8,400.00	7,000.00		
2	Senior Sergeant	8		11,200.00	8,400.00	7,000.00		
3	Sergeant	8		11,200.00	8,400.00	7,000.00		
4	Corporal	9		6,300.00	4,900.00	4,200.00		
5	Constable	10		6,300.00	4,900.00	4,200.00		
SUB TOTAL A (Allowances Provision KeNHA Staff for the Contract Duration) = 7,358,400.00								

PART II

KeNHA PROJECT STAFF RENUMERATION SCALE

1. TECHNICAL STAFF

Civil Engineering Degree Holders

S/n	Staff Designation	Minimum Qualifications	Gross Monthly Remuneration (Man Months) (KShs)
1	Senior Engineer	i. Holds a Degree in Civil Engineering or its equivalent.	
		ii. Registered **Professional** Civil Engineer with EBK and a **corporate** member of IEK.	
		iii. Has Worked with KeNHA for over 3 years.	206,400.00
2	Engineer	i. Holds a Degree in Civil Engineering or its equivalent from an institution recognized by EBK.	
		ii. Registered **Graduate** Civil Engineer with EBK.	
		iii. Has over **5 years Post-Registration** Experience in Roads.	
		iv. Has Worked with KeNHA for over 3 years.	117,500.00

PART II			
KeNHA PROJECT STAFF RENUMERATION SCALE			
1. TECHNICAL STAFF			
Civil Engineering Degree Holders			
S/n	**Staff Designation**	**Minimum Qualifications**	**Gross Monthly Remuneration (Man Months) (KShs)**
3	Assistant Engineer	i. Holds a Degree in Civil Engineering or its equivalent from an institution recognized by EBK.	
		ii. Registered **Graduate** Civil Engineer with EBK.	
		iii. Has over **3 years Post-Registration** Experience in Roads.	
		iv. Has Worked with KeNHA for over 2 years.	93,500.00
4	Graduate Engineer	i. Holds a Degree in Civil Engineering or its equivalent from an institution recognized by EBK.	
		ii. Registered **Graduate** Civil Engineer with EBK.	
		iii. Has over **1 year Post-Registration** Experience.	71,500.00
5	Trainee Engineer/ Intern	i. Holds a Degree in Civil Engineering or its equivalent from an institution recognized by EBK.	
		ii. Registered or awaiting Registration as a **Graduate** Civil Engineer with EBK.	25,000.00
		ii. **Fresh Graduate** from University.	
Civil Engineering Diploma Holders			
S/n	Staff Designation	Minimum Qualifications	Gross Monthly Remuneration (Man Months) (KShs)
1	Superintendent	i. Holds a Diploma in Civil Engineering - Highways Category.	
		ii. Has over **6 Years Post graduation** Practical Experience in Roads.	
		iii. Has worked with KeNHA for over 4 years.	93,500.00
2	Inspector	i. Holds a Diploma in Civil Engineering - Highways Category.	
		ii. Has over **3 Years Post graduation** Practical Experience in Roads.	
		iii. Has worked with KeNHA for over 2 years.	71,500.00
3	Assistant Site Inspector	i. Holds a Diploma in Civil Engineering - Highways Category.	
		ii. Has over **2 Years Post Graduation** Practical Experience in Roads.	52,500.00
4	Trainee Site Inspector	i. Holds a Diploma in Civil Engineering - Highways Category.	
		ii. Fresh Graduate.	30,000.00
Construction/Project Management Degree Holders			

PART II			
KeNHA PROJECT STAFF RENUMERATION SCALE			
1. TECHNICAL STAFF			
Civil Engineering Degree Holders			
S/n	**Staff Designation**	**Minimum Qualifications**	**Gross Monthly Remuneration (Man Months) (KShs)**
S/n	Staff Designation	Minimum Qualifications	Gross Monthly Remuneration (Man Months) (KShs)
1	Project Inspector	i. Holds a Degree in Project or Construction management or its equivalent.	
		ii. Construction Managers must be registered as Professionals with ACMK (Association of Construction Managers of Kenya) while Project Managers must be registered with KAPM (Kenya Association of Project Managers) and PMI (Project Management Institute) as professionals.	
		iii. Has over 5 Years Post Graduation Experience	71,500.00
2	Assistant Project Inspectors	i. Holds a Degree in Project or Construction management or its equivalent.	
		ii. Construction Managers must be registered as Graduate members with ACMK (Association of Construction Managers of Kenya) while Project Managers must be registered with KAPM (Kenya Association of Project Managers)	
		iii. Has over 3 years post-Graduation Practical Experience	52,500.00
3	Trainee Project Inspector	i. Holds a Degree in Project or Construction management or its equivalent.	
		ii. **Fresh Graduate**	30,000.00
Surveyors			
S/n	Staff Designation	Minimum Qualifications	Gross Monthly Remuneration (Man Months) (KShs)
1	Senior Surveyor	i. Holds a Degree in Survey or its equivalent	
		ii. Registered as a Professional Member with the Institute of Surveyors of Kenya	
		iii. Has over 5 Years of Practical Experience in Roads.	204,600.00
2	Surveyor	i. Holds a Degree in Survey or its equivalent	
		ii. Registered as a Graduate Member with the Institute of Survey of Kenya	
		iii. Has over 3 Years of Practical Experience in Roads.	117,500.00

PART II			
KeNHA PROJECT STAFF RENUMERATION SCALE			
1. TECHNICAL STAFF			
Civil Engineering Degree Holders			
S/n	**Staff Designation**	**Minimum Qualifications**	**Gross Monthly Remuneration (Man Months) (KShs)**
3	Assistant Surveyor/Leveller	i. Holds a Degree/Diploma in Survey or its equivalent	
		ii. Fresh from college	71,500.00
4	Chainman	i. Has over 1 year of practical experience in roads survey	25,000.00
Laboratory			
1	Material Technologist	i. Holds a Degree in Civil or its equivalent	
		ii. Has over 5 Years of Practical Experience in Roads.	117,500.00
2	Lab Technician	i. Holds a Diploma/Grade test 1 Certificate in Civil or its equivalent	
		ii. Has over 3 Years of Practical Experience in Roads.	71,500.00
3	Lab Attendant	i. Holds a Grade test 3 Certificate in Civil or its equivalent	25,000.00
		ii. Has over 1 year of practical experience in roads	
2. NON-TECHNICAL STAFF			
Finance Office			
1	Assistant Accountant	Holds a Bachelors of Commerce (Finance & Banking) or its equivalent.	
		Holds at least CPA-I	
		Has at least 3 years post graduate practical experience.	
		Has worked with KeNHA for over 2 years.	71,500.00
2	Trainee Accountant	Holds a Bachelors of Commerce (Finance & Banking) or its equivalent.	
		Fresh from university	52,500.00
Procurement Office			
1	Procurement Officer	Holds a Degree in Supply Chain Management or its equivalent	
		Has over 3 years of experience.	
		Has worked with KeNHA for over 2 Year	117,500.00
2	Assistant Procurement Officer	Holds a Diploma in Supply Chain Management or its equivalent	
		Has worked with KeNHA for over 1 Year	71,500.00
3	Trainee Procurement Officer	Holds a Degree/Diploma in Supply Chain Management or its equivalent	52,500.00

PART II			
KeNHA PROJECT STAFF RENUMERATION SCALE			
1. TECHNICAL STAFF			
Civil Engineering Degree Holders			
S/n	**Staff Designation**	**Minimum Qualifications**	**Gross Monthly Remuneration (Man Months) (KShs)**
		Fresh From college	
Procurement Office			
1	Information Communications Technology Officer	Holds a Degree in Information Technology, Computer Science/Engineering or any other relevant and equivalent qualification from a recognized Institution.	
		Has over 3 years of experience.	
		Has worked with KeNHA for over 2 Year	117,500.00
2	Assistant Information Communications Technology Officer	Holds a Diploma in Computer Science, Information Technology or other relevant and equivalent qualifications from a recognized Institution	
		Has worked with KeNHA for over 1 Year	52,500.00
Administration			
1	Assistant Human Resource	Holds a Bachelor's Degree in Business Administration (Human Resource Management) or its equivalent.	
		Has worked with KeNHA for over 2 years.	71,500.00
Office Assistant			
1	Office Assistant/Clerks	Has O-Level Certificate or its equivalent.	
		Trained on data keeping and/or computer applications.	25,000.00

SECTION VII: STANDARD SPECIFICATIONS

Standard Specifications refers to the Standard Specifications for Road and Bridge Construction, 1986 Edition.

Standard Specifications will apply for any works or processes not specified in the Special Specifications.

SECTION VIII: SPECIAL SPECIFICATIONS

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1. *SECTION 1 – GENERAL*

101 SPECIAL SPECIFICATIONS

Special specification is supplementary to the Standard Specifications and the two must be read in conjunction. In any case where there appears to be conflict between the two then the Special Specifications will take precedence.

In the absence of any definite provisions on any particular issue in the aforesaid Specifications, reference may be made to the latest codes and specifications of Design Manual for Roads and Bridges of the Ministry of Transport and communication of the Republic of Kenya, Kenya Bureau of Standards (KEBS), BS, ASTM, AASHTO and in that order. Where even these are silent, the construction and completion of the works shall conform to sound engineering practice as approved by the Engineer and in case of any dispute arising out of the interpretation of the above, the decision of the Engineer shall be final and binding on the Contractor.

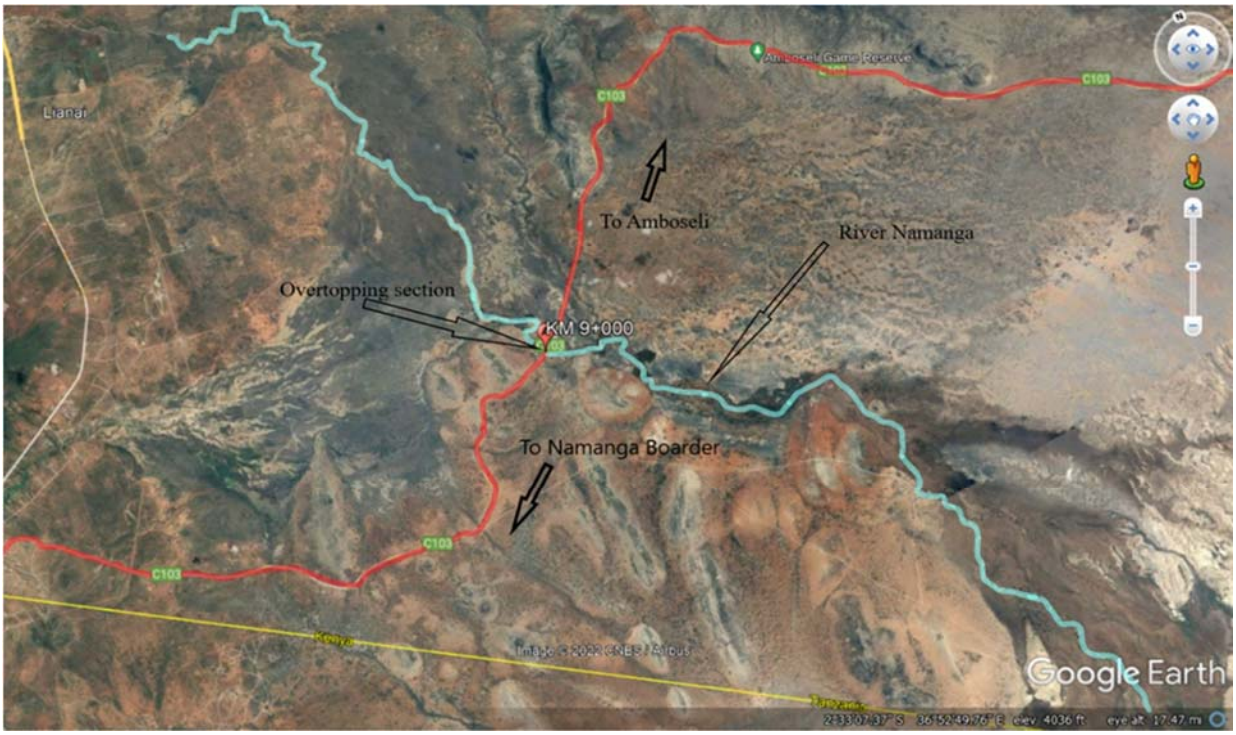
Where reference is made in the Contract to specific standards codes to be met by the materials, plant, and other supplies to be furnished, and work performed or tested, the provisions of the latest current edition or revision of the relevant standards as on the date of the bid and codes/design manual in effect shall apply, unless otherwise expressly stated in the contract. Where such standards and codes/design manual are national, or relate to a particular country or region, other internationally recognized standards which ensure a substantially equal or higher performance than the standards and codes/design manual specified will be accepted subject to the Engineer's prior review and written approval. The difference between the standards specified and the proposed alternative standards must be fully described in writing by the Contractor and submitted to the Engineer at least 28 days prior to the date when the Contractor desires the Engineer's approval. In the event that the Engineer determines that such proposed deviations do not ensure substantially equal performance, the Contractor shall comply with the standards specified in the documents.

When the term "Period of Maintenance" has been used in the Standard Specifications, it shall be changed to "Defects Liability Period".

102 LOCATION OF CONTRACT

LESONGOY River Bridge site is located in Namanga along the (Namanga (JnA2/B54)-Amboseli gate A5 junction (B54) road. The bridge serves as the access Namanga boarder leading to Tanzania and the Amboseli Game Reserve in Kenya.

Location Map



102 EXTENT OF CONTRACT

The Bridge works includes construction of a reinforced concrete bridge having 2 spans each of 20 m length and approximately 2Km of Approach Roads to be constructed / reconstructed to bitumen standard. The works to be executed under the contract consist of, but are not limited to, the following:

a) **Preliminary and General**: Provision and maintenance of Residential accommodation, office, laboratory, transport and equipment for the Engineer's Representative.
b) **Site clearance**
c) **Earthworks Construction**
d) **Pavement construction**
e) **Drainage and Protection works shall be as follows:**
    i. Remove existing cross and access culverts, inlets and outlets structures and replace as directed by the Engineer.
    ii. Construction of pipe culverts, headwalls, wing walls and aprons to culverts,
    iii. Construction of side, mitre drains and Outfall drains to the whole road including improvement of other drainage and soil erosion protection works.
    iv. Carry out protection works (scour checks, stone pitching, gabions) as directed by the Engineer.
    v. Carry out any miscellaneous works that may be deemed necessary by the Engineer for the execution and completion of the works.

f) Bridge works

i. Construction of 1200mm Diameter Reinforced Concrete Bored cast in place piles in class 40/20 concrete to 15m depth.
ii. Construction of new Reinforced Concrete Bridge.
iii. In-situ concreting for foundation of the two abutments.

g) Road Furniture

i. Provide and erect all the road signs and markings as directed by the Engineer.
ii. Provide, lay and joint kerbs as directed by the Engineer.
iii. Plant selected grass on slopes of embankments and cuttings.
iv. Provide and fix flex beam guardrail to bridge, vehicle/pedestrian guardrail at the bridges, along High fills as directed by the Engineer.
v. Provide and fix in position approved drain pipes on bridge deck, abutments and wing-walls.

h) Maintenance of passage of traffic through the works

i) Relocation of services as necessary;

j) Miscellaneous Works deemed necessary for the satisfactory completion of the works and instructed by the Engineer.

k) Maintenance of works during construction and during the defect's liability period, which shall be 12 months.

The Works detailed above are only indicative of the Scope of Works associated with this Contract and the Engineer may, where necessary, substitute some of the Works with others within the project area without substantially altering the overall Scope of the Works. Work shall be measured and paid using the relevant rates and prices in the Bill of Quantities.

The works will also include for any operations necessary for the safe and convenient passage of through and local traffic at all times

103 CONTRACT DRAWINGS

Contract drawings have been bound in a book of drawings accompanying these Contract Documents as a separate volume. Additional copies of these drawings that may be required by the Contractor can be obtained from the Engineer; in which case the Contractor will be required to reimburse the cost of producing such additional copies.

The Engineer may from time to time, in order to enable the satisfactory completion of the works, revise, amend or supersede any of these drawings. It shall be the Contractor's responsibility to construct all works in conformity with the latest revision, amendment or superseding drawings, provided that the Engineer has given to the Contractor in writing such reasonable prior notices of intention to revise, amend or supersede as the nature of the intended change requires, and the relevant drawings have been issued to the Contractor.

The changed drawings shall entitle the Contractor such reasonable additional payments as provided for in the Contract, including any abortive work carried out by the Contractor prior to notice of intent to undertake changes having been given.

The Contractor may be required to demolish, alter and/or correctly rebuild at his own expense any part of the Works not in conformity with the current drawings issued to him within a reasonable prior notice.

The drawings for the project are contained in the following:

1. BOOK OF DRAWINGS

Three types of drawings shall be distinguished: Contract drawings; Shop or Erection drawings and As-Constructed drawings as described here under:

(a) Contract Drawings

i. Contract drawings are drawings that form part of the Contract Documents and are hereby referred to as Drawings. These are base or fundamental drawings that originate from the Engineer or his Representative and express the intention, general form, serviceability and strength of the final element, component, product or structure. They should be read together with the Specifications comprising Standard and Special Specifications.

ii. Errors: The Contractor shall verify and be responsible for the correctness of all dimensions other than the principal controlling dimensions shown on the Drawings, and shall call to the attention of the Engineer any errors or discrepancies that may be discovered. The Contractor shall have no claim for damages that may result from following an error, except for an error in the principal controlling dimensions or material properties shown on the Drawings or listed in the specifications.

iii. Principal Controlling Dimensions and Material Properties: Pre-stressing is precision engineering. The following shall be considered principal controlling dimensions and material properties. Any change requires pre-authorization by the Engineer.
- Length of span (i.e., the horizontal distance between bearing centrelines, or other points of support).
- Length, width and depth of the precast, pre-stressed or cast in place concrete unit.
- Thickness of flanges and webs.
- Elevations of pedestals, bridge seats, and other supports for precast, pre-stressed or Cast in Place (CIP) concrete units.
- Jacking force.
- Ultimate strength of pre-stressing steel.
- Ultimate strength or grade of reinforcing bars.
- Characteristic concrete compressive strength of concrete measured either as cylinder or cube strength.

(b) Shop Drawings

i. Shop drawings show what is to be fabricated and the methodology of fabrication by the contractor. The drawings express the proposed process and methodology (i.e., the ways, means and how) of using his resources in order to achieve the output intended under the contract as expressed in the Contract Drawings.

ii. The Contractor shall prepare complete and accurate shop drawings showing how each concrete unit or entire structure will be fabricated or constructed. These drawings shall be made as soon as possible after the contract award and shall be designated as shop drawings. Supporting documents are sometimes required as part of a shop drawing submittal. Supporting documents include any additional information required by the Engineer and intended to supplement the shop drawings, such as design calculations. When a shop drawing submittal includes calculations, both the drawings and the calculations shall be stamped and signed by a Professional Engineer licensed to practice in Kenya. Shop drawing submittals that are not complete, as determined by the Engineer maybe returned without examination. The responsibility for checking and approving the shop drawings is the responsibility of the Engineer The shop drawings are to be submitted by the contractor to the Engineer for examination and approval. Reasonable time allowed for pre-stress shop drawing review by the Engineer is 45 days.

iii. The shop drawings shall include the following information: -

- Fabrication Dimensions: The Contractor shall be responsible for modifying the dimensions of precast units to compensate for elastic shortening, shrinkage, grade correction, and other phenomena that make in-process fabricating dimensions different from those shown on the plans.

- All dimensions, layouts, and calculations shall be checked. Information /data relating to the following specific items will require to be submitted:

  - ✓ Lay out details and general cross-sectional details;
  - ✓ Bridge begins, end, and pier stations as needed.
  - ✓ Centre to centre of bearing dimensions, for all spans.
  - ✓ Details and locations of all other items to be embedded in the units, shall be clearly detailed.
  - ✓ Type and location of lifting device for all concrete units to be fabricated.
  - ✓ Details showing how the units will be lifted and/or rotated, how they will be stored in the fabrication yard, and all relevant transportation details, including how they will be placed on the truck.
  - ✓ The initial and final force variations between girders.
  - ✓ The assumed camber due to the beam dead load at transfer of force (without growth) as shown on the plans.
  - ✓ Bearing plate stresses and concrete stresses behind the bearing plates.
  - ✓ Whether one or two end stressing is used.

- ✓ Shop drawings shall be integrated and show all reinforcing steel and hardware within each unit.
- ✓ The orientation of the bearing plate, usually by providing offsets to a horizontal
- ✓ Method(s) for the protection of the ducts from chloride contamination, dirt contamination, crushing, excessive bending, ultraviolet degradation, etc. during handling, storage and transportation (grout caps, etc.).
- ✓ Splicing of steel plates
- ✓ Details of method of piling

(c) Erection Drawings

- Erection drawings shall show the process of transportation, handling, erection and integration of separate structural elements and components into an integrated structure.

- If the precast elements that will be fabricated using the approved shop drawings are to be handled, lifted or transported thus exposing them to additional load are to be connected together in the field (segmental construction), Erection drawings will be required and will be submitted together with and at the same time with shop drawings.

- Supporting documents include any additional information required by Engineer and intended to supplement the installation drawings, such as design calculations, material test results, lifting and handling stress checks, segment deflections and construction load checks. Calculations required as supporting documents to the installation drawings shall be stamped, and signed by a licensed Professional Engineer, who has demonstrated experienced in composite steel bridge design and construction.

(d) As-Constructed Drawings

a) Definition: As-Constructed drawings shall be drawings showing the final details of the element, component or bridge as constructed.

b) As part of preparation of As-constructed drawings, at the completion of each structure on the contract, the contractor shall submit to the Engineer one set of reduced prints of the corrected original tracings of all working drawings. Reduced prints of drawings that are common to more than one structural member is required to be submitted for each member. The first drawing of each reduced plan set shall contain an index. The index sheet shall be prepared specifically for the set of drawings and list sheet numbers and titles for each structure. Reduced prints for each structure shall be arranged in order of drawing numbers shown on the index.

c) The Engineer shall review the drawings so prepared by the Contractor for accuracy and use them for prepare the As-Constructed drawings. The Drawings shall include and brief notes on construction methodology that may be considered useful for maintenance or monitoring. They may also include any special maintenance required or specified by the equipment manufacturers. On completion of the contract, the drawings prepared and filed in appropriate format shall be submitted to the Engineer as part of Project Closure documents for record.

104 PROGRAMME OF EXECUTION OF THE WORKS

Modify Clause 104 to read as follows:

The Contractor shall provide the works programme required under Clause 14 of Conditions of Contract within twenty-eight (28) days of receipt of the Engineer's order to commence work. The programme shall be in the form of a computerized critical path method, and shall be updated every two months to reflect all the circumstances affecting the progress of the works at that time. MS Project software or equivalent will be preferred.

The programme shall take into account all climatic and any other adverse conditions and ensure that the works are completed in the order and within the time specified.

The Contractor shall carry out the works in accordance with the programme agreed with the Engineer, but he shall in no manner be relieved by the Engineer's approval of the programme, to complete the works in the prescribed order and by the prescribed date. He shall continuously review his progress and make such amendments to his production rate as may be necessary to complete all of the works by the Contract Completion date.

105 ORDER OF EXECUTION OF WORKS

In addition to Section 105 of the Standard Specification, the Contractor shall carry out the Works such that a continuous and consecutive output of fully completed work is achieved.

106 SUBMISSION TO THE ENGINEER: WORKMANSHIP AND QUALITY CONTROL

The Contractor shall, not later than 4 weeks after the notice to commence the Works, submit a project specific Quality Management System, including the Work Method Statements and Quality Audit for major items of work, showing how all the Contractor's systems will ensure that all the works will conform to the Contract documents. The onus rests with the Contractor to produce work which conforms in quality and accuracy of detail to all the requirements of the Specifications and Drawings, and the Contractor shall, at his/her own expense, institute a quality control system and provide experienced engineers, foremen, surveyors, materials technicians, other technicians and other technical staff, together with all transport, instruments and equipment, to ensure adequate supervision and positive control of the Works at all times. The Contractor shall provide chainmen and labourers as necessary for the Engineer to carry out checks on the Works.

The Contractor shall conduct tests or have them conducted continually on a regular basis, to check the properties of natural materials and processed natural materials and of products manufactured on the site, such as concrete and asphalt. The Contractor shall remain fully responsible for any defective material or equipment provided by him. Similarly, the quality of all elements of the Works shall be checked on a regular basis so as to ensure compliance with the specified requirements.

The intensity of control and of tests to be conducted by the Contractor in terms of these obligations shall be adequate to ensure that proper control is being exercised.

Where any natural materials or products made from natural materials are supplied, and upon completion of each element of the construction work, the Contractor shall test and check such materials, products and/or elements for compliance with the specified requirements and shall submit his results to the Engineer for approval. Such submission shall include all his measurements and test results and shall furnish adequate proof of compliance with the specified requirements.

No specific pay items are provided as compensation for the above obligations, including the provision of all samples delivered to the Engineer, the repair of places from which samples were taken, and the provision of the necessary personnel and testing apparatus and facilities, for which compensation shall be included in the bid rates of the Contractor for the various items of work to which these obligations apply. The Contractor shall submit to the Engineer for examination, the results of all relevant tests, measurements and levels indicating compliance with the Specifications on completion of every part of the Work.

107CERTIFICATE OF SUBSTANTIAL COMPLETION

The minimum length of road for which a certificate will be issued shall be the whole of the project road lengths comprised in the lot when substantially completed.

The restoration of borrow pits and quarries is subject to the restoration requirements of Section 6 of these Specifications.

108METHOD OF CONSTRUCTION

The Engineer's normal working hours shall be 8 hours from Monday to Friday and 5 hours on Saturday with Sunday set aside for rest.

If the Contractor wishes to execute permanent works outside these hours, he shall meet any extra costs arising thereof in addition to giving a day's notice in writing.

109 NOTICE OF OPERATIONS

Add the following sub- Clause.

Notification Terms

It shall be the Contractor’s responsibility to notify the Engineer when any item of works scheduled are completed and ready for approval, and the Contractor shall give sufficient notice to allow control test to be performed.

117 HEALTH, SAFETY, AND ACCIDENTS

Add to sub-clause 19.1 the following:

In addition to providing, equipping and maintaining adequate first aid stations throughout the works in accordance with the Laws of Kenya, the Contractor shall provide and maintain on site during the duration of the Contract, a fully equipped dispensary. This shall be with a qualified Clinical Officer / Nurse who shall offer the necessary medical advice on HIV and related diseases to the Engineer’s and Contractor’s Site staff. The Contractor shall allow for this in the rates and be responsible for all site welfare arrangements at his own cost.

119 USE OF EXPLOSIVES

Add to clause 119
Explosive and Blasting

The requirements of the Laws of Kenya governing explosives and other requirements and regulations of Government of Kenya and other authorities shall be complied with.
No explosives of any kind shall be used without prior written consent of the Engineer.
The Contractor shall be solely responsible for the provision, handling, and storage and transporting of all explosives, ancillary materials and all other items of related kind whatsoever required for blasting.

120 PROTECTION OF EXISTING WORKS AND SERVICES

a) The Contractor shall acquaint himself with the position of all existing services such as sewers, water drains, cables for electricity and telephone, lighting and telephone poles, water mains, etc., before commencing any excavation or other work likely to affect the existing services.

The cost of all plant, equipment and materials, labour, technical and professional staff, transport and the like necessary for determining the locations of existing services, including the making good of any damage caused to such services all to the satisfaction of the Engineer, shall be deemed to be included in the tender rates. No other payment shall be made for the costs of such operations or for the making good of damage caused thereby to the existing services.

b) The Contractor shall be held responsible for injury to existing structures, works or services and shall indemnify and keep indemnified the Employer against any claims in this respect (including consequential damages).

121 DIVERSION OF SERVICES

The Contractor shall acquaint himself with the location of all existing services such as telephone lines, electricity cables, water pipes, sewers etc., before execution of any works that may affect the services. The cost of determining the location of the existing services together with making good or repairing of any damage caused all to the satisfaction of the Engineer shall be included in the tender rates.
Subject to the agreement with the Engineer, the Contractor shall be responsible for removal of alteration and relocation of existing services.
The Contractor shall indemnify the Employer against claims originating from damage to existing services or works.

123 LIAISONS WITH GOVERNMENT AND POLICE OFFICIALS

The Contractor shall keep in close touch with the Police and the other Government officials of the area regarding their requirements in the control of traffic or other matters, and shall provide all assistance or facilities, which may be required by such officials in the execution of their duties.

124 LAND FOR ALL CAMPS SITES AND FOR THE CONTRACTOR'S OWN PURPOSES, INCLUDING TEMPORARY WORKS

Notwithstanding Clause 124 of the Standard Specification all requirements of land for temporary works and construction purposes shall be to the approval of the Engineer but the Contractor will make all necessary arrangements with the property owners concerned and pay all charges arising thereon. On or before completion of the Contract, the Contractor shall remove all temporary works and shall restore all such land to the condition in which it was immediately prior to the occupation thereof as far as is reasonable and practicable. No separate payment will be made to the Contractor on account of these items and the Contractor must make due allowance for them in his rates.

Notwithstanding Clause 120 of the Standard Specifications, the Contractor shall be required to appoint a competent surveyor who will liaise with the Engineer on matters related to the demarcation of the existing road reserve, site measurements, removal, and reinstatement of existing services.

126 MATERIALS AND MANUFACTURED GOODS

Notwithstanding the provisions of Clause 126 of the Standard Specification, the Contractor's attention is drawn to his obligations with regard to quality and delivery schedule of materials and goods obtained from suppliers. Should the Engineer at any time be dissatisfied with any goods and materials intended for use by the Contractor upon the Works, he shall be empowered to reject the goods and materials and shall order that others of acceptable quality replace them. Any more work that may consequently have to be redone and the costs of the new supplies shall be borne by the Contractor.

127 INFORMATION FROM EXPLANATORY BORING AND TEST PITS

Omit the content of Clause 127 and substitute the following Sub-Clauses: -

127.1 Factual Materials Report

The Factual Materials Report for this Contract does not form part of the Contract Documents. However, the Report will be made available for the Contractor's information only, and any conclusions on issues such as suitability of materials, location of borrow pits, material quantities etc., made by the Contractor on the basis of the Factual Materials Report, will be at his own risk.

127.2 Trial Sections

The Contractor shall allow in his programme for constructing trial sections and carrying out tests upon them as directed by the Engineer. Trials would normally be required at the start of each pavement layer and if changes of materials, method, or equipment deem it necessary, as directed by the Engineer. The time for completion of the Contract shall not be extended because of the time needed to construct trial sections and evaluate the tests on them.

At least fourteen days before the work of laying any pavement layer is commenced, the contractor shall construct trial sections of at least 100 m in length and to the full construction width and the specified

pavement layer thickness. For each trial section, the Contractor shall use the materials, mix proportions, mixing, laying, compaction equipment and construction procedure that he proposes to use for the main work. The main work of laying the pavement layer shall not be commenced until this trial has been tested and approved by the Engineer.

No variation in the construction procedure, mix proportions, size, grading or source of any of the constituents shall be made without the agreement of the Engineer who may first require new trial sections to be carried out.

Trial sections, if found satisfactory, will be paid for under the rates in the Bill of Quantities for the appropriate items, as if the trial sections were part of the normal work. No separate payment will be made for trial sections and testing and the Contractor shall be deemed to have provided for this in his rates.

The Contractor shall make good, at his own expense; any trial sections that fail to meet the specified standards. The standards shall include, but not be limited to, material quality, layer thickness, levels and compaction.

128 STORAGE OF MATERIALS

All materials shall be stored on Site in a manner approved by the Engineer and the Contractor shall carefully protect from the weather all work and materials which may be affected thereby.

129 TEST CERTIFICATES

When instructed by the Engineer the Contractor shall submit certificates of test from the suppliers of materials and goods required in connection with the works as the Engineer may require.

Such certificates shall certify that the materials or goods concerned have been tested in accordance with the requirements of the specifications and shall give the results of all the tests carried out. The Contractor shall provide adequate means of identifying the materials and goods delivered to the site with the corresponding certificates.

130 PROGRESS PHOTOGRAPHS

Notwithstanding the provision of Clause 130 of the Standard Specifications, the Contractor shall not be responsible for taking of progress photographs. Progress Photographs shall be taken by the Engineer's Representative and relevant costs charged to the Contractor who will be reimbursed under Miscellaneous Accounts.

131 SIGNBOARDS

Delete paragraph 1 of item 131 of the Standard Specification and replace it with the following:

The Contractor shall provide and erect two (2) project signboards on the site as directed. The minimum

dimensions of the boards shall be as shown in the Drawings and as directed by the Engineer. The boards shall be prepared primed and painted cream and lettered in black. The boards shall be of weatherproof construction and be able to withstand any wind conditions prevailing in the area.

132 MAIN OFFICE

The Contractor shall provide and maintain a 100m^2 mobile office at site with double roof, tropicalized with height not less than 2.25m for the duration of the Contract. This office shall be of weather-proof construction, provided with mosquito proof and burglar-proof windows and lockable doors and suitably insulated against heat and cold, all to the satisfaction of the Engineer. The office shall be sufficient to accommodate all the Resident Engineer's staff on site.

A telephone shall also be provided for the Resident Engineer's office for his exclusive use. The Contractor shall be responsible for paying all charges and fees related to the use of the telephone.

The offices shall be provided with day and night security guards and security lights, the cost of which shall be deemed to have been included in the rates for the offices.
The office for the Resident engineer shall be completely separate from that of the Contractor.

Latrines and washrooms graded to staff seniority, together with a drinkable water supply and waterborne sewage disposal shall be provided for the office. The Contractor shall also provide 24 hours a day security and electricity supply to the offices and shall allow for any water and electricity consumed and for any statutory charges associated.

The main office shall revert to the Contractor at the end of the project.

133 ENGINEERS OFFICE

The Contractor may be instructed by the Engineer under clause 58 of the General Conditions of Contract to make payments of general receipted accounts for such items as stationery, stores, furniture and equipment, claims and allowances for supervision personnel and any miscellaneous claims or the Engineer may direct the Contractor to purchase or pay for the above. The Contractor will, on provision of receipts, be paid under Bills of quantities No. 1.

The Contractor, when instructed, shall provide and install at the Engineer's office the Equipment specified below:

a) Digital Photocopying /printer Machine **1No.**

1.	Make	Kyocera
2.	Model	Taskalfa 4052ci
3.	Copying speed	Minimum 40 cpm in A4 and minimum 20cpm in A3
4.	Warm up time from power on	Less than 2 min
5.	Paper size	A3 – A6
6.	Printing speed	Minimum 40ppm in A4 and minimum

		20ppm in A3
7.	Scanning speed	Minimum 100 ipm in A4
8.	Processor	Present 600 MHZ
9.	Printing technology	Laser monochrome
10.	E - filling	Present
11.	Continuous copying	Minimum 990
12.	Paper input capacity	150 sheet multipurpose tray 2 x 500 sheet universal paper cassette
13.	Bypass tray	Minimum 1x100 sheets
14.	Paper output capacity	Minimum 250 sheets
15.	Programmable user codes	Present
16.	Auto reverse document feeder	Present
17.	3000 sheets finisher/sorter with 50 sheets stapler standard	Present
18.	Interface, Ethernet	USB 2.0, 10 base T, 100 base TX
19.	Free bundled software for network printing and scanning	Present
20.	Memory +storage	0.9GB +150GB
21.	Zoom	25-400 in 1% steps
22.	First copy out	5 seconds max
23.	Power supply	240v 50 Hz
24.	User information display	Present
25.	Fault diagnosis system	Present
26.	RADF (Reverse automatic document feeder)	Present
27.	ADU (Automatic duplex unit)	Present
28.	Printer scanner kit	Present
29.	Stapler finisher	Present
30.	Saddler finisher	Present
31.	Duty cycle	Minimum 50,000 copies per month
32.	Resolution	600x600dpi
33.	Repair's maintenance availability	Not less than 5 years, spares available locally
34.	Warranty	Minimum 1 year

(b) <u>Personal Computer (PC)</u> 2 No.

The rate inserted for the PCs shall include for the provision of the UPS, a Printer and the software specified below for each PC.

1.	Processor & Core Logic	Core i7-7700 3.4GHz, 4 Cores
2.	System Memory	16 GB DDR4
3.	Storage Subsystem	1TB HDD
4.	Form Factor	Tower / Desktop
5.	Power System	220 – 240 V AC Power supply

6.	Display/Graphics	27” TFT Flat panel Color LCD, Same brand as CPU minimum Resolution 1024x768.
7.	Graphics Card	2 GB GDDR5 Dedicated
8.	Keyboard and Pointing Device	Enhanced keyboard & Optical Scroll mouse
9.	Audio	Stereo audio system full multimedia with speakers
10.	Communication interface	100/1000 Mbs Fast Ethernet NIC
11.	I/O interface ports	USB compatible keyboard, Serial Port, Parallel Port, USB Port, Ethernet, VGA Port
12.	Operating System	64-Bit MS Windows 10.
13.	Application Software	Microsoft Office 2016 or later.
14.	Anti-Virus	Latest Antivirus Version with media and License
15.	UPS	700VA UPS
16.	Warranty	1 year
17.	Brochure	Manufacture’s Literature and Detailed Specifications (Be Attached)

(c) Laptop 3No.

The rate inserted for the Laptop shall include for the provision of a printer and software specified below for each laptop.

1.	Processor & Core Logic	Intel® Core™ i7-1165G7 (up to 4.7 GHz with Intel® Turbo Boost Technology, 12 MB L3 cache, 4 cores)
2.	System Memory	16 GB DDR4-3200 MHz RAM
3.	Storage Subsystem	1 TB PCIe® NVMe™ M.2 SSD
4.	DVD Drive	None
5.	Power System	65 W AC power adapter: up to 11.5 hours
6.	Display/Graphics	17.3" diagonal, FHD (1920 x 1080), multitouch-enabled, IPS, edge-to-edge glass, micro-edge, Corning® Gorilla® Glass NBT™, 300 nits, 100% sRGB
7.	Audio & Webcam	PCI 3D audio system / Built in Microphone / HP Wide Vision 720p HD camera with camera shutter and integrated dual array digital microphones
8.	Communication interface	Intel® Wi-Fi 6 AX201 (2x2) and Bluetooth® 5 combo
9.	Graphics Card	Integrated: Intel® Iris® X^e Graphics
10.	I/O interface ports	USB/ HDMI Ports
11.	Operating System	Windows 11 Home
12.	Application Software	Latest Ms Office Suite

13.	Anti-Virus	Kaspersky Antivirus
14.	Accessories	Leather Carry Case and Wireless Mouse
15.	Battery Life	Min 10 hrs
16.	Warranty	One (1) Year

(d) Laser jet Printer - 1No. (To be included with every PC/Laptop)

	Print	
1.	Speed Colour	Up to 30ppm Colour Print
2.	Double Sided Printing	Automatic Double-Sided Printing
3.	Printer Resolution	600 x 600 dpi Print
	Scan	
4.	Scanner Optical Resolution	300 x 300 dpi Scan
5.	Scan Facility Present	Yes
6.	Scanner Features	Scan to e-mail; Scan to network folder
7.	Scanner Type	Colour Flatbed
	Copy	
8.	Copier Resolution	600 x 600 dpi Copy
9.	Copier Functions	Multiple copies Up to 99
	Fax	
10.	Fax Facility Present	Yes
	Interfaces	
11.	Interface Type(s)	USB & Network
12.	LCD Screen	8.89cm Colour Touchscreen
13.	Network Interface	10/100/1000 Base-TX Network
14.	Network Ready	Yes
15.	USB Port	Yes
	System Specification	
16.	Processor	800MHz Processor
17.	Memory (Maximum)	256MB RAM
	Compatibility	
18.	Operating Systems Supported	Windows & Mac Compatible
	Media Handling	
19.	Paper Trays	3
20.	Paper Handling Input 1	100 Sheet MPT Tray
21.	Paper Handling Input 2	250 Sheet Input Tray
22.	Paper Handling Input 3	50 Sheet ADF
23.	Automatic Document Feeder	50 Sheet
24.	Media Supported	Paper envelopes, labels,
	Physical/Dimensions	
25.	Colour Printer	Yes, Colour
26.	Technology	Multifunction Laser Printer
27.	Dimensions	515mm (W) x 500mm (D) x 538mm (H)-Weight 40.8kg
28.	Power Consumption	605W (Max) / 52W (Standby) / 8.1W (Saving)

29.	Product Type	A4 Laser Printer
30.	Voltage/ Power/ Frequency	240VAC / 60Hz
	Software	
31.	Printer Languages	HP PCL 6, HP PCL 5c
32.	Software Included	Windows Installer and HP PCL 6 driver, Mac Installer.
33.	USB Cable	To be included
	Warranty	
34.	Warranty	1 Year warranty

Software
Microsoft Office 2016 or later with licence
Antivirus: McAfee Virus Scan Professional (Latest Version)
AUTODESK 2021

(e) Mobile Phones - 4No.

Specifications

Technology	GSM / CDMA / HSPA / EVDO / LTE / 5G
Dimensions	163.4 x 78.1 x 8.9 mm (6.43 x 3.07 x 0.35 in)
Weight	234 g (8.25 oz)
Build	Glass front (Gorilla Glass Victus 2), glass back (Gorilla Glass Victus 2), aluminum frame
SIM	Nano-SIM and eSIM or Dual SIM (2 Nano-SIMs and eSIM, dual stand-by)
Type	IP68 dust/water resistant (up to 1.5m for 30 min) Armor aluminum frame with tougher drop and scratch resistance (advertised) Stylus (Bluetooth integration, accelerometer, gyro) Dynamic AMOLED 2X, 120Hz, HDR10+, 1200 nits (HBM), 1750 nits (peak)
Size	6.8 inches, 114.7 cm^2 (~89.9% screen-to-body ratio)
Resolution	1440 x 3088 pixels, 19.3:9 ratio (~500 ppi density)
Protection	Corning Gorilla Glass Victus 2
OS	Always-on display Android 13, One UI 5.1
Chipset	Qualcomm SM8550-AC Snapdragon 8 Gen 2 (4 nm)
CPU	Octa-core (1x3.36 GHz Cortex-X3 & 2x2.8 GHz Cortex-A715 & 2x2.8 GHz Cortex-A710 & 3x2.0 GHz Cortex-A510)
GPU	Adreno 740
Card slot	No

Internal	512GB 12GB RAM
Quad	UFS 4.0 200 MP, f/1.7, 24mm (wide), 1/1.3", 0.6µm, multi-directional PDAF, Laser AF, OIS 10 MP, f/4.9, 230mm (periscope telephoto), 1/3.52", 1.12µm, Dual Pixel PDAF, OIS, 10x optical zoom 10 MP, f/2.4, 70mm (telephoto), 1/3.52", 1.12µm, Dual Pixel PDAF, OIS, 3x optical zoom 12 MP, f/2.2, 13mm, 120˚ (ultrawide), 1/2.55", 1.4µm, Dual Pixel PDAF, Super Steady video
Features	LED flash, auto-HDR, panorama
Video	8K@24/30fps, 4K@30/60fps, 1080p@30/60/240fps, 1080p@960fps, HDR10+, stereo sound rec., gyro-EIS
Single	12 MP, f/2.2, 26mm (wide), Dual Pixel PDAF
Features	Dual video call, Auto-HDR, HDR10+
Video	4K@30/60fps, 1080p@30fps
Loudspeaker	Yes, with stereo speakers
3.5mm jack	No
	32-bit/384kHz audio Tuned by AKG
WLAN	Wi-Fi 802.11 a/b/g/n/ac/6e, tri-band, Wi-Fi Direct
Bluetooth	5.3, A2DP, LE
Positioning	GPS, GLONASS, BDS, GALILEO
NFC	Yes
Radio	No
USB	USB Type-C 3.2, OTG
Sensors	Fingerprint (under display, ultrasonic), accelerometer, gyro, proximity, compass, barometer
Type	Li-Ion 5000 mAh, non-removable
Charging	45W wired, PD3.0, 65% in 30 min (advertised) 15W wireless (Qi/PMA) 4.5W reverse wireless
Colors	Phantom Black, Green, Cream, Graphite, Sky Blue, Red,
SAR	1.12 W/kg (head) 0.92 W/kg (body)
SAR EU	0.96 W/kg (head) 1.40 W/kg (body)
Performance	AnTuTu: 1241531 (v9)

	GeekBench: 4927 (v5.1) GFXBench: 67fps (ES 3.1 onscreen)
Display	Contrast ratio: Infinite (nominal)
Camera	Photo / Video
Loudspeaker	-25.6 LUFS (Very good)
Battery life	Endurance rating 126h

(f) Mini Laptops – 2 No

Microsoft surface Pro 8 Mini -Laptop Core i7 16GB Ram 512GB, complete with keyboard and accessories. Having the following specifications.

Intel Core i7-11th Generation
16GB LPDDR4x RAM + 512GB SSD
12.3″ 2736 x 1824 PixelSense Touchscreen
Integrated Intel Iris Plus Graphics
Wi-Fi 6 (802.11ax) | Bluetooth 5.0
5MP Front Camera | 8MP Rear Camera
USB Type-C | Type-A | Surface Connect
MicroSDXC Card Slot
Windows 10 Pro
Platinum
1 year warranty

Prior to purchase of the computers, laptops, mini-laptops, mobile phones and printers, the Contractor shall submit the specifications of the same to the Engineer for approval. All shall revert to the Employer at the end of the Contract. The Contractor shall be paid for these items under appropriate bill items in the BoQ.

LIST OF FURNITURE & EQUIPMENT FOR ENGINEER'S OFFICE

S/No.	Description	Unit	Quantity
1	Executive office desk	No.	1
2	Executive office chair	No.	1
3	Conference table 10-seater with chairs	No.	1
4	Standard office desk 3x2 lockable drawers	No.	1
5	Standard office chairs	No.	1
6	Office desks 3x1 lockable drawers	No.	7
7	Office chairs	No.	12
8	Filing cabinets 4 drawers	No.	2
9	Curtains/Blinds	No.	As applicable
10	Office cupboard	No.	1

11	Standing Water Dispenser (Hot & Cold)	No.	1
12	Dust bins	No.	3
13	Stapling machine (ofrex) and pins	No.	10
14	Paper punch	No.	10
15	Scientific calculator	No.	5
16	Fully equipped first Aid Kit	No.	2
17	Electric heater fans	No.	2
18	Wall clocks battery powered	No.	2
19	Filing trays	No.	7
20	Waste paper baskets	No.	4
21	Electric or gas cooker with 4 plates and oven	No.	1
22	Refrigerator with freezer capacity 180 litres	No.	1
23	Digital Microwave - 26 Litres - 900W	No.	1
24	Paper Shredder	No.	2

All furniture and equipment bought under the Contract shall revert to the Employer. Payment for provision of the office including the furniture shall be paid against the appropriate bill items in the BoQ.

134 ENGINEER'S LABORATORY AND SURVEY EQUIPMENT

The Contractor may be instructed by the Engineer under the said Clause to make payments of receipted accounts for such items as testing of materials in an approved laboratory, purchase of survey equipment or as directed by the Engineer.

Any delays to the Contractor or the Contractor's activities caused by the Engineer being unable to perform survey work, field or laboratory tests due to the Contractor's failure to supply the said equipment or make such payments shall be deemed to have been caused entirely by the Contractor's own actions, and any consequences of such delays shall be interpreted as such.

The payment to comply with this requirement is provided in the Bill of Quantities and ownership of all equipment shall revert to the Employer after the completion of the Works.

Failure by the Contractor to supply the equipment or make such instructed payments shall make him responsible to bear all costs that may be incurred as a result of the Engineer's staff using alternative means of communication, including delays in supervision and approval of Works by the Engineer.

137 ATTENDANCE UPON THE ENGINEER AND HIS STAFF

The Contractor shall pay wages (including all overtime) and house all attendant staff to fulfil the requirements of Clause 137 of the Standard Specification. The number of staff required for these duties shall be about:

- (1 No.) Deputy Resident Engineer
  i. Holds a Degree in Civil Engineering or its equivalent.
  ii. Registered Professional Civil Engineer with EBK and a corporate member of IEK.
- (2 No.) Assistant Engineer/Graduate Engineers
  i. Holds a Degree in Civil Engineering or its equivalent from an institution recognized by EBK.

ii. Registered Graduate Civil Engineer with EBK.
iii. Has over 3 years Post-Registration Experience in Roads.

- (1 No.) Surveyor
  i. Holds a Degree in Survey or its equivalent
  ii. Registered as a Graduate Member with the Institute of Survey of Kenya
  iii. Has over 3 Years of Practical Experience in Roads.
- (1 No.) Lab Technician
  i. Holds a Degree in Civil or its equivalent
  ii. Has over 5 Years of Practical Experience in Roads.
- (2 No.) Inspector (bridge and roads inspector)
  i. Holds a Diploma in Civil Engineering - Highways Category.
  ii. Has over 3 Years Post Graduation Practical Experience in Roads.
- (1 No.) Secretary
  i. Holds a Bachelor's Degree in Business Administration (Human Resource Management) or its equivalent.
- (1No.) Assistant surveyor
- (1No.) Assistant Environmentalist/Sociologist
- (2 No.) Chainmen.
  i. Has over 1 year of practical experience in roads survey
- (2 No.) Lab attendants
- (2 No.) Casual laborers.

And any other staff as may be deemed necessary by the Engineer, including the Employer's Project Implementation Team. They shall be reimbursed under the **item 1.14** of the Bill of Quantities.

In addition to the above listed staff, the Employer will attach under training or internship / Industrial attachment additional number of Engineers, Technicians and other Staff.

These staff shall be:

- (2No.) Intern Engineer (Projects)
- (1No.) Intern Technician/Inspector
- (1No.) Intern Surveyor
- (5No.) Attaché (Projects)

And any other staff as may be deemed necessary by the Engineer. These staff shall be paid a stipend as shall be directed by the Engineer and the Contractor shall be reimbursed under **Item 1.20** of the Bill of Quantities.

138 VEHICLES AND DRIVERS FOR THE ENGINEER AND HIS STAFF AND METHOD OF PAYMENT

The Contractor shall when instructed to do so provide and maintain in good working condition for the exclusive use of the Employer's Representative and his appointed assistants throughout the contract:

a) Two (2) Brand new turbo charged diesel propelled 4WD 5 door 7 seater utility station wagon vehicles of minimum engine capacity 3000cc fitted with fog lights, side step, 17 x 7.5" alloy wheels, DVD changer, back guide monitor, front parking sensors, 12 speaker audio system, rear wiper, passenger and driver's knee and side air bag system, shield airbags, active head rest, head lamp

cleaning system, 3-zone climate control air conditioning, smart entry and start, audio input with USB and iPod control, full spare wheel and cover, towing capacity 2,500kg braked, roof rails, rear view reverse camera, ABS, leather premium seats and door trim, door mirror with turn lamp and auto free hubs for the exclusive use of the Engineer.

b) Two (2) brand new turbo charged diesel propelled four-wheel drive Double Cabin pick-up of minimum engine capacity of 3200cc fitted with all accessories as (a) above.

The pickups shall be fitted with fibre glass covering as directed and approved by the Engineer's Representative.

All the pickups shall be fitted with fibre grass covering to the approval of the Engineer.

The Contractor shall insure comprehensively the vehicles for any licensed drivers and shall provide competent drivers during normal working hours and whenever required by the Engineer.

Should any vehicle supplied not be in road worthy condition, the Contractor shall provide an acceptable equivalent replacement vehicle until such time as the original vehicle is repaired to the satisfaction of the Engineer and returned for use.

Payment for the vehicles (up to 4,000Km.), shall be by vehicle months. Payment for mileage above 4,000Km shall be made at a rate per Kilometer. These payments shall be inclusive of all fuels, lubricants, servicing, insurance, maintenance, drivers and repairs. The rate shall include any overtime the drivers might be due or any other allowances in addition to the normal working hours. Payment shall be made under appropriate items in the Bills of Quantities.

The vehicles shall revert to the Contractor at the end of the contract.

139 RECEIPTED ACCOUNTS

The Contractor maybe instructed by the Employer's representative or his appointed assistants to make payments of general miscellaneous accounts for such items as stationery, stores and equipment and miscellaneous supervision personnel and claims or the Employer's representative may direct the Contractor to purchase or pay for the above. The Contractor will be paid on a prime cost basis.

140 HOUSING ACCOMMODATION FOR THE RESIDENT ENGINEER AND HIS STAFF, OFFICE AND LABORATORY INCLUDING FURNITURE

140.1 HOUSING AND ACCOMMODATION FOR THE ENGINEER'S SENIOR STAFF

The Contractor shall provide, rent or otherwise as agreed with the Engineer, equip, furnish and maintain 1 No. type I and 2 No. type II houses for the Engineer's senior staff subject to the Engineer's approval. However, there would be no provision of housing under this contract.

The Engineer's senior staff housing shall be separate from the Contractors' staff housing and shall be sited and constructed to the satisfaction of the Engineer. The houses shall be constructed with pre-fabricated material subject to approval of the Engineer and the design and construction shall be approved by the

Engineer. The walls shall be made of timber. All materials used shall be new, strong, durable and weather-proof. Ceilings and floor must be properly insulated against heat with approved insulation material the floor shall have a smooth level finish. All windows shall be glass paned, able to be opened and with mosquito gauze. The building materials shall be termite proofed and painted inside and outside with two coats of paint/varnish all to the approval of the Engineer.

The ceilings and verandas shall be lined with ceiling boards. All doors are to be fitted with mortise locks, which must be heavy duty on external doors. All windows shall be fitted with burglar bars.

The roof cladding shall be with G.I. corrugated sheets or equivalent material. The lounge, bedroom, bathroom, toilet and kitchen floor will have cement mortar finish. The workbenches in the kitchen shall have approved cover. All the sanitary ware shall be vitreous china of approved quality. All houses are to be provided with a fire extinguisher and fire axe. Fire axes are to be secured to the outside of the buildings. All storerooms shall be fitted with at least three substantial shelves, and kitchens shall be fitted with shelves, drawers and cupboards as instructed.

The Contractor shall provide new furniture, equipment and fittings as listed herein below. The Contractor shall obtain approval of the Engineer for the type and quality of the furniture, fittings and equipment before ordering. All houses shall be provided with a piped supply of drinkable water, electricity, gas and kerosene for the consumption of the Engineer and his staff and the Contractor shall provide all necessary waterborne sanitation and disposal systems to the satisfaction of the Engineer.

The Contractor shall pay for water, electricity, gas and kerosene consumed, and for the statutory charges associated therewith.

The Contractor shall be responsible for rubbish disposal by providing outside bins and daily collection to a central area location to the satisfaction of the Engineer.

Type II house shall be erected separately. A barbed wire topped chain link wire fence 2 metres high with a chain and padlock lockable gate shall be provided around the general perimeter of the type I and II houses.

Each type II house shall be provided with day and night watchmen and security lights, the cost of which shall be deemed to have been included in the rates for the houses.

140.2 HOUSING ACCOMMODATION FOR ENGINEER'S JUNIOR STAFF

The Contractor shall provide, rent or otherwise as agreed with the Engineer, equip, furnish

140.3 LIST OF FURNITURE FOR ENGINEER'S STAFF HOUSES

Each house shall be provided with new furniture, equipment and fittings to the approval of the Engineer as listed below:

	Type I & II	Type III	Type IV
Double Bed (5x 6) with "Slumberland" Mattress	1	0	0
Single Bed (3x 6) with "Slumberland" Mattress	2	3	2
Dressing Table with mirror and stool	1	0	0
Chest of 5 No. drawers with mirror	2	2	1
Wardrobe (movable)	3	2	1
Resident Table	4	3	2
Bedroom chair	3	2	1
600mm x 450mm high medicine cabinet with mirror	1	1	0
Bathroom stool	1	0	0
Towel Rail	1	1	1
Dining Table (2m x 1m approx.)	1	1	1
Dining chairs	6	5	4
Side Board	1	1	1
3 - Piece lounge chairs	1	1	0
Armchair with cushions	3	2	1
Coffee table 40 x 45cm high	1	1	0
Occasional tables, 70 x 70 x 45cm high	2	1	0
Book case (2m long with 3 shelves)	1	1	0
Writing Desk with chair	1	1	1
Kitchen shelves (per sq. m)	2	1	1
Kitchen table (2m x 0.8m approx.) Kitchen chair	1 4	1 3	0 1

All the houses and furniture mentioned above shall revert to the Contractor after the completion of the contract. Payments shall be made under the relevant provisions under the Bills of Quantities.

142 ENVIRONMENTAL PROTECTION

The Contractor shall comply with the Statutory Regulations in force in Kenya regarding Environmental protection and waste disposal, and shall liaise with the National Environmental Management Agency (NEMA).

Within four (4) weeks after receipt of the order to commence work, the Contractor shall prepare and submit a specific Environmental Management Plan for the project and his operations relating to the approved Environmental Impact Assessment. The Environmental Management Plan shall outline potential environmental hazards and risks, and provide an action plan to deal with the hazards, minimize the risks, and mitigate adverse environmental impacts, and include a general decommissioning plan covering all relevant aspects of the project. The Environmental Management Plan shall identify monitoring indicators and reporting requirements.

The Contractor shall be required to keep daily reports detailing all ongoing monitoring and surveillance activities and submit monthly environmental progress reports to the Engineer. The Contractor shall keep permanent records of all environmental activities, noncompliance events such as but not limited to oil spills, remedial action taken, photographs and shall allow access to these records for the Engineer and NEMA Inspectors. The Contractor shall comply with any lawful instructions by NEMA Inspectors and shall act on these without delay.

The Contractor shall ensure as far as reasonably practicable and to the satisfaction of the Engineer; that the impact of the construction on the environment shall be kept to a minimum and that appropriate measures are taken to mitigate any adverse effects during the construction.

(a) The Contractor shall exercise the utmost care to preserve the natural landscape and shall conduct his construction operations so as to prevent any unnecessary destruction, scarring, or defacing of the natural surroundings in the vicinity of the work. Except where clearing is required for permanent works, all trees, native shrubbery, and vegetation shall be preserved and protected from damage by the Contractor's construction operations and equipment. All unnecessary destruction, scarring, damage or defacing resulting from the Contractor's operations shall be repaired, replanted, reseeded or otherwise corrected as directed by the Engineer, and at the Contractor's expense.

(b) The Contractor shall ensure that measures are in place to control soil erosion and water pollution, by making use of berms, dykes, silt fences, brush barriers, dams, sediment basins, filter mats, netting, gravel, mulches, grasses, slope drains, contour banks, and other erosion control devices and methods. Temporary erosion control provisions shall be coordinated with permanent erosion control features to assure economical, effective and continuous measures throughout the period of the works. The Contractor's attention is drawn to the requirements of Clause 502, in that works need to be progressively finished so that permanent vegetation can establish quickly to mitigate soil erosion and erosion of drains.

(c) The Contractor shall provide all the labour, equipment, materials, and means required and shall carry out proper and efficient measures wherever and as often as necessary to minimise the dust

nuisance.

(d) The Contractor shall comply with all applicable Kenyan laws, orders and regulations concerning the prevention, control and abatement of excessive noise. Blasting, use of jackhammers, pile driving, rock crushing, or any other activities producing high-intensity impact noise may be performed at night only if approved the Engineer.

(e) Immediately after extraction of materials, all borrows pits shall be backfilled and reinstated to the satisfaction of the Engineer. In particular, borrow pits near the project road shall be backfilled in such a way that no water collects in them.

(f) Spilling of bitumen, fuel, oil and other pollutants shall be reported, documented and cleaned up to the full satisfaction of the Engineer

(g) The Contractor's attention is drawn to the requirements of the Standard Specification with regard to the environment and in particular to the following clauses:

Clause 115: Construction Generally

Clause 116: Protection from Water

Clause 136: Removal of Camps

Clause 605: Safety and Public Health Requirements

Clause 607: Site Clearance and Removal of Topsoil and Overburden

(h) Where directed, the Contractor may be required to desilt and clean rivers and/or watercourses to ensure unimpeded flow.

(i) Payment in respect of this Item 142 is included as a PC Sum in the Bill of Quantities. Payment of this sum will be by equal monthly installments over the period of the Contract excluding the Period of Maintenance. The total sum of the installments shall not exceed the sum, allowed and payment of the monthly installments will only be made for that month if the Engineer is satisfied that the Contractor has fully complied with the requirements of Item 142, including his reporting obligations. Payment items for environmental protection during the maintenance period have been included in section 28.

Payment for 142 (h) (as shown above) will be paid for as day work and as directed by the Engineer.

2. *SECTION 2 – MATERIALS AND TESTING OF MATERIALS*

202 TESTING BY THE CONTRACTOR

Add the following:

202.1 Contractor's Testing

The provision of the Engineer's laboratory and testing equipment, as specified in Section 1 of this Special Specification, does not relieve the Contractor of his obligation to provide laboratory and testing equipment and execute his own testing, in conformity with the specified requirements in the Standard Specification.

204 SIEVES

In the standard sieve series, delete the size of the greater sieve "75"mm and replace by a "100" mm size.

205 SOILS AND GRAVEL

Whenever in the Contract Documents, a minimum California Bearing Ratio (CBR) is specified, the CBR of the material shall be determined at the specified degree of compaction.

a) After four days soaking in the case of neat materials and,

b) After seven days curing plus seven days soaking in the case of cement/lime improved materials.

207 In addition to the requirements of clause 207 of the standard specifications, Ordinary and Rapid setting Portland cement shall be sampled and tested in accordance with, and shall comply with the latest equivalent revised standards.

211BITUMINOUS BINDERS

a) Requirements

Straight run bitumen in addition to the requirements of the Standard Specification the ash content of penetration grade bitumen shall not exceed 0.5% by weight.

b) Types of Bitumen

Prime coat shall be type MC70 unless otherwise stated. Tack coat shall be K1-70 emulsion while binder for asphalt concrete shall be 60/70 pen grade bitumen

214 PRESTRESSING STEEL

Delete BS 2691, BS 3617, and BS 4757 in paragraph 1 and replace with BS 5896-2012

224TRIAL SECTIONS

The Contractor shall allow in his programme for the construction of trial sections and carrying out tests upon them as directed by the Engineer. The time of completion of the contract shall not be extended because of the time taken to carry out tests and evaluate trial sections.

No variation in the construction procedure, mix proportions, spray or spread rates, size, grading or source of any constituents shall be made without the approval of the Engineer.

226 FREQUENCY OF TESTING

Add the following:

226.1 General Acceptance Criteria for Test Results

Conventional statistical techniques shall be used alongside the above said criteria (where applicable).

227 MEASUREMENT AND PAYMENT

No additional measurement and payment will be made for testing of materials, trials, etc., in conformity with the standard specification.

228 WORKMANSHIP AND QUALITY CONTROL

The Contractor shall, not later than 4 weeks after the notice to commence the Works, submit a project specific Quality Management System, including the Work Method Statements and Quality Audit for major items of work, showing how all the Contractor's systems will ensure that all the works will conform to the Contract documents. The onus rests with the Contractor to produce work which conforms in quality and accuracy of detail to all the requirements of the Specifications and Drawings, and the Contractor shall, at his own expense, institute a quality control system and provide experienced engineers, foremen, surveyors, materials technicians, other technicians and other technical staff, together with all transport, instruments and equipment, to ensure adequate supervision and positive control of the Works at all times. The Contractor shall provide chainmen and labourers as necessary for the Engineer to carry out checks on the Works.

The Contractor shall conduct tests or have them conducted continually on a regular basis, to check the properties of natural materials and processed natural materials and of products manufactured on the site, such as concrete and asphalt. The Contractor shall remain fully responsible for any defective material or equipment provided by him. Similarly, the quality of all elements of the Works shall be checked on a regular basis so as to ensure compliance with the specified requirements.

The intensity of control and of tests to be conducted by the Contractor in terms of these obligations shall be adequate to ensure that proper control is being exercised.

Where any natural materials or products made from natural materials are supplied, and upon completion of each element of the construction work, the Contractor shall test and check such

materials, products and/or elements for compliance with the specified requirements and shall submit his results to the Engineer for approval. Such submission shall include all his measurements and test results and shall furnish adequate proof of compliance with the specified requirements.

No specific pay items are provided as compensation for the above obligations, including the provision of all samples delivered to the Engineer, the repair of places from which samples were taken, and the provision of the necessary personnel and testing apparatus and facilities, for which compensation shall be included in the bid rates of the Contractor for the various items of work to which these obligations apply.

The Contractor shall submit to the Engineer for examination, the results of all relevant tests, measurements and levels indicating compliance with the Specifications on completion of every part of the Work.

3. *SECTION 3 - SETTING OUT AND TOLERANCES*

301 SETTING OUT

Add the following to (a) General

If the traverse points to be used for the setting out are close to the existing carriageway and interfere with construction works, then the Contractor shall relocate them to a location where they will not be disturbed. The co-ordinates and heights of all traverse points so located shall be listed and provided to the Engineer for checking and/or approval. The Contractor shall also monument the new centreline every 200m along straight and all salient points along curves by a pin in the concrete beacon before commencement of any works.

The reference points to define the road reserve shall have 12 mm diameter steel pins embedded in concrete, 200 mm long with 25 mm exposed to the air, sticking out from its top surface. This pin shall be co-ordinated and heighted and the result of the same shall be provided to the Engineer for approval. The cost of these works shall be included in the Contractor's unit rates for other items, as no separate payment item has been provided in the Bill of Quantities.

Commencement of the Works shall not be permitted until this basic survey data has been provided and approved by the Engineer for at least 5 km of the road.

Add the following to (b) Detailed Setting Out

Reference pegs shall be 50 mm by 50 mm in section 600 mm long driven 400 mm firmly into the ground and painted white above the ground. The offset from centerline shall be indicated by a small nail 20 mm to 25 mm long with its head driven flush with the top of the peg. Chainages, offset and reference elevation shall be clearly indicated on the sides of the pegs to the satisfaction of the Engineer.

After cutting of benches and prior to commencement of earthworks or subgrade works, the Contractor shall take cross-sections again and submit the copy of the same to the Engineer for agreement. These cross-sections shall when agreed be used as the basis of measurement for all subsequent layers, unless otherwise stated.

302 TOLERANCES

Add the following:

Pavement Widths

For Pavement widths for subbase, base and binder course, the allowable tolerances shall be -0 to +50 mm.

(k) Pipe Culverts

The maximum deviation from the specified line of a drainage pipe shall be: -

Horizontal - 20 mm in 3.0 m

Vertical - 30 mm in 10.0 m

305AS BUILT DRAWINGS AND MAINTENANCE MANUALS

Prior to the issue of a Taking Over Certificate the Contractor shall provide three (3) electronic copies of as built drawings, and where appropriate, maintenance manuals showing the Works as constructed, and details of the correct operation and maintenance of ancillary Works. No separate payment shall be made for this requirement, and costs for compliance shall be deemed to be included in the Contractor's general rates and prices.

4. *SECTION 4 - SITE CLEARANCE AND TOP SOIL STRIPPING*

401 SITE CLEARANCE

The Contractor's attention is drawn to the requirements of Clause 142 regarding preservation of existing trees and native shrubbery and vegetation, and environmental requirements generally.

Site clearance is to be confined within the road reserve, and site clearance is not required over the existing road. The remaining area required for construction purposes, including sides of existing embankments and cuttings shall be cleared as instructed by the Engineer. Generally, light clearance shall be done on areas covered by grass and light thickets while heavy clearance shall cover sections in dense bush.

Site clearance of areas necessary for the execution of the contract, outside the road reserve, and for quarries, borrow pits, stockpiles, spoil tips, haul roads and deviation roads, will be subject to the approval of the Engineer, but shall be the responsibility of the Contractor, and no separate payment will be made.

402 REMOVAL OF TOPSOIL

Topsoil shall include removal of up to 200mm depth of any unsuitable material as directed by the Engineer.

403 REMOVAL OF STRUCTURES, FENCES AND OBSTRUCTIONS

Items have been included in the Bill of Quantities for the removal of existing pipes, inlet and outlet structures for pipe and box culverts and existing concrete structures.

An item has been included in the Bill of Quantities for the removal of existing guardrail, transporting and stockpiling as directed by the Engineer.

When instructed by the Engineer, the Contractor shall demolish or remove other additional structures or obstructions.

Measurement and payment for removal of obstructions and structures shall be made against the quantities provided in Bill No.4 of the Bill of Quantities.

5. *SECTION 5 –EARTHWORKS*

501SCOPE OF SECTION

The scope of this section includes all earthworks associated with the Contract, including roadside amenities, service roads, walkways and any widenings

503 CLASSIFICATION OF MATERIAL

Add the following to (a) Hard material:

Hard materials include materials which require drilling and blasting to enable removal.

Add the following to (b) Soft material:

Unsuitable materials include:

(i) All material containing more than 5% by weight of organic matter (such as topsoil, material from swamps, mud, logs, stumps and other perishable material)

(ii) All material with a swell of more than 3%.

(iii) All clay of plasticity index exceeding 45 or of liquid limit exceeding 70.

(iv) All material having moisture content greater than 105% of optimum moisture content (AASHTO T99)

504PREPARATION PRIOR TO FORMING EMBANKMENT

Add the following at the end:

In cuttings, the contractor shall excavate to a level that would accommodate the 350mm subgrade and the existing ground below this MUST be processed and compacted in accordance with clause 504 of the standard specifications.

Where benching is required to existing pavement to accommodate earthworks, subgrade or subbase for widening the road, the rate for compaction of existing ground shall be deemed to cover this activity.

Excavation in the pavement of the existing road shall be kept dry. In the event of water penetrating the underlying layer, construction of the subsequent layers shall be postponed until the underlying layers are dry enough to accommodate the construction plant without deforming or otherwise showing distress.

Step construction shall be carried out per layer at the joint where excavating both vertically and perpendicular to the direction of the travel. The step shall be 500mm perpendicular to the direction of the travel and 150mm vertical unless otherwise instructed by the Engineer.

Special care shall be taken when compacting the new material at the joint ensuring that specified density is achieved.

505CONSTRUCTION OF EMBANKMENTS

Only material approved by the Engineer shall be used in embankments. Soft fill material shall comply with the following requirements:

- Organic matter less than 5% by weight
- CBR of not less than 22.5% for carriageway and Walkways measured after 4-day soak on a laboratory mix compacted to a dry density of 95% (AASHTO T 99)
- Swell less than 1% on the laboratory mixed sample

Subgrade is defined on the Drawings, and subgrade material shall comply with the requirements of Clause 505 except that the CBR shall have a value of not less than 22.5% measured after a four (4) day soak on a laboratory mix compacted to a dry density of 95% MDD (AASHTO T180)

Improved subgrade layer is defined on the Drawings and shall comply with the following requirements:

- CBR of not less than 22.5% measured after 4day soak on a laboratory mix compacted to a dry density of 95% (AASHTO T 180)
- Plasticity Index less than 20%
- Swell less than 1% on the laboratory mix sample.
- Placed in two layers of 175mm thick

Subgrade shall mean the upper 350mm of earthworks, either in-situ or in fill and subgrade shall be provided as part of the earthwork operation, and payment shall be made as fill.

No extra payment will be made for haulage of suitable material from borrow pits as the overhaul costs shall be deemed to have been factored in the rates inserted in the Bills of Quantities

508COMPACTION OF EARTHWORKS

At pipe culverts, all fill above ground level around the culverts shall be compacted to density of 97% MDD (AASHTO T180) up to the level of the top of the pipes or top of the surround(s), if any and for a width equal to the internal diameter of the pipe on either side of the pipe(s) or surround(s) as applicable.

At locations adjacent to structures (up to 100m away from structure), all fill above ground level up to the underside of the subgrade shall be compacted to density of 95% MDD (AASHTO T180). In case of fill around box culverts this should be carried out for the full width of the fill and for a length bounded by the vertical plane passing through the ends of the wingwalls

Notwithstanding the provision of clause 503 of the standard Specification, Compaction of subgrade material (i.e. material immediately below formation) in cut areas shall not be carried out

by the contractor in areas where the formation is formed in hard material, unless specific instructions to the contrary are issued by the Engineer

Where improved sub-grade material shall be required, the material shall have a CBR greater than 14% and this shall be compacted and finished to the same standards and tolerances as those required for normal subgrade and clauses in the specifications applying to normal subgrade shall also apply.

509MASS-HAUL DIAGRAM

Delete Clause 509 entirely and substitute "No Mass-Haul diagram has been provided with the Documents. The Contractor shall be responsible for locating suitable materials for constructing earthworks along the alignment and elsewhere and shall include in his rates for fill, spoil and for the cost of haulage".

510SPOIL MATERIAL

The Contractor's attention is drawn to the requirements of Section 6 of this Specification.

Where possible, spoil material is to be utilised in the backfill and restoration of borrow pits and quarry areas.

511BORROW PITS

Replace the first two paragraphs by the following:

Fill material which is required in addition to that provided by excavation shall be obtained from borrow pits to be located and provided by the Contractor and approved by the Engineer.

514TOPSOILING AND GRASSING

Topsoiling and grassing shall be to all areas instructed by the Engineer. Topsoiling and grassing of spoil, borrow, stockpile and quarry areas, including payment thereof, shall be in accordance with Section 6 of these Specifications.

515SIDE DRAINS

Whenever excavation works in side drains constitutes a separate operation from the bulk earthworks, such excavation shall be classified as catchwater drains under Section 8 of the Specifications

517MEASUREMENT AND PAYMENT

Notwithstanding the provisions of clause 517 of the standard specifications, the rate for compaction of fill in soft material shall allow for the requirements of clause 508 of the special specification and no extra payment shall be made for compaction around pipe culverts (97% MDD AASHTO T180)

Quantities for embankment widening shall be measured using the final compacted volume of fill material over the existing embankment after removal of topsoil. Payment for fill for widening shall

be made under Item 5.01 of the Bill of Quantities. No payment shall be made to the Contractor for any additional earthworks resulting from his construction methods, or for working space for his construction plant and equipment, or for complying with the requirements of Clause 504. The Contractor shall include the cost of benching in his rates and prices.

The rate for cut to spoil shall also allow for cutting to spoil in any waterlogged areas.

No separate payment shall be made for overhaul, and the cost of haulage shall be included in the Contractor's rates and prices for earthworks.

The rates in the Bill of Quantities shall also include for earthworks associated with roadside amenities, service roads, walkways and any widenings

6. *SECTION 6 - QUARRIES, BORROW PITS, STOCKPILES AND SPOIL AREAS*

603GENERAL

Notwithstanding any indications to the contrary in the Standard specification the Engineer will not make available to the Contractor any land for, nor has identified any specific areas for, quarries, borrow pits, stockpiles and spoil areas, and for access thereto.

The Contractor will be entirely responsible for locating suitable sources of materials complying with the Standard and Special Specifications, and for the procurement, winning, haulage to site of these materials and all costs involved therein. Similarly, the Contractor will be responsible for the provision and costs involved in providing suitable areas for stockpiling materials and spoil dumps. Should there be suitable sites for spoil dumps or stockpiles within the road reserve forming the site of the works, the Contractor may utilize these subject to the approval of the Engineer.

Quarries, borrow pits, stockpile and spoil areas shall be progressively restored as the works progress once their use is no longer required.

No additional payment will be made to the Contractor to cover costs arising from the requirements for this Section and the Contractor must include these costs in the rates inserted into the Bills of Quantities.

605 SAFETY AND PUBLIC HEALTH REQUIREMENT

Add the following to Clause 605:

When working the material sites, the Contractor shall time and arrange his works in such a way that at no time is the public safety endangered in any way.

607 SITE CLEARANCE AND REMOVAL OF TOPSOIL AND OVERBURDEN

Add the following to Clause 607:

Faces of quarries being higher than 4 metres shall be shaped to 1:10 out of the face. All quarries and borrow pits shall be permanently fenced with 5 strand barbed wire which shall be located 5 metres off the edge of the face. After reinstatement, the bottom of a quarry shall be covered with 0.20 m of soil and 0.15 m of topsoil.

611 OBTAINING OF BORROW MATERIALS

(a) Borrow Pit Locations

Borrow materials shall be located and obtained by the Contractor. Borrow materials shall comply with the requirements of the appropriate Specifications according to the use for which the material is intended.

The Contractor shall search for and test all possible sources of borrow material including any possible sources so designated by the Engineer, within an economic distance of the location where the borrow material is to be utilized.

The Contractor shall excavate the necessary trial holes, take such samples and perform such tests as are deemed necessary by the Engineer. The Contractor shall submit all the results to the Engineer in sufficient detail to satisfy him that the quality and quantity of material available in the proposed borrow area are acceptable for the intended use, all at the Contractor's expense. The Contractor shall propose the use of those borrow pits which will be most economic to the Employer.

Approval of borrow pits or borrow areas shall apply only to those portions of the pit or area from which acceptable materials can be obtained or produced. The Contractor shall conduct his operations in any approved pit or borrow area or portions thereof so as to produce acceptable material.

Any approval given by the Engineer shall not relieve the Contractor of the responsibility of ensuring that material obtained from a borrow pit or area complies in all respects with the specification for the material.

The Contractor shall plan his exploitation of borrow pits in such a manner that the various materials excavated can be selected and either loaded directly for use or pushed to stockpile in a borrow area for later loading. When this is not feasible for reasons beyond the Contractor's control, material to be reserved for later use shall be loaded, transported and temporarily stockpiled as ordered by the Engineer at locations outside the borrow area indicated by him and such temporary stockpiling shall be measured and paid for as Dayworks. No material reserved for a specific purpose shall be used for other purposes without the written approval of the Engineer.

612 OPENING AND WORKING OF BORROW PITS

(a) General

Notwithstanding any indications to the contrary in the Standard specification the Engineer will not make available to the Contractor any land for quarries, borrow pits, stockpiles and spoil areas, except for those areas in road reserves specifically approved by him

The contractor will be entirely responsible for locating suitable sources of materials complying with the Standard and Special Specifications, and for the procurement, Wining, haulage to site of these materials and all costs involved therein. Similarly, the contractor will be responsible for the provision and costs involved in providing suitable areas for stockpiling materials and spoil dumps. Should there be suitable sites for spoil dumps or stockpiles within the road reserve forming the site of the works the Contractor may utilise these subject to the approval of the Engineer

No additional payment will be made to the Contractor to cover costs arising from the requirements for this Clause and the Contractor must include these costs in the rates inserted into the Bills of Quantities

(b) Clearing and Grubbing, Topsoil and Overburden

The Contractor's rate for borrowed material must include for clearing and grubbing and the removal of topsoil and overburden. No separate payment will be made for this work.

(c) Excavation of Borrow Material

Where any borrow pit contains different types of materials, in separate layers which require to be mixed in order to produce a suitable product, the materials shall be excavated over the full depth of approved face in one operation without separation of the different types of material.

The Contractor shall exercise all reasonable care so as to avoid contamination of approved borrow material by the inclusion of clayey or otherwise unsuitable material from the floor of the borrow pit, from overburden, from unsuitable layers or from areas beyond the approved limits of the borrow area. During loading hard oversize material which will not break down during processing on the road shall be excluded as far as is practicable.

During the course of borrow operations and especially when excavating near the floor and outer boundaries of borrow areas, the Contractor shall plan his operations so as to reduce as far as possible the amount of earthmoving that will be necessary for the reinstating of borrow pits. Indiscriminate excavation without due regard for the desired final shape of the borrow pit will not be permitted.

The material in borrow pits shall be blasted or ripped and/or excavated in a manner that will ensure the effective breaking down of the material in the borrow pit before it is loaded. Rippable material which tends to break into large blocks shall be cross ripped.

(d) Quality Control at Borrow Pit

The Contractor shall be responsible for controlling his operations at every borrow pit where material is being excavated, to ensure compliance with the requirements of Sub-section (b) above.

He shall carry out sufficient tests on the material being excavated from the borrow pit in order to satisfy himself that the quality of the material will comply with the specified requirements for the particular layer for which it will be used.

(e) Protection of Borrow Pit

Borrow pits shall be continuously protected against the ingress of surface water and the Contractor shall construct such temporary banks as may be required to divert surface water and as far as possible his operations shall be planned in such a way that the borrow pit is self-draining. Where this is not possible, borrow pits shall be dewatered by pumping. The Contractor shall be solely responsible for keeping borrow areas dry and ensuring that borrow material is sufficiently dry when required for use.

613 REINSTATEMENT OF BORROW AREAS

On completion of his operations in a borrow area, the Contractor shall reinstate the entire area so as to blend with the surrounding area and to permit the re-establishment of vegetation. For this purpose, the borrow area shall be shaped to even contours. All material in and around the borrow area, whether spoil from road building operations, excess stock-piled material, oversize material left in the borrow pit, material resulting from clearing and grubbing operations and excess overburden, shall be used or disposed off as directed by the Engineer. Material not capable of supporting vegetation shall be buried and used in shaping the borrow area and subsequently covered with soft material. All available soft material shall be spread evenly to the thickness

directed and where sufficient material is not available for this purpose to cover the entire area, the remaining portions shall be scarified along the contours so as to avoid undue erosion.

All haul roads shall be obliterated and the surface scarified, earth banks constructed to prevent erosion and all damaged fences and other structures reinstated.

The shaping and reinstatement of the borrow pit shall be done in such a way that the borrow pit will be properly drained whenever practicable and where required, the Contractor shall place earth banks to divert any surface water away from the borrow area.

The reinstatement of any borrow pit shall be to the entire satisfaction of the Engineer and the Contractor shall submit to the Engineer a signed certificate from the landowner stating that he is fully satisfied with the reinstatement of any borrow area.

614 DISPOSAL OF BORROW MATERIAL

The Contractor shall not have the right to use material obtained from borrow pits for any purpose other than for the execution of this Contract. He shall not dispose off any borrow material whether processed or not either by sale or donation to any person without the written authority of the Employer.

615 MEASUREMENT AND PAYMENT

Clause 610 of the Standard Specification shall apply.

7. *SECTION 7 - EXCAVATION AND FILLING FOR STRUCTURES*

703EXCAVATION OF FOUNDATIONS FOR STRUCTURES

Unless otherwise instructed by the Engineer, all excavated surfaces in material other than hard material, on which foundations for structures shall be placed, shall be compacted to 97% MDD (AASHTO T180) immediately before structures are constructed.

Paragraph 4, last line: - Replace "95%" with "97%" and “T99” with “T180”.

Add the following:

707BACKFILLING FOR STRUCTURES

All backfilling material shall be selected backfill complying with the requirements for a natural subbase material given in Clause 1203. Unless otherwise instructed by the Engineer, all backfilling material shall be compacted to a minimum of 97% MDD (AASHTO T180).

Porous filter material shall be clean, uniform, sand or crushed aggregate with a d50 between 0.4mm and 1.2mm and less than 5% particles finer than 75micron sieve. The d100 must be lower than 5mm

709EXCAVATIONS FOR RIVER TRAINING AND NEW WATER COURSES

Add the following:

Payments for river training and establishment of new watercourses shall only be made where such work constitute permanent works. Works done for road deviation or other temporary works shall not qualify for payment.

710STONE PITCHING

Stone pitching to drains, inlets and outlets of culverts, to embankments and around structure shall consist of sound unweathered rock approved by the Engineer. The stone as dressed shall be roughly cubical in shape with minimum dimensions of 150 x 150mm for normal thickness of stone pitching. Cement mortar Grouting will be done for all stone pitching areas and the top line of the stone pitching should be grouted/sealed with concrete class 15/20. The cement shall be mixed with sand in the ratio of 1:3 by volume to form the grout.

The surface to receive the pitching shall be compacted and trimmed to slope and the stone laid, interlocked and rammed into the material to give an even finished surface. Soil erosion is rampant along the project location and this can be minimized by ensuring that proper protection works is carried out along the drains using stone pitching. Most of the sections shall be stone pitched especially areas where we have steep slopes to minimize undermining of the road by rain water or as may be instructed by the Engineer.

In areas where stone pitching has been damaged, the Contractor shall identify such areas and notify the Engineer for his agreement of the extent of the Works required and his approval and instructions to proceed with the Works. Stone Pitching Repair and reconstruction shall be carried out in accordance with Clause 710 of the Standard Specifications.

711GABIONS

Where instructed by the Engineer the Contractor will install gabions as protection works to washout areas or bridge Piers and or Abutments. Gabions shall be constructed in accordance with Clause 711 of the Standard Specification

In cases where existing gabions have been damaged, the Contractor shall identify them and notify the Engineer for his agreement of the extent of the Work required and his approval and instructions to proceed with the Works

The Works shall involve removal of the damaged gabions / rocks, excavation to the correct levels and grades as directed by the Engineer, and in accordance with Clause 711 of the Standard Specifications and reconstruction with new gabions and other necessary materials as necessary. The damaged gabions shall be recovered and transported to the nearest Sub-County offices

712RIP-RAP PROTECTION WORK

Add the following at the end:

Quarry waste or similar approved material shall be used to backfill scoured and eroded side, outfall and cut-off drain. The material shall be compacted to form a flat or curved surface preparatory to stone pitching of drainage channels, existing and new scour checks as directed by the Engineer

The surface to receive the pitching shall be compacted and trimmed to slope and the stone hand laid, interlocked and rammed into the material to give an even finished surface. The interstices of the Pitching shall be rammed with in-situ material. The in-situ material immediately behind the pitching shall be compacted to minimum density of 95% MDD compaction (AASHTO T180)

714BACKFILL BELOW STRUCTURES

All backfilling material shall be selected backfill complying with the requirements for a natural subbase material given in Clause 1203. Unless otherwise instructed by the Engineer, all backfilling material shall be compacted to a minimum of 97% MDD (AASHTO T180).

8. *SECTION 8 - CULVERT AND DRAINAGE WORKS*

801SCOPE OF SECTION

Amend as follows:

The operations specified in this section apply to the installation of drainage works and reinstatement and improvement of the same.

In addition, this Section covers: -

- Installation of 600 mm, 900 mm or 1200 mm diameter pipe culverts using the balloon casting technology or precast pipes rings.

- Desilting and cleaning of existing pipes and outfall drains to make them free flowing.

804EXCAVATION FOR CULVERTS AND DRAINAGE WORKS

The Standard Specifications are amended as follows:

(a) In paragraph 6, line 3, and in paragraph 7, line 5 and in paragraph 11, line 6, replace "95% MDD (AASHTO T99)" with "97% MDD (AASHTO T180)".

(b) Removal of Existing Pipe Culverts

Where instructed by the Engineer, the Contractor shall excavate and remove existing culvert pipes and the void left after removal of culvert pipes shall be widened as necessary to accommodate new concrete bedding, pipe and haunching.

The void left by removal of pipes and end-structures shall be carefully preserved in order to accommodate replacement with 600 mm, 900 mm or 1200 mm diameter pipe culverts as directed by the Engineer.

Regarding backfill, reference is made to Clause 812.

(c) Excavation for Culverts and Drainage Works

The Contractor shall carry out all excavations for new culverts and drainage works to the lines, levels, inclinations, and dimensions shown on the Drawings or as instructed by the Engineer.

805EXCAVATION IN HARD MATERIAL

In the Standard Specifications, Sub-clauses 805(a) and 805 (b) delete ""95% MDD (AASHTO T99)" and insert "97% MDD (AASHTO T180").

In sub-clause 809(a), paragraph 1, line 1, substitute "95% MDD (AASHTO T99)" with "97% MDD (AASHTO T180").

In sub-clause 809(c), paragraph 2, line 4, between the words "compacted" and "and shaped" insert the words "to "97% MDD (AASHTO T180").

Hard material is material, which can be excavated only after blasting with explosives, or barring and wedging or the use of a mechanical breaker fitted with a rock point in good condition and operated correctly. Boulders of more than $0.2m^3$ occurring in soft material shall be classified as hard material.

809BEDDING AND LAYING OF PIPE CULVERTS

In sub-clause 809(a), paragraph 1, line 1, substitute "95%" with "100%".

Amend sub-clause 809(b), paragraph 1 as follows:

Where pipes are laid on a concrete bed the pipes shall be bedded on class 15/20 concrete at least 50mm thick, and extending the full width and length of the pipe barrel.

In sub-clause 809(c), paragraph 2, line 4, between the words "compacted" and "and shaped" insert the words "to 97% MDD (AASHTO T180)".

Add the following Sub-Clause 809(d):

Bedding, Laying and Surround for Concrete Pipe Culverts Cast In-Situ

In addition to the requirements of the Standard Specification, where the inflatable balloon method of casting culverts in-situ is used, thorough pre-construction trials shall be carried out and the necessary adjustments made to ensure that: -

(i) Line and grade of the culverts is achievable
(ii) The balloons and the pressure gauge/machine are in good working conditions
(iii) The inner concrete barrel surface immediately in contact with the inflated balloon form shall achieve class F3 finish.

Besides this, the following amendments shall be made; -

(a) Where inflatable balloons are used, the surround shall be 200mm.
(b) Concrete surround shall be “class 20/20”.
(c) BRC A193 mesh will be provided within the surround and bed as provided for in the drawings or as instructed by the engineer

The Contractor may propose an alternative method of casting culverts in-situ, which shall be subject to the approval of the Engineer. Culverts shall be constructed to conform with dimensions shown on the drawings.

Measurement and payment for culverts cast in-situ by use of balloon method or any other approved method shall be made per linear meter under the existing bill items. The rates inserted shall allow for compaction of the bottom of excavation to 100% MDD (AASHTO T.99) and the BRC mesh used.

810JOINTING CONCRETE PIPES

Amend as follows:

The concrete pipes for the culverts shall have ogee joints and will be jointed by 1:2 cement/ sand mortar and provided with fillets on the outside as described in clause 810 of the Standard Specification.

Payment shall be included in the relevant item under Bill of Quantity No. 8.

811CONCRETE BEDS, SURROUNDS AND HAUNCHES

Amend the Standard Specification line 1 of the second paragraph, to read as follows:

All concrete for beds shall be of class 15/20 whilst concrete for surrounds and haunches shall be of class 20/20 for cross drain culverts, complying with Section 17 of this Specification formed to the dimensions shown on the drawings or as instructed by the Engineer

812BACKFILLING OVER PIPE CULVERTS

In the Standard Specifications, clause 812

Delete paragraph 6 “for pipe culverts depth of 150mm”, entirely.

Wherever the expression "dry density of 95% MDD (AASHTO T. 99)" occurs delete and replace with "dry density of 97% MDD (AASHTO T180)".

The rates entered for laying of pipe culverts shall allow for backfilling to pipe culverts and compacting to 97% MDD (AASHTO T180) and these works shall **not** be measured and paid for separately.

812.1 FILTER FABRIC FOR BACKFILLING BEHIND STRUCTURES, DRAINS AND REVETMENT WORKS

Where filter fabric is specified, it shall be durable non-woven geotextiles or synthetic fibres, unaffected by soil acidity, soil alkalinity and bacteria. The fabric shall be made by an approved, reputable manufacturer and shall have a mass and strength at least equal to the following criteria:

Usage	**Mass g/m2**	**Wide Strip Tensile Strength kN/m2**	**Mullen Burst Strength kPa**
Under and For Drainage Material	180	Mean 12/12	2160
Behind bridges, Box culverts, Under Gabions, Gabion Mattresses or Grouted Rip –Rap	250	Mean 18/18	3040
Under Rip-Rap and Rockfill	300	Mean 21/21	4200

The mesh size of the fabric shall be sufficient to effectively retain the material on which it is placed but shall not be greater than 150 microns.

The fabric shall be installed in accordance with the manufacturer's instructions. The fabric shall be placed on levelled ground, with sharp rocks and other objects which are likely to damage the fabric being removed and all pits and depressions being backfilled and compacted.

The fabric shall be overlapped by a minimum of 300 mm and stitched at joints in such a manner that the strength of the joints is at least 50 per cent of the strength of the fabric.

Rip-rap or gabions or other materials, as applicable, shall be placed carefully on the filter fabric in such a way as to avoid damage to the fabric. In any event construction procedures shall ensure no damage to the filter fabric or impairment of its design function. Should the filter fabric be damaged, it shall be replaced, including removal of the overlay material, in a manner approved by the Engineer.

No mechanical plant shall traffic over filter fabric unless a minimum thickness of 200 mm of fill material has been placed over the fabric.

813 PRECAST CONCRETE OPEN CHANNELS

Add the following to the Standard Specification clause 813:

813.1 Half Round Open Channels

These shall be provided as directed by the Engineer and in compliance with sections 813 and 820 of the Standard Specification.

Payment shall be according to Bill of Quantity No.8.

813.2 Invert Block Open Channels

These shall be provided as directed by the Engineer and in compliance with sections 813 and 820 of the standard specifications.

Where directed by the Engineer, the Contractor shall excavate in any material provide and place concrete for the bedding, backfill and remove surplus material to spoil, provide, lay and joint precast concrete invert blocks, side slabs, slotted drains and gulley chambers.

Precast concrete invert block side drains and gulley chambers shall comply with the requirements of BS 340, and shall be laid in accordance with the drawings.

Precast concrete invert block drains and side slabs shall be formed of concrete of the class specified and to the dimensions shown on the drawing. Drains shall not normally be laid to a radius of a curvature less than 10 times the bed width or a diameter of the drain.

Invert block drains shall be constructed in the positions and to the levels and dimensions shown on the drawings or as directed by the Engineer. The earth sides to such channels shall be neatly finished to a slope of 1: 1 or such other slope as the Engineer may direct. Invert block drains and side slabs shall be laid on 100 mm thick compacted approved gravel material and neatly jointed with mortar consisting of 1:3 cement: sand by volume.

813.3 Invert Block drain

Where instructed, the Contractor shall excavate, compact the excavated bed to 97% MDD AASHTO (T180), backfill as necessary with selected material compacted to 97% MDD AASHTO (T180) lay and joint invert block drains of 300mm diameter with two side slabs.

814 SUBSOIL DRAINS

Add the following:

In the event of excavation for repairs exposing local seepage, springs or high water table, the Engineer may instruct the provision of counter fort or French drains.

These drains shall consist of a trench excavated to the alignment, width, depth and gradient instructed by the Engineer and backfilled with approved compacted clean hard crushed rock as specified in Clause 814 of the Standard Specification. Where these drains lie within the carriageway, the carriageway shall be reinstated with compacted graded crushed stone or stabilised gravel and surfaced with hot asphalt or a surface dressing as instructed by the Engineer.

Payment will be made in accordance with Clause 820 of the Standard Specification.

814.1 Filter Fabric to Sub-Soil Drains

A filter fabric shall be placed under, around and over rock fill of the sub-soil drains. The provisions and placing of the fabric shall be in accordance with Clause 814 of the Standard Specification and Clause 822 of the Special Specification. Payment shall be in square metre of the fabric used.

817MITRE DRAINS, CUT-OFF DRAINS, CATCHWATER DRAINS, SIDE DRAINS, CULVERT OUTFALL DRAINS AND EARTH DAMS

Add the following Sub-Clauses:

817.1 Cleaning Existing Drains

In areas of existing side drains, mitre or outfall drains where such are blocked, the Engineer shall instruct the Contractor to clean and clear the drains to free flowing condition.

The work shall consist of:

(a) Stripping and removal of any extraneous material to spoil including vegetation and roots in the drains to the satisfaction of the engineer.

(b) Spreading of any spoil to the satisfaction of the Engineer.

(c) Shaping the drains to free flowing condition as directed by the Engineer.

No extra payment will be made for cleaning of existing chains, and the costs shall be included in other Bill items.

817.2 Channels

The Engineer may instruct that the Contractor provides open channels in place of existing sub drains where the latter may be damaged or in any other place. The rates entered by the Contractor in the Bill of Quantities must include for removal and disposal of any sub drain material, excavation to line and level, backfilling and compaction as directed by the Engineer.

The channels shall be constructed of precast class 20/20 concrete of minimum 80 mm thickness and lengths or widths not exceeding 1000 mm. Joints shall be at least 15 mm wide filled with 1:2 cement sand mortar.

817.3 Spoil Material

The Contractor shall be responsible for removal from site of all materials excavated in the course of undertaking works in this section of the specifications, unless suitable for re-use, and deposit of the material in a spoil dump to be approved by the Engineer.

819 CLEANING AND MAINTENANCE

Add the following:

819.1 Desilting of Pipe Culverts

Where instructed, the Contractor shall desilt the existing pipe culverts by removing all the material from the pipe to make them clean and free flowing.

No separate payment will be made for such work and provision should be included in the rates.

820 MEASUREMENT AND PAYMENT

(a)

(b) Add Sub-Clause 823(r): -

(c)

(d) Item : Concrete for balloon cast pipes/culverts

(e) cast in-situ

(f) Unit : m^3

(g)

(h) The rate for concrete for each size of culvert instructed shall include for the surround and for the bedding as instructed including the A193 BRC mesh and shuttering, calculated from the dimensions given in the drawings or as directed by the Engineer.

(i)

The rate shall also include for the cost of providing and placing the concrete and complying with the requirements of Clauses 809, 810, 814, 819 and 1713 of the Standard Specification.

No extra payment shall be made for provision of inflatable forms/balloons and other requirements for casting culverts in-situ and the Contractor shall be deemed to have provided for these in his rates and prices.

(j) Add Sub-Clause 823(s): -

(k)

(l) Item : Invert Block Drain

(m) Unit : m

The payment for the invert block drain shall include the cost of the bottom drain and two side slabs and shall be measured in a linear metre.

(n) Add Sub-Clause 823(t): -

(o)

(p) Item : Geotextile

(q) Unit : m2

The payment for the geotextile shall be in square metres and shall include the cost of providing and placing as per the specifications or as instructed by the engineer

9. *SECTION 9 – PASSAGE OF TRAFFIC*

901 TRAFFIC CONTROL AND DEVIATIONS

a) Programme for the Control of Traffic

Following the award of the contract, the Contractor shall submit to the Engineer a detailed Traffic Control Plan. Such plan shall be approved by the Engineer, and where necessary, by the appropriate statutory authority, before the Contractor commences work. The plan shall but is not limited to, the method of protection of the public and give details of the duration and hours of operation, location, type and numbers of traffic safety devices, barricades, warning signs, flag men equipped with two way radios and the like. The Traffic Control Plan shall be in accordance with and complimentary to the Programme of Works submitted under Clause 104

During the preparation of this Traffic Control Plan, the Contractor shall take into consideration the following;

i) The Contractor shall conduct his operations in such a manner that no greater length or amount of work is undertaken than he can efficiently carry out having due regard to the rights and conveniences of the public and the requirements of this Section.

ii) If the Contractor proposes a road closure, he shall provide an alternative routing of the traffic, which must be approved by the Engineer.

iii) No revisions shall be made to the Traffic Control Plan without the prior written approval of the Engineer and the Contractor shall allow fourteen (14) days for the Engineer to review any request for revision of the Traffic Control Plan.

iv) The Traffic Control Plan shall conform in all respects with the requirements of this Specification.

b) Penalty to comply with the requirements of Section 9

The failure or refusal to comply on part of the Contractor and or maintain the deviation, improve and maintain the existing road ahead of the works at the proper time, or to take the necessary actions for the safety and convinience of the public traffic as required by the statutory authorities, or as instructed by the Engineer, shall be sufficient cause for the Employer to apply a deduction of KES. One Hundred and Fifty Thousand (150,000) per day from any monies due to the Contractor, until all provisions prescribed have been complied with to the satisfaction of the Engineer.

c) Contractor's inspection of the site

The Contractor should allow for the costs of complying with the requirements of this clause in his rates. The Contractor will be deemed to have inspected the site and satisfied himself to the adequacy of his bid for these works and no additional payments will be made to the Contractor for any

expenditure on traffic control or the provision of deviations. The Employer shall not be liable for inadequate prior investigations of this nature by the Contractor.

(d) Standard of Construction works

The standard of all works carried out under this Section shall comply with the requirements of the appropriate sections of these Specifications

903MAINTENANCE OF EXISTING ROAD

The Employer shall hand-over the existing road to the contractor at the commencement of the Contract. The Contractor shall be responsible for all repairs and maintenance during the duration of the Contract. Where the existing road is gravel, the Contractor shall maintain it with suitable approved gravel of properties detailed in 904 (c) below.

Where the existing road is paved, the contractor shall maintain it by repairing the potholes and edge breaks asphalt concrete. The work shall include, but not limited to, excavating and trimming around the pothole or edge break and removing deleterious material

The Contractor shall regularly inspect the road and carry out such repairs and maintenance to the satisfaction of the Engineer. If at any time, the Engineer draws the Contractor's attention to a road section which requires maintenance, the contractor shall promptly repair the section. The contractor shall be legally responsible for any accident or damage attributable to his failure to maintain the road.

904CONSTRUCTION OF DEVIATIONS

a) **General**

In addition to requirement of this clause, the maximum length of deviation road shall be restricted to 2Kms at any given time unless otherwise instructed. The Contractor shall construct and complete deviations to the satisfaction of the Engineer before commencing any permanent work on the existing road. Also during these works the contractor is supposed to provide a detour of adequate pipe culverts for pedestrian and traffic crossing where there is bridge works.

Contractor will be allowed to open further 2Km of the deviation road only when 80% of the permanent work has been completed on first one and he will not be allowed to open further 2Km till he has completed first 4Km of the road and has it opened to traffic

Where the old road exists near the main road, the Contractor shall use this road as deviation road.

b) Geometry

The carriageway width of the deviations shall not be less than 6.5m wide and suitable for 2-way lorry traffic unless otherwise specified.

c) Construction

Unless otherwise instructed gravel wearing course for the deviation shall be 150mm compacted thickness. The materials shall have a minimum CBR of 20% at "97% MDD (AASHTO T180"), Plasticity Index of less than 15% and grading class 1 as per section 10 of the Standard Specification. The Contractor shall allow in his rate for removal of any unsuitable material before placing of gravel wearing course, as this will not be paid for separately.

In addition to provision of this clause, Contractor is required to sprinkle water at least 4 times a day at the rate of 1 - 1.4 litres/m^2 in regular interval to minimize the effects of dust. Latest sprinkling time shall be one hour before the sunset.

906PASSAGE OF TRAFFIC THROUGH THE WORKS

The Contractor shall arrange for passage of traffic through the works during construction whenever it is not practicable to make deviations. The contractor shall be reimbursed in accordance with the standard specifications.

Any damage caused by passing traffic through the works shall be made good at the contractor's own cost.

907SIGNS, BARRIERS AND LIGHTS

The Contractor shall provide signs, barriers and lights as shown in the drawings at the locations where the traffic is being carried off the existing road to the deviation and back again to existing road.

The Contractor shall provide ramps and carry out any other measures as instructed by the Engineer to safely carry traffic from the road to deviation.

Contrary to what has been specified in this clause the road signs provided shall be fully reflectorized and in conformity with clause 9.1 of the "Manual for Traffic Signs in Kenya Part II".

909ASSISTANCE TO PUBLIC

In addition to provision of clause 909, the Contractor shall maintain close liaison with the relevant authorities to clear any broken down or accident vehicles from the deviations and the main road, in order to maintain smooth and safe flow of the traffic.

912MEASUREMENT AND PAYMENT

(a) Passage of traffic through the works

Payment shall be made on Lump Sum basis.

(b) Maintenance of existing road

The Contractor will be paid by the cubic metre of compacted gravel used to maintain existing road.

(c) Construct Deviation

(i) Road Deviation

The Contractor shall be paid only 50% of the rate for this when he completes deviation road to the satisfaction of the Engineer. The balance shall be paid in equal monthly installments over the contract period, as he satisfactorily maintains the deviation (as per clause 904 and 905 above) when it is in operation.

(ii) Deviation using Pipe Culverts

The Contractor shall be paid only 50% of the rate for this when he completes deviation to the satisfaction of the Engineer. The balance shall be paid in equal monthly installments over the contract period, as he satisfactorily maintains the deviation when it is in operation. The Contractor shall be paid full amount when the bridge under construction will be in use.

(d) Assistance to Public

The Contractor will be deemed to have included cost of this item in other items and no separate payment shall be made.

10. *SECTION 11 – SHOULDERS TO PAVEMENT*

1101 GENERAL

Shoulders whose widths and construction approach is detailed in the drawings shall be constructed in accordance with sections 5, 12, 15 and 16 of the specifications as appropriate.

Add the following:

Footpaths will be constructed in accordance with the typical pavement cross-section, shown on the drawings or as directed by the Engineer.

1106 MEASUREMENT AND PAYMENT

Measurement and payment shall be in accordance with the relevant bill items in the Bill of Quantities.

11. *SECTION 12 – NATURAL MATERIAL SUBBASE AND BASE*

1203 SUBASE MATERIAL REQUIREMENTS

Natural materials for subbase shall conform to the specifications given under clause 1203 (a) in Section 12 of the Standard Specifications for NEAT subbase material

Compaction

The moisture content of the material shall be as directed by the Engineer but nevertheless within the range of 95% to 105% of the Optimum Moisture Content (T180). Minimum compaction shall be 97% MDD (T180)

Protection

The layer shall be covered with the next layer i.e base-course as soon as possible, but not later than 7days after laying. Sprinkling the section with water shall precede laying the base-course to ensure the layer's moisture is within the moisture requirements

1209 MEASUREMENT AND PAYMENT

Natural material for subbase and base shall be measured by the cubic metre placed and compacted upon the road calculated as the product of the compacted sectional area laid and the length.

The method of measurement shall be "method - A" as in the standard specifications.

No extra payment will be made for haulage of gravel material as the overhaul costs shall be deemed to have been factored in the rates inserted in the Bills of Quantities

12. *SECTION 13 - GRADED CRUSHED STONE FOR SUB-BASE AND BASE*

1303 BASE MATERIAL REQUIREMENTS

Properties

Graded Crushed Stone shall comply in all respects comply with Section 13 of the Standard Specifications and shall be stone Class B in accordance with Clause 1303(b)

Grading

The Maximum Aggregate Size of the material shall be 0/40mm in accordance with Clause 1303(c)

Mixing

The material shall be mixed in an approved batching plant

Laying and compaction

Laying

GCS shall be placed by using a self propelled spreader finisher fitted with an electronic level control device, and level control shall be from a tensioned wire supported at every 5m intervals. The graded crushed stone shall be finished to the tolerances given for base in Section 3 of these Specifications

Compaction

The moisture content of the material shall be as directed by the Engineer but nevertheless within the range of 90% to 100% of the Optimum Moisture Content (Vibrating Hammer Method). Minimum compaction shall be 97% MDD (Vibrating Hammer Method)

1309 PROTECTION

GCS layer shall be covered with MC70 prime coat as soon as possible, but not later than 7days after laying. Sprinkling the section with water shall precede spraying of the prime coat to ensure the layer's moisture is within the moisture requirements

13. *SECTION 15 - BITUMINOUS SURFACE TREATMENTS*

PART A – GENERAL

1501A BITUMINOUS SURFACE TREATMENT

Quality control, workmanship and equipment shall be to current international best practice. Bituminous surface treatments shall be carefully designed by the Contractor, taking into account traffic volumes, surface conditions and requirements for specific locations.

Application rates of the bitumen spray will be approved by the Engineer prior to any trial sections of the work, but the under listed is anticipated and can be used for guidance purpose:

a) Bitumen Spray Rates

- 1.1 - 1.3 l/m^2 for the single seal to main carriageway
- 1.1 - 1.3 l/m^2 for the single seal to shoulders and junctions.

1504A HEATING OF BITUMINOUS BINDER

Bitumen 80/100 shall be sprayed in the range of 170ºC – 180ºC and the maximum heating temperature is 190ºC. Bituminous binder shall not be kept within spraying temperature range for periods exceeding 1 hour.

1505A ADHESION AGENT

For all surface dressing, an approved adhesion agent shall be added to the binder, unless otherwise instructed by the Engineer. Adhesion agent shall be added to, and well mixed with, the binder immediately before each spray run.

1506A CONSTRUCTION LIMITATIONS

No bituminous spray shall be applied to a surface with a road temperature of less than 25ºC for surface dressing, and 15ºC for prime coat, or with adverse weather conditions threatening. A minimum period of 6 weeks shall elapse between the placement of asphalt and the application thereon of bituminous surface dressing.

PART B - PRIME COAT

1502B MATERIALS FOR PRIME COAT AND TACK COAT

i) The binder for prime coat shall be MC-70 and shall be applied over the full width of the surface of the course to receive the first layer of bituminous material.

ii) The binder for the tack coat shall be 80/100 cut back penetration grade bitumen. A tack coat shall be applied over the full width of the surface of each bituminous material to receive a further bituminous layer. A tack coat shall also be applied to any prime coat, which has lost its adhesive properties due to contamination or long exposure or weathering before receiving the bituminous layer. Such an application shall be made without additional expense to the Employer unless it is required due to reasons outside the Contractor's control.

1504B SPRAYING OF PRIME COAT AND TACK COAT

Application rates of the bituminous prime coat shall be designed by the Contractor to take into account surface condition of the surface to be primed, expected traffic conditions, blinding, and the time duration before the subsequent bituminous treatment is applied

The rate of spray of bituminous prime coat refers to the gross volume of the cut-back bitumen, that is to say the volume of the bitumen plus dilutant.

iii) The rate of application of prime coat shall be 0.3 to 0.8 litres/m^2. The exact quantity to be applied may be varied within these limits to suit field conditions and will be determined from trials by the Engineer.

iv) The rate of application of the tack coat on bituminous surfaces shall be 0.3 to 0.8 litres/m^2. The exact quantity to be applied may be varied within these limits to suit field conditions and will be determined from trials by the Contractor and approved by the Engineer.

1506B TOLERANCES

Tolerance shall be +5% of the rate ordered. Work records are to be kept on a daily basis, with details recorded and calculated at the end of each distributor run. The Contractor shall prepare and use a suitable record sheet, which records details of weather and road temperature conditions, length and width of each run, binder dipping before and after each run of the distributor, calculation of actual application rate, under or overspray, and spray outside tolerance. Actual application rates shall be calculated immediately after each run, so that the operation of the distributor can be adjusted to ensure subsequent application rates are within tolerance.

14. *SECTION 16 - BITUMINOUS MIX BASES, BINDER COURSES AND WEARING COURSES*

This section is divided into the following parts: -

Part A General

Part B Asphalt Concrete for Surfacing

All Bituminous mixes works shall be done in accordance with the standard specifications.

PART A – GENERAL

1603A CONSTRUCTION PLANT

(d) Compaction plant

To achieve specified densities it is expected that vibrating rollers will be required. To achieve satisfactory results it is essential that thorough preconstruction trials be carried out to ensure that the vibrating rollers are set up at the optimum amplitude and frequency for the material being laid, that they do not break down aggregate particles and that the optimum compaction temperatures are established to allow compaction without creating ripple effects or other distortions of the surfacing.

1606A SITE TRIALS

Delete the second paragraph and insert the following:

"The trials shall be carried out to: -

a) Test materials designed in the laboratory so that a workable mix, which satisfies the specification requirements, can be selected.
b) To enable the Contractor to demonstrate the suitability of his mixing and compaction equipment to provide and compact the material to the specified density and to confirm that the other specified requirements of the completed asphalt pavement layer can be achieved."

Renumber paragraph 5 from "(v) –(vi)" to read "(v)-(viii)"

1607A MIXING OF AGGREGATES AND BITUMEN

Delete the second and third paragraphs, then add the following:

The aggregates, minus the filler, prepared as specified above, shall be accurately weighed and conveyed into the mixer in proportionate amounts of each aggregate size required to meet the Job-Mix Formula. The required amount of bitumen for each batch shall be introduced into the mixer. In batch mixing, the bitumen shall be added after the aggregates have been introduced into the mixer and mixed for 5 to 10 seconds. The filler shall be added after the bitumen and mixing shall continue after addition of the filler for at least the time recommended by the plant manufacturer, or as much extra time as is necessary to obtain a homogeneous mixture, but for no longer.

Aggregate and bitumen shall each be heated to enter the mixing chamber at temperatures selected within the range 150 to 170ºC. The temperature of the stone at entry to the mixing chamber shall not be more than 15ºC higher than that of the bitumen; the temperature of the bitumen shall be such that on entry to the mixer its kinematic viscosity is in the range 150 – 300 centistokes. The temperature of the aggregate and bitumen at entry into the mixing chamber shall be chosen within the above limits and having regard to the prevailing air temperature and haulage distance to ensure that the temperature of the mix is between 135ºC and 165ºC when it is laid and not less than 120ºC when rolling is commenced. If excessive displacement occurs under the roller the minimum rolling temperature may be reduced at the sole discretion of the Engineer.

The volume of the aggregate and bitumen shall not be so great as to extend above the tips of the mixer blades when the blades are in vertical position. All overheated and carbonised mixtures, which foam or show indication of moisture, will be rejected. When moisture is detected in the finished mixture, all aggregates in the bins shall be removed and returned to the stockpiles.

1608A TRANSPORTING THE MIXTURE

Delete entire clause and insert the following:

The mix shall be transported from the mixing plant to the spreader in trucks having tight, clean, smooth beds, which have been treated to prevent adhesion of the mixture to the truck bodies. Gasoline, kerosene, diesel fuel or other solvents shall not be used for this purpose. Loads shall be covered by waterproof canvas or metal sheets during wet weather. Vehicles shall be insulated when the air temperature and/or length of haul make this necessary to maintain the temperature between the specified limits. Any loads wetted excessively by rain will be rejected. Hauling over freshly laid material will not be permitted.

1609A LAYING THE MIXTURE

Add the following

Mixtures that have a temperature of less than 135ºC when dumped into the spreader, will be rejected. The spreader shall be adjusted and the speed regulated so that the surface of the course will be smooth and the course of such depth that, when compacted, it will conform to the cross-section shown on the Drawings. Lanes shall be parallel to the road centreline.

Add the following:

All joints shall present the same texture, density and smoothness as other areas of the surfacing. The joints between old and new lanes or sections shall be carefully formed in such manner as to ensure a continuous bond between the old and new pavement. All contact surfaces at cold joints, joints with manholes, pits, etc. shall be coated with a thin, uniform coat of MC70 or other medium curing bitumen.

1610A COMPACTION

Add the following:

Tests for conformity with the smoothness and levels specified shall be made by the Contractor immediately after initial compaction and any deviations in excess of the specified tolerances shall be corrected by loosening the hot surface with rakes and removing or adding material as necessary before continuing the rolling. The speed of the rollers shall not exceed 5 km/h and shall at all times be slow enough to avoid displacement of the hot mixture. Any displacement of the mixture occurring as a result of reversing the direction of the roller, or from any other cause, shall be corrected at once by loosening the surface with rakes and re-rolling. Rolling of the surfacing shall be continued until all roller marks are eliminated and the required density is obtained.

The rollers shall not be permitted to stand on surfacing which has not been fully compacted. Precautions shall be taken to prevent the dropping of oil, grease, gasoline, or other foreign matter on any layer. The Contractor shall provide competent workmen who are capable of performing all work incidental to the correction of all surfacing irregularities.

After final rolling, no vehicular traffic of any kind shall be permitted for at least 24 hours.

1611A FINISHING, JOINTS AND EDGES

Add the following:

Construction joints in the various pavement layers shall be staggered by at least the following distances:

(a) Joints in binder course relative to joints in wearing course: 500mm

(b) Joints in DBM base relative to joints in wearing course: 400mm

The Contractor shall produce a plan showing the position of all pavement construction joints for approval by the Engineer before pavement construction commences.

Transverse joints in DBM base, binder and wearing course shall be staggered by at least 500mm. The roller shall pass over the unprotected end of the freshly laid mixture only when laying of the surfacing is to be discontinued for such length of time as to permit the mixture to become cold. Otherwise 500mm at the end of the lane shall be left uncompacted.

Cold transverse joints shall be cut back to expose an even, vertical surface for the full compacted thickness of the course and painted with medium curing cutback bitumen as specified above. The fresh mixture shall be raked uniformly against the joint, and carefully compacted to ensure a good bond with the cold material.

The Contractor shall adjust any kerbs, gulley pots and chambers in accordance with final finished road level before laying the final wearing course.

1614A TOLERANCES

Add the following at the end of the second paragraph:

Passing sieves between 1.0 mm and 0.075 mm sieves	± 3% (by total weight of dry aggregate including mineral filler)
Passing 0.075 mm sieve	± 2% (by total weight of dry aggregate including mineral filler)

1616A MEASUREMENT AND PAYMENT FOR ROAD REINFORCEMENT

Item: Geogrid reinforcement netting
Unit: square metres (m²)

The rate shall include for supplying, cutting, place in accordance with the manufacturer's specification, a geotextile reinforcement on the existing surfacing or new surface before laying the dense bitumen macadam or other overlay material. The rate shall include for tacking the material, with tack coat if required and any clout nails.

PART B - ASPHALT CONCRETE FOR SURFACING

1601B DEFINITION

The Asphalt concrete shall be SUPERPAVE (SUperior PERforming Asphalt PAVEment). Modifications to the Standard Specification have been made below to correspond with SHRP SUPERPAVE system recommendations on the design of Hot Mix Asphalt (HMA). The design of hot mixes shall be in accordance with the procedure detailed in Overseas Road Note 19- "A guide to the design of hot mix asphalt in tropical and subtropical countries" and MS2 – "Asphalt Mix Design Methods, 7th Edition by Asphalt Institute". The Contractor shall provide copies of ORN 19 and MS2 to the Engineer at the start of the Project. The salient features with reference to Standard Specification are summarized below

1602B MATERIALS FOR ASPHALT CONCRETE

a) Penetration Grade Bitumen

Delete Sub-Section (a) and replace with:

The bitumen shall be penetration grade, and shall meet the requirements of Table 4.3 in ORN 19 as summarized below

TEST		Test Method (ASTM)	Pen 40/50	Pen 60/70	Pen 80/100
Based on original bitumen penetration					
at 25^{0}C		D5	40-50	60-70	80-100
Softening point (^{o}C)		D36	49-59	46-56	42-51
Flash point (^{o}C)	Min	D92	232	232	219
Solubility in trichloroethylene (%)	Min	D 2042	99	99	99
TFOT heating for 5 hr at 163^{0}C		D 1754			
a) Loss by mass (%)	Max		0.5	0.5	0.5
b) Penetration (% of original)	Min	D5	58	54	50
c) Ductility at 25^{0}C	Min	D 113	-	50	75

b) Aggregate

The coarse aggregate shall be entirely crushed rock from a source which is known to give high values of stability (>9kN) in the Marshall test. Crushed river gravel shall not be used. Aggregates shall meet the requirements given in Table 16B-1(b) below (Extracted from ORN 19, Table 4.1)

Table 16 B-1(b) Requirements of Aggregate

Property	Test	Property
Cleanliness	Sand equivalent for 4.75mm fraction [1]	> 40

	Plasticity index for materials passing 0.425mm sieve [2]	<4
	Linear shrinkage for materials passing 0.425mm sieve, %	<2
Particle shape	Flakiness Index (FI) [3]	<25
Strength	Aggregate Crushing Value, (ACV) [4]	< 25
	Aggregate Impact Value, (AIV) [4]	<25
	10% FACT (dry) kN [4]	> 160
	Los Angeles Abrasion, (LAA) [5]	<30
Abrasion	Aggregate Abrasion Value [4]	< 14
Soundness [7] 5cycles % loss	Sodium Sulphate Soundness (SSS) Coarse aggregate Sodium Sulphate Soundness (SSS) Fine aggregate Magnesium Sulphate Soundness (MSS) Coarse aggregate Magnesium Sulphate Soundness (MSS) Fine aggregate	<10 <16 <15 <20
Polishing	Polished Stone Value	>57
Water absorption	Water absorption , % [6]	<2
Bitumen affinity	Immersion Mechanical Test: Index of retained Marshall stability ,% [8]	>75
	Static Immersion Test, % coating retained [9]	>95
	Retained Indirect Tensile Strength % at 7% VIM [10]	>79

1. AASHTO T176
2. British Standard 1377: Part 2
3. British Standard 812: Part 105
4. British Standard 812: Part 110 to 114
5. ASTM C131 and C 535
6. British Standard 812: Part 2
7. AASHTO T104
8. D Whiteoak (1990)
9. AASHTO T 182
10. AASHTO T 283

Fine aggregate (passing a 6.3mm sieve) shall consist of entirely crushed rock produced from stone having a Los Angeles Abrasion of not more than 40%

Aggregates for bituminous mixes shall be stored in single size in separate bins or on areas covered with tightly laid wood planks, sheet metal, hard compacted gravel, concrete or other hard and clean surfaces. The surface shall be self-draining, and in such a manner that will preclude the inclusion

of foreign material. Aggregates of different grades and sizes and from different sources shall be stored in separate piles, and if these piles are close together they shall be separated by bulk heads

1603B GRADING REQUIREMENTS

The grading of the mixture of coarse and fine aggregate shall be as per the particle size distribution for SUPERPAVE Gradation Requirements detailed under table 6.3 of MS2 or table 5.2 of ORN 19

For better workability of asphalt concrete designed to refusal density and for laying thickness of 50mm, the Maximum Aggregate Size (MAS) shall be limited to 19mm

The Contractor shall investigate number of gradings so that a workable mix, which also retains a minimum of 3% voids at refusal density, is identified. Restricted Zone boundaries shown under table 3.3 of MS2 shall be used as guidance towards identifying a such a grading

1604B REQUIREMENTS FOR ASPHALT CONCRETE

The mixture shall comply with the requirements given in table 6.5, MS2. Adopt 20-year ESAL (in millions) as 4.9

In addition, under Marshall Mix Design Criteria, the mixture shall comply with the requirements given in table 7.2, MS2

The proportion, by weight of total mixture, of bitumen shall be 4.5 - 6.0 % for 19mm MAS. This shall be termed the nominal binder content. The binder content of the working mix will be instructed by the Engineer following laboratory and site trials.
In order to determine the suitability of a coarse aggregate source, a Marshall test programme shall be carried out. It will be advantageous to use crushed rock, which is known from past experience to give good results

Having established the suitability of the aggregate source several gradings shall be tested in the laboratory, including that used for the Marshall test. The blended grading shall include coarse, intermediate and fine grading that pass below the restricted zone, which shall increase the degree of interlock. For each mix, samples shall be made up to a range of bitumen contents at reducing interval of 0.25% from the nominal binder content and compacted using a gyratory compactor. Compaction to refusal shall be by vibratory hammer in accordance with the procedure described in BS 598 (Part 104: 1989), to establish relationships between bitumen content and VIM at refusal density for all the gradings

It should first be confirmed that compaction on one face of the sample gives the same refusal density as when the same compaction cycle is applied to both faces of the same sample. The procedure, which gives the highest density, must be used and shall be submitted to the Engineer for approval

From the above bitumen content - VIM @ refusal density relationship, it shall be possible to identify a bitumen content which corresponds to VIM of 3% for each grading.

To determine the workability of the mix, compaction trials should be undertaken in these gradings with designed binder content @ 3% VIM. It is advisable to establish two or more gradings for compaction trials

The compaction trials will identify a workable mix which can be made to a bitumen content which gives 3% VIM at refusal density and meeting the SUPERPAVE mixture requirements. The mixes identified in compaction trials should be manufactured to the laboratory design bitumen content and to two other bitumen contents. Cores will be cut to determine the density of the compacted material, this core will then be reheated to 145+/-5^{0}C in the appropriate mould and compacted to refusal using the vibrating hammer. To be acceptable the cores cut from the compaction trial must have a density equivalent to at least 95% of refusal density

The results of all the mix design options, laboratory and site trials for the adopted mix and the Contractor's recommendations are to be submitted to the Engineer for approval

1605B MIXING AND LAYING ASPHALT

The temperature of the bitumen and aggregates when mixed shall be 110+/-3^{0}C above the softening point (Ring and Ball) of the bitumen

Compaction should commence as soon as the mix can support the roller without undue displacement of material and with the temperature of the mix >120^{0}C, and completed before the temperature of the mix falls below 90^{0}C.

1606B COMPACTION

Rolling shall be continued until compaction of the completed layer attains a minimum mean value of 95% of refusal density (no value less than 93%) and until the voids measured in the compacted layer are within the specified range as appropriate.

15. *SECTION 17 - CONCRETE WORKS*

1703 MATERIALS FOR CONCRETE

All materials shall comply with the requirements of section 1703 of the standard specifications.

Cement for all concrete works shall be CEM I, 42.5N Portland Cement manufactured to KS EAS 18-1: 2001 - Part 1, KS 1725: 2001 standards

1703 DESIGN OF CONCRETE MIXES

The following classes of concrete shall be designed and mix proportions approved for use as follows:

Class 15/20 for all blinding to structures and precast pipe culvert beds and surrounds

Class 25/20 for all culvert headwalls, wingwalls, aprons, toewalls, and bridge members; abutments, piers and deck

1704 THE DESIGN OF CONCRETE MIXES-I

In table 17-1, insert the following rows:

Class of concrete	Nominal strength	Maximum nominal size of aggregate	Maximum water/cement ratio		Trial mixes target mean strength (clause 1704(c)) N/mm^2	Early work test cubes (clause 1704	Average of any group of 4 cubes N/mm2
			A	B			
45/20	45	20	0.45	0.43		38.3	52.5

1704 DESIGN OF CONCRETE MIXES

CONCRETE CLASS 20,30 & 45

The following specification is adopted for the substructure:

i. Abutments and Piers-Class 30/20

ii. Bored concrete piles – Class 30/20

iii. Walkway on bridge Deck-Class 20/20

The following are the specifications for materials selected for prestressed concrete.

i. Concrete for Girder-45N/mm^2

Specifications for construction materials and quality control shall be in accordance with the standard specifications.

1713 FINISHES ON UNFORMED SURFACES

All unformed surfaces shall be finished to class UF 3 Finish in accordance with the standard specifications

1725 SURFACE FINISHES

All surfaces shall be finished to class F3 finish in accordance with the standard specifications.

1728 REINFORCEMENT FOR CONCRETE

All reinforcement to concrete shall be hot rolled high yield deformed bars complying with BS 4449 and steel mesh fabric to BS 4483

1741 MEASUREMENT AND PAYMENT

a) Item: Concrete

Amend clause 1741 (a) (iv) of standard specifications to read “class UF 3 finish”

b) Item: formwork for formed surface finishes

Amend the following to Clause 1741 (e) of the Standard Specification:
Unit m² of formwork shall cover inclined formwork of all slopes and angles.

16. *SECTION 18 – PRESTRESSED CONCRETE WORKS*

1803 DUCTING

Insert the following after the last paragraph**:**

'All the duct works to be galvanized corrugated steel ducts with approved corrugated steel duct couplers to engineers approval.'

1804 ANCHORAGES

Insert the following after the last paragraph

'Anchorages to be from VSL as specified in the drawings or similar approved by the engineer'

1805 PRESTRESSING TENDONS

The following are the specifications for materials selected for prestressing tendons

i. Prestressing tendons –Tendon to be seven strand seven wire of Strand designation: BS 5896Y186057-15.2-I

1807 JACKS FOR PRESTRESSING

Insert the following paragraph after paragraph 2

'The contractor shall provide calibration for jacks and all gauges from Kenya Bureau of Standards (KEBS) and the issued certificate shall be valid for six months. The jacks shall be recalibrated and approved by the engineer at every calibration cycle'

1808 TENSIONING OPERATIONS

Insert the following paragraph in paragraph 2

Curriculum Vitae of the experienced workmen and competent supervisor shall be submitted to the engineer for approval.

1809 POST-TENSIONING

Insert the following paragraph after last paragraph

'The contractor shall provide post-tensioning methodology and shop drawings for precast post tensioned girder to the engineer before commencement of post-tensioning.

1811 BONDING AND GROUTING

Delete (a) and replace with the following:

Grout shall be prebagged from an approved manufacturer. The contractor shall submit their technical data sheets to the engineer, at-least two months before the intended day of use.

17. *SECTION 20 - ROAD FURNITURE*

2001 ROAD RESERVE BOUNDARY POSTS

Road reserve boundary posts shall be provided, with reference points, in compliance with Standard Specification Clause 2001.

2002 FENCING AND GATES

Add the following:

"Construction material for gates shall be steel. Fencing shall be constituted of wood permanent posts and six strand wire."

2003 EDGE MARKER POSTS

Edge marker posts shall be provided as directed by the Engineer and in compliance with Standard Specification Clause 2003.

2004 PERMANENT ROAD SIGNS

Permanent Road Signs shall be provided as directed by the Engineer and in compliance with the requirements of the "Manual for Traffic Signs in Kenya - Part II" and Standard Specification Clause 2004.

2004B EXISTING ROAD SIGNS

Where directed by the Engineer, the Contractor shall take down road signs including all posts, nuts, bolts and fittings, and remove and dispose of the concrete foundation and backfill the post holes.

Measurement and payment for taking down road signs shall be made by the number of signs of any type and size taken down, cleaned and delivered as directed.

2005 ROAD MARKING

Road marking paints shall be hot applied thermoplastic materials as specified in clause 219 of the Standard Specifications

2005A RAISED PAVEMENT MARKERS – ROAD STUDS

MATERIAL

Road studs are moulded of Acrylonitrile Butadiene Styrene (ABS) conforming to ASTM Specification D1788 – 68, Class 5-2-2 shell filled with inert, thermosetting compound and filler. The lens portion of the marker is of optical menthyl methacrylic.

CONSTRUCTION

The Road Stud shall be constructed of high impact ABS containing a multi-biconvex glass lens reflector system. It shall be of monolithic construction, and not less than 98.5mm2. The height of the marker shall not exceed 17mm and the underside shall contain a non-honeycomb base (flat).

REQUIREMENTS

The markers shall conform to the following requirements:

a) Colour
Shall be white, yellow or red as specified and the Retro – reflectance values should conform to the testing procedures of ASTME 809.

b) Impact Resistance
The marker shall not crack or break when tested using a 1000gram weight from a height of 1 metre. (ASTM D 2444) or BS 3900 Part E3.

c) Resistance to Water Penetration
There shall be no water penetration behind the lens after submerged in a water bath at 70 + 50oF for 10 minutes. And it should still meet the reflectance Requirement as stipulated by BS 998.

d) Heat Resistance
Shall comply with the initial brightness as per BS 873 Part IV of 1978

e) Night Visibility
The marker shall be brightas per BS 873 Part IV of 1978

f) Compression Resistance
There shall be no cracking sound at a pressure lower than 25 tones as per BS 873 Part IV of 1978.

g) Corrosion Resistance
After immersing a sample of Road stud in a solution containing 30g/1 of sodium chloride for thirty (30) days, there shall not be any signs of corrosion, (BS 998).

Note: These markers are intended for application directly to pavement surfaces and are compatible with raised pavement makers. These adhesives should be of high quality and tested for conformance to customer requirements.

ADHESIVES

i) They shall be of Resin Type - Epoxy of 2 different components Part 1 and 2 i.e. Adhesive and Reactor without any volatile solvents in both.

ii) Pot life: not less than 20 minutes at 20^{o}C

iii) Rotational cure time: between 20 and 30 minutes at 20^{o}C

iv) Hard cure: Between 40 and 60 minutes at 20^{o}C

APPLICATION INSTRUCTION

Preparation of Pavements

Make sure that the road surface is absolutely dry and free of oil and grease**.**

Mixing of Adhesive

Pour component B into the container of component A. Stir mixture by hand with a wooden or metal stick until uniform Grey Tint without a striate is obtained.

Installation

Pour the mixture on to the underside of the road stud. Then place the road stud firmly on the road surface. Adhesive should stand out for about 5mm to 10mm over the edges of the stud.

Protection from the Traffic

Protect studs from traffic for 2 hours until the adhesive has properly hardened. Try by touching the adhesive.

NUMBER OF STUDS NEEDED FOR LABORATORY TESTS

In order to approve a particular type of road stud, 4 sample road studs of each colour shall be submitted.

2006 GUARDRAILS

All materials for guardrails shall comply with the requirements of AASHTO M180-98. Guardrail posts and spacer blocks shall be galvanized UNP steel profiles 120 x 55x7mm or of the type and size shown on the drawings, with posts driven vertically at least 1.2m into the shoulder as directed by the Engineer.

Beams for guardrails shall be "Armco Flexbeam" or similar obtained from a manufacturer approved by the Engineer.

Reflective plates shall be galvanized V-type shape, manufactured from 1.5mm thick mild steel plate, with the outer surfaces coated with engineering grade retro-reflective material. Holes for fixing shall be drilled before the plates are galvanized.

2007 KERBS

a) Vertical Joints

Vertical joints between adjacent Kerbs shall not be greater than 5 mm in width and shall be filled with a mortar consisting of 1:3 cement: sand by volume.

b) Transition between flush and raised kerbs

The transition between flush and raised kerbs (e.g. at bus bays) shall be termed as ramped kerbs. The transition between flush and raised kerbs shall occur within a length of 2.0m.

2008 KILOMETER MARKER POSTS

Kilometre marker posts shall be provided as directed by the Engineer and in compliance with Standard Specification Clause 2008.

2009 RUMBLE STRIPS

The Contractor shall provide, place, trim, shape and compact to line and level asphaltic concrete rumble strips on the finished shoulders as directed by the Engineer.

Asphaltic concrete rumble strip sets to the full width of the carriageway and shoulders shall also be placed as warning strips to speed humps at the preselected locations marked on the Drawings to the satisfaction of the Engineer.

2010 TREES

Trees will be planted according to the advice given by the District Forest Officer or if not available, from an alternative source approved by the Engineer. The rate shall allow for transportation to site, planting as directed by the Engineer, watering during the first dry season after the planting, and protection until the end of the Maintenance Period.

2012 SERVICE DUCTS

Service ducts shall be provided in locations as directed by the Engineer. Ducts shall be heavy duty PVC spigot and socket pipe of 3mm minimum wall thickness. Minimum cover to the top of the pipe from formation level shall be 0.6m. Pipes shall be bedded and surrounded by a 100mm minimum thickness of compacted fine granular material of 10mm maximum size. The remainder of the trench shall be backfilled with selected backfill material of subbase quality up to the top of formation level.

Measurement and payment shall be by the metre of pipe installed, and shall include all excavation, spoil, bedding and surround, backfill, transport, supply, bed, lay of PVC pipe complete with 2mm galvanised draw wire, and end sealing caps and end markers.

2013 ROAD HUMPS

Where shown on the drawings or directed by the Engineer, the Contractor shall provide, place, trim, shape and compact to line and level road humps.

Road humps shall be constructed in asphaltic concrete or concrete class 20/10 to the dimensions shown on the drawings or as directed by the Engineer.

Road humps should be painted with white thermoplastic paint of 45° diagonal strips as shown on the drawings.

2014 RAISED ZEBRA CROSSING

Where shown on the drawings or as directed by the Engineer, the Contractor shall provide, place, trim, shape and compact to line and level flat-topped zebra crossing as detailed on the drawings.

2015 DUCT MARKER POSTS

Duct markers shall be installed by the Contractor at each end of the services ducts provided under clause 2015. The duct marker shall be located immediately beyond the outer edge of the shoulder or footpath and as close to the line of the duct as physical constraints permit. Where several ducts are laid side by side, only one duct marker post will be necessary. The duct marker posts shall be constructed as shown on the Drawings and shall be clearly and durably marked on the side facing away from the road. The marker post shall be inscribed "X ducts" where X is the number of ducts laid in the group marked by the marker post.

2016 CULVERT MARKER POSTS

Culvert markers shall be installed by the Contractor at each end of culverts constructed along the project road. The culvert marker shall be located immediately beyond the outer edge of the shoulder or footpath and as close to the line of the culvert as physical constraints permit. Where several culverts are laid side by side, only one culvert marker post will be necessary at each end of the culverts. The culvert marker posts shall be constructed as shown on the Drawings and shall be clearly and durably marked on the side facing away from the road. The marker post shall be inscribed "X culverts" where X is the number of culverts laid in the group marked by the marker post.

2017 BOLLARDS

Where shown on the Drawings or instructed by the Engineer, the Contractor shall construct permanent bollards. The bollards shall be precast using a class of concrete as shown on the drawings.

2018 PLOT BOUNDARY BEACONS

Where shown on the Drawings or instructed by the Engineer, the Contractor shall construct plot boundary beacons. The plot boundary beacons shall be 1.2m long reinforced concrete post with 150x150mm cross-section founded on 450x450x350 mass concrete as shown on the drawings.

2019 CHANNEL BLOCKS

The Contractor shall provide, lay and joint 125mm x125 and 125mm x 250mm channel blocks to roads, footpaths and shoulders as shown on the Drawings or as instructed by the Engineer.

2021 MEASUREMENT AND PAYMENT

Item: Reflective road studs

Unit: No

Road studs shall be measured by the number instructed and installed. The rate shall include for the cost of provision and transport of all materials, preparation of the road surface, application of adhesives and full compliance with the manufacturer's instructions.

Item: Road humps

Unit: m

Road humps shall be measured by the length installed. The rate shall include for provision, installation and compaction to the satisfaction of the Engineer and removal of surplus material.

Item: Flat topped zebra crossing

Unit: No

Flat topped zebra crossings shall be measured by the number instructed and installed. The rate shall include for all materials, labour and equipment, and all measures required in the construction of the crossing, in accordance with the drawings.

Item: Service ducts

Unit: m

Service ducts shall be measured by the metre as the length of duct installed as per the Engineer's instructions. The rate shall include for providing all materials, excavation, installation of PVC ducts, backfilling to the formation level, compaction, all in accordance with clause 2015.

Item: Duct Marker Post

Unit: No

Duct marker posts shall be measured by the number instructed and installed. The rate shall include for provision and installation of posts, all excavation and backfill, compaction to the satisfaction of the Engineer.

Item: Culvert marker post

Unit: No

Culvert marker posts shall be measured by the number instructed and installed. The rate shall include for provision and installation of posts, all excavation and backfill, compaction to the satisfaction of the Engineer.

Item: Bollards:

Unit: No

Bollards shall be measured by the number instructed and installed. The rate shall include for provision and installation of bollards, all excavation and backfill, compaction to the satisfaction of the Engineer.

Item: Plot boundary beacons

Unit: No

Plot boundary beacons shall be measured by the number instructed and installed. The rate shall include provision, transport of materials, excavation, erection of beacons and backfill, compaction to the satisfaction of the Engineer.

Item: Channel blocks

Unit: m

Channel blocks shall be measured by the length installed, in accordance with the drawings, or as instructed by the Engineer. The unit rate shall include for all excavation (including in hard materials) provision and placing of backing and bedding concrete, cutting of blocks as necessary, and placing of channel blocks to the line and level shown on the drawings or as instructed by the Engineer.

18. *SECTION 21 – MISCELLANEOUS BRIDGE WORKS*

2103 MOVEMENT JOINTS AND SEALANTS

Insert the following paragraph after last paragraph

'The movement joint to be an expansion joint in accordance with the drawings or similar approved by the engineer'

2106 SURFACING BRIDGES

Insert the following paragraph after last paragraph

'the bridge deck shall be finished with 50mm asphaltic concrete in line and grades shown in the drawings.'

19. *SECTION 22 -DAYWORKS*

2202 MEASUREMENTS AND PAYMENT

Add after the first paragraph of Clause (a) Plant:

Where items of major equipment listed in the schedule of Dayworks are specified by type (e.g. concrete mixer etc.) the power rating of such items of equipment to be provided by the Contractor shall not be lower than the power ratings of such equipment, manufactured within the last two years prior to the date of Tender. Any item of major plant employed upon Dayworks which has a power rating lower than specified shall be paid for at rates lower than those in the schedule of Dayworks. The reduction in the rate payable shall be in proportion to the reduction in power rating below that specified.

20. *SECTION 23 – PILING SPECIFICATION*

The works shall include preparation of dry working platform for all piers, setting out, excavation and drilling of pile shafts, cleaning and inspection of drilled holes, fixing and placing of reinforcement, concreting and end treatment of piles, test piles and testing.

(a) Dry working Platform

A dry working platform shall be constructed for all piling works for the piers. The working platform shall be protected against any damage that may be caused by rising river levels by sand bags. The top of the working platform shall be non-cohesive granular material to ensure the top surface of working platform is maintained free from mud and slippery conditions during piling works.

(b) Test piles and testing of piles

The engineer shall select two piles for testing. The PDA method shall be employed for testing to two times of working load of the pile. The test assembly and testing methodology shall be submitted for approval and must be according to A

STM D8169/D8169M Standard Test Methods for Deep Foundations Under -Bi-Directional Static Axial Compressive Load – Extended Test.

(c) Supervision of test

The contractor will keep the tests under continuous and competent supervision to the satisfaction of the engineer. The contractor shall give the engineer 7 days' notice before the commencement of the test.

(d) Test reports

At the conclusion of each day, the contractor will send to the engineer a copy of the daily record sheets of all the records of the test.

21. *SECTION 25 - HIV/AIDS, GENDER ISSUES, SOCIAL ISSUES AND LOCAL PARTICIPATION*

2501 SCOPE OF THIS SECTION

This specification sets out the Contractor's obligations with regard to on-site HIV/AIDS awareness campaign and preventive measures which are to be instituted.

2502 INTERPRETATION AND DOCUMENTATION

The following documents shall inter-alia be read in conjunction with this Specification;

- The Instructions to Bidders
- The Conditions of Contract
- The Drawings

2503 GENERAL REQUIREMENTS

a) HIV/AIDS Awareness Campaign

The Contractor shall institute an HIV/AIDS awareness campaign amongst his workers for the duration of the contract. As part of the campaign the Contractor will be required to display AIDS awareness posters in all buildings frequented by workers employed on the contract, where such buildings fall under the control of the Contractor. In addition, the Contractor will put at least ten HIV/AIDS awareness posters in the vehicles that are regularly used on site. The posters shall be printed on gloss paper and shall be at least A1 size on buildings and A3 size, or other approved size, on vehicles. The message on the posters shall be supplied by the Employer through the Engineer before the posters are printed.

AIDS awareness shall also be included in the orientation process of all workers employed on the contract.

b) AIDS Prevention Campaign

The Contractor shall institute an HIV/AIDS prevention campaign amongst his workers for the duration of the contract. As part of the campaign the Contractor will be required to make condoms available to workers. The condoms shall be from an approved manufacturer. The Contractor shall make available at least 4,000 condoms every month through dispensing machines or other approved method of distribution. The Contractor shall at all times keep the site adequately supplied with condoms.

c) HIV/AIDS Training

Introduction

HIV/AIDS is having a significant and increasing impact in Kenya. Statistics show a prevalence of 10-15% along some of the major roads in the country. Interventions that stimulate the movement of people increase both the exposure to the HIV virus and the spread of the virus. Road construction has been identified as one such intervention.

MOR policy is to integrate HIV/AIDS awareness and prevention into all road construction and rehabilitation programmes. This is in accordance with the Third National Strategic Plan (2000-5) for HIV/AIDS prevention and control as approved by the Government of Kenya, International Bank for Reconstruction and Development (IBRD) and many other organizations.

It is a contractual requirement to carry out HIV/AIDS awareness and prevention activities during the construction period as provided in this specification.

Objective

The objective is to reduce the risk of exposure to and spread of the HIV virus in the area of the construction. The target group will be local labourers and their supervisors employed by the works Contractors. The wider community will benefit indirectly through their normal day-to-day interaction with the target group.

Scope of Activities

Activities for HIV/AIDS awareness and prevention will be broad-based targeting both individuals and groups. They may consist of:

(i) Information posters in public places both on and offsite (eating houses, bars, guest houses, vehicles etc.)

(ii) Availability of socially marketed condoms.

(iii) Peer educators (reference people) drawn from the local labour and educated in HIV/AIDS issues for discussions with colleagues (estimate 1 per 100 employees).

(iv) Small focus group discussions and information covering key issues

(v) Theatre groups and video presentations

(vi) Promotional events (such as sports to encourage openness and discussion of HIV/AIDS issues

(vii) Promotional billboards to raise awareness of the integration of construction and HIV/AIDS activities

(viii) Inclusion of HIV/AIDS activities at site meetings with the Provincial/District committees and other representatives

(ix) Availability of promotional material such as t-shirts, caps bumper stickers, key rings etc.

The scope of activities may be tailored as required to meet the perceived needs and priorities of the labourers, determined by participatory approaches to ensure they are appropriate desired and have a public health impact. The scale and frequency of activities may also be adjusted to suit requirements of the target group. Education will cover:

- preventive behaviours including partner reduction, condom use, awareness and importance of treatment of Sexually Transmitted Infections (STIs);

- skills including negotiating safer sex, correct condom use, purchase without embarrassment; and
- referral to local health centres and available services.

Tasks to support the above activities will be to:

1. Establish the status and focus of all current and planned HIV/AIDS activities in the area to ensure complementarity and determine potential involvement in project activities.
2. Carry out a brief review of regional activities combining road construction with HIV/AIDS campaigns to determine options, best practice key issues, constraints, etc.
3. Review of Information, Education and Communication (IEC) materials available and their relevance to road construction, making recommendations for future development of IEC materials.
4. Provide education and training for site personnel, supervisors and peer educators for the scope of activities as above.
5. Provide supervision for peer educators to ensure sustained quality of education. Incentives for their continual work may be small promotional items such as t-shirts, caps, etc.
6. Provide mechanisms for the social marketing of condoms and distribution of materials.
7. Monitor activities regularly to assess effectiveness and impact. This should an include an initial, interim and final assessment of basic Knowledge, Attitude and Practices (KAP) taking account of existing data sources and recognising the limitations due to the short time frame to show behaviour change. The KAP will be supported by qualitative information from focus group discussions.

Collaboration

HIV/AIDS activities are co-ordinated nationally by the National Aids Control Council (NACC). MoR, in consultation with NACC and the Ministry of Health (MoH), will co-ordinate with the provincial, district and local representatives. Representatives of local health authorities will be invited to attend training and communication activities.

Activities on the construction site will be linked as far as possible with on-going HIV/AIDS awareness and prevention in the area. This will ensure complementarity of approaches, reinforcing education and minimising duplication. In addition, these links will ensure that the target group will have access to continued information after the end of the construction period.

Contractor Responsibilities

The Contractor will employ and designate a qualified HIV/AIDS expert to be approved by the Engineer, who will works closely with the Client, MoR and other implementing agencies to support the HIV/AIDS awareness and prevention activities. This will ensure maximum effectiveness and integration with construction activities. Specific, but not exclusive, issues to be addressed by the Contractor are:

a) Scheduling of appropriate timing and duration for the implementation of HIV/AIDS activities as part of work plan for labourers and supervisors. Designated rest times such as lunch breaks and pay days should be excluded.

b) Identification of suitable individuals for education from recruitment records for education with the implementing organisation.

c) Provision of suitable sites for communication activities and for condom distribution.

d) Monitoring the implementation of peer educational activities.

e) Provision of necessary support to the implementing organisation.

The Contractor shall be actively involved in the liaison and coordination associated with the provision and implementation of the HIV/AIDS awareness and education program.

Inputs

An organisation experienced in the provision of HIV/AIDS awareness and prevention activities will be selected as a Sub-Contractor to provide the above scope of activities on behalf of the main Contractor.

Reporting

The implementing organisation will produce the following reports to be submitted to the Contractor, Consultants, MoR and NACC:

- Monthly progress briefs for inclusion in site meetings.
- Quarterly reports detailing activities carried out, issues, follow up, etc.
- Review report of activities in the road construction sector,
- Review report of existing IEC materials with recommendations for development of materials specifically for the road sector.
- Final report detailing the methodology and activities carried out under this project including lessons learnt, impact, liaison with the Contractor and other parties, etc.

In addition, a report with the recommended approach for integration of HIV/AIDS awareness and prevention activities in the road construction sector will be produced. This will be a synthesis of project activities including contractual approaches, communication activities, availability of materials, liaison with existing organisations, etc. It will be developed with all parties involved in the construction activities to ensure the wide range of views and experiences is gained.

The final report and recommended approach will be presented to MoR, NACC and other interested organisations including private sector, funding agencies and NGO's.

Timing

Activities shall commence at the start of the construction period and continue throughout the thirty (30) months to ensure a sustained impact. Reporting and dissemination activities shall continue for three months after the project is completed to ensure integration into current practice.

2504 MEASUREMENT AND PAYMENT

Section I of the Bill of Quantities contains a prime cost sum for the provision of a HIV/AIDS awareness campaign, plus a percentage for the Contractor's liaison and coordination, overheads and profit associated with the provision and implementation of this campaign.

22. *SECTION 26 – ROAD SAFETY CAMPAIGN*

2601 SCOPE OF THIS SECTION

This specification sets out the Contractor's obligations with regard to on-site road safety campaign which is to be conducted during the construction period. The aim of this road safety campaign is to achieve safe road use in the project area.

Indeed, an improved roadway complete with paved surface will undoubtedly encourage more vehicular traffic and will allow vehicles to travel at higher average speeds. This will increase the possibility for accidents between vehicles, and with non-motorized traffic such as cyclists, pedestrians and both domestic and wild animals.

Although the improved road will be wider in certain areas and dangerous curves will be straightened, thus making it safer to travel at higher speeds, there is still likelihood of collisions between vehicles and with vehicles and bicycles, pedestrians, and livestock (and wildlife).

Due to poor road conditions over the years, people, animals, NMTs, and particularly children are unaware of the danger of a fast approaching vehicle and may cross the road in front of it. This impact is likely to be serious during daytime hours when traffic is heavier and when drivers are able to move faster.

Thus the Contractor shall conduct a road safety campaign in order to increase the awareness of the dangers of the road among the communities living alongside the project road, and the Consultant's workers.

2602 GENERAL REQUIREMENTS

(a) Road safety prevention campaign

The Contractor shall institute a road safety campaign amongst his workers, and the communities living alongside the road, for the duration of the contract. . As part of the campaign the Contractor will be required to display road safety posters in all buildings frequented by workers employed on the contract, where such buildings fall under the control of the Contractor, and in all schools and public buildings within the road project area. In addition, at least three (3) of the Contractor's vehicles, regularly used on site shall display road safety posters. The posters shall be printed on gross paper and shall be at least A1 size on buildings and A3 size, or other approved size on vehicles. The message on the posters shall be supplied by the Employer through the Engineer before the posters are printed.

(b) Road safety training

- **Objective**

The objective of the road safety campaign is to reduce the risk of exposure to road accidents in the area of the road. The target groups will be the public alongside the road, especially the children in schools and the chiefs of the village, but also local labourers and their supervisors employed by the works contractors. The wider community will benefit indirectly through their normal day-to-day interaction with the target groups.

- **Scope of activities**

Activities for road safety awareness will be broad-based targeting both individuals and groups. They may consist of:

(i) Information posters in public places both on and offsite (eating houses, bars, guest houses, etc.) and on contractor's vehicles,

(ii) Peer educators (reference people) drawn from the local labour, and from the local communities, and educated in road safety issues for discussions with colleagues or the local community members,

(iii) Small focus group discussions and information covering key issues,

(iv) Theatre groups and video presentations,

(v) Promotional events (such as football matches) to encourage openness and discussion of road safety issues,

(vi) Promotional bill boards to raise awareness of the integration of construction and road safety activities,

(vii) Availability of promotional materials such as T-shirts, caps, bumper stickers, key rings, etc.

The scope of activities may be tailored as required to meet the perceived needs and priorities of the local communities and the workers, determined by participatory approaches to ensure they are appropriate, desired and have a public impact. The scale and frequency of activities may also be adjusted to suit requirements of the target groups. Education will cover:

preventive behaviours including safe road crossing, walking on shoulders and not on the road;

referral to local information centres and services available.

Tasks to support the above activities will be to:

1. Establish the status and focus of all current and planned road safety campaign activities in the area to ensure complementarity and determine potential involvement in project activities.

2. Carry out a brief review of regional activities combining road construction with road safety campaigns to determine options, best practice key issues, constraints, etc.

3. Review of Information, Education and Communication (IEC) materials available and their relevance to road construction, making recommendations for future development of IEC materials.

4. Provide education and training for site personnel, supervisors, local community members, and peer educators for the scope of activities as above.

5. Provide supervision for peer educators to ensure sustained quality of education. Incentives for their continual work may be small promotional items such as T -shirts, caps, etc.

6. Monitor activities regularly to assess their effectiveness and impact. This should include an initial, interim and final assessment of basic knowledge, attitude and practices (KAP) taking account of existing data sources and recognising the limitations due to the short time frame to show behaviourchange. The KAP will be supported by qualitative information from focus group discussions.

- **Contractor's Responsibilities**

The Contractor will designate a qualified road safety expert, to be approved by the Engineer, who will work closely with the Client, MOR and other implementing agencies to support the road safety campaign activities. This will ensure maximum effectiveness and integration with construction activities. Specific but not exclusive issues to be addressed by the Contractor are:

- Scheduling of appropriate timing and duration for the implementation of the road safety campaign as part the workplan.
- Identification of suitable individuals for education from recruitment records with the implementing organization and from within the local communities.
- Provision of suitable sites for communication activities.
- Monitoring of the implementation of peer educator activities.
- Provision of support as necessary to the implementing organization and local communities.

Inputs

An organisation experienced in the provision of road safety campaigns will be selected as a subcontractor to provide the above scope of activities on behalf of the main Contractor.

Reporting

The implementing organisation will produce the following reports to be submitted to the Contractor, the Engineer, and the Employer:

- monthly progress briefs for inclusion in site meetings.
- quarterly reports detailing activities carried out, issues, follow ups, etc.
- a review report of activities in the road construction sector,
- a review report of existing IEC materials with recommendations for development of materials specifically for the road sector.
- a final report detailing the methodology and activities carried out under this project including lessons learnt, impact, liaison with the Contractor and other parties, etc.

Timing

Activities shall commence at the start of the construction period and continue through out the Contract duration to ensure a sustained impact. Reporting and dissemination activities shall continue for three months after the project is completed to ensure integration into current practice.

2603 MEASUREMENT AND PAYMENT

The payment for items in this clause shall include full compensation for all work associated with the provision of road safety campaign related services as specified.

Item: Instituting a Road Safety Awareness Campaign
Unit: months

The unit of measurement shall be the calendar month or part thereof, measured over the duration of the campaign. The tendered rate shall include full compensation for equipment, labour and material required for the provision of the service.

Item: Instituting an Accident Prevention Campaign
Unit: months

The unit of measurement shall be the calendar month or part thereof, measured over the duration of the campaign. The tendered rate shall include full compensation for equipment, labour and material required for the provision of the service.

Item: Road Safety Training
Unit: Provisional Sum

Compensation for road safety specialists for the implementation of the Training element of Clause 26 03 (b)
Any amount required under this item will be approved by the Engineer, prior to expenditure. Handling costs and profit in respect of this sub-item will be paid as a percentage (%) of the Provisional Sum expended.

23. *SECTION 27 Specification for Electrical Works*

SECTION 27.1: ELECTRICAL WORKS SPECIFICATIONS FOR

ALL-IN-ONE (INTEGRATED) L.E.D SOLAR STREET LIGHTING WORKS

Scope of Works

This section of the specification covers the supply, installation, connection, testing and commissioning of the all in one solar street lighting installation in accordance with specifications, bills of quantities and the contract drawings

The Contractor shall include for all apparatus and appliances not particularly called for in the specification but which are necessary for the completion and satisfactory functioning of the Works.

It is deemed that if, in the opinion of the Contractor at the time of quoting, there existed a discrepancy between the Specifications and the bills of quantities, that the Contractor clarified this difference with the Engineer before quoting.

Specification

The work shall be executed and completed, unless expressly directed otherwise, in accordance with the following: -

a) The specifications
b) The current edition of the Institution of Electrical Engineers (I.E.E) regulations/IET
c) The Bye-Laws of the Local Authority
d) The Employer's Safety Regulations
e) Any other regulations applicable to Electric and Electronic Installations
f) The IEC Standard specification and relevant and applicable IEC code of practice.
g) Electrical installation regulations under the Energy Act 2019.

Personnel

The street lighting work shall be done by qualified personnel and shall have the following minimum key qualifications:
1) Have a registered business by the Local Authority
2) Duly registered with the Energy and Petroleum Regulatory Authority (EPRA) with class-A electrical contractor.
3) Duly registered with the National Construction Authority (NCA) on category NCA – 3 and above.
4) Evidence of completion of major street lighting works for major road works – at least 3 major projects with not less than 10 years' experience in street lighting works.
5) Evidence of construction equipment like hydraulic platforms, hydraulic cranes25-50 tones, flatbed trucks of not less than 10 tones incorporating a hydraulic crane, backhoe tractor etc.

6) At least 5-years work experience in the installation and maintenance of solar PV lighting systems.
7) Have registered solar technician with T3 licence by Energy and Petroleum Regulatory Authority (EPRA)

Ordering

The Contractor shall order materials from the quantities taken from the engineers' approved drawings and not from the quantities shown on in the Specification.

Submission of materials and defective work

All materials to be installed must be new and the best of their respective kinds and quality.

The Contractor must examine carefully any materials and /or apparatus submitted to him for installation and/or connection. Any defects detected must be communicated to the Engineer.

Samples and defective work

All materials to be used in the installation work must be made available for Inspection and approval and samples must be submitted upon request to the Engineer for approval before bulk ordering.

If the Contractor wishes to install or use other types of materials different from those specified in the Contract document (bills of quantities), then the manufacturers technical and any other relevant pamphlets must be submitted to the Engineer for consideration and approval.

The right is expressly reserved to order at the Contractors expense the removal from site of all materials not conforming to the specifications and the dismantling and re-execution of all works which by reason of inclusion of improper, specified or defective materials and /or poor class or defective workmanship are a contravention of any clause in the specification.

Ratings

Unless specified otherwise stated or where it does not apply all the luminaires will be:

L.E.D luminaire 100W - 150W LED power rating, luminous efficacy 210Lm/W, 3000K – 6500K.

PV monocrystalline solar module power (W) 36V 180Wp, solar module efficiency > 17.8%; max. power current (Imp) 3.61Amps.

Battery 72Ah / 12.8V, Lithium Ferro Phosphate LiFePO4.

Mounting height 7M – 10M high.

Waterproof IP66.

Lighting time after full charge 4 – 5 nights during rainy days.

Working temperature -25^{0}C to 65^{0}C.

Housing material to be Aluminum alloy + PMMA

Three lighting modes: - remote control / PIR sensor (8M) / dim (30% when there is no movement of people or vehicles and 100% when motion is detected).

STREET LIGHTING COLUMNS

These shall be manufactured from Class B galvanized steel pipes as per the attached drawing and shall be complete with fitting brackets for single arm.

The columns shall be of 10 M mounting height from ground level with 1.5M outreach arm and shall be installed at 1000 mm depth on a thick concrete foundation with protruding 16 mm thread diameter bolts.

LANTERN

Lanterns shall be of all-in-one (integrated) solar street light with lithium ferro phosphate (LiFePO4) battery, solar panel and charger built into the luminaire. Pressure die cast aluminium for sturdiness and long life, IP66. Specially designed pole mounting bracket allows different tilt angles, lateral and pole top mounting.

EARTHING

All poles and lanterns shall be properly earthed. The earth lead should not be visible and be adequately protected. This is to be terminated onto an 1800 mm long x 15 mm diameter copper earth electrode with a driving tip and clamp in a 150mm x150mm x 200mm precast concrete manhole to be covered and not to be seen after completion of surface.

All earthing lead shall be a green/yellow copper 6 mm² single core cable.

TESTING OF THE INSTALLATION

The Contractor shall carry out tests of the completed installation, copies of the test results shall be provided to the Engineer. Details for testing of lighting levels for the solar lanterns to be given.

Earth Electrode Resistance

Test for earth electrode resistance shall not exceed 3 ohm using a null balance tester.

GUARANTEE OF THE INSTALLATION

The Contractor shall guarantee the whole installation for a period of 12 months from the date of final completion. During this period all defects arising out of faulty materials or workmanship shall be made good free of cost – fair wear and tear expected.

Any contravention of the clauses and conditions of the specifications discovered during the guaranteed period must be corrected free of charge.

The submission of the completed Test Form cannot be offered by the Contractor as a final discharge of his responsibilities in respect of the soundness of the installation neither must it be inferred that the readings will necessary be made accepted.

The acceptance of the Form shall in no manner vitiate claims that may subsequently be made under the terms of the guarantee.

CLEARING OF SITE AND DAMAGES

The Contractor must include for the clearing away from site immediately, after completion, all the unused materials and any rubbish or litter as may have been caused by his works.

SECTION 27.2: SOLAR STREETLIGHTING ACCESSORIES

ANNEX A:
Guaranteed Technical particulars (to be filled and signed by the Manufacturer and submitted together with relevant copies of the Manufacturer's catalogues, brochures,
Drawings, technical data, sales records for past five years, four customer reference letters, details of manufacturing capacity, manufacture's experience, copies of complete type test reports and accreditation certificate to ISOIEC 17025 for the third party testing laboratory for tender evaluation, all in English Language.

ANNEX B: Drawings and dimensions of columns and brackets.

FORWARD
This specification lays down requirements for street lighting accessories to be used in solar street lighting. It is intended for use by tenderer in purchasing the items.

SCOPE
This specification is for lighting columns and brackets made from steel including lighting columns mounted on other structures, and luminaires and their accessories.
This specification covers the following items:

a) Lighting columns and brackets
   (i) Lighting columns (10 M high columns)
   (ii) Straight and curved outreach brackets
   (iii) Straight and curved uplift outreach brackets
   (iv) Circular brackets for floodlights
b) Luminaires (Lanterns) categories shall be as follows: -
   (i) All in one LED solar street light Luminaires complete with control gear including timing devices.
c) Earth rods complete with all accessories
d) 6 mm^2 green copper earth lead.

1.3 The specification stipulates the minimum requirements for street lighting accessories, for use in the project and it shall be the responsibility of the supplier to ensure adequacy of the design, good engineering practice, adherence to the specification and applicable standards and regulations as well as ensuring good workmanship in the manufacture of the items.

1.4 The specification does not purport to include all the necessary provisions of a contract.

2. REFERENCES

The following standards contain provisions which, through reference in this text constitute provisions of this specification. Unless otherwise stated, the latest editions (including amendments) shall apply:

ISO 9001 Quality management Systems-Requirements

ISO 1461: Hot dip galvanized coatings on fabricated iron and steel articles- Specification and test methods

ISO 2409: Paints and varnishes. Cross-cut test

IEC 62031: LED modules for general lighting (solid state lighting) –Safety specifications.

IEC 60598-2-3: Particular Requirements-Luminaires for road and street lighting

IEC 60598-2-5: Luminaires-Particular requirements flood lights

IEC/PAS 62717/PNW 34A-1445: LED modules for general lighting-performance requirements.

IEC 60947-4-1: Low voltage switchgear and control gear –contactors and motor starters

IEC 61095: Electromechanical contactors for household and similar purposes

IEC 61439: Low voltage switchgear and control gear assemblies

IEC 61008: Residual current operated circuit breaker without integral over current protection for household and similar use

IEC 61547: Equipment for general lighting purposes EMC IMMUINITY

IEC62471: Photo biological safety of lamps and lamp systems

IEC 62262: Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)

IEC 60898-1: Electrical accessories –Circuit –breakers for overcurrent protection for household and similar installations, Part 1: circuit-breakers for ac operation

EN55014-1: Electromagnetic Compatibility- Requirements for household Appliances, Electric Tools and similar apparatus – Part 1 Emission

IES LM -80-08: Method for measuring lumen maintenance of LED light sources

IENSNA LM 58-94: Color rendering index and correlated color temperature

IESNA TM-16-05: Approved method: Electrical & photometric measurement of solid –state lighting products

BS EN 40: Lighting columns: Part 1 Definitions and terms –Part 2 General requirements and dimensions –Part 3-1 Design and verification-specification for characteristic loads-part 3-2: Design and verification –Verification by testing – Part 3-3: Design and verification –Verification by calculation Part 5: Requirements for steel lighting columns.

BS 5649: Lighting columns (all parts)

BS EN 1991-1-4: Actions on structure. Part 1.4 wind actions

BS EN 1993-1-1: Euro code 3: Design of steel structures: part 1.1: General rules and rules for buildings

BD 94/07: Design of minor structure

PD 6547: Guidance on the use for BS EN 40-3-1 and BS EN 40-3-3

BS 7430: Code of practice for protective earthing of electrical installations

BS EN 1011-1&2: Welding. Recommendations for welding for metallic materials. Part 1: General guidance for arc welding- Part 32 welding procedure specification for arc welding.

BS EN 288-1&2: Specification and approval of welding procedures for metallic materials Part 1: Fusion welding – Parte 2 welding procedure specification for arc welding.

BS EN 287-1: Qualification test of welders – Fusion welding –Part 1: Steels

BS 4800: paint colour chart

CIBSE: Chartered institution of building services Engineers (CIBSE)

TERMS AND DEFINITIONS

For the purpose of this specifications the definitions given in the reference standards shall apply.

REQUIREMENTS

1.1.1 Service Conditions

The street lighting accessories shall be suitable for continuous outdoors in tropical areas of:

i. Altitude up-to- 2200m above sea level.
ii. Humidity of up to 95%
iii. Average ambient temperature of +30ºC with a minimum of -1%c and a maximum of +40ºC
iv. Heavy saline conditions along the coast.
v. Pollution: Design pollution level to be taken as “heavy” (Pollution level III) for inland and “very Heavy” (Pollution level IV) for coastal applications in accordance with IEC 60815.

LIGHTING COLUMNS AND BRACKETS

1.1.1.1 **Design and construction**

1.1.1.2 The design, manufacture and installation of lighting columns and brackets shall comply with BS EN 40-1 & 2; BS EN 40-3-1 and BS EN 40-3-3 (BS 5649-relevant parts) for the design; BS EN 1991-1-4 for wind actions: BS EN 1993-1-1 for structural strength as per Table 1.

1.1.1.3 The design life shall not be less than 25 years, unless otherwise required by the Technical approval authority in accordance with BD 94/07.

1.1.1.4 Columns and brackets shall be designed to satisfy the relevant ultimate limit states and the serviceability limit state, l including, for steel structures, meeting fatigue criteria in accordance with EN 1993-1-1 especially for.

(i) The flanges – at weld Throat between the column and flange; in the parent metal adjacent to the weld; any stiffening between the column and the flange

(ii) Door openings- at welded attachments and at poorly finished cut edges;

(iii) Shoulder joints- at the weld throat and in the parent metal adjacent to the weld.

1.1.1.5 The minimum thickness of structural steel sections used in column and bracket design shall be as follows:

(i) Plates and sections other than hollow sections shall be at least 6 mm

(ii) Hollow sections effectively sealed by welding, other than a small drain hole with a diameter of between 10mm and 15mm shall be at least 5 mm for columns and at least 4mm for brackets.

1.1.1.6 The end plates measuring 375x 375mm shall be joined by continuous structural quality welding to BS EN 1011: Parts 1 and 2. Should there be a possibility of water entering. The drain holes shall be provided. The size of the hole shall be appropriate to the void being drained, but shall not be less than 10mm or greater than 15mm diameter. Hollow sections in non-corrosive or galvanized steel shall be provided with such drain holes at all low points.

1.1.1.7 The method of joining the base section and the shaft shall be by a swage joint with an internal centralizing washer. All welding procedures shall be in accordance with the requirements of BS EN 288 and all welders approved to the requirements of BS EN 287 with welding carried out in accordance with BS EN 1011: PARTS 1 and 2.

1.1.1.8 Where a separate bracket is fixed to a column, the assembly of the column shaft and bracket shall incorporate a mechanical locking system using stainless steel bolts, in addition to high tensile socket headed securing screws and it shall be possible to fix the bracket in any of $4x90^{o}$ positions relative to the door opening.

1.1.1.9 Base compartments shall afford easy access to cable terminations and wiring. All electrical equipment mounted in the base compartment shall be securely fixed to a 15mm minimum thickness backboard which shall be of a non-hygroscopic material of sufficient size to accommodate any control gear and cable termination units.

1.1.1.10 Doors shall be sealed to minimum IP33, shall be provided with a substantial and positive, triangular-headed, tamper proof lock. The locking mechanism shall be lubricated with grease immediately following installation and if necessary prior to adoption. Two keys per 10 columns, with a minimum requirement of two keys shall be provided to the Engineer at time of handing over.

1.1.1.11 The earthing terminal shall be provided for steel columns and their doors shall comprise a brass or stainless steel bolt, size m8, complete with nuts and washers. The column shall have a cable entry slot 75mm in width.

1.1.2 Materials of manufacture

Columns and brackets shall be manufactured from welded carbon steel tube to BS EN 10210, steel grade S355J2, with minimum tensile strength of 470-630 MPa, minimum yield strength of 355 MPa a minimum percentage elongation of 22% or equivalent as detailed below:

(i) Circular tubular steel manufactured from cold-formed hollow sections without heat treatment with constant shaft diameter above the base compartment.

(ii) Continuously tapered steel with circular cross-section. (our poles should have uniform cross section and not tapered?

1.1.3 Protection against corrosion

1.1.3.1 Steel columns and brackets shall be protected against corrosion at the fabricator's works by the following system:

(a) Surface preparation: the complete column and /or bracket shall be hot-dip galvanized to comply with the requirements of ISO 1461. The average coating mass shall not be less than 610 g/m, (Equivalent to a nominal coating thickness of 85 microns) for flat articles (tubes included) and not be less than 390g/m, (equivalent to a nominal coating thickness of 55 microns) for centrifuge articles.

(b) When specified on the tender, further treatment of the galvanized surface shall then be degreased and left with a smooth finish to prepare for painting. The paint system shall comprise.

(i) 1st Coat- on the internal root section, to 250mm above ground level and on the overall external surfaces, one coat of mordant solution, T wash.

(ii) 2nd coat- On the internal root section, to 250mm above ground level, one coat of modified vinyl micaceous iron oxide with high solids to give a high build coating colour grey to provide a minimum dry film thickness of 60 microns.

(iii) 3rd Coat –On the external surface overall, one coat of two pack high build epoxy zinc phosphate primer, light grey to provide a minimum dry film thickness of 75 microns.

(iv) 4th Coat- On the external root section to 250mm above ground level one coat of modified vinyl micaceous iron oxide with high solids to five a high build coating, coloured grey to provide a minimum dry film thickness of 75 microns.

(v) 5th Coat- On the external surface overall, on coat of modified vinyl with high solids to give a sheen finish to the dried film colour grey from BS 4800 shade 18B25 to provide a minimum dry film thickness of 60 microns. A line on the circumference of the base section shall denote ground level. The minimum dry film thickness shall be:

- Root -60um (internal) 210um (external to 250mm)
- External -135um (from 250mm)

1.1.3.2 In general, galvanized steel columns shall be left un painted' however, where columns require painting the developer shall submit details of the proposed pad system to be used to the Project Electrical Engineer, for approval before undertaking any work.

Table 1: Technical particulars of the columns and brackets as per EN 40 (relevant parts)

Particulars		**Requirements**
Performance under vehicle impact (impact tested at km/h	Untested	Class 0
	Tested	100:NE 3
Partial load factor class		B
Deflection class		3
Maximum wind velocity with stand, m/s		26
Maximum luminaire weight, kg	10m	20
	10m	10
Maximum luminaire windage, m		0.25
Maximum terrain category		11

1.1.4 Marking and labeling of columns and brackets

1.1.4.1 All columns and brackets shall carry a unique identification mark which indicates:

a) The name or symbol of the manufacturer,
b) Year of production and manufacturer's batch number.
c) Standard of manufacture
d) The identification mark shall be permanent, legible and clearly visible and shall be located within the base compartment of the column.

1.1.4.2 There shall be CE marking with the following mandatory requirements

a) Resistance to horizontal loads (type of verification i.e. testing (T) –EN 40-3-2 or calculation (C) –en40-3-3;
b) Reference wind velocity
c) windage area;
d) deflection class
e) Terrain category if different to II

LUMINAIRES (LANTERNS)

2.1 .1 General design and construction.

2.1 .1.1 Luminaires (Lanterns) in this specification shall be all-in-one solar light emitting Diode (LED) complete with their control gear. The luminaire shall include the reflector, the refractor, and the housing.

2.1.1.2 Luminaires shall be manufactured to IEC 60598-1 and IEC 60598-2-3 standards and shall incorporate an efficient optical system to direct the light onto the highway to ensure minimum environmental pollution of the night sky of the upward light emitted. Luminaires will be specified with due consideration of the institution of lighting professionals' guidance notes for the reduction of obtrusive light and shall be of the side entry type.

2.1.1.3 All luminaires shall be constructed from LM5 marine grade aluminum or equivalent with a polyester powder coating, grey, sliver or black, over a ROHS compliant chrome passivation substrate; the polyester powder coat finish that shall withstand the standard cut tests as defined in ISO 2409.

2.1.1.4 Luminaires shall have an integral flexible mounting system and be capable of being mounted 42mm to 60mm diameter side entry and 60mm to 76mm post top mounted without the need for separate spigot adaptors.

2.1.1.5 Luminaires shall be environmentally friendly and all component parts shall be 98% recyclable at the end of life.

2.1.1.6 Bowls/protectors shall be vandal resistant and stabilized to minimize loss of transparency due to weathering and exposure to ultra violet light.

2.1.1.7 Fully assembled luminaires shall weigh 14kg maximum, with a maximum windage of 0.15m and impact rating shall be IK08 minimum in accordance with IEC 62262.

2.1.1.8 The luminaires shall have double insulation with a protection class of at least class II in accordance with IEC 60598-1 and the luminaire optical system and the control gear compartment shall have a minimum protection rating of IP66 in accordance with IEC 60529.

2.1.1.9 Luminaires shall be reasonably weather and dust-proof and shall be fitted with a suitable gasket between the body of the lantern and the bowl. The IP rating of the lantern shall not be less than IP 65 in accordance with IEC 60529.

2.1.1.10 Luminaires shall be self-cleaning and be designed to prevent jamming injuries during installation and be free of sharp edges. Luminaires shall be designed to prevent the earthing cable being damaged during installation.

2.1.1.11 Luminaires shall have integral control gear and an option to retrofit proprietary from and /or rear shields, which shall reduce unwanted (unwanted spill)? Spill. The colour of the shields shall match the luminaire.

2.1.1.12 Photometric data shall be based on test results from a verified laboratory using absolute photometry in accordance with methods and conditions detailed in LM-79-08 or equivalent.

2.1.1.13 The bowl or other component giving access to the interior of the lantern shall, when in a closed position, be firmly attached to the body of the lantern; in the open position it shall be attached in such a way that there is no likelihood of it becoming accidentally detached.

2.1.1.14 All hinges, toggle catches, captive screws and nuts shall be made of non-corrosive material.

2.1.1.15 The optical equipment controlling distribution shall include high purity aluminium reflectors and /or prismatic refractors and these shall have a smooth exterior surface or be protected by hermetically sealed cover plates to prevent an accumulation of dirt and to facilitate cleaning. Refractors wholly within a totally enclosed lantern need not be sealed.

2.1.1.16 All luminaires shall be fitted with integral control gear and have a heat barrier between the lamp enclosure and gear compartment. The control gear shall be fitted to a too-less, quick release gear try, equipped with a plug and socket connector for ease of maintenance or replacement purposed.

2.1.1.17 Electrical equipment shall be installed so that levels of radio interference given in IEC 55014-1 are not exceeded.

2.1.1.18 Luminaires shall be of full cut-off type and shall provide a light output ratio of 90% with and upward lighting output ratio of no more that 0.5% and IESNA Type 2 or 3 distributions.

2.1.1.19 Luminaires shall be securely fitted to bracket arms or columns and the lamp and all parts affecting the photometric performance shall be in a clean condition and correctly orientated.

2.1.2 LED Luminaires Complete with Control Gear.

2.1.2.1 The LEDs luminaires shall fully comply with provisions of clause 2.1.1 and it shall be designed, manufactured and tested in accordance with IEC 60598-2-3, LED safety shall conform to IEC 62031 AND IEC 62035 with performance requirements complying full with provisions of IEC/PAS 62717 and PNW 34A-1445.

2.1.2.2 The LEDs & LED modules-Drivers shall comply with IEC 61000-3-2, IEC 61347-2-13, IEC 61000-3-3, IEC 61347-1, IEC 61347-2-1, IEC 61347-2-8, IEC 61347-2-9, IEC 602-921 and IEC 60923 and subsequent amendments as appropriate and be tap selected to specified operating voltage.

2.1.2.3 All LED drivers shall be contained within the lanterns housing

2.1.2.4 The LED driver, operating at constant current, shall be housed in a separate gear compartment to LED modules. The driver shall have a minimum operating efficiency of 90%.

2.1.2.5 The driver shall be independently tested and WN-EC certified in accordance with IEC 60598-1 and IEC 60598-2-3 by an independent approval body recognized by the international community; current validation certification must be provided.

2.1.2.6 LED luminaires shall have a facility to fit additional LED 's or modify existing fitting to provide surround light to properties to extend the field of luminance and when post top mounted must be capable of being set at adjustable inclinations.

2.1.2.7 Luminaires for use with LED's shall be suitable for the operation of both the standard higher lumen output arrays.

2.1.2.8 The LED luminaire shall include surge protection by means of a transient voltage suppression chip or equivalent, designed to provide uniformity of lighting output in the event of individual LED failures and effectively control thermal management suitable for the use at an ambient temperature of 15^0c.

2.1.2.9 The LED system surge protection shall survive 250 repetitive strikes of "c low" (C low: 6kv/1/2x50 us, 10kA/8x20us) waveforms at 1-minute intervals with less than 10% degradation in clamping voltage. "c low" waveforms are as defined in IEEE/ASNI C62.41.2-2002, Scenario 1 location category C.

2.1.2.10 The driver shall be tested in accordance with NEN-EN-IEC 62471 (2006-07) for Photo-Biological safety and shall comply with Group 1 classification; current validation must be provided.

2.1.2.11 All terminals shall be shrouded to IP2X so that live parts cannot be accidently touched. They shall be fitted with group 1 classification, current valid certification must be provided.

2.1.2.12 Drivers shall be compatible with all other components including LED and photo-Electric control units (PECU) with a stable power consumption over full operating voltage range**.**

2.1.2.13 Drivers shall indicate all wiring connections and operating voltages via indelible markings in accordance with IEC/PAS 62717 and PNW 34A-1445. This shall be confirmed at the time of acceptance.

2.1.2.14 The LED drive shall be protected against overheating by an over-temperature sensing system and with a total harmonic distortion (THD): 20% and shall comply with FCC title 47 CFR part 18 Non-consumer RFI/EMI standards. |The drivers shall have a reduction of hazardous substances (ROHS)-compliance marking.

2.1.2.15 lumen maintenance life time testing shall be in accordance with LM80 or equivalent and extrapolated methodologies as per TM-21; current validation must be provided. The measured lumen maintenance shall correspond with "lumen maintenance code 8 or greater.

2.1.2.16 LED flux and luminaire data shall be presented for an ambient temperature of 15º Celsius and the light source data shall be measured at a junction temperature of 25º Celsius. This shall be submitted for purpose of tender evaluation.

2.1.2.17 The LED module efficacy shall not be less than 90% of the rated LED module efficacy as declared by the manufacturer in accordance with clause 8.3 of IEC/PA 62717.

2.1.2.18 Colour correlated temperature (CCT) OF THE LED's shall be equal to or greater than 4000k (Kelvin) and tolerances beyond a 5 step macadam ellipse shall not be acceptable as per table 5 of IEC/PAS62717 Part PNW 34A01445.

2.1.2.19 Rated colour rendering index shall be code 7 (CR) range 67-76) or greater and shall be measured in accordance with CIE 13.3 AND CIE 177.

2.1.2.20 Each LED shall be mounted beneath an individual lens providing photometric footprint base on an overlay methodology and mounted within a self-contained module (LED module) that can be replaced using simple tools and lenses and manufacture from optical grade polycarbonate or PMMA acrylic thermoplastic.

2.1.2.21 In order to maximize opportunities for Client to benefit from advances in LED technology and product developments, the proposed equipment shall be flexible and allow for easy installation of upgrades and replacements.

2.1.2.22 The system power factor shall be greater than 0.95 at full power.

2.1.2.23 All LED Luminaires shall be supplied fully assembled in all respects with LED and photo electric control unit at 70/35 lux.

2.1.2.24 The LED shall be of HI-Flux/HI-Power white LEDs producing a minimum of 90% of initial intensity at 50,000 hours of life/10years minimum.

2.1.2.25 The LED shall be 100%mercury and lead free.

2.1.2.26 The LEDs micro-lens systems shall be of full cut-off type, producing IESNA Type 2 or Type 3 light distributions. The Luminaire shall produce 0% total lumens above 90 (BUG Rating, U=0). The BUG rating shall be B2 UO G2.

2.1.2.27 The LED luminaires with LED arrays shall have a 5 year limited warranty covering the LED arrays and LED drivers. Emergency components and batteries shall have a 1 year warranty.

2.1.2.28 The LED &LED Modules-Drivers shall comply with the following minimum system performance criteria and a proof of the same shall be submitted together with the tender for evaluation:

a) The T_c life shall be +65ºC.
b) The LED shall have a system lifetime @T_c life (min 90%) of at least 50,000 hrs
c) The T_c min shall be at least -20º C (start up at-40c).
d) The T_c max shall be +75º C.
e) The T_c thermal cutoff module shall be +75º C (start dimming)
f) The T_c thermal cutoff driver shall +85º C (maximum dimming)
g) The input voltage shall be 180-265V

h) Shall be suitable for at least insulation protection class

2.15 EARTH RODS

2.15.1 Design

2.15.1.1 The copper-clad earth rod shall be manufactured in accordance with to BS 7430 standard requirements. This will include an assessment of the safety, reliability and long term performance of the items.

2.15.1.2 The copper clad earth rod shall be manufactured from a steel rod reference symbol P of a grade with tensile strength of 550 MPa to 700 MPa in accordance with BS PD 970: 2005 standard requirements: a brinell hardness shall be 248 to 302 HBW as recommended by BS 7430 standard.

2.15.1.3 An earth electrode shall be designed to have a loading capacity adequate for the system of which it forms a part, i.e. it shall be capable of dissipating the electrical energy in the earth path at the point at which it is installed under any condition of operation on the system.

2.15.1.4 Copper-clad steel earth rods shall be made by molecularly bonding 99.9% pure copper onto the high carbon, low tensile steel rods to achieve a minimum copper thickness of 0.254 mm (254µm). The application of the copper sheath shall prevent any electrolytic action to be initiated by moisture ingress between the copper and the steel.

2.15.2 Sizes

2.15.3 The sizes of the earth rods shall be in accordance with KS 04-744 and Table 16.

Table 16: Earth rod sizes

Nominal size		Rod length	
mm	**inches**	**mm**	**Feet**
12.5	½	1,200	4
16.0	5/8	1,500	5
20.0	¾	2,100	7
25.0	1	3,000	12
******The imperial sizes have been replaced by the metric sizes in this specification for clarity.*			

3.0 QUALITY MANAGEMENT SYSTEM

3.1.1 The supplier shall submit a quality assurance plan (QAP) that will be used to ensure that the cable guard physical, tests and documentations, will fulfill the requirements stated in the contract documents. Standards, specifications and regulations.

3.1.2 The manufacturer's declaration of conformity to applicable standards and copies of quality management certifications shall be submitted with the samples for inspection.

4.0 TESTS AND INSPECTION

4.1 The street lighting accessories shall be inspected and tested in accordance with the requirements of the respective standards of manufacture and the requirements of this specification. It shall be the responsibility of the supplier to perform or to have performed all the tests specified.

4.2 Copies of previous test reports and test certificates confirming compliance the requirements for the street lighting accessories issued by a third party testing laboratory that is accredited to ISO/IEC 17025 shall be submitted with the tender for the purpose of technical evaluation. The accreditation certificate for the third party testing laboratory shall also be submitted (all in English language).

4.3 Test reports and certificates for the street lighting accessories to be supplied under the contract shall be submitted to the Engineer for approval before installation.

4.4 The supplier shall replace without charge, street lighting accessories which upon examinations, test or use fail to meet any of the requirements in the specifications.

5.0 MARKING AND PACKING

5.1 Marking

The street lighting accessories shall be indelibly and permanently marked as per the respective manufacturing standard requirements on marking and the following:

a. The manufacturer or supplier identity
b. The designation of lighting accessory
c. The product dimensions in millimeters
d. Engraved with the words "**K.I.S.I.P-2**" on the luminaire body.
e. Engrave a unique serial number on each luminaire body.
f. The street lighting poles are to be painted a unique number on each pole.

NOTE; Standard provisions for marking and packaging shall take precedence.

SECTION 1-1:

1.1 Solar radiation

Though Geographical location determines the performance of the all in one solar street light, the installer shall ensure the luminaires are properly installed tilted appropriately and oriented such as to maximize receipt of solar radiation. The tilt and orientation shall ensure at least 90% of the maximum energy is received by the luminaires panels and that the road surface and sidewalks are well illuminated.

1.2 Shading

Shading shall be avoided as much as possible. Shading results in significant loss of energy from the luminaires panels.

1.3 Cleanliness

The luminaires shall be installed tilted to reduce dust accumulation and allow for self-cleaning. The luminaires should be tilted at a minimum 5^0 (see simulation results). Dust may cause power reduction of about 10%. Tilts also allow for rain cleaning of the luminaires panels. However, the luminaires panels shall be cleaned every month during the 12 months defects liability period

2. STREET LIGHTING POLE

SN	Description	Specification
2.1	Manufacturer Name	
2.2	Type	Hot Deep Galvanized (minimum coating 80 micron)
2.3	Height	The minimum height of the pole must be 10M
2.4	Thickness of Pole	**For 10 meter pole:** Top 2.4 meter: 3.65 mm Middle 2.4 meter: 4.5 mm Bottom 5.2
	Diameter of Pole Sections	**For 10 meter pole:** Top 2.4 meter: At least 3 inch(75mm) Middle 2.4 meter: At least 4 inch Bottom
2.5	Arm	Single arm or double arm depending upon site condition and lighting area coverage
2.6	Weight of pole only	**For 10 meter pole:** At least 150 Kg
2.7	Battery box	A vented, acid proof and corrosion resistant metallic box with a locking arrangement for outdoor use should be provided for housing the battery.

	ENGINEER'S REQUIREMENTS		Bidder's offer (indicate full details of the values offered)
	Description	**ENGINEER'S REQUIREMNTS**	**Bidder's offer**
	Bidder's Name and address		state
1	Scope		state
2	Requirements		state
3	Service conditions-compliance		state
4	**Lighting columns and brackets**		
	Name of Manufacturer		state
	Country of Manufacturer		state
	Type/model reference Number		state
	Manufacturing standards		state

	complied with			
	Compliance to all clauses			state
5	**General requirements**			
	Design life		25 years	state
	Dimensional limits	Post top columns (for floodlights)	12m nominal height	state
		Columns with brackets (HPS and LED Luminaire)	& 10m nominal height	state
		Bracket projection	Lesser of 3m or 0.25x nominal height	state
	Minimum thickness of structural steel sections	Plates and sections other than hollow section	6mm	state
		Hollow section	4mm	state
	End plates dimensions		375x375mm	state
	Drain hole size		10mm –size 15mm	state
	Minimum thickness backboard		15mm	state
	IP rating of doors		IP33	state
	Keys per 10 columns		2	state
	Size of brass or stainless steel bolt		M8	state
	Width of cable entry slot		75mm	state
6	**Material of manufacture**			
	Material of brackets and columns		Carbon steel grade A355J2 in accordance with EN 10210	state
	Tensile strength		470-630 MPa	Attach test certificate
	Yield strength		355 MPA	
	Shape of steel tube		Constant diameter above the base compartment	Attach drawing
			Continuously tapered with either circular or polygonal shape	

	Description	**ENGINEER'S REQUIREMNTS**		**Bidder's offer**
7	**Protection against corrosion**			
	Level of galvanization	>610g/m^2 , for flat articles		state
		>390g/m^2 for centrifuged articles		
	Paint colour	Grey of shade 18B25		state
8	**Technical particulars of the brackets as per EN 40 (relevant parts)**			
	Performance under vehicle impact (impact tested at km/h)	Untested	Class0	
		Tested	100:NE:3	
	Partial load factor class		B	
	Deflection class		3	

	Maximum wind velocity withstand, m/s		26				
	Maximum luminaire weight, kg	>10m	20				
		<10m	10				
	Maximum luminaire windage, m^2		0.25				
	Minimum terrain category		II				
	Marking and labeling of columns and brackets						
9	**Sizes**						
	Sizes of columns	8m		10m	12m		
	Depth of root for planting	1200mm		1500mm	1800mm		
	Cable entry slot	65mmx150mm					
	Depth of top of slot below ground level	350mm					
	Sizes of brackets	1.5m and 2.0m				state	
	Diameter of curved and straight brackets	0.9-1.15m				state	
	Diameter of circular brackets	1.15-2.0m				state	
	Drawing and dimensions of columns Complete with bracket	As per Annex B				Provide drawing	
10	**Copper clad earth rods**						
	Name of manufacturer					State	
	Country of manufacture					state	
	Type/model reference number					State	
	Manufacturing standards complied with						
	Compliance to all clauses						
	Tensile strength	550MPa to 700MPa				state	
	Brinell hardness	248to 302 HBW				State	
	Minimum copper thickness	0.254 mm (254um)				State	
	Sizes						
	Nominal size	Mm	12.5	16.0	20.0	25.0	State
		inches	½	5/8”	¾”	1”	
	Rod length	Mm	1200	1500	2100	300	State
		feet	4	5’	7’	12’	

3. CIVIL WORKS

The civil works for the proposed Solar Street Lighting System shall include Solar Street Light pole design and installation at the site. The structure should be facing southern direction tilted at 30 degree. Pole and Mounting structure must be designed accordingly. It should be able

to withstand wind loading of 180Km/hr. and support the installed solar luminaires.

- Bidder must provide the technical design and shop drawing of the SSL Pole.
- Bidder must provide evidence and calculation showing the structure proposed is safe to be put on the top of pole

4. OPERATION AND MAINTENANCE MANUAL

An Operation, Instruction and Maintenance Manual, in English and the local language, should be provided with the Solar Street Lighting System and details of Wiring and Connection Diagrams shall also be provided with the manual.

5. WARRANTY/ GUARANTEE

(i) The All-In-One Solar Street Lighting System must be warranted against any manufacturing/ design/ installation defects and performance warranty for a minimum period of 5 years.

(ii) The warranty/ Guarantee Card to be supplied with the SSL System must contain the details of the system supplied. The manufacturers can provide additional information about the system.

(iii) During the warranty/ Guarantee period, purchaser will have all the rights to cross check the performance of SSL System. Purchaser may carry out the frequent inspections of the system installed and randomly pick up its components to get them tested at any test center. If during such tests any part is not found as per the specified technical parameters, Purchaser will take the necessary action. The decision of Purchaser in this regard will be final and binding to the Bidder.

6. SAFETY:

1. Metal parts of Solar Street Lighting System must be provided with minimum clearance of 1.25 meter from 400V/11 KV distribution line.
2. Proper installation safety like insulating gloves, safety belt, helmets etc.
3. The metal items such as watches, rings and necklaces are all good conductor of electricity and should not be worn around the electrical components.
4. Manufacturer instructions shall be followed by the operator for safe operation of solar electrical technology.

7. Prerequisite for proper functioning of Solar Street Light project:

1. Solar PV Module must be cleaned regularly between two to three weeks period depending upon the urban dust.
2. It is recommended to do cleaning and greasing of Battery terminal in quarterly basis.

ANNEX B:
DRAWINGS AND DIMENSIONS OF COLUMNS AND BRACKETS

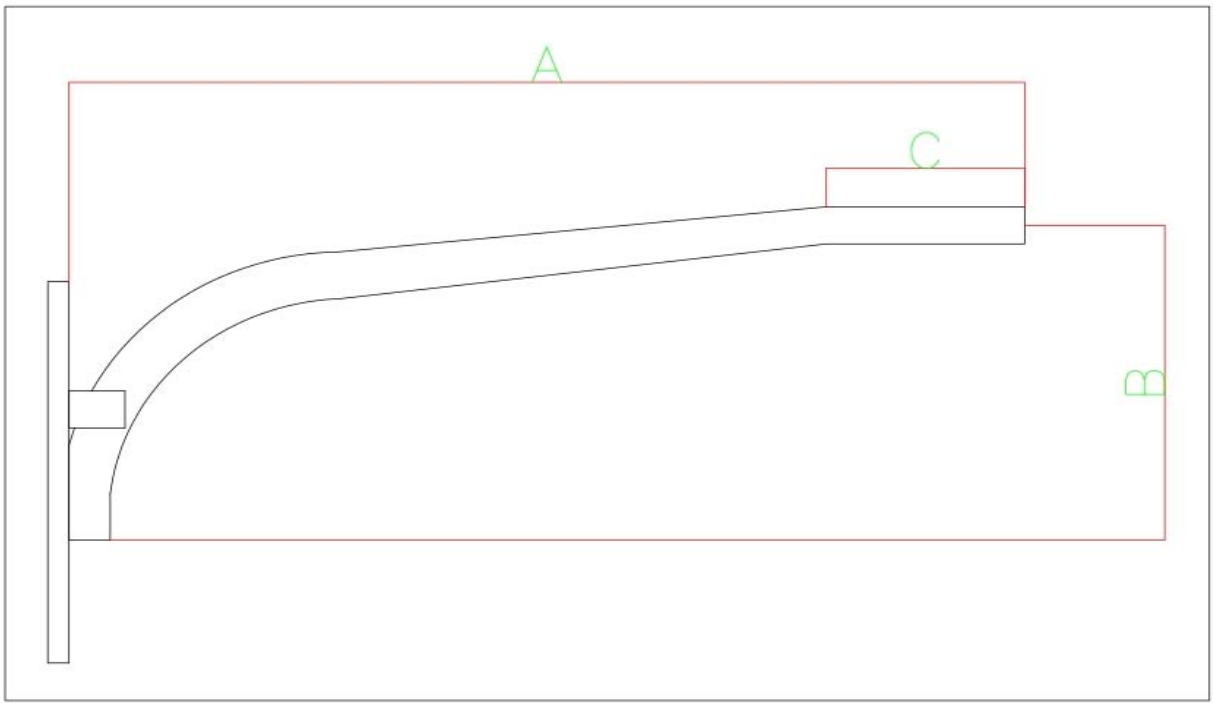


Fig. 1 Illustration of the streetlight bracket for wood or concrete pole mounting

Dimensions of the street light column in fig. with BS EN 40-1&2

Outreach length (A) mm	Dimensions (B) mm	Dimensions (C) mm	Diameter of shaft or spigot C mm	Diameter of the rest of the length -mm	Thickness of tube -mm
±10	±5	±5	±1	±1	±1
1,500	580	100	42	42 or 48	4
2,000	625	100	42	42 or 48	4
2,500	665	100	42	42 or 48	4
3,000	715	100	42	42 or 48	4

High Masts Specifications

1 High mast construction

The high masts for area lighting shall be the type incorporating a lantern carriage which can be raised and lowered by using a winch in the base of the mast.

The columns of the high masts shall be continuously tapered with circular or polygonal cross section, to present an aesthetically good, slim visual appearance.

Stainless steel shall have adequate corrosion resistance to chlorides in the atmosphere, as 1.4401 or 1.4404 grade stainless steel to BS EN 10088-2, (316S31 or 316S11 to BS 1449-2),or equal to the Engineer's approval.

The masts shall be designed to Technical Report No. 7 of the Institution of Public Lighting Engineers (UK), for a maximum wind speed (3 seconds gust at 10 m above ground level) of 50 m/s. The deflection at the top of the masts at wind gusts of 30 m/s (105 km/h) shall not exceed 1/40 of the mast height.

The high mast columns shall be of mild steel BS EN 10025 grade Fe 430C / S275J0 or equivalent. The columns shall be hot dipped galvanized as specified for corrosion Class 4.

High mast columns shall be supplied in sections not exceeding 15 m in length. The high mast columns shall be in the standard product range of the manufacturer.

Each high mast column shall have the facility of raising and lowering the luminaire carriage using a winch and wire ropes. The winch shall be built into the base compartment of the mast.

Provision for earthing the masts shall be provided using a 12 mm diameter stainless steel or brass stud with nuts and washers fixed to the main body of the mast structure in the base compartment.

Each mast shall be provided with effective means of lightning protection. The base flange shall be manufactured from a steel plate free from lamination. The shaft shall penetrate the full depth of the base plate and shall be welded above and below using an approved method. The base flange shall be circular, approximately 700-750 mm in diameter and min. 25 mm thick. Gusset plates shall be provided between all bolt holes to give additional strength to the masts.

2 Base compartment

An access opening to the base compartment in each high mast shall be provided. The door to the opening shall be mounted using a substantial lug and secured at the top by a recessed socket head screw. A baseboard shall be provided for mounting electrical control equipment, power receptacle and winch. The cable entry to the base compartment shall be from a central hole in the base flange.

3 Head frame assembly

The head frame assembly shall be made of welded steel construction and hot dipped galvanized. Pulley wheels for the hoist rope and power cable shall be made of cast aluminium alloy or equal to be approved and shall be large diameter, and shall, as a minimum, suit the recommended bending radii of the power cable.

lose fitting removable guards shall be provided over the pulley wheels to ensure the correct location of the steel wire rope and power cable in their grooves when operating either in loaded or slack condition.

The shaft on which the pulley wheels revolve shall be of approved type corrosion resistant material. The shaft shall be positively secured in the head frame assembly to prevent rotation. Lubrication, if required, shall be for the lifetime of the pulley assembly. Separate pulleys shall be provided for the cable and the wire ropes. It shall be ensured that the wire rope and the power cable are separated before entering the pulleys by means of guards or other mechanisms. The assembly shall be arranged to fit on to the top of the mast and an approved arrangement shall be provided for locking it to the mast and to prevent rotation about the mast.

The head frame shall be covered by a canopy of spun aluminium, galvanized and painted or stainless steel or equal to the Engineer's approval. The canopy shall be fixed to the head frame by stainless steel bolts. The whole of the head frame assembly shall be designed and constructed for operation over the life of the mast without the necessity for any maintenance.

The head frame shall incorporate a lightning protection rod air terminal permanently connected to the mast column by a min. 50 mm copper down conductor.

4 Luminaire carriage

The luminaire carriage shall be of robust construction, keeping the number of individual components to a minimum. The frame of the carriage shall be capable of being fitted to and removed from the mast after erection of the mast.

Each carriage shall be designed to carry luminaires required for the specified lighting including accessories, cable junction box, one obstacle light, and one access point unit for wireless data coverage.

The access point will be approximately 0.3 x 0.2 x 0.2 m and have a maximum weight of 15 kg.

The luminaire carriage shall be of steel construction and hot dip galvanized, in the form of a semi-circle or regular polygon, split on diameter. The required number of pre-drilled mounting plates designed for attaching the luminaires, accessories and wireless access points shall be welded to the luminaire carriage prior to galvanizing.

The luminaire carriage shall be designed for raising and lowering the entire height of the mast. It shall be suspended from two or three steel wire ropes. Where three ropes are used they shall be connected to the winch rope by means of a transition plate. The transition plate shall have provision for connecting the suspension ropes and the wire rope from the winch. Suitable rollers, guides or rubbing surface shall be provided on the luminaire carriage so that they assist / prevent damage to the high mast surface during raising and lowering operations. Fixed, visually conspicuous guide rails along the length of the mast column will not be accepted.

Any loads needed for balancing shall be included in the Contract and shall be of an inconspicuous design

The carriage shall be arranged in such a way that it aligns firmly against guides and stops when in the service position. These stops shall be of adequate strength so as to ensure that they will not be damaged by over winding of the winch.

The luminaire carriage shall have provision for supporting and gripping the weight of the electric supply cable without causing damage to the cable. It shall be ensured that the cable will not make any abrading contact with the cable suspension point or other components at any time. Approved rubber/PVC/brass bushes shall be provided where the cable comes into Winch contact with sharp edges.

Approved weatherproof glands shall he provided for termination of cables.

5 Winch

Each mast shall be provided with twin or single drum winch suitable for raising and lowering the luminaire carriage. The winch shall have a safe working load capacity to carry the weight of the luminaries, accessories, balancing weights and luminaire carriage with addition of min. 10% weight.

A separate test certificate shall be issued with each winch, which shall be suitably identified in a permanent manner to correspond with the numbering of the applicable test certificate.

The winch shall be provided with a self-contained lubricated totally enclosed system and shall not require any maintenance during the service lifetime. The design of the winch shall be such that it can be installed in or removed from the mast through the door opening. The winch shall be fitted with a positive locking device, which shall remain engaged to prevent rotation in the lowering direction when the mast is in service.

The device shall automatically go to locked position whenever the operating handle or driving tool is removed

The winch drum shall be made of cast aluminium alloy grade BS EN 1676LM6M, cast iron or equal construction to be approved.

The drum shall be grooved unless the first layer of wire rope remains fully applied during all the normal operation at the winch, in which case a plain drum may be provided.

The winch shall be suitable for operation both by hand and from a power tool drive. Necessary clamps or fixing devices to hold the tool in position shall be provided.

6 Mast wire

The mast shall be fitted with flexible stranded stainless steel wire rope having a minimum tensile strength of 1625 N/mm2, which shall have factor of safety of not less than 5 times the safe working load of the winch and shall be suitable for the designed application.

The termination of the wire rope shall be by compression crimp joint or grip. In cases of termination of ropes at the shackle point on single drum winches, it shall only be made by a compression crimp joint.

Thimbles or eyes shall be fitted as required. Termination shall be made strictly in accordance with BS 302 and shall be certified.

Additional safety chain kits shall be provided and connected in between the rope shackle and the cleat, located inside the base when the luminaire carriage is in the raised position.

7 Mast cable

Mast cable shall be of multi core construction to BS6977 or HD 22.4 typeH07RN-F, 600/1000V grade. The cable shall be copper conductor, ethylene propylene rubber (EPR) insulated and overall sheathed by heavy-duty polychloroprene (PCP). The cable shall be truly flexible, class 5 and suitable for the bending and load-carrying stresses involved.

The cable shall be circular in construction. The cable shall have minimum two (2) spare conductors for power supply to future components to be mounted on the luminaire carriage.

All conductors shall be the same size and shall be minimum 2.5 mm2.The cable shall be fitted with correctly rated multi-pin weatherproof plug and socket within the base compartment of the mast, which will enable quick disconnection before lowering the luminaire carriage. The socket shall be connected to the supply side of the circuit and may be on either a free cable connected to the distribution panel or be fixed on the distribution panel in the base compartment.

The cable shall be suitably restrained to prevent it from falling down to the outside of the mast during the lowering of luminaire carriage due to its self weight.

A second terminal block shall be provided on the luminaire carriage terminal box. When the carriage is at ground level it shall be possible to connect the incoming supply cable directly into the terminal box to energize and test the luminaires.

Alternative systems where the electrical connections to the luminaire carriage are provided by guided contact blocks fixed at the mast top and on the carriage may be proposed by the Contractor for the Engineer's approval.

8 Electrical wiring

A terminal junction box shall be fixed on the luminaire carriage. It shall be constructed from corrosion resistant material such as aluminium alloy or equal to be approved by the Engineer, and shall be completely weatherproof, min. IP 66 to BS EN 60529. It shall contain a fixed terminal block provided with sufficient number of terminals of the correct size to accommodate all cores of the cable. Connections from the terminal box shall be by heat resistant cable via a flexible metal duct provided between luminaires and the terminal box. All cable cores shall be clearly identifiable at their point of connection preferably by numbers (size of cable: 2.5 mm2 x 3 core). Terminal junction boxes not integral parts of the luminaires shall have ingress protection of IP 66. Only cables with copper conductors shall be accepted.

The high mast shall be fitted with a distribution- or junction box mounted inside the base compartment on the baseboard. The box shall be min. IP 65 to BS EN 60529 and shall contain terminals for receiving power supply cables from the apron lighting switchboards and for the outgoing cables, and protection devices for sub circuits for socket outlet and for constant supply to obstacle lights and data communication access points.

The box or cabinet shall be provided with fixing holes to attach to the baseboard. 1 no. 16 A industrial type 3-pin socket outlet for the portable electric winch power unit shall be mounted on the baseboard next to the distribution box.

***9* Electrical power units**

Two (2) nos. power tools shall be provided for raising and lowering the luminaire carriage. The tool speed shall be related to the winch operation speed. The tool shall be heavy-duty type. The tool shall operate on 240 V, 50 Hz single phase supply. The power tool shall include an automatic torque limiter.

It shall be possible to operate the tool and winch from a remote position, minimum 5 m from the centre axis of the high mast. The remote operation shall rely on a removable cable connection between a remote hand-held control box and the electrical power unit.

10 Obstacle lights

Each mast shall be equipped with two low intensity obstacle lights Type A, complying with ICAO/ FAA standards.

The obstacle lights shall be securely attached to the moveable luminaire carriage, and shall protrude above the canopy for the top assembly.

The obstacle lights shall have battery back-up power for upto 12hrs.

11 Foundation

The anchor bolts shall be supplied complete with anchor plate for casting into the foundation. The anchor bolts shall measure minimum 12*M30*3000mm manufactured from guaranteed performance high tensile steel Grade Fe510C minimum. A precision-made steel template of steel Grade Fe430C with tube holes shall be used to ensure the correct vertical and horizontal bolt alignment. The Contractor or his sub-supplier shall, taking into consideration the soil conditions at site, the wind loading and the foundation bolts supplied, submit a foundation design calculation showing all details such as length and diameter of bolts, etc.

12 LUMINAIRES

12.1 General conditions and construction

12.1.1 Luminaires (Lanterns) in this specification shall include High Pressure sodium (HPS), light emitting Diode (LED) complete with their control gear. The luminaire shall include the reflector, the refractor, and the housing.

12.1.2 Luminaires shall be manufactured to IEC 60598-1 and IEC 60598-2-3 standards and shall incorporate an efficient optical system to direct the light onto the highway to ensure minimum environmental pollution of the night sky of the upward light emitted. Luminaires will be specified with due consideration of the institution of lighting professionals guidance notes for the reduction of obtrusive light and shall be of the side entry type.

12.1.3 All luminaires shall be constructed from LM5 marine grade aluminum or equivalent with a polyester powder coating, grey, sliver or black, over a ROHS compliant chrome passivation substrate; the polyester powder coat finish that shall withstand the standard cut tests as defined in ISO 2409.

12.1.4 Luminaires shall have an integral flexible mounting system and be capable of being mounted 42mm to 60mm diameter side entry and 60mm to 76mm post top mounted without the need for separate spigot adaptors.

12.1.5 Luminaires shall be environmentally friendly and all component parts shall be 98% recyclable at the end of life.

12.1.6 Bowls/protectors shall be vandal resistant and stabilized to minimize loss of transparency due to weathering and exposure to ultra violet light.

12.1.7 Fully assembled luminaires shall weigh 14kg maximum, with a maximum windage of 0.15m and impact rating shall be IK08 minimum in accordance with IEC 62262.

12.1.8 The luminaires shall have double insulation with a protection class of at least class II in accordance with IEC 60598-1 and the luminaire optical system and the control gear compartment shall have a minimum protection rating of IP66 in accordance with IEC 60529.

12.1.9 Luminaires shall be reasonably weather and dust-proof and shall be fitted with a suitable gasket between the body of the lantern and the bowl. The IP rating of the lantern shall not be less than IP 65 in accordance with IEC 60529.

12.1.10 Luminaires shall be self-cleaning and be designed to prevent jamming injuries during installation and be free of sharp edges. Luminaires shall be designed to prevent the supply cable being damaged during installation.

12.1.11 Luminaires shall have integral control gear and an option to retrofit proprietary from and /or rear shields, which shall reduce unwanted spill. The colour of the shields shall match the luminaire.

12.1.12 Photometric data shall be based on test results from a verified laboratory using absolute photometry in accordance with methods and conditions detailed in LM-79-08 or equivalent.

12.1.13 The bowl or other component giving access to the interior of the lantern shall, when in a closed position, be firmly attached to the body of the lantern; in the open position it shall be attached in such a way that there is no likelihood of it becoming accidentally detached.

12.1.14 All hinges, toggle catches, captive screws and nuts shall be made of non-corrosive material.

12.1.15 The optical equipment controlling distribution shall include high purity aluminium reflectors and /or prismatic refractors and these shall have a smooth exterior surface or be protected by hermetically sealed cover plates to prevent an accumulation of dirt and to facilitate cleaning. Refractors wholly within a totally enclosed lantern need not be sealed.

12.1.16 All luminaires shall be fitted with integral control gear and have a heat barrier between the lamp enclosure and gear compartment. The control gear shall be fitted to a tool-less, quick release gear, equipped with a plug and socket connector for ease of maintenance or replacement purposed.

12.1.17 Electrical equipment shall be installed so that levels of radio interference given in IEC 55014-1 are not exceeded.

12.1.18 Luminaires shall be of full cut-off type and shall provide a light output ratio of 90% with and upward lighting output ratio of no more that 0.5% and IESNA Type 2 or 3 distributions.

12.1.19 Luminaires shall be securely fitted to bracket arms or columns and the lamp and all parts affecting the photometric performance shall be in a clean condition and correctly orientated.

13 Floodlights

All external screws, bolts washers etc. shall be of V4A (1.4401) or equivalent stainless-steel. The bracket shall enable a step less tilting of the floodlight.

The floodlight luminaire shall be a low profile to minimize the structural load. The luminaire shall have a wind load lower than $0.1m^2$ at 0^0 tilting angle.

1.1.1 **Tilt Angle**

The tilt angle of the luminaire in normal operation shall not exceed 15º to avoid light pollution and glare towards the road users as per IESNA LM-79-08 standards.

The ULR (Upward light Ratio) value shall be 0.0% eliminating light pollution and wasted energy costs.

1.1.2 **Protection**

The flood light shall have a minimum ingress protection rate of IP65 in accordance with IEC60529. The luminaire shall not require cooling fins (finned heat sinks) to avoid dirt collection resulting in a reduction of the cooling capacity and reduced life of the LEDs.

All optical and electronic components shall be protected by a single layer hardened glass cover with a minimum transmission factor of 95%. The glass cover should be able to be opened without any tools.

All cables inside the floodlight shall have two (2) protective layers (double-insulated).

1.1.3 **LED Lighting units**

The floodlight shall be composed of individual replaceable LED lighting units. The optical part shall be made of high-transparent, non-yellowing PMMA.

In case of partial default the system can be replaced in parts. The replacement of an LED lighting unit shall be via a plug connection requiring no special tools or on-site wiring.

To enable efficient spare parts management, the LED lighting units shall be interchangeable with the manufacturer's other LED lighting products for application including service roads, parking areas etc.

1.1.4 **Built in Redundancy**

The floodlight shall be equipped with a multi-layer optical system that ensures equal uniformity at the reference surface in the event of partial failure of the lighting system. A sing LED lighting unit failure shall ever result in a decrease below the uniformity value of 4:1 ratio required by CIBSE standards.

The manufacturer shall be able to demonstrate via lighting calculations and false colour rendering drawings that even by turning OFF 50% of the floodlight luminaires, the lighting system still meets the 4:1 uniformity ratio required by CIBSE standards.

1.1.5 **Hot Restrike (Instant on)**

In the event of power failure, each floodlight shall be at full light output when the power returns. Full light output power must be reached within one (1) second. No additional equipment shall be required to be installed such as hot restrike equipment.

1.1.6 **Control**

The floodlight shall include a LED driver capable of controlling the luminaire via either an industry standard DALI (Digital Addressable lighting interface) or a 1-10V control interface.

1.1.7 **Surge protection**

The floodlight shall include an integrated two (2) stage surge protection system to protect the electronic driver(1st stage) with a minimum surge protection rating of 10KV and the LED lighting units (2nd stage) with a test class II surge protection in accordance with IEEE/ANSI C62.41.2

1.1.8 **Colour rendering index**

The floodlight shall have a minimum colour rendering index (Ra) of 80 and a colour temperature minimum of 4,000 K for maximum efficiency in accordance with INSNA LM 58-94.

1.1.9 **Operational life Expectancy**

The floodlight shall have a lifetime (MTBF- mean time between failures) of 50,000 hours (L70). The lumen output shall not drop below 70% of the initial output during this period.

1.1.10 **compliance and rating**

The floodlight shall enable for CIBSE compliant illuminations. The manufacturer shall be ISO 9001 and ISO 14001 certified.

The luminaire shall allow an optimal maintenance with reduced recycling and related costs. The floodlight shall have the performance ratings operating at 700mA as per Table 3.

The floodlight shall have a photobiological certificate in compliance with IEC 62471 validating the safety of the LEDs and shall not be classified higher than Exempt Risks.

The floodlight shall be RoHS compliant.

A compact, lightweight, general purpose LED area floodlight. With large body. LED converter configured for DALI control over additional wires, driving 144 LEDs at 850mA with asymmetrical 40° light distribution. IP66, IK08, Class II electrical. Body: die-cast aluminium (EN AC-44300), Light grey 150 sanded textured (close to RAL9006).. Enclosure: 4mm thick toughened glass. Reversable mounting stirrup supplied, optional spigot adaptors available separately for post top mounting. Complete with 4000K LED.

Dimensions: 658 x 490 x 139 mm

Luminaire input power: 400 W

Luminaire luminous flux: 57200 lm

Luminaire efficacy: 143 lm/W

weight: 18.49 kg

Scx: 0.073 m²

(The fitting was used for calculation purposes equal and approved are acceptable)

14 LED Lamps Specifications

The Luminaires shall have the following features:

Luminaire General Characteristics

Luminaire type	Floodlight	
System power options	400,500,560W/600W/640W/700W/720W **NB. wattage of the lamp is dependent on the bidders design**	
Input Voltage and Frequency	AC100-240V 50/60Hz	
Power factor	0.95	
Power efficiency	95%	
Light Source	High efficacy Customized Lumileds LEDs, LED Chips set in modules that are replaced on the luminaire.	
LED lifespan	>50,000h	
Heat dissipation effect	Adopts Honeycomb briquette burning effect and the whole structure cooling	
Luminaire Housing	Design	Free modular serialization for easy replacement of modules or drivers, easy maintenance and for full power range solution
	Body Material	Anodized Aluminum structure with heat sinks made of Aluminum alloy. Stainless steel brackets and fasteners.
		Brackets can be powdercoated/painted galvanized steel or 316 stainless steel

		including the fasteners for complete corrosion resistance with 720hr test salt spray test ideal for ports and harbors.
	Environmental Strength	High mechanical strength, Corrosion Resistance-saltspray test for harsh salty environments
	Standard Finish Colors	Gray, Black, Blue, Silver, White or stainless steel.
IP Protection	Double-coupling IP67 Protection, IK10 with the LED modules being IP68.	
Internal Surge Protection	>10KV	
CRI		≥80
		5000K cool white
Working environment	Temp.	-30°C ~ +45°C
	Humidity	10% ~ 90%RH
Warranty	To be provided	

LED Driver Characteristics

LED Driver	General Features	Mode of output	Constant voltageplus constant current mode of out put
		Design	Metal housing with class I Design with Built-in active PFC (power factor correction) function
		IP Protection	IP67 design for outdoor installations
		Function options	Output adjustable via potentiometer; 3 in 1 dimming (dim-to-off, isolated design); smartertimer dimming; junction box
		Typical lifetime	> 62,000 hours
		Warranty minimum	5 years

	Output side Specs	DC Voltage ranges	24V, 30V, 36V, 42V,48V,54V
		Rated output currents	20A, 16A, 13.3A, 11.4A, 10A, 8.9A
		Rated output power	480W or 480.6W
		Ripple & noise (max.)	200m$V_{"\#"}$, 250m$V_{"\#"}$, 350m$V_{"\#"}$;
		Voltage	±1.0%
		Line	±0,5%
		Load	±0.5%
		Setup, rise up	500ms, 80ms 115ACV/230ACV
		Hold up	16ms, 115ACV/230ACV
	Input Side Specs	input voltage	AC 90-305ACV
			DC 127-431VDC
		Frequency Range	47-63Hz
		Power factor(Typ.)	PF≥0.98/115ACV, PF≥0.97/230ACV, PF≥0.95/277AC @full load
		Total Harmonic Distortion	THD<20% (@≥40%/115ACV,230ACV,277ACV)
		Efficiency (Typ.)	95% @230ACV, & 95.5% @277ACV
		AC Current (typ.)	5A/115ACV, 2.45A/230ACV, 2A/277ACV
		Inrush Current	COLD START 35A($t_{\%\&'()}$ = 1800µs $measured$ at50% $Ipeak$), @240ACV: Per NEMA410
		Leakage Current	<0.75ma/240ACV

		Protections	: Over current, short circuit, over voltage, and over temperature. 5Kv Surge protection also available as an option.
	Environmental specs	Working temp.	Tease=-40°C to +90°C
		Working Humidity	20 ~ 95% RH non-condensing

		Vibration	10 ~ 500Hz, 5G 12min./1cycle, period for 72min. each along X, Y, Z axes	
	Safety and EMC Specs	Safety standards	UL8750 (type"HL"), CSA C22.2 No. 250.13-12; ENEC EN61347-1, EN61347-2-13independent, EN62384; GB19510.14,GB19510.1; IP65 or IP67, EAC TP TC 004, AS/NZS 60950.1 (by CB) approved	
		Withstand Voltage	I/P-O/P:3.75KVAC I/P-FG:2KVAC O/P-FG:1.5KVAC	
		Isolation resistance	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25℃/ 70% RH	
		EMC Emission	Compliance to EN55032 (CISPR32) Class B, EN55015, EN61000-3-2 Class C (@ load≧50%); EN61000-33; GB17743, GB17625.1, EAC TP TC 020	
		EMC Immunity	Compliance to EN61000-4-2,3,4,5,6,8,11, EN61547, light industry level (surge immunity Line Earth 4KV, Line-Line 2KV), EAC TP TC 020	
LED Driver Characteristics	Technical Data	General specs.	Waterproof (IP67); SELV Output; Suitable for Independent Use; Warranty: 7 Years Warranty	
		Electrical specs	Adjustable output current range	70 − 1050@A
			Full power current	700 − 1050@A

			Default output current	700@A	
			Input voltage range	AC	90-305ACV
				DC	127-250VDC
			Output voltage range	114-343VDC	
			Max. power output	300W for large luminaires more than one driver is used.	
			Typical efficiency	94.0%	
			Power factor @240VAC	96.00%	
			Dimmable timer	0-5V/0-10V/PWM/Timer Dimmable	
			Internal Surge Protection	6 kV line-line, 10 kV line-earth	
			All Around Protection	OVP, SCP, OTP	

Surge Protection Device Specification

Material composition	material	MOV, GDT, and Flame-retardant shell
	Protective Functions	surge, overflowing, thermal and flame-retardant
Operating environment	Working Temperature	-40°C ~ +70°C
	Humidity	5% ~ 95% @ 25°C
	Atmosphere and Altitude	70kPa ~ 106kPa, 3000M~500M
Technical Parameters	Protection modes	L-N, L/N, PE
	Operating	240V 50/60Hz

	voltage	
	Maximum continuous operating voltage	385V 50/60Hz
	Experimental class	10KV
	Voltage protection level(test condition 5Ka, 8/20μs)	1.5Kv
	Respond time	L-N≤25ns, L/N-PE≤100ns
	Connection mode	In Series
	Rated Load current	5A
	Housing Material	PBT
	Degree of protection	IP67 waterproof, dustproof
	Flammability	V-0
	Mounting type	Screw-fixation, fixed by M4 Screws

Cable and Connectors used inside the luminaire

Temp Class	Class A
Wiring type	screw
Connectors IP Rating	Water proof (IP68)
Cable size range	$0.75mm^B$-$2.5mm^B$
Coupling	With tightness indicator

15 Obstacle Lights

Each mast shall be equipped with one low/medium intensity obstacle lights complying. The obstacle light shall be securely attached to the luminaire carriage, and shall protrude above the canopy for the top assembly.

24. *SECTION 28-ENVIRONMENTAL MITIGATION MEASURES*

2801 MEASUREMENT AND PAYMENT

28.01	Item:	Allowance for the implementation of the Environmental and Social Management Plan (ESMP) during construction.
	Unit:	PC Sum
28.02	Item:	Extra over item 28.01 for Contractor's profit and overheads.
	Unit:	%.
28.03	Item:	Allowance for the implementation of the Environmental and Social Management Plan (ESMP) after construction.
	Unit:	PC Sum
28.04	Item:	Extra over item 28.03 for Contractor's profit and overheads.
	Unit:	%.

The PC Sums shall include for all cost in connection with implementation of the Environmental Social and Management Plan during and after construction as required.

The contractor shall price a percentage of the sum allowed to cover for his overheads and profit.

SECTION IX – DRAWINGS

- Drawings have been attached as a separate document

Note: A list of drawings should be inserted here. The actual drawings including Site plans should be annexed in a separate booklet.

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PART 3 – CONDITIONS OF CONTRACT AND CONTRACT FORMS

SECTION X CONDITIONS OF CONTRACT, PART I -GENERAL CONDITIONS

SECTION X CONDITIONS OF CONTRACT PART I: GENERAL CONDITIONS OF CONTRACT

The Conditions of Contract Part 1 – General Conditions shall be those forming Part 1 of the Conditions of Contract for works of Civil engineering construction Fourth Edition 1987, reprinted in 1992 with further amendments, prepared by the Federation Internationale des Ingenieurs Conseils (FIDIC)

Copies of the FIDIC Conditions of Contract can be obtained from:

FIDIC Secretariat

P.O. Box 86

1000 Lausanne 12

Switzerland

Fax: 41 21 653 5432

Telephone: 41 21 653 5003

SECTION XI: CONDITIONS OF CONTRACT, PART II - CONDITIONS OF PARTICULAR APPLICATION

SECTION XI: CONDITIONS OF CONTRACT PART II: (CONDITIONS OF PARTICULAR APPLICATION)

The following Conditions of Particular Application shall supplement the General Conditions of Contract. Whenever there is a conflict, the provisions herein shall prevail over those in the General Conditions of Contract. The Particular Condition is preceded by the corresponding clause number of the General Conditions to which it relates.

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CONDITIONS OF CONTRACT PART II (CONDITIONS OF PARTICULAR APPLICATION)

SUBCLAUSE 1.1 – DEFINITIONS

Amend this sub-clause as follows:

(i) The "Employer" is the Kenya National Highways Authority, represented by the Director General - Kenya national Highways Authority.

The "Employer's Representative" is the Director (Highway Design & Safety)

(ii) The "Engineer" is the Deputy Director (Structures) - Kenya National Highways Authority.

(b) (i) Insert in line 2 after the Bills of Quantities", the following, "the rates entered by the Contractor (whether or not such rate be employed in computation of the Contract Price),"

Amend subparagraph (b) (v) of Sub-Clause 1.1 by adding the following words at the end:

The word "Tender" is synonymous with "bid" and the word "Appendix to Tender" with "Appendix to Bid" and the word "Tender documents" with "bidding documents".

Add the following at the end of this sub-clause:

(h) (i) "Materials" means materials and other things intended to form or forming part of the Permanent Works.

SUBCLAUSE 2.1 - ENGINEER'S DUTIES AND AUTHORITY.

With reference to Sub-Clause 2.1 (b), the following shall also apply: The Engineer shall obtain the specific approval of the Employer before taking any of the following actions specified in Part 1:

(a) Consenting to the subletting of any part of the works under Clause 4;

(b) Certifying additional cost determined under Clause 12;

(c) Determining an extension of time under Clause 44;

(d) Issuing a variation under Clause 51;

(e) Fixing rates or prices under Clause 52

(f) The works specified under this Contract shall be executed, supervised and evaluated in accordance to the Contract Supervision and Evaluation Manual developed by the Ministry of Roads – Version 2012

SUBCLAUSE 5.1 - LANGUAGE AND LAW

The Contract document shall be drawn up in the ENGLISH LANGUAGE. Communication between the Contractor and the Engineer's Representative shall be in this given language.

The Laws applicable to this Contract shall be the Laws of the Republic of Kenya.

SUBCLAUSE 5.2 – PRIORITY OF CONTRACT DOCUMENTS

Delete the documents listed 1-6 and substitute:

(1) The Contract Agreement (if completed)
(2) The Letter of Acceptance;
(3) The Bid and Appendix to Bid;
(4) The Conditions of Contract Part II;
(5) The Conditions of Contract Part I;
(6) The Special Specifications;
(7) The Standard Specification for Road and Bridge Construction, 1986;
(8) Road Maintenance Manual, May 2010 Edition and Performance Based Contract Manuals.
(9) The Drawings;
(10) The priced Bills of Quantities
(11) Other documents as listed in the Appendix to form of Bid

SUBCLAUSE 8.2 - SITE OPERATIONS AND METHOD OF CONSTRUCTION

Add the following to last paragraph of sub clause 8.2

The Contract may be terminated if the Contractor is unable to take full responsibility for the adequacy, stability and safety of all Site operations and methods of construction.

SUBCLAUSE 10.1 - PERFORMANCE SECURITY

Replace the text of Sub-clause 10.1 with the following:

"The Contractor shall provide security for his proper performance of the Contract within 14 days after receipt of the Letter of Acceptance. The Performance Security shall be in the form of a bank guarantee as stipulated by the Employer in the Appendix to Bid. The Performance Security shall be issued by a bank incorporated in Kenya. The Contractor shall notify the Engineer when providing the Performance Security to the Employer.

"Without limitation to the provisions of the preceding paragraph, whenever the Employer determines an addition to the Contract Price as a result of a change in cost, the Contractor, at the Engineers written request, shall promptly increase the value of the Performance Security by an equal percentage.

SUBCLAUSE 10.2 - VALIDITY OF PERFORMANCE SECURITY

The Performance Security shall be valid until a date 28 days after the date of issue of the Defects Liability Certificate. The security shall be returned to the Contractor within 14 days of expiration.

Add the following to the last paragraph of sub clause 10.2

The Resident Engineer shall provide a 28 days' Notice to the Contractor informing him of the early expiry of his Performance Security. Upon receipt of such a Notice the Contractor shall before lapse of 14 days extend the Performance security and provide evidence of such an extension to the Resident Engineer. Failure by the contractor to renew his performance Security 7 days to its expiry the Resident Engineer will Request the Engineer to redeem it. Such a request shall be handled immediately and the performance security recovered.

SUB CLAUSE 10. 3 - CLAIMS UNDER PERFORMANCE SECURITY

Delete the entire sub-clause 10.3 and insert the following paragraph

The Employer shall be at liberty to claim part or the entire performance Security without informing or notifying the Contractor provided that the conditions necessitating the claim are contractual.

Add new sub clause 10.4

SUBCLAUSE 10. 4 - COST OF PERFORMANCE SECURITY

The cost of complying with the requirements of this clause shall be borne by the Contractor.'

SUB CLAUSE 11. 1 - INSPECTION OF SITE

In line 17 after "affect his Tender" add

"and the Contractor shall be deemed to have based his BID on all the aforementioned"

Delete the last paragraph completely and replace with the following:

"The Employer in no way guarantees completeness nor accuracy of the soil, materials, subsurface and hydrological information made available to the Contractor at the time of bidding or at any other time during the period of the Contract, and the Contractor shall be responsible for ascertaining for himself all information as aforesaid for the execution of works and his BID shall be deemed to have been priced accordingly.

Add a new sub clause; 11.2 as follows;

SUBCLAUSE 11.2 - ACCESS TO DATA

Data made available by the Employer in accordance with Clause 11.1 shall be deemed to include data listed elsewhere in the Contract as open for inspection at the address stipulated in the Appendix to Bid.'

Add a new sub clause; 14.1 as follows;

SUBCLAUSE 14.1 PROGRAM TO BE SUBMITTED

The time within which the program shall be submitted shall be as specified in the Appendix to the Form of Bid.

This detailed program shall be based upon the program submitted by the Contractor as part of his BID, where this was required, and shall in no material manner deviate from the said program.

The program shall be in the form of a Critical Path Method Network (CPM Network) showing the order of procedure and a description of the construction methods and arrangements by which the Contractor proposes to carry out the Works. It should also be supplemented by a time –bar chart of the same program. The program shall be coordinated with climatic, groundwater and other conditions to provide for completion of the works in the order and by the time specified. The program shall be revised at three-month intervals and should include a chart of the principle quantities of work forecast for execution monthly.

The Contractor shall submit to the Engineer not later than the day or date mentioned in the Appendix to the Form of Bid, a general description of his proposed arrangements and methods for the execution of the Works, including temporary offices, buildings, access roads, construction plant and its intended production output, working shift arrangements, labour strength, skilled and unskilled, supervision arrangements, power supply arrangements, supply of materials including a materials utilization program, stone crushing, aggregate production and storage, cement handling, concrete mixing and handling, methods of excavation, dealing with water, testing methods and facilities.

During the execution of the works, the Contractor shall submit to the Engineer full and detailed particulars of any proposed amendments to the arrangements and methods submitted in accordance with the foregoing.

If details of the Contractors proposals for Temporary Works are required by the Engineer for his own information the Contractor shall submit such details within fourteen days of being requested to do so.

The Resident Engineer may at his discretion provide to the Contractor a Format of submitting the Program of Works to comply with the Cash-flow projections and budgets assigned to the project

The various operations pertaining to the works shall be carried out in such a progressive sequence as will achieve a continuous and consecutive output of fully completed roadworks inclusive of all bridge works and culverts within the time limits specified in the Contract. Generally, the Contractor shall start at one end of the road and progress continuously towards the other without leaving any isolated section or sections of uncompleted road provided always that the site of the works has been acquired in its entirety and the encumbrances and services thereon removed.

The Contractor shall allow in his programme all published Kenya public holidays including but not limited to the following per calendar year during which the Contractor shall not be permitted to work.

- New Year's Eve (31st December)
- New Year's Day (1st January)
- Good Friday
- Easter Monday

- Labour day (1st May)
- Madaraka Day (1st June)
- Idd Ul Fitr
- Huduma Day (10th October)
- Mashujaa Day (20th October)
- Jamhuri day (12th December)
- Christmas Day (25th December)
- Boxing day (26th December)

The Contractor shall also allow per calendar year for a further 2 unspecified public holidays which may be announced by the Government of Kenya with no prior notification upon which he shall not be permitted to work.

SUBCLAUSE 14.2- REVISED PROGRAMME

Add at the end of the first paragraph;

'Failure by the Contractor to submit the Revised Work Program in the prescribed format and within the stipulated period shall be considered a violation of his contractual obligations and a Notice for Termination shall be issued to the Contractor.'

SUBCLAUSE 14.3- CASHFLOW ESTIMATE

The time within which the detailed cash flow estimate shall be submitted shall be as specified in the Appendix to the Form of Bid.

SUBCLAUSE 15.1- CONTRACTOR'S SUPERINTENDENCE

Add the following at the end of the first paragraph of sub-clause 15.1:

"The Contractor shall, within Fourteen (14) days of receipt of the Engineer's order to commence the works inform the Engineer in writing the name of the Contractor's Representative and the anticipated date of his arrival on site. The Contractor shall also submit a specimen signature of his proposed Site Agent /Manager who **SHALL** be the only signatory to payment of certificates/Monthly statements from the Contractor."

Add the following Sub-clause 15.2

'SUBCLAUSE 15.2- LANGUAGE ABILITY AND QUALIFICATIONS OF CONTRACTOR'S AUTHORISED AGENT

Unless otherwise stated in the tender document, the Contractor's Agent or Representative on the site shall be Registered Professional Engineer with the Engineer's Board of Kenya, have a minimum qualification of a Degree in Civil Engineering and shall be able to read and write English fluently.

The Contractor's Agent or Representative shall have at least 10 years relevant experience as a Site Agent.

SUBCLAUSE 16.2- ENGINEER AT LIBERTY TO OBJECT

Add the following sentence at the end of sub-Clause 16.2

"by a competent substitute approved by the Engineer and at the Contractors own expense."

Add the following Sub-Clauses 16.3 and 16.4:

SUBCLAUSE 16.3- QUALIFICATION AND LANGUAGE ABILITY OF SUPERINTENDING STAFF

Unless otherwise stated in the Tender document, the Contractor's superintending staff shall meet the following minimum qualifications:

Should have a working knowledge of English or Kiswahili. Should any of the superintending staff not be able to meet this condition, the Contractor shall propose to the Engineer arrangements for provision of a sufficient number of interpreters of approved qualifications. The Engineer, at his discretion, may amend, approve or reject such arrangements or reject deployment of superintending staff not meeting the language requirements. The Engineer may at any time during the duration of the Contract amend any approved arrangements made for interpreters, which shall be implemented at the Contractors expense.

The key staff listed below must have academic qualifications from government-recognised institutions or equivalent institutions of the levels set out in Section 5, Part 6.

- Site Agent /Road Manager

Qualifications as above shall be subject to verification and approval on site by the Engineer or his representative on site before commencement of the said works.'

SUBCLAUSE 16.4 – EMPLOYMENT OF LOCAL PERSONNEL

The Contractor is encouraged, to the extent practicable and reasonable, to employ staff and labour with appropriate qualifications and experience who are Kenya citizens.

SUBCLAUSE 19.1- SAFETY, SECURITY AND PROTECTION OF THE ENVIRONMENT

Add Sub-Clause-paragraph (d) of Sub-Clause 19 as follows:

Notwithstanding the Contractor's obligation under Sub-Clause-paragraph (a), (b) and 9(c) of Sub-Clause 19.1 of the Conditions of Contract, the Contractor shall observe the following measures with a view to reducing or elimination adverse environmental effects by the site works:

(i) All quarries and borrow pits shall be filled and landscaped to their original state after extraction of construction material
(ii) Soil erosion due to surface runoff or water from culverts or other drainage structures should be avoided by putting in place proper erosion control measures that shall include, but are not limited to grassing and planting if trees
(iii) Long traffic diversion roads shall be avoided so as to minimize the effect of dust on the surrounding environment. In any case all diversions shall be kept damp and dust free
(iv) Spillage of oils, fuels and lubricants shall be avoided and if spilt, shall be collected and disposed off in such a way as not to adversely affect the environment

(v) Rock blasting near settlement areas shall be properly coordinated with the relevant officers of the Government so as to minimize noise pollution and community interference.

Add the following at the tail end of sub clause 19.1

Failure by the Contractor to observe the above safety features shall be deemed to be a violation of the Contractor's Obligations and shall be grounds for Suspension and/or Termination.

SUBCLAUSE 20.4 - EMPLOYERS RISKS

Delete Sub-Clause (h) and substitute with the following;

(h) Any operation of the forces of nature (insofar as it occurs on site) which an experienced contractor:

(i) could not have reasonably foreseen, or

(ii) could reasonably have foreseen, but against which he could not reasonably have taken at least one of the following measures:

(A) prevent loss or damage to physical property from occurring by taking appropriate measures or

(B) insure against such loss or damage

SUBCLAUSE 21.1 - INSURANCE OF WORKS AND CONTRACTOR 'S EQUIPMENT

Delete the first sentence of this Clause and replace with the following:

"prior to commencement of the Works the Contractor shall, without limiting his or the Employer's obligations and responsibilities under Clause 20, insure to the satisfaction of the Employer:"

Add the following words at the end of Sub-paragraph (a) and immediately before the last word of Sub-paragraph (b) of Sub-Clause 21.1:

"It being understood that such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred"

SUBCLAUSE 21.2 – SCOPE OF COVER

Amend sub-paragraph (a) of Sub-Clause 21.2 as follows:

Delete words "from the start of work at the site" and substitute the words "from the first working day after the Commencement Date"

Add the following as Sub-Clause (c) under Sub-Clause-Clause 21.2

(c) It shall be the responsibility of the Contractor to notify the insurance company of any change in the nature and extent of the Works and to ensure the adequacy of the insurance coverage at all times during the period of the Contract.

Add the following paragraph to sub clause 21.2

The Contractor shall be expected to insure all road assets from damage and to pursue the insurance companies as and when damages to these assets occur. In addition, the Contractor is expected to furnish the Engineer with a copy of Insurance Policy of WIBA at the commencement of works.

SUBCLAUSE 21.4 - EXCLUSIONS

Amend Sub-Clause 21.4 to read as follows:

"There shall be no obligation for the insurances in Sub-Clause 21.1 to include loss or damage caused by the risks listed under Sub-Clause 20.4 sub-paragraph (a) (i) to(iv) of the Conditions of Particular Application."

SUBCLAUSE 23.2 – MINIMUM AMOUNT OF INSURANCE

Add the following at the end of this Clause:

".. with no limits to the number of occurrences".

SUBCLAUSE 25.1 – EVIDENCE AND TERMS

Amend Sub-Claus OF INSURANCE 25.1 as follows:

Insert the words "as soon as practicable after the respective insurances have been taken out but, in any case," before the words "prior to the start of work at the site"

Add the following Sub-Clauses 25.5, 25.6

SUBCLAUSE 25.5 – INSURANCE NOTICES

Each policy of insurance effected by the Contractor for purposes of the Contract shall include a provision to the effect that the Insurer shall have a duty to give notice in writing to the Contractor and Employer of the date when a premium becomes payable. This shall not be more than thirty (30) days before that date and the policy shall remain in force until thirty (30) days after the giving of such notice.

SUBCLAUSE 25.6 – NOTIFICATION TO INSURERS

It shall be the responsibility of the Contractor to notify insurers under any of the insurance referred to in the preceding clauses 21, 23 and 24 on any matter or event, which by the terms of such insurance are required to be so notified. The Contractor shall indemnify and keep indemnified the Employer against all losses, claims, demands, proceedings, costs, charges and expenses whatsoever arising out of or in consequence of any default by the Contractor in complying with the requirements of this Sub-Clause whether as a result of avoidance of such insurance or otherwise.

SUBCLAUSE 28.2 – ROYALTIES

Add at the end of this Sub-Clause the following sentence:

"The Contractor shall also be liable for all payments or compensation if any that are levied in connection with the dumping of part or all of any such material."

Add the following as last paragraph of sub clause 28.2

The Contractor shall be solely responsible for any Cess and any other fees that the County/Region May levy on materials, goods or transportation within the Region.

SUBCLAUSE 29.1 – INTERFERENCE WITH TRAFFIC

Supplement Sub-Clause 29.1 by adding the following sentence at the end:

"The Contractor will be permitted to use existing public roads for access to the site. The Contractor shall pay vehicle license tax and road maintenance duty in accordance with relevant regulations and shall obtain any necessary permits or licenses from relevant authorities for transporting his equipment."

Add the following sub clause 29.2:

SUBCLAUSE 29.2 – REINSTATEMENT AND COMPENSATION FOR DAMAGES TO PERSONS AND PROPERTY

The Contractor shall reinstate all properties whether public or private which are damaged in consequence of the construction and, maintenance of the works to a condition as specified and at least equal to that prevailing before his first entry on them.

If in the opinion of the Engineer the Contractor shall have failed to take reasonable and prompt action to discharge his obligations in the matter of reinstatement, the Engineer will inform the Contractor in writing of his opinion, in which circumstances the Employer reserves the right to employ others to do the necessary work of reinstatement and to deduct the cost thereof from any money due or which shall become due to the Contractor.

The Contractor shall refer to the Employer without delay all claims which may be considered to fall within the provisions of Clause 22.1.

Add the following Sub-Clause 34.2 to 34.8

SUBCLAUSE 34.2 – CONDITIONS OF EMPLOYMENT OF LABOUR

The Contractor shall be responsible for making all arrangements for and shall bear all costs relating to recruitment, obtaining of all necessary visas, permits or other official permission for movements of staff and labour.

SUBCLAUSE 34.3 – FAIR WAGES

The Contractor shall, in respect of all persons employed anywhere by him in the execution of the Contract, and further in respect of all persons employed by him otherwise than in the execution of the Contract in every factory, Workshop or place occupied or used by him for the execution of the Contract, observe and fulfil the following conditions:

(a) The Contractor shall pay rates of wages, observe hours of labour and provide conditions of labour, housing, amenities and facilities not less favourable than those required by the latest Regulation of Wages (Building and Construction Industry) Order as of the time of bid submission, and subsequent amendments thereto, or in any wage scales, hours of work or conditions agreed by the Ministry of Labour or other Government Department in consultation with the appropriate wage fixing authority and generally recognized by other employees in the district whose general circumstances in the trade or industry in which the Contractor is engaged are similar.

(b) In the absence of any rates of wages, hours or conditions of labour so established the Contractor shall pay rates of wages and observe hours and conditions of labour which are not less favourable than the general level of wages, hours and conditions observed by other Employers whose general circumstances in the trade or industry in which the Contractor is engaged are similar.

(c) Where the absence of established rates of wages, hours and conditions of labour or the dissimilarity of the general circumstances in the trade of industry in which the Contractor is engaged prevent the Contractor from observing rates of wages, hours and conditions of labour ascertained under sub-paragraph (a) and (b) above the Contractor in fixing the rates of wages, hours and conditions of labour of his employees shall be guided by the advice of the Labour Department.

(d) The Contractor shall recognize the freedom of his employees to be members of trade unions.

(e) The Contractor shall maintain records in English of the time worked by, and the wages paid to, his employees. The Contractor shall furnish to the Engineer or Employer, if called upon to do so, such particulars of the rates, wages and conditions of labour as the Employer or Engineer may direct.

(f) The Contractor shall at all times during the continuance of the contract display, for the information of his employees in every factory, workshop or place occupied or used by him for the execution of the Contract, a copy of this clause together with a notice setting out the general rates of wages, hours and conditions of labour of his employees.

(g) The Contractor shall be responsible for the observance of this clause by sub-Contractors employed in the execution of the works.

SUBCLAUSE 34.4 – BREACH OF FAIR WAGES CLAUSE

Any Contractor or Sub-Contractor who is found to be in breach of Fair Wages Clause shall cease to be approved as a Contractor or Sub-Contractor for such period as the Permanent Secretary for the Ministry of Transport and Infrastructure may determine.

Should a claim be made to the Employer alleging the Contractor's default in payment of Fair Wages of any workman employed on the Contract and if proof thereof satisfactory to the Employer is furnished by the Labour Authority, the Employer may, failing payment by the Contractor, pay the claims out of any monies due or which may become due to the Contractor under the Contract.

SUBCLAUSE 34.5 – RECRUITMENT OF UNSKILLED LABOUR

Any additional unskilled labour which is required by the Contractor for the works and which is not in his employ at the time of the acceptance of the BID shall be recruited by the Contractor from the Labour Exchange or Exchange or Exchanges nearest to the site or sites of the work.

SUBCLAUSE 34.6 – COMPENSATION FOR INJURY

The Contractor shall in accordance with the Workmen's Compensation Act of the Laws of Kenya and any other regulations in force from time to time pay compensation for loss or damage suffered in consequence of any accident or injury or disease resulting from his work to any workman or other person in the employment of the Contractor or any Subcontractor.

SUBCLAUSE 34.7 – LABOUR STANDARDS

(a) The Contractor shall comply with the existing local labour laws, regulations and labour standards

(b) The Contractor shall formulate and enforce an adequate safety program with respect to all work under his contract, whether performed by the Contractor or subcontractor. The Contractor has assurance from the Employer of cooperation where the implementation of these safety measures requires joint cooperation.

(c) Upon written request of the Employer the Contractor shall remove or replace any of his employees employed under this Contract.

Add the following Sub-Clause 35.2 and 35.3.

SUBCLAUSE 35.2 – RECORDS OF SAFETY AND HEALTH

The Contractor shall maintain such records and make such reports concerning safety, health and welfare of persons and damage to property as the Engineer may from time to time prescribe.

SUBCLAUSE 35.3 – REPORTING OF ACCIDENTS

The Contractor shall report to the Engineer details of any accident as soon as possible after its occurrence. In the case of any fatality or serious accident, the Contractor shall, in addition, notify the Engineer immediately by the quickest available means. The Contractor shall also notify the relevant authority whenever the Laws of Kenya require such a report.

SUBCLAUSE 41.1 – COMMENCEMENT OF WORKS

Amend Sub-Clause 41.1 as follows:

Delete the words "as soon as is reasonably possible" in the first sentence and replace with "within the period stated in the Appendix to Bid".

SUBCLAUSE 43.1 – TIME FOR COMPLETION

Amend Sub-Clause 43.1 as follows:

Delete the words "within the time" to "such extended time" and substitute "by the date or dates stated or implied in Clause 14 of these Conditions of Particular Application.

SUBCLAUSE 44.1 – EXTENSION OF TIME FOR COMPLETION

Add at the end of Sub-Clause 44.1 the following:

"Neither rains falling within the rainy seasons as occurs in Kenya nor floods caused by such rains shall be deemed exceptional weather conditions such as may fairly entitle the Contractor to an extension of time for the completion of the work."

SUBCLAUSE 45.1 – RESTRICTION ON WORKING HOURS

Add at the end of Sub-Clause 45.1 the following:

"If the Contractor requests permission to work by night as well as by day, then if the Engineer shall grant such permission the Contractor shall not be entitled to any additional payments for so doing. All such work at night shall be carried out without unreasonable noise or other disturbance and the Contractor shall indemnify the Employer from and against any liability for damages on account of noise or other disturbance created while or in carrying out night work and from and against all claims, demands, proceedings, costs, charges and expenses whatsoever in regard or in relation to such liability.

"In addition, the Contractor will be required to provide, for any work carried out at night or recognized days of rest, adequate lighting and other facilities so that the work is carried out safely and properly.

"In the event of the Engineer granting permission to the Contractor to work double or rotary shifts or on Sundays, the Contractor shall be required to meet any additional costs to the Employer in the administration and supervision of the Contract arising from the granting of this permission."

SUBCLAUSE 47.2 – REDUCTION OF LIQUIDATED DAMAGES

Add the following paragraphs at the end of this Sub-Clause:

"There shall be no reduction in the amount of liquidated damages in the event that a part or a section of the Works within the Contract is certified as completed before the whole of the Works comprising that Contract.

The Employer shall pay no bonus for early completion of the Works to the Contractor.

The sum stated in the Appendix to Bid as liquidated damages shall be increased by a sum equivalent to any additional amount payable by the Employer to the Contractor under clause 70.1 in respect of an increase in costs in such a period that would not have been incurred by the Contractor if the works had been completed by the due date for completion prescribed by Clause 43."

Add following as last paragraph of sub clause 47.2

The Employer may, without prejudice to any other method of recovery, deduct the amount of such damages from any monies due or to become due to the Contractor, and after the limit of deduction prescribed in the Appendix to tender is reached, the Contract shall be considered due for Termination.

SUBCLAUSE 49.1 – DEFECTS LIABILITY PERIOD

Defect's liability period shall start for Instructed works immediately the works are certified as Complete by the Engineer. The period of Defects liability shall be prescribed in the Appendix to the Contract.

SUBCLAUSE 49.2 – COMPLETION OF OUTSTANDING WORK AND REMEDYING DEFECTS

Add as last paragraph to sub clause 49.2
At the time of End of Defects Liability Inspection, no defect arising from the permanent works existing shall be acceptable for taking over. The Inspection team shall verify and satisfy themselves that all the outstanding works and defects arising out of the works have been attended to sufficiently.

SUBCLAUSE 51.1 – VARIATIONS

Add the following at the end of the last paragraph

No such variations in any way shall contravene the requirements of Public Procurement and Disposal Act of 2015 and the amendments thereof.

SUBCLAUSE 52.1 – VALUATION AND VARIATIONS

Add new Clause 52.2(c) as follows

No change in the unit rates or prices quoted shall be considered for items included in the schedule of Dayworks rates, or Provisional Sums and items, or for any item in the BOQ.

Add new clause 52.4 as follows

SUBCLAUSE 52.4 – VARIATIONS EXCEEDING 25 PERCENT

Subject to requirements of Public Procurement and Disposal Act of 2015 and the amendments thereof, variations above 25 percent critical to the proper function of the completed works and without which part or whole of already specified work in the bill of quantities cannot be adequately executed may constitute ground for Contract termination by either parties.

In which case, the Engineer shall give 28-day notice to the Contractor with a copy to the Employer of such occurrence. The Contract shall terminate at the expiry of the notice.

SUBCLAUSE 52.4 – DAYWORKS

Add the following at the end of Sub-Clause 52.4:

The work so ordered shall immediately become part of the works under the contract. The Contractor shall, as soon as practicable after receiving the Dayworks order from the Engineer undertake the necessary steps for due execution such work. Prior to commencement of any work to be done on a Dayworks basis, the Contractor shall give an advance notice to the Engineer stating the exact time of such commencement.

SUBCLAUSE 54.1 – CONTRACTOR'S EQUIPMENT, TEMPORARY WORKS AND MATERIALS:

Exclusive use for the works

Amend Sub-Clause 54.1 as follows:

Line 5: add "written" between "the" and "consent".

Delete Sub-Clauses 54.2 and 54.5.

Add the following sentence

The Contractor shall be at liberty to deliver and withdraw equipment as and when needed for the undertaking of works under this contract according to the equipment deployment schedule and work program approved. If particular equipment is required and the contractor is unable at the required time to avail the said equipment, the contractor shall be expected to notify the Engineer of the possible reasons and adjustments made to such delays. No Provisions shall be made for any claims on Idle Equipment.

SUBCLAUSE 55.2 – OMMISIONS OF QUANTITIES

Items of Works described in the Bills of Quantities for which no rate or price has been entered in the Contract shall be considered as included in other rates and prices in the Contract and will not be paid for separately by the Employer.

Add the following Sub-Clause 58.4:

SUBCLAUSE 58.4 – PROVISIONAL ITEMS

Provisional items shall be read as Provisional Sums and shall be operated as such in accordance with Sub-Clauses 58.1 to 58.3.

Clause 60 of the General Conditions is deleted and substituted with the following: -

SUBCLAUSE 60.1 – MONTHLY STATEMENT

The Contractor shall submit a statement to the Engineer at the end of each month, in a tabulated form approved by the Engineer, showing the amounts to which, the Contractor considers himself to be entitled. The statement shall include the following items, as applicable;

- the value of the Permanent Work executed up to the end of previous month
- any amount to be withheld under retention provisions of Sub-clause 60.3
- any other sum to which the Contractor may be entitled under the Contract

If the Engineer disagrees with or cannot verify any part of the statement, the Contractor shall submit such further information as the Engineer may reasonably require and shall make such changes and corrections in the statement as may be directed by the Engineer. In cases where there is difference in opinion as to the value of any item, the Engineer's view shall prevail.

SUBCLAUSE 60.2 INTERIM PAYMENT CERTIFICATE

The Contractor shall forward to the Engineer an Interim Payment Certificate based on the statement as corrected above and, should it be necessary in the Engineers opinion, shall promptly make any further amendments and corrections to the Interim Payment Certificate.

The Engineer shall not unreasonably withhold certifying an Interim Payment Certificate and in case of likely delay in establishing the value of an item, such item may be set aside and the remainder certified for payment.

Within 45 days after receipt of the Interim Payment Certificate and subject to the Contractor having made such further amendments and corrections as the Engineer may require, the Engineer will forward to the Employer the certified Interim Payment Certificate.

Provided that the Engineer shall not be bound to certify any payment under this Clause if the net amount thereof, after all retentions and deductions, would be less than the minimum amount of Interim Payment Certificate's stated in the Appendix to Form of Bid. However in such a case, the uncertified amount will be added to the next interim payment, and the cumulative unpaid certified amount will be compared to the minimum amount of interim payment.

SUBCLAUSE 60.3 – PAYMENT OF RETENTION MONEY

A retention amounting to the percentage stipulated in the Appendix to Bid shall be made by the Engineer in the first and following Interim Payment Certificates until the amount retained shall reach the "Limit of Retention Money" named in the Appendix to Form of BID.

Upon the issue of the Taking-Over Certificate, with respect to the whole of the works one half of the retention money shall become due and shall be paid to the Contractor when the Engineer shall certify in writing that the last section of the whole works has been substantially completed.

Upon expiration of the Defects Liability Period for the works, the other half of the Retention Money shall be certified by the Engineer for payment to the Contractor.

Provided that in the event of different Defects Liability Periods being applicable to different Sections of the Permanent Works pursuant to Clause 48, the expression "expiration of the Defects Liability Period " shall, for the purpose of this sub-clause, be deemed to mean the expiration of the latest of such periods.

Provided also that if at such time, there remain to be executed by the Contractor any work instructed, pursuant to Clause 49 and 50, in respect of the works, the Engineer shall be entitled to withhold certification until completion of any such work or so much of the balance of the Retention money as shall in the opinion of the Engineer, represents the cost of the remaining work to be executed.

SUBCLAUSE 60.4– CORRECTION OF CERTIFICATES

The Engineer may in any Interim Payment Certificate make any correction or modification to any previous Interim Payment Certificate signed by him and shall have authority, if any work is not being carried out to his satisfaction to omit or reduce the value of such work in any Interim Payment Certificate.

SUBCLAUSE 60.5– STATEMENT AT COMPLETION

Not later than 84 days after the issue of the Taking-Over Certificate in respect of the whole of the works, the Contractor shall submit to the Engineer a statement at completion showing in detail, in a form approved by the Engineer;

The final value of all work done in accordance with the Contract up to the date stated in such Taking-Over Certificate.

Any further sums which the Contractor considers to be due; and

An estimate of amounts that the Contractor considers will become due to him under the Contract.

Estimate amounts shall be shown separately in the Statement at Completion. The Contractor shall amend and correct the Statement as directed by the Engineer and submit a Certificate at Completion to be processed as in Sub-Clause 60.2.

SUBCLAUSE 60.6 – FINAL STATEMENT

Not later than 56 days after the issue of the Defects Liability Certificate pursuant to Sub-Clause 62.1, the Contractor shall submit to the Engineer for consideration a draft final statement with supporting documents showing in detail, in the form approved by the Engineer;

The final value of all work done in accordance with the Contract;

Any further sums which the Contractor considers to be due to him.

If the Engineer disagrees with or cannot verify any part of the draft final statement, the Contractor shall submit such further information as the Engineer may reasonably require and shall make such changes in the draft as may be required.

SUBCLAUSE 60.7– DISCHARGE

Upon submission of the Final Statement, the Contractor shall give to the Employer, with a copy to the Engineer, a written discharge confirming that the total of the Final statement represents full and final settlement of all monies due to the Contractor arising out of or in respect of the Contract. Provided that such discharge shall become effective only after payment under the Final Payment Certificate issued pursuant to Sub-Clause 60.8 has been made and the Performance Security referred to in Sub-Clause 10.1 has been returned to the Contractor.

SUBCLAUSE 60.8 – FINAL PAYMENT CERTIFICATE

Upon acceptance of the Final Statement as given in Sub-Clause 60.6, the Engineer shall prepare a Final Payment Certificate which shall be delivered to the Contractor's authorized agent or representative for his signature. The Final Payment Certificate shall state:

The final value of all work done in accordance with the Contract;

After giving credit to the Employer for all amounts previously paid by the Employer, the balance, if any, due from the Employer to the Contractor or the Contractor to the Employer.

Final Certificate shall be issued for any sum due to the Contractor even if such is less than the sum named in the Appendix to the Form of BID.

SUBCLAUSE 60.9– CESSATION OF EMPLOYERS LIABILITY

unless the Contractor notifies the Engineer of his objection to the Final Certificate within fourteen days of delivery thereof, he shall be deemed to have agreed that he accepts the total Contract Price as set out in the Final Certificate as full settlement for all Work Done under the Contract including

any variations and omissions thereof but excluding any variations and claims previously made in writing.

SUBCLAUSE 60.10 – TIME FOR PAYMENT

The amount due to the Contractor under any Interim Payment Certificate or Final Payment Certificate issued pursuant to this Clause or to any other term of the Contract, shall, subject to Clause 47, be paid by the Employer to the Contractor as follows:

(i) In the case of Interim Payment Certificate, within the time stated in the Appendix to Form of Bid, after the Engineer has signed the Interim Payment Certificate.

(i) In the case of the Final Payment Certificate pursuant to Sub clause 60.8, within the time stated in the Appendix to Form of Bid, after the Engineer has signed the Final Payment Certificate.

(ii) In the event of the failure of the Employer to make payment within the times stated, the Employer shall make payment to the Contractor of simple interest at a rate equal to two percentage points above the average Base Lending Rate of three leading banks namely Kenya Commercial Bank, Standard Chartered Bank and Barclays Bank for the time being or as shall be the case from the time to time obtained from the Central Bank of Kenya. The provisions of this sub clause are without prejudice to the Contractor's entitlements under Clause 69 or otherwise.

SUBCLAUSE 60.11 – CURRENCY OF PAYMENT

The Contract Price shall be designated in Kenyan Currency.

All work performed by the Contractor under the Contract shall be valued in Kenya Shillings using the rates and prices entered in the Bills of Quantities together with such other increases to the Contract Price, except for variation of price payments in accordance with Clause 70.1.

SUBCLAUSE 60.12 – ADVANCE PAYMENT

(a) "At the request of the Contractor, The Employer **MAY** make an interest free advance payment to the contractor for the cost of mobilization in respect of the Works, in a lump sum of any amount not exceeding ten (10) percent of the Contract Price named in the Letter of Acceptance and Letter of Award. Non-Payment or delayed payment of the Advance shall not be a cause for any claim whatsoever. The Contractor is expected to have adequate financial resources to mobilise and execute the works with due diligence without the advance payment being made. Payment of such advance amount will be due under a separate certification by the Engineer after:

(i) Provision by the Contractor of the Performance Security in accordance with Clause 10 of the Conditions of Contract, and

(ii) Provision by the Contractor of a Bank Guarantee which shall remain effective until the advance payment has been completely repaid by the Contractor out of current earnings under the Contract and certified accordingly by the Engineer.

(b) A form of Bank guarantee acceptable to the Employer is included in the Tender Documents. The advance payment shall be used by the Contractor exclusively for mobilization expenditures, in connection with the works. The advance payment shall not be subject to retention money.

(c) The advance payment shall be repaid with percentage reductions from the monthly interim payments certified by the Engineer. The reimbursement of the lump sum advance payment shall be made by deductions from the interim payments and where applicable from the balance owing to the contractor. Reimbursement shall begin when the amount of the sums due under the Contract reaches 20% of the original contract sum. It shall have been completed by the time 80% of the contract sum is reached.

(d) The amount to be repaid by way of successive deductions shall be calculated by the means of the formula:

RI = A(x-X) / (80%-20%)

Where:

RI = the amount to be reimbursed.

A = the amount of the advance which has been granted.

x = the amount of proposed cumulative payments as a percentage of the original amount of the contract. This figure will exceed 20% but not 80%.

X = the amount of the previous cumulative payments as a percentage of the original amount of the Contract. This figure will be below 80% but not less than 20%.

With each reimbursement the guarantee will be reduced accordingly.

SUBCLAUSE 63.1

Add the following to last paragrapgh of sub clause 63.1

…is unable to take full responsibility for the adequacy, stability and safety of all Site operations and methods of construction as stipulated in sub clause 8.2 of the conditions of contract.

a) Fails to comply with Sub clause 10.1 and 10.2 of the Conditions of Contract
b) Fails to comply with Sub Clause 14.2 and Sub Clause 14.3 of the Conditions of Contract and Appendix to Form of Bid.
c) Fails to observe the safety as stipulated in Sub clause 19.1 and amendments therein.
d) Fails to Conform to Service levels as detailed in the Appendix to Form of Bid and as required in sub clause 13.1.
e) Incurs the maximum amount of Liquidated damages as stated in the Appendix to Form of Bid or the liquidated damages amount, exceeds the performance security then the contract would be automatically Terminated.
f) Has not completed the works despite the lapse of the Contract Period as stated in the Appendix to form of Bid

SUBCLAUSE 67.1 – ENGINEER'S DECISION

Delete the entire sub clause 67.1 and add the following;

"If a dispute of any kind whatsoever arises between the Employer and the Contractor in any connection with, or arising out of, the Contract or the execution of the works, whether during the execution of the works or after their completion and whether before or after repudiation or other

termination of the Contract including any dispute as to any opinion, instruction, determination, certificate or valuation of the Engineer, the matter in dispute shall, in the first place, be referred in writing to the Engineer, with a copy to the other party. Such reference shall state it is made pursuant to this clause. No later than 28 (twenty-eight) day after the day on which he received such reference the Engineer shall give notice of his decision to the Employer and the Contractor. Such decision shall state it is made pursuant to this clause.

Unless the Contract has already been repudiated or terminated, the Contractor shall, in every case, continue to proceed with the works with all due diligence and the Contractor and the Employer shall give effect forthwith to every such decision of the Engineer unless and until the same shall be revised, as hereinafter provided, in an Amicable Settlement, Adjudicator's or Arbitrator's award.

If either the Employer or the Contractor be dissatisfied with the any decision of the Engineer, or if the Engineer fails to give notice of his decision on or before the 28th (twenty eighth) after the day on which he received the reference, then either the Employer or the Contractor may, on or before the 28th (twenty eighth) day after the day the day on which he received notice of such decision, or on or before the 28th (twenty eighth) day after the day the day on which the said period of 28 days expired, as the case may be, give notice to the other party, with a copy for information to the Engineer, of his intention to commence Adjudication, as hereinafter provided, as to the matter in dispute. Such notice shall establish the entitlement of the party giving the same to commence Adjudication, as hereinafter provided, as to such dispute; no adjudication in respect thereof may be commenced unless such notice is given.

If the Engineer has given notice of his decision as to a matter in dispute to the Employer and the Contractor and no notice of intention to commence adjudication as to such dispute has been given by either the Employer or the Contractor on or before the twenty eighth day after the day on which the parties received notice as to such decision from the Engineer, the said decision shall become final and binding upon the Employer and the Contractor. "

SUBCLAUSE 67.2 – AMICABLE SETTLEMENT

Delete the entire sub clause 67.2 and add the following;

"Where notice to of intention to commence adjudication as to a dispute has been in accordance with sub clause 67.1, the parties shall attempt to settle such dispute in amicably before the commencement of Adjudication; provided that, unless the parties otherwise agree, Adjudication may be commenced on or after the 14th (fourteenth) day after the day on which notice of intention to commence adjudication of such dispute was given, even if an attempt at amicable settlement thereto has been made."

SUBCLAUSE 67.3 – ADJUDICATION

Delete the entire sub clause 67.3 and add the following;

"The Adjudicator shall be appointed by the Chartered Institute of Arbitrators (Kenya) unless the appointment is agreed by the parties within 7 (seven) days of the notice to adjudication.

The adjudication process shall be conducted according to the Laws of Kenya and the Rules of the Chartered Institute of Arbitrators (Kenya)."

SUB CLAUSE 67.3 – ARBITRATION

Delete the entire sub clause 67.3 and add the following;

"Any dispute in respect of which:

The decision, if any, of the Adjudicator has not become final and binding pursuant to sub clause 67.1, and Amicable settlement has not been reached within the period stated in sub clause 67.2, shall be finally settled, under the Laws of Kenya and the Arbitration Rules of the Chartered Institute of Arbitrators (Kenya Branch) by one or more arbitrators appointed by the Chartered Institute of Arbitrators (Kenya Branch).

Neither party shall be limited in the in the proceedings before such arbitrator/s to the evidence or arguments put before the Adjudicator for the purpose of obtaining his said decision pursuant to sub clause 67.1.

Arbitration may be commenced prior to or after completion of the works, provided that the obligations of the Employer, the Engineer and the Contractor shall not be altered by reason of the arbitration being conducted during the progress of the works.

SUBCLAUSE 68.2 – NOTICES TO EMPLOYER AND ENGINEER

Delete in Sub-Clause 68.2 the words "nominated for that purpose in Part II of these conditions".

a. **The Employer's address is:**

The Director General,
Kenya National Highways Authority (KeNHA),
Barabara Plaza, Off Airport South Road, Opp. KCAA,
P.O. Box 49712 - 00100
NAIROBI

b. **The Employer's Representative's address is:**

Director (Highway Design & Safety),
Kenya National Highways Authority (KeNHA),
Barabara Plaza, Off Airport South Road, Opp. KCAA,
P.O. Box 49712 - 00100
NAIROBI

c. **The Engineer's address is:**

Deputy Director (Structures),
Kenya National Highways Authority (KeNHA),
Barabara Plaza, Off Airport South Road, Opp. KCAA,
P.O. Box 49712 - 00100
NAIROBI

SUBCLAUSE 68.4

All letters and notices from the Contractor to the Employer and/Engineer must be signed by the Managing Director or the person given written power of Attorney.

In addition to the usual postal office contacts the tenderer is required to provide official email address to be used to communicate urgent letters requiring timely responses from the tenderer like tender addendum (addenda), award letter or any other deemed urgent from the Employer requiring timely preparation and reply.

The Contractors address is

Name :
P.O Box :
City/Town :
Email :
Telephone :

CLAUSE 69 – DEFAULT OF EMPLOYER

Delete Sub-Clause 69.1 (c)

In Sub-Clause 69.4 add at the end of first paragraph the following "the period of such suspension shall be as agreed upon by both parties and in any case not more than six (6) months".

In Subclause 69.4 of General Conditions of Contract Part I, insert at the end -----"The amounts of such costs which shall be added to the Contrct Price shall exclude any cost due to idle time for equipment, plant and labour."

CLAUSE 70 – CHANGES IN COST AND LEGISLATION

Sub-Clause 70.1 - Price Adjustment
The amounts payable to the Contractor, in various currencies pursuant to Sub-Clause 60.1, shall be adjusted in respect of the rise or fall in the cost of labour, Contractor's Equipment, Plant, materials, and other inputs to the Works, by applying to such amounts the formulae prescribed in this clause.

SUB-CLAUSE 70.2 - OTHER CHANGES IN COST
To the extent that full compensation for any rise or fall in costs to the Contractor is not covered by the provisions of this or other clauses in the Contract, the unit rates and prices included in the Contract shall be deemed to include amounts to cover the contingency of such other rise or fall of costs.

SUB-CLAUSE 70.3 - ADJUSTMENT FORMULAE
The adjustment to the Interim Payment Certificates in respect of changes in cost and legislation shall be determined from separate formulae for each of the currencies of payment and each of the types of construction work to be performed and Plant to be supplied. The formulae will be of the following general type:

$$pn = A + b\frac{Ln}{Lo} + c\frac{Mn}{Mo} + d\frac{En}{Eo} + etc.$$

Where:
pn is a price adjustment factor to be applied to the amount in each specific currency for the payment of the work carried out in the subject month, determined in accordance with Paragraph 60.1 (d), and with Paragraphs 60.1 (e) and (f), where such variations and day work are not otherwise subject to adjustment;

A is a constant, specified in the Appendix to Bid, representing the nonadjustable portion in contractual payments;

b, c, d, etc., are weightings or coefficients representing the estimated proportion of each cost element (labour, materials, equipment usage, etc.) in the Works or sections thereof,
net of Provisional Sums, as specified in the Appendix to Bid; the sum of A, b, c, d, etc., shall be one;

Ln, Mn, En, etc., are the current cost indices or reference prices of the cost elements in the specific currency of origin for month "**n,**" determined pursuant to Sub-Clause 70.5, applicable to each cost element; and **Lo, Mo, Eo,** etc., are the base cost indices or reference prices corresponding to the above cost elements at the date specified in Sub-Clause 70.5.

If a price adjustment factor is applied to payments made in a currency other than the currency of the source of the index for a particular indexed input, a correction factor **Zo/Zn** will be applied to the respective component factor of **pn** for the formula of the relevant currency. **Zo** is the number of units of currency of the country of the index, equivalent to one unit of the currency of payment on the date of the base index, and **Zn** is the corresponding number of such currency units on the date of the current index.

SUB-CLAUSE 70.4 - SOURCES OF INDICES AND WEIGHTINGS
The sources of indices shall be those listed in the Appendix to Bid, as approved by the Engineer. Indices shall be appropriate for their purpose and shall relate to the Contractor's proposed source of supply of inputs on the basis of which his Contract Price and expected foreign currency requirements shall have been computed. As the proposed basis for price adjustment, the Contractor shall have submitted with his bid the tabulation of Weightings and Source of Indices in the Appendix to Bid, which shall be subject to approval by the Engineer.

SUB-CLAUSE 70.5 - BASE, CURRENT, AND PROVISIONAL INDICES
The base cost indices or prices shall be those prevailing on the day 28 days prior to the latest date for submission of bids. Current indices or prices shall be those prevailing on the day 28 days prior to the last day of the period to which a particular Interim Payment Certificate is related. If at any time the current indices are not available, provisional indices as determined by the Engineer will be used, subject to subsequent correction of the amounts paid to the Contractor when the current indices become available.

SUB-CLAUSE 70.6 - ADJUSTMENT AFTER COMPLETION
If the Contractor fails to complete the Works within the time for completion prescribed under Clause 43, adjustment of prices thereafter until the date of completion of the Works shall be made using either the indices or prices relating to the prescribed time for completion, or the current indices or prices, whichever is more favourable to the Employer, provided that if an extension of time is granted pursuant to Clause 44, the above provision shall apply only to adjustments made after the expiry of such extension of time.

SUB-CLAUSE 70.7 - WEIGHTINGS
The weightings for each of the factors of cost given in the Appendix to Bid shall be adjusted if, in the opinion of the Engineer, they have been rendered unreasonable, unbalanced, or inapplicable as a result of varied or additional work already executed or instructed under Clause 51 or for any other reason.

Sub-Clause 70.8 - Subsequent Legislation

If, after the date 28 days prior to the latest date for submission of bids for the Contract, there occur in the country in which the Works are being or are to be executed changes to any National or State Statute, Ordinance, Decree, or other Law or any regulation or

by-law of any local or other duly constituted authority, or the introduction of any such State Statute, Ordinance, Decree, Law, regulation, or by-law that causes additional or reduced cost to the Contractor, other than under the preceding sub-clauses of this clause, in the execution of the Contract, such additional or reduced cost shall, after due consultation with the Employer and the Contractor, be determined by the Engineer and shall be added to or deducted from the Contract Price and the Engineer shall notify the Contractor accordingly, with a copy to the Employer. Notwithstanding the foregoing, such additional or reduced cost shall not be separately paid or credited if the same shall already have taken into account in the indexing of any inputs to the Price Adjustment Formulae in accordance with the provisions of Sub-Clauses 70.1 to 70.7.

CLAUSE 72 – RATES OF EXCHANGE COST

Delete clause 72 in its entirety and substitute the following:

The currency of BID and payment is Kenya Shillings and rates of exchange requirements are not applicable.

CLAUSE 73 – BRIBERY AND COLLUSION

Add new Clause 73.1 as follows:

"The Contractor shall not:

(a) Offer or give or agree to give to any person in the service of the Government of Kenya any gift or consideration or any kind as an inducement or reward for doing or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of this or any other contract to which the Government of Kenya is a party or for showing or forbearing to show favour or disfavour to any person in relation to this or any other contract for the Government of Kenya.

(b) Enter into this or any other contract with the Government of Kenya in connection with which commission has been paid or agreed to be paid by or on his behalf or to his knowledge, unless before the contract is made particulars of any such commission and of the terms and conditions of any agreement for the payment thereof have been disclosed in writing to the Employer.

Any breach of this condition by the Contractor or by anyone employed by him or acting on his behalf (whether with or without the knowledge of the Contractor) or the commission of any offence by the Contractor or by anyone employed by him or acting on his behalf in relation to this or any other contract to which the Government of Kenya is a party shall entitle the Employer to determine the Contract (See Condition 63 hereof) and/ or to recover from the Contractor the amount or value of any such gift, consideration or commission.

Any dispute or difference of opinion arising in respect of either the interpretation, effect or application of this condition or of the amount recoverable hereunder by the Employer from the Contractor shall be decided by the Employer, whose decision shall be final and conclusive.

CLAUSE 74 – CONTRACT CONFIDENTIAL

Add new sub-Clause 74.1 under clause 74 as follows:

The Contractor shall treat the details of this Contract as Private and Confidential and shall not publish or disclose the same or any particulars thereof in any trade or technical paper or elsewhere (save in so far as may be necessary for the purpose thereof) without the previous consent in writing of the Government. If any dispute arises as to the necessity of any publication or disclosures for the purposes of this Contract the same shall be referred to the decision of the Engineer mentioned in the said Conditions of Contract whose award shall be final

SECTION XII - CONTRACT FORMS

TABLE OF FORMS

FORM NO. I - NOTIFICATION OF INTENTION TO AWARD

[*This Notification of Intention to Award shall be sent to each Tenderer that submitted a Tender.*]
[*Send this Notification to the Tenderer's Authorized Representative named in the Tender Information Form*]

FORMAT

For the attention of Tenderer's Authorized Representative

Name: …….. *[insert Authorized Representative's name]* Address: *[insert Authorized Representative's Address]* Telephones: *[insert Authorized Representative's telephone/fax numbers]*

Email Address: *[insert Authorized Representative's email address]*

*[**IMPORTANT:** insert the date that this Notification is transmitted to Tenderers. The Notification must be sent to all Tenderers simultaneously. This means on the same date and as close to the same time as possible.]*

Date of Transmission:

This Notification is sent by: [*email*] on [*date*] (local time)

Procuring Entity: *[insert the name of the Procuring entity]*

Contract title: *[insert the name of the contract]*

Country: Kenya, County_____(*if the Procuring Entity is from a County*)

This Notification of Intention to Award (Notification) notifies you of our decision to award the above contract. The transmission of this Notification begins the Standstill Period. During the Standstill Period, you may:

a) Request a debriefing in relation the evaluation of your Tender, and/or

b) Submit a Procurement-related Complaint in relation to the decision to award the contract.

1. **The successful Tenderer**

Name: [*insert name of successful Tenderer*] Address: [*insert address of the successful Tenderer*]

Contract price: [*insert contract price of the successful Tender*]

2. **Other Tenderers**: *insert names of all Tenderers that submitted a Tender. If the Tender's price was evaluated include the evaluated price as well as the Tender price as read out.]*

	Name of Tenderer	Tender price	Evaluated Tender price	Comments (if any)
1				
2				
3				
4				
5				
6				
7				
Etc.				

1. How to request a debriefing

DEADLINE: The deadline to request a debriefing expires at midnight on [*insert date*] (local time).

You may request a debriefing in relation to the results of the evaluation of your Tender. If you decide to request a debriefing your written request must be made within three (3) Business Days of receipt of this Notification of Intention to Award. Provide the contract name, reference number, name of the Tenderer, contact details; and address the request for debriefing as follows:

Attention: [*insert full name of person, if applicable*] **Title/position**: *[insert title/position*] **Procuring**

Entity: [*insert name of Procuring Entity*] **Email address**: [*insert email address*]

If your request for a debriefing is received within the 3 Business Days deadline, we will provide the debriefing within five (5) Business Days of receipt of your request. If we are unable to provide the debriefing within this period, the Standstill Period shall be extended by five (5) Business Days after the date that the debriefing is provided. If this happens, we will notify you and confirm the date that the extended Standstill Period will end. The debriefing may be in writing, by phone, video conference call or in person. We shall promptly advise you in writing how the debriefing will take place and confirm the date and time.

If the deadline to request a debriefing has expired, you may still request a debriefing. In this case, we will provide the debriefing as soon as practicable, and normally no later than fifteen (15) Business Days from the date of publication of the Contract Award Notice.

2. How to make a complaint

Period: Procurement-related Complaint challenging the decision to award shall be submitted by midnight, [*insert date*] (local time).

Provide the contract name, reference number, name of the Tenderer, contact details; and address the Procurement- related Complaint as follows:

Attention: [*insert full name of person, if applicable*]

Title/position: [*insert title/position*]

Procuring Entity: [*insert name of Procuring Entity*]

Email address: [*insert email address*]

At this point in the procurement process, you may submit a Procurement-related Complaint challenging the decision to award the contract. You do not need to have requested, or received, a debriefing before making this complaint. Your complaint must be submitted within the Standstill Period and received by us before the Standstill Period ends.

In summary, there are four essential requirements:

a) You must be an 'interested party'. In this case, that means a Tenderer who submitted a Tender in this tendering process, and is the recipient of a Notification of Intention to Award.

b) The complaint can only challenge the decision to award the contract.

c) You must submit the complaint within the period stated above.

d) You must include, in your complaint, all of the information necessary to support your case.

e) The application must be accompanied by the fees set out in the Procurement Regulations, which

shall not be refundable (information available from the Public Procurement Authority at www.ppoa.go.ke.

3. **Standstill Period**
   a) **DEADLINE:** The Standstill Period is due to end at midnight on [*insert date*] (local time).
      i) The Standstill Period lasts ten (14) Days after the date of transmission of this Notification of Intention to Award.
      ii) The Standstill Period may be extended as stated in Section 4 above.

If you have any questions regarding this Notification please do not hesitate to contact us. On behalf of the

Procuring Entity: _____

Name_____

Title and Position_____

Signature_____

Date_____

FORM NO. 2 - NOTIFICATION OF AWARD

Letter of Acceptance

[letter head paper of the Procuring Entity]

[date]

FORMAT

To: *[name and address of the Contractor]*

This is to notify you that your Tender dated *[date]* for execution of the *[name of the Contract and identification number, as given in the **SCC**]* for the Accepted Contract Amount *[amount in numbers and words] [name of currency]*, as corrected and modified in accordance with the Instructions to Tenderers, is hereby accepted by our Agency.

You are requested to furnish the Performance Security within 30 days in accordance with the Conditions of Contract, using, for that purpose, one of the Performance Security Forms included in Section X, Contract Forms, of the tender document.

We attach a copy of the Contact for your

Authorized Signature:

Name and Title of

Signatory: Name of

Agency:

Attachment: Contract Agreement

FORM NO. 3 – CONTRACT AGREEMENT

THIS AGREEMENT made the _____ day of _____, _____, between _____ of _____ (hereinafter "the Procuring Entity"), of the one part, and_____of_____(herein after "the Contractor"), of the other part:

WHEREAS the Procuring Entity desires that the Works known as_____should be executed by the Contractor, and has accepted a Tender by the Contractor for the execution and completion of these Works and the remedying of any defects therein, The Procuring Entity and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.

2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents.

   a) The Letter of Acceptance
   b) The Letter of Tender
   c) The addenda Nos_____(if any)
   d) The Particular Conditions
   e) The General Conditions;
   f) The Specification
   g) The Drawings*;* and
   h) The completed Schedules and any other documents forming part of the contract.

3. In consideration of the payments to be made by the Procuring Entity to the Contractor as specified in this Agreement, the Contractor hereby covenants with the Procuring Entity to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.

4. The Procuring Entity hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed in accordance with the laws of Kenya on the day, month and year specified above.

Signed by_____

_____(for the Procuring Entity)

Signed by_____

_____(for the Contractor)

FORM NO. 4 - PERFORMANCE SECURITY

– (Unconditional Demand Bank Guarantee)

[Guarantor letterhead or SWIFT identifier code]

Beneficiary: *[insert name and Address of* Procuring

Entity*]* **Date:** *[Insert date of issue]*

PERFORMANCE GUARANTEE No.:

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

1. We have been informed that (herein after called "the Applicant") has entered into Contract No. *dated* with the Beneficiary, for the execution of (herein after called "the Contract").

2. Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

3. At the request of the Applicant, we as Guarantor, here by irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of ( ),[1] such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.

4. This guarantee shall expire, no later than the …..... Day of …..... 2…[2], and any demand for payment under it must be received by us at this office indicated above on or before that date.

5. The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed *[six months] [one year],* in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

_____

[Name of Authorized Official, signature(s) and seals/stamps]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

[1]The Guarantor shall insert an amount representing the percentage of the Accepted Contract Amount specified in the Letter of Acceptance, less provisional sums, if any, and denominated either in the currency(cies) of the Contract or a freely convertible currency acceptable to the Beneficiary.

[2]Insert the date twenty-eight days after the expected completion date as described in GC Clause 11.9. The Procuring Entity should note that in the event of an extension of this date for completion of the Contract, the Procuring Entity would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Procuring Entity might consider adding the following text to the form, at the end of the pen ultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months] [one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

FORM NO. 5 - ADVANCE PAYMENT SECURITY

[Demand Bank Guarantee] *[Guarantor letterhead or SWIFT*

identifier code] [Guarantor letterhead or SWIFT identifier code]
Beneficiary: *[Insert name and Address of* Procuring Entity*]* **Date:** *[Insert date of issue]*

ADVANCE PAYMENT GUARANTEE No.: *[Insert guarantee reference number]*

Guarantor: [*Insert name and address of place of issue, unless indicated in the letterhead]*

1. We have been informed that (herein after called "the Applicant") has entered into Contract No. *dated* with the Beneficiary, for the execution of (herein after called" the Contract").

2. Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum ( ) is to be made against an advance payment guarantee.

3. At the request of the Applicant, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of ( )[1] upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating either that the Applicant:
   a) Has used the advance payment for purposes other than the costs of mobilization in respect of th e Works; or
   b) has failed to repay the advance payment in accordance with the Contract conditions, specifying the amount which the Applicant has failed to repay.

4. A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the advance payment referred to above has been credited to the Applicant on its account number at

5. The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Applicant as specified in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that ninety (90) percent of the Accepted Contract Amount, less provisional sums, has been certified for payment, or on the day of ,2 ,[2] whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

6. The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed *[six months] [one year],* in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee.

[Name of Authorized Official, signature(s) and seals/stamps]

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

[1] *The Guarantor shall insert an amount representing the amount of the advance payment and denominated either in the currency(ies) of the advance payment as specified in the Contract, or in a freely convertible currency acceptable to the Procuring Entity.*

[2] *Insert the expected expiration date of the Time for Completion. The Procuring Entity should note that in the event of an extension of the time for completion of the Contract, the Procuring Entity would need to request*

an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee. In preparing this guarantee, the Procuring Entity might consider adding the following text to the form, at the end of the penultimate paragraph: "The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months] [one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

FORM NO. 6 - RETENTION MONEY SECURITY

[Demand Bank Guarantee]

[Guarantor letterhead]

Beneficiary: _____*[Insert name and Address of* Procuring Entity*]* **Date:** _____*[Insert date of issue]*

ADVANCE PAYMENT GUARANTEE No.:_____
[Insert guarantee reference number]

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

1. We have been informed that_____*[insert name of Contractor, which in the case of a joint venture shall be the name of the joint venture]* (herein after called" the Contractor") has entered into Contract No. _____*[insert reference number of the contract]* dated with the Beneficiary, for the execution of____*[insert name of contract and brief description of* Works*]* (herein after called" the Contract").

2. Furthermore, we understand that, according to the conditions of the Contract, the Beneficiary retains moneys up to the limit set forth in the Contract ("the Retention Money"), and that when the Taking-Over Certificate has been issued under the Contract and the first half of the Retention Money has been certified for payment, and payment of *[*insert the second half of the Retention Money] is to be made against a Retention Money guarantee.

3. At the request of the Contractor, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]* (*[insert amount in words_____])*[1] upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or show grounds for your demand or the sum specified therein.

4. A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the second half of the Retention Money as referred to above has been credited to the Contractor on its account number_at_____ *[insert name and address of Applicant's bank]*.

5. This guarantee shall expire no later than the……. Day of……..…, 2…[2], and any demand for payment under it must be received by us at the office indicated above on or before that date.

6. The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed *[six months] [one year],* in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee.

_____
[Name of Authorized Official, signature(s) and seals/stamps]
Note: All italicized text (including foot notes) is for use in preparing this form and shall be deleted from the final product.

FORM NO. 7 - BENEFICIAL OWNERSHIP DISCLOSURE FORM

(Amended and issued pursuant to PPRA CIRCULAR No. 02/2022)

INSTRUCTIONS TO TENDERERS: DELETE THIS BOX ONCE YOU HAVE COMPLETED THE FORM

This Beneficial Ownership Disclosure Form ("Form") is to be completed by the successful tenderer pursuant to Regulation 13 (2A) and 13 (6) of the Companies (Beneficial Ownership Information) Regulations, 2020. In case of joint venture, the tenderer must submit a separate Form for each member. The beneficial ownership information to be submitted in this Form shall be current as of the date of its submission.

For the purposes of this Form, a Beneficial Owner of a Tenderer is any natural person who ultimately owns or controls the legal person (tenderer) or arrangements or a natural person on whose behalf a transaction is

Tender Reference No.:_____[*insert identification no*] Name of the Tender Title/Description:_____*[insert name of the assignment]* to:_____*[insert complete name of Procuring Entity]*

In response to the requirement in your notification of award dated__*[insert date of notification of award]* to furnish additional information on beneficial ownership:__*[select one option as applicable and delete the options that are not applicable]*

i) We here by provide the following beneficial ownership information.

Details of beneficial ownership

	Details of all Beneficial Owners		**% of shares a person holds in the company Directly or indirectly**	**% of voting rights a person holds in the company**	**Whether a person directly or indirectly holds a right to appoint or remove a member of the board of directors of the company or an equivalent governing body of the Tenderer** (Yes / No)	**Whether a person directly or indirectly exercises significant influence or control over the Company (tenderer) (Yes / No)**
1.	Full Name		Directly---------- % of shares Indirectly---------- % of shares	Directly…… …….% of voting rights Indirectly---------- % of voting rights	1. Having the right to appoint a majority of the board of the directors or an equivalent governing body of the Tenderer: Yes -----No----	1. Exercises significant influence or control over the Company body of the Company (tenderer)
	National identity card number or Passport number					
	Personal Identification Number (where applicable)					
	Nationality					

	Details of all Beneficial Owners		**% of shares a person holds in the company Directly or indirectly**	**% of voting rights a person holds in the company**	**Whether a person directly or indirectly holds a right to appoint or remove a member of the board of directors of the company or an equivalent governing body of the Tenderer** (Yes / No)	**Whether a person directly or indirectly exercises significant influence or control over the Company (tenderer) (Yes / No)**
	Date of birth *[dd/mm/yyyy]*				2. Is this right held directly or indirectly?: Direct…… …… Indirect…… ……...	Yes -----No----- 2. Is this influence or control exercised directly or indirectly? Direct…… ….. Indirect…… …
	Postal address					
	Residential address					
	Telephone number					
	Email address					
	Occupation or profession					
2.	Full Name		Directly----------% of shares Indirectly----------% of shares	Directly…… …….% of voting rights Indirectly----------% of voting rights	1. Having the right to appoint a majority of the board of the directors or an equivalent governing body of the Tenderer: Yes -----No---- 2. Is this right held directly or indirectly?: Direct…… …… Indirect…… ……...	1. Exercises significant influence or control over the Company body of the Company (tenderer) Yes -----No----- 2. Is this influence or control exercised directly or indirectly?
	National identity card number or Passport number					
	Personal Identification Number (where applicable)					
	Nationality(ies)					
	Date of birth *[dd/mm/yyyy]*					
	Postal address					
	Residential address					
	Telephone number					
	Email address					
	Occupation or profession					

	Details of all Beneficial Owners		% of shares a person holds in the company Directly or indirectly	% of voting rights a person holds in the company	Whether a person directly or indirectly holds a right to appoint or remove a member of the board of directors of the company or an equivalent governing body of the Tenderer (Yes / No)	Whether a person directly or indirectly exercises significant influence or control over the Company (tenderer) (Yes / No)
						Direct…….. Indirect……
3. **e.t .c**						

ii) Am fully aware that beneficial ownership information above shall be reported to the Public Procurement Regulatory Authority together with other details in relation to contract awards and shall be maintained in the Government Portal, published and made publicly available pursuant to Regulation 13(5) of the Companies (Beneficial Ownership Information) Regulations, 2020.(Notwithstanding this paragraph Personally Identifiable Information in line with the Data Protection Act shall not be published or made public). *Note that Personally Identifiable Information (PII) is defined as any information that can be used to distinguish one person from another and can be used to deanonymize previously anonymous data. This information includes National identity card number or Passport number, Personal Identification Number, Date of birth, Residential address, email address and Telephone number.*

iii) In determining who meets the threshold of who a beneficial owner is, the Tenderer must consider a natural person who in relation to the company:

(a) holds at least ten percent of the issued shares in the company either directly or indirectly;

(b) exercises at least ten percent of the voting rights in the company either directly or indirectly;

(c) holds a right, directly or indirectly, to appoint or remove a director of the company; or

(d) exercises significant influence or control, directly or indirectly, over the company.

iv)What is stated to herein above is true to the best of my knowledge, information and belief.

Name of the Tenderer: .....[insert complete name of the Tenderer]*_____

*Name of the person duly authorized to sign the Tender on behalf of the Tenderer: ** [insert complete name of person duly authorized to sign the Tender]*

Designation of the person signing the Tender: ..... [insert complete title of the person signing the Tender]

Signature of the person named above: ..... [insert signature of person whose name and capacity are shown above]

Date this ..... [insert date of signing] day of..... [Insert month], [insert year]

Bidder's Official Stamp

SUPERVISION CHECKLIST

Supervision Check List			
Project Name:	**CONSTRUCTION OF LESONGOY RIVER BRIDGE ALONG NAMANGA JUNCTION (A2) - AMBOSELI GATE JUNCTION (B54) ROAD GATE JUNCTION (B54) ROAD**	Date	Signatures
1. This check list is for Resident Engineer to check Contractor's work execution process. 2. Fill in date of checking as (day/month), mark as indicated in Filling Example, and state remarks. 3. Put this check list in the Monthly Progress Report.	The Engineer's Representative (Project Engineer)		
	resident Engineer		

Item		Check Point		before	During execution								after	Remarks
				Date	Date	Date	Date	Date	Date	Date	Date	Date	Date	Reason for unsatisfactory performance (Site diary No.) Corrective order by authority (Date) Excellent point to be specified
				/	/	/	/	/	/	/	/	/	/	
1	Execution system in general	1-1	Works Execution Programme (including its revised version if any) is submitted before the											

			date specified in contract document																													
		1-2	Works Execution Programme properly reflects the given specifications and site conditions																													
		1-3	Execution procedures are in accordance with Works Execution Programme																													
2	Equipment holding	2-1	All equipment used are properly mobilized in accordance with Works Execution Programme																													

		2-2	All equipment used is well maintained during the execution of works																										
3	Contractor's in-house staff	3-1	Qualified technical staff of Contractor are properly assigned as specified in Works Execution Programme																										
		3-2	Contractor's in-house key staff understand work process and schedule properly																										
		3-3	Contractor's in-house staff give technical guidance and																										

			direction to workers and operators properly and timely																										
		3-4	Communications with authority in writing is properly and timely																										
4	Personelemployment	4-1	Workers and operators are deployed in accordance with Works Execution Programme																										
		4-2	Wage payment is properly made on time																										
5	Site base facilities	5-1	Office and stockyard are prepared in accordance with Works																										

			Execution Programme																										
		5-2	Site is well maintained during the work execution and cleared on completion																										
		5-3	Material stored on site is properly managed during the work execution																										
6	Quality and quantity management	6-1	Material testing, structural examination, and measurements are properly and PERIODICly conducted based on specification																										

			s and Works Execution Programme																										
		6-2	Results of material testing, structural examination and measurements are within the specifications.																										
		6-3	Results of material testing, structural examination, and measurements are properly compiled as reports for confirmation																										
7		7-1	Understanding of critical path and its																										

	Work scheduling		reflection on scheduling is proper																												
		7-2	Actual proceedings are periodically compared to the planned schedule described in Works Execution Programme																												
		7-3	Changes caused by site conditions are properly handled to keep things on schedule																												
		7-4	All works are completed within the contract term or within the extended																												

			term as allowed											
8	Work safety management	8-1	No accident occurs to workers, operators, or third-parties.											
		8-2	Safety of workers and operators is considered											
		8-3	Accident prevention efforts for third-parties are proper											
		8-4	Traffic and site safety devices are properly installed and managed											
		8-5	Temporary facilities (e.g. scaffolding) are											

			constantly checked																										
9	Environmental and social management	9-1	Environmental and social mitigation efforts (e.g. against noise, vibration, emission, and dust) are conducted																										
		9-2	Waste material from site is properly disposed																										
		9-3	Damage to existing roads, works and services is avoided or are repaired when it occurs																										
		9-4	No overloading for work-																										

			related vehicles is reported																																	
			Filling Example: ✓Check point is satisfactory ■ Check point is unsatisfactory N/A Not applicable																																	