

**REPUBLIC OF KENYA**



**MIGORI COUNTY GOVERNMENT**

**PROPOSED MAINTENANCE /OPENING OF LUANDA - KONYANGO - OKENGE ROAD**

**TENDER NO: CGM/RDS&T/85/2023-2024**

**JANUARY 2024**

<p>DIRECTOR ROADS AND TRANSPORT DEPARTMENT OF ROADS, PUBLIC WORKS AND TRANSPORT P. O. BOX 195, MIGORI</p>	<p>CHIEF OFFICER, ROADS AND TRANSPORT DEPARTMENT OF ROADS, PUBLIC WORKS AND TRANSPORT P. O. BOX 195, MIGORI</p>
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## SECTION I: INVITATION TO TENDER.

### 1.1.1 INVITATION TO TENDER

Procuring Entity: **County Government of Migori P.O. Box 195 -40400 Suna-Migori**

### 1.1.2 **Tender Description: PROPOSED MAINTENANCE /OPENING OF LUANDA - KONYANGO - OKENGE ROAD.**

The County Government of Migori-Department of Public works, Roads and Transport invites sealed tenders for the **PROPOSED MAINTENANCE /OPENING OF LUANDA - KONYANGO - OKENGE ROAD**

The contract shall be for a period of **..3 months**

1. Tendering will be conducted under open competitive method (National) using a standardized tender document. Tendering is open to all qualified and interested Tenderers.
2. The tender is open to all qualified and interested Tenderers.
3. Eligible and interested bidders may obtain further information at Director Supply Chain Office County Government of Migori between 8.00am and 5.00pm Kenyan Time, Monday to Friday except lunchtime between 1.00pm to 2.00pm and on public holidays.
4. The document may be downloaded free of charge from the Public Procurement Information Portal [www.tenders.go.ke](http://www.tenders.go.ke) and/or **Integrated Financial Management Information System (IFMIS) SUPPLIER PORTAL** ([www.supplier.treasury.go.ke](http://www.supplier.treasury.go.ke)) using the unique **IFMIS negotiation number** indicated above or County Website ([www.migori.go.ke](http://www.migori.go.ke))
5. Tenderers are invited for a mandatory a pre-tender site visit meeting to be held as indicated below

Date	As indicated
Time	12 00AM
Venue	OKENGE

*NOTE: Every Bidder shall be represented by one person bearing a letter from the company authorizing them to represent the company in the pre tender site visit. One (1) person shall only represent one (1) company. The bidder's representative should be technically qualified with at least a degree in civil engineering (**certified from the college of attendance or to be verified on site**). He must also be one of the key people listed in the schedule of key personnel.*

*The individual **MUST** Bring along the following:*

- Original ID/Passport and a CERTIFIED Copy.
- CERTIFIED copy of Degree Certificate.
- CERTIFIED Copy of Registration Certificate and proof of current subscription by EBK . Attach current practicing license.
- Original introductory letter bearing the company letterhead and an official stamp authorizing them to represent them in the specific pre-tender site visit. The letter shall be dully signed. Photocopies or any other media shall not be accepted.

Certification shall be by commissioner of oaths or Notaries public.

6. Bidders who download the tender document must register with County Government; the company name, postal, physical, email and telephone address for the purposes of receiving any further tender clarifications and/or addendums if need be through **procurement@migori.go.ke**
7. Prices quoted should be inclusive of all taxes and service delivery costs, must be expressed in Kenya shillings and will remain valid for 120 days from date of tender opening.
8. All tenders must be accompanied by bid bond of 2% of the tender sum in form of Bank Guarantee Only. Original bid bond should be deposited and registered with the department procurement department while its copy uploaded with the tender documents.  
**(If the tender is Reserved for Y, W & PWDs they shall submit Tender Securing**

**Declaration Form)**

9. The Tenderer shall chronologically serialize all pages and attachments numerically in the order of 1, 2, 3, . . . . . of the tender documents submitted.
10. Completed tender documents must be submitted through the supplier portal not later than Provided **Date at 10:00 am**. Manual submissions will not be allowed
11. Late tenders will be rejected.
12. The addresses referred to above are:

**Chief officer, R&T**  
**County Government of Migori,**  
**P.O. Box 195-40400**  
**SUNA-MIGORI**  
Email: [procurement@migori.go.ke](mailto:procurement@migori.go.ke)

**DIRECTOR, SUPPLY CHAIN MANAGEMENT SERVICES**  
**FOR: ACCOUNTING OFFICER**  
**MIGORI COUNTY GOVERNMENT**



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**PART 1: TENDERING PROCEDURES**

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## 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 in corrupt, 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 in conformity 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](http://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](http://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](http://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** prior 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 ITT14;
- 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 ITT 13.4 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 ITT 19.1, the Tender Security shall be a demand guarantee in any of the following forms at the Tenderer's option:

- i) cash;
- ii) a bank guarantee;
- iii) a guarantee by an insurance company registered and licensed by the Insurance Regulatory Authority listed by the Authority; or
- iv) 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 debar 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 described in ITT 11; 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 withdrawal 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 at tender 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. 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.
- 25.4 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.
- 25.5 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.
- 25.6 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).
- 25.7 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.
- 25.8 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, sub-total 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. In case 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.
- 35.4 Where the tender involves multiple lots or contracts, the tenderer will be allowed to tender for one or more lots (contracts). Each lot or contract will be evaluated in accordance with ITT 35.2. The methodology to determine the lowest evaluated tenderer or tenderers based one lot (contract) or based on a combination of lots (contracts), will be specified in Section III, Evaluation and Qualification Criteria. In the case of multiple lots or contracts, tenderer will be required to prepare the Eligibility and Qualification Criteria Form for each Lot.

### **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.

ITT REF.	ITT DESCRIPTION
<b>A. General</b>	
ITT 1	The name of the contract is: . The Reference number of the Contract is: <b>Tender No:</b>
ITT 2.3	The information made available to competing firms is as follows: NONE
ITT 2.4	The firms that provided consultancy services for the contract being tendered for are: NONE
ITT 3.1	Maximum number of Joint Venture JV shall be Two (2).
	ITT 3.12 Valid NCA Registration Certificate and Practicing License in the required category; shall be provided as detailed in the Evaluation/Qualification Criteria SECTION IV
<b>B.</b>	
ITT 7.1	i) The Tenderer will submit any request for clarification in writing at the Address: <i>Provided in the detailed Tender Notice</i> To reach the Procuring Entity not later than seven (7) days prior to the deadline of bid submission. ii) The Procuring Entity will publish the response at the Website <a href="http://www.migoricounty.go.ke">www.migoricounty.go.ke</a> or
ITT 7.2	<b>A) A Pre-arranged pretender site visit shall take place on. As instructed.</b>
ITT 7.3	The Tenderer will submit any questions in writing, to reach the Procuring Entity not later than the date specified in TDS- ITT 7.1
ITT 7.4	Not applicable
ITT 7.5	The Procuring Entity's website where Minutes of the pre-Tender meeting and the pre- arranged pretender will be published is <a href="http://www.migoricounty.go.ke">www.migoricounty.go.ke</a> if applicable
<b>C. Preparation of Tenders</b>	
ITT 11.1 (h)	The Tenderer shall submit the following additional documents in its Tender: <i>As indicated in the Qualification Form/Criteria</i>
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: <b>Fixed and not subject to adjustments</b>
ITT 15.2	Foreign currency requirements not allowed.
ITT 18.1	The Tender validity period shall be <b>140</b> days from the specified date of opening as indicated in the invitation to Tender

ITT REF.	ITT DESCRIPTION
ITT 18.2	<p>a) The Number of days beyond the expiry of the initial tender validity period will be 30 days.</p> <p>The Tender price shall be adjusted by the following percentages of the tender price:</p> <p>(i) By 0 % of the local currency portion of the Contract price adjusted to reflect local inflation during the period of extension, and</p> <p>(ii) By 0 % the foreign currency portion of the Contract price adjusted to reflect the international inflation during the period of extension.</p>
ITT 19.1	<p>Where applicable a Tender Security of the amount KShs Shall <u>Not</u> be required A Tender-Securing Declaration Form Shall <u>Not</u> be required.</p>
ITT 19.2	<p>The other security is <u>where Applicable should be in the form of:</u></p> <p>ii) <b>a bank guarantee</b></p> <p>iv) <b>a guarantee issued by a financial institution approved and licensed by the Central Bank of Kenya, from a reputable source</b></p>
ITT 19.3	<p>Delete "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" Where applicable "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"</p>
ITT 19.5	<p>Other documents required are as specified in <b>Form No. 3; Contract Agreement</b></p>
ITT 20.1	<p>In addition to the original of the Tender, the number of copies is: <b>NONE</b></p>
ITT 20.3	<p>The written confirmation of authorization to sign on behalf of the Tenderer shall consist of: <b>Certificate of Independent Tender Determination Part B of Confidential Business Questionnaire and a power of attorney executed/attested by Commissioner of Oaths</b></p>
<b>D. Submission and Opening of Tenders</b>	
ITT 21.2	<p>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.</p>
ITT 22.1	<p>(A) For Tender submission purposes only, the Procuring Entity's address is: As indicated in the <b>Invitation to Tender</b> Tenders shall be submitted electronically.</p>
ITT 25.1	<p>If Tenderers are allowed to submit Tenders electronically, they shall follow the electronic tender submission procedures <b>specified below</b> <b>Tender opening dates and time shall be as indicated in the invitation to tender</b></p>
ITT 25.6	<p>The number of representatives appointed to the Tender Opening Members of the Procuring Entity to sign is <b>at least three.</b> <b>The Committee shall initial</b></p> <p>a) <b>cover page,</b> b) <b>form of tender and</b> c) <b>Bills of Quantities</b> d) <b>the last page of the submitted bid and</b> e) <b>where applicable Tender Securities and/or Tender-Securing Declaration Forms</b></p>
<b>E. Evaluation, and Comparison of Tenders</b>	

ITT REF.	ITT DESCRIPTION
ITT 30.3	For Comparison purposes only; The adjustment shall be based on the average price of the item or component as quoted on 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. The Bidders Quoted Bid sum shall not change.
ITT 31.2	The error shall be considered a major deviation that leads to disqualification
ITT 32	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 <b>shall NOT</b> apply.
ITT 33.4	As indicated by invitation to tender
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: <b>Any Part of the works</b> For the above-designated parts of the Works that may require Specialized Subcontractors, the relevant qualifications of the proposed Subcontractors will be added to the qualifications of the Tenderer for the purpose of evaluation. <i>Not Applicable</i>
ITT 35.2 (e)	Additional requirements apply. These are detailed in the evaluation criteria in Section IV, Evaluation and Qualification Criteria.
ITT 39	Additional requirements are: As detailed in the Qualification Criteria/Form
ITT 48.1	Performance security shall be in the form of <b>unconditional Bank guarantee of 5%</b> of the tender sum  Performance security (where applicable) shall be in the form of <b>unconditional Bank guarantee of 1%</b> of the tender sum for reserved tenders (contracts reserved for special groups)  Delete “ <i>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</i> ”
ITT 48.3	The Performance Security shall be for contracts above Kenya Shillings Five Million
ITT 49	The procedures for making a Procurement-related Complaint are available from the PPRA website <a href="mailto:info@ppra.go.ke">info@ppra.go.ke</a> or <a href="mailto:complaints@ppra.go.ke">complaints@ppra.go.ke</a> . 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: Procuring Entity:

ITT REF.	ITT DESCRIPTION
	Email address: 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.
<b>ITT 50</b>	The procedures for making Procurement-related Complaints shall be specified in Special Conditions of Contracts

## 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:
- 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.
  - Value of single contract - Exchange rate prevailing on the date of the contract signature.
  - Exchange rates shall be taken from the publicly available source identified in the ITT. 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.

*[The Procuring Entity will provide the preliminary evaluation criteria. To facilitate, a template may be attached or clearly described all information and list of documentation to be submitted by Tenderers to enable preliminary evaluation of the Tender]*

#### 3. Tender Evaluation (ITT 35)

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

- Alternative Completion Times**, if permitted under ITT 13.2, will be evaluated as follows:  
N/A
- Alternative Technical Solutions** for specified parts of the Works, if permitted under ITT 13.4, will be evaluated as follows: N/A
- Other Criteria;** if permitted under ITT 35.2(d): N/A

#### 4. Multiple Contracts

- 4.1 Multiple contracts will be permitted in accordance with ITT 35.4. Tenderers are evaluated on basis of Lots and the lowest evaluated tenderer identified for each Lot. The Procuring Entity will select one Option of the two Options listed below for award of Contracts.



## **OPTION 1**

- i) If a tenderer wins only one Lot, the tenderer will be awarded a contract for that Lot, provided the tenderer meets the Eligibility and Qualification Criteria for that Lot.
- ii) If a tenderer wins more than one Lot, the tender will be awarded contracts for all won Lots, provided the tenderer meets the aggregate Eligibility and Qualification Criteria for all the Lots. The tenderer will be awarded the combination of Lots for which the tenderer qualifies and the others will be considered for award to second lowest the tenderers.

## **OPTION 2**

The Procuring Entity will consider all possible combinations of won Lots [contract(s)] and determine the combinations with the lowest evaluated price. Tenders will then be awarded to the Tenderer or Tenderers in the combinations provided the tenderer meets the aggregate Eligibility and Qualification Criteria for all the won Lots.

### **5. 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

### **6. Margin of Preference**

- 6.1 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%).
- 6.2 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.
- 6.3 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%).
- 6.4 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.



- 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**) 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 (five) 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 years specified. A consistent history of awards against the Tenderer or any member of a JV may result in rejection of the tender.

## **EVALUATION /QUALIFICATION CRITERIA**

To be qualified for award of Contract, the tenderer shall provide evidence satisfactory to the Employer of their eligibility and of their capability and adequacy of resources to effectively carry out the subject Contract. To this end, the tenderer shall be required to provide latest information set out below:

### **A. PRELIMINARY EXAMINATION**

- 1) Certified Certificate of Incorporation by Registrar of Companies.
- 2) Current Certified CR12 Certificate (dated within 12 Months before date of opening) from the Registrar of Companies. This should be provided with Identification Documents of Directors *and all individuals listed on the CR12.* (ID or Passport). For Corporate Directors, CR12 or its equivalent for the corporate directors, Identification Documents for the corporate Director and its directors **MUST** be provided. ‘
- 3) Provide valid certified certificate of registration with National Treasury for Access to Government Procurement Opportunities (AGPO) in the relevant group (Women, Youth or Persons Living with Disability for PWD bidders should provide evidence of director’s registration with the National Council of People Living with Disability-will be verified.
- 4) Valid Certified Current Single Business permit
- 5) Provide a Valid Tax Compliance Certificate or Tax exemption certificate for company and directors in accordance with ITT 4.14.
- 6) Tender Security of 2% of the tender sum in form of Bank Guarantee Only for open category . The Format to be as issued with this Tender and valid for the period specified under ITT 19. Alteration of the format shall lead to disqualification
- 7) Duly filled Tender Securing Declaration Form (*for Y, W & PWDs*) shall be in the format issued in this Tender and validly executed in accordance with ITT 19. Alteration of the format shall lead to disqualification
- 8) Submit a written power of attorney authorizing the signatory of the bid to commit the Bidder *Executed* by a Commissioner for Oaths, in accordance with ITT 20.3.
- 9) Declare conflicts of interest in accordance with ITT 3.3; provide a sworn-in affidavit *executed* by a Commissioner for Oaths specific to this tender.

- 10) Dully filled, Signed and stamped (*With Company Seal/ Rubber Stamp*) ALL Tendering Forms and Schedules, given under Section V of the tender document.
- 11) Dully, Filled, Signed and Stamped Confidential Business Questionnaire
- 12) Duly filled-in and Signed Form of Tender Pursuant to ITT 12
- 13) Dully Priced Bills of Quantities Pursuant to ITT 14
- 14) All pages of the Tender Document MUST be Chronologically Serialized (this should be sequential in the format of 1,2,3,4,5.....) from the first page to the last page. Pursuant to ITT 12.1.
- 15) If Tender is a Joint Venture, should meet the requirements as given Pursuant to ITT3.5
- 16) Bidders must not have been declared ineligible by the PPRA as described in ITT 3.7 provide proof.
- 17) Current Certificate of Registration with National Authority in the **Category NCA 6,7,8** together with a valid NCA practicing license.
- 18) participating in at least one similar contract of minimum cumulative value of 7 million Kenyan shillings that have been satisfactorily and substantially completed by the bidder as a prime contractor or sub contractor in the last three years prior to the application deadline as per form EXP 4.2 (a) and (b).proof.
- 19) Completeness of tender documents as instructed
- 20) Proof of line of credit from the bank

## QUALIFICATION FORM

<b>Item No.</b>	<b>Qualification Subject</b>	<b>Qualification Requirement</b>	<b>Document To be Completed/provided by Tenderer</b>	<b>For Procuring Entity's Use (Qualification or Not Met)</b>
<b>A.</b>				
1.	Nationality	Nationality in accordance with ITT 4.5	Forms ELI - 1.1, 1.2 and 1.3, with attachments	
2.	Tax Obligations for Kenyan Tenderers	Has produced a current tax clearance certificate or tax exemption certificate issued by Kenya Revenue Authority in accordance with ITT 3.14.	Form of Tender	
3.	Conflict of Interest	No conflicts of interest in accordance with ITT 4.3	Form of Tender	
4.	<b>PPRA Eligibility</b>	Not having been declared ineligible by the PPRA as described in ITT 4.6	Form of Tender - <b>Form SD 1</b>	
5.	State owned Enterprise	Meets conditions of ITT 4.7	Forms ELI - 1.1 and 1.2, with attachments	
6.	Goods, equipment and services to be supplied under the contract	To have their origin in any country that is not determined ineligible under ITT 4.1	Forms ELI - 1.4	
7.	History of Non- Performing Contracts	Non-performance of a contract did not occur as a result of contractor default since 1 June 2018	Form CON-2	
8.	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 ITT4.8.	To be confirmed from Internal records by the procuring entity	
9.	Pending Litigation	Tender's financial position and prospective long-term profitability still sound according to criteria established in 3.1 and assuming that all pending litigation will NOT be resolved against the	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)
		Tenderer		
10.	Litigation History	No consistent history of court/arbitral award decisions against the Tenderer for the last five (5) years.	Form CON - 1	
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 8.1	Form CON - 3	
13.	Tender Security	Tender Security document	Form in the Prescribed Format	
14.	Priced Bill of Quantities	<ul style="list-style-type: none"> <li>✓ Fill all rates, and amounts,</li> <li>✓ NO Alterations of the Quantities accepted,</li> <li>✓ All bidders own Corrections must be Countersigned</li> <li>✓ NO Errors noted in the Bills of Quantities</li> </ul>	Bills of Quantity in the Prescribed Format	
15.	Serialization of the Bid	<p>Bidders shall sequentially serialize all pages of each tender submitted.</p> <p>Any written Pages or document attached or inserted Documents <b>MUST</b> be sequentially serialized.</p>	The Serialization <b>MUST</b> be numerically sequential starting from Numeric 1.	
16.	Completeness of tender document	The person or persons signing the bid <b>shall</b> initial all pages of the bid where entries have been made.	<p><b>All</b> pages with entries (Typed or hand written) must be initialed.</p> <p>Any alterations made in the tender document must be Countersigned.</p>	

<b>Item No.</b>	<b>Qualification Subject</b>	<b>Qualification Requirement</b>	<b>Document To be Completed/provided by Tenderer</b>	<b>For Procuring Entity's Use (Qualification met or Not Met)</b>
15.	Serialization of the Bid	<p>Bidders shall sequentially serialize all pages of each tender submitted.</p> <p>Any written Pages or document attached or inserted Documents <b>MUST</b> be sequentially serialized.</p>	The Serialization <b>MUST</b> be numerically sequential starting from Numeric 1.	
16.	Completeness of tender document	The person or persons signing the bid <b>shall</b> initial all pages of the bid where entries have been made.	<p>All pages with entries (Typed or hand written) must be initialed.</p> <p>Any alterations made in the tender document must be countersigned.</p>	
<b>B. TECHNICAL EVALUATION</b>				
1.	History of Non-Performing Contracts	<p>Non-performance of a contract did not occur as a result of contractor default for the last three (3) years.</p> <p>Non-performance shall be deemed to have occurred by evidence of:</p> <ul style="list-style-type: none"> <li>• Termination Letter</li> <li>• Liquidated Damages</li> </ul>	<p>Form CON-1</p> <p>If a bidder fails to disclose, shall be disqualified</p> <p>Reference to be made to procuring Authority's records</p> <p>A bidder with any history of non-performance earns zero(0) marks</p>	

Item No.	Qualification Subject	Qualification Requirement	Document To be Completed/provided by Tenderer	For Procuring Entity's Use (Qualification met or Not Met)
2.	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).	<p>Form FIN - 3.1, with attachments</p> <p>Attachments include:</p> <p>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.</p> <p>The Financial Ratio Form to be signed by the Auditor registered with ICPAK and one of the Directors</p> <p>ii. Financial Ratios Computation shall be made for the following Ratios and marks awarded to each of the ratios:</p> <ul style="list-style-type: none"> <li>-Working Capital</li> <li>- Debt to Equity Ratio</li> <li>- Current ratio</li> <li>- Operating Cash Flow ratio</li> </ul>	



Item No.	Qualification Subject	Qualification Requirement	Document To be Completed/provided by Tenderer	For Procuring Entity's Use (Qualification met or Not Met)
		<p>(ii) The Tenderer shall demonstrate that it has access to, or has 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 requirements estimated at a minimum of 10% of Engineer's Estimate for the subject contract(s) net of the Tenderer's other commitments.</p> <p>The Tenderers shall also demonstrate, to the satisfaction of the Procuring Entity, that it has adequate sources of finance to meet the cash flow requirements on works currently in progress and for future contract commitments.</p>	<ul style="list-style-type: none"> <li>• Line of Credit</li> <li>• Bank statements</li> <li>Etc.</li> </ul>	
	Average Annual Construction Turnover	(iii) Minimum average annual construction turnover of Kenya Shillings 15 million (15 million), equivalent calculated as total certified payments received for contracts in progress and/or completed within the last 3 (three) years	Form FIN - 3.2 <i>Attachments include Financial Statements</i>	
3.	Ongoing Works	Value of outstanding works shall not be	Form FIN - 3.4	

Item No.	Qualification Subject	Qualification Requirement	Document To be Completed/provided by Tenderer	For Procuring Entity's Use (Qualification met or Not Met)
		more than the Engineer's Estimate	If the outstanding Works is more than the Engineer's Estimate of this bid, the bidder loses . we will confirm.	
	General Construction Experience	Experience under construction contracts in the role of prime contractor, JV member, sub-contractor, or management contractor, substantially completed in the last 3 (Three) years prior to the applications submission deadline.	Form EXP -4.1 <b>Attach Letters of Award and Completion Certificates</b>	
	Specific Construction & Contract Management Experience	Participation in at least one similar Contract of minimum <b>cumulative</b> value of (20 million) as filled in Form EXP 4.2(a) that have been satisfactorily and substantially completed by the bidder, as a prime contractor, joint venture member, management contractor or sub-contractor in the last <b>[3 years]</b> prior to the applications submission deadline. The similarity shall be based on the physical size, complexity, methods / technology or other characteristics	Form EXP 4.2(a)&(b)  <b>Provide Letters of Award and Completion Certificates</b> <b>For subcontracted works, the bidder should provide the following;</b>  <ul style="list-style-type: none"> <li>• <b>Award letter of the main contractor</b></li> <li>• <b>Award letter of the subcontract.</b></li> <li>• <b>Completion letter of the subcontract.</b></li> <li>• <b>Subcontract approval from the Engineer/supervision Authority</b></li> </ul>	

Item No.	Qualification Subject	Qualification Requirement	Document To be Completed/provided by Tenderer	For Procuring Entity's Use (Qualification met or Not Met)	
4.	Contractor's Representative and Key Personnel	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;	Schedule F (Form PER. 1 and PER. 2)		
		The site staff shall possess minimum levels set below;			
		Site Agent	Qualification = Degree in Civil eng with valid pract.licence Equivalent General Experience = 10 yrs., Specific Experience = 8 Yrs.		
		Senior Foreman	Qualification =Certificate in Civil Engineering from KIHBIT or Equivalent Eng. General Experience = 5 yrs., Specific Experience = 3 Yrs.		
5.	Contractors key equipment	<ul style="list-style-type: none"> <li>• 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</li> <li>• For Bidders planning to hire, they shall provide an Active Lease Agreement in Place that can be used</li> </ul>	FORM EQU: EQUIPMENT UNDER SECTION V – TENDERING FORMS		



<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Item	Qualificat		Document To be	For Procuring
No.	ion	Qualification Requirement	Completed/provided by	Entity's Use
	Subject		Tenderer	(Qualification
				met or Not
				Met)
6.	Proposed methodology	Adequacy and quality of the proposed methodology	<p><b>a) Technical approach and methodology</b></p> <ul style="list-style-type: none"> <li>• Provided a detailed Work Methodology</li> <li>• Provided a Methodology on safety during the construction period</li> </ul>	
			<ul style="list-style-type: none"> <li>• Provided a specific Quality management plan</li> </ul> <p><b>b) Work plan/Program of Works (PoW)</b></p> <ul style="list-style-type: none"> <li>• PoW Resourced with Equipment-Min. allocation pursuant to the <i>Schedule .... of Technical Proposal</i> - - To be submitted in well legible Fonts</li> <li>• PoW captures Monthly outputs for each activity</li> <li>• PoW details BoQ Quantities, Units and Rates</li> </ul>	

<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Item	Qualificat	Qualification Requirement	Document To be	For Procuring
No.	ion		Completed/provided by	Entity's Use
	Subject		Tenderer	(Qualification met or Not Met)
			<ul style="list-style-type: none"> <li>PoW is superimposed with Cash flow Projections as detailed in <i>Schedule .....</i> of the technical proposal</li> </ul> <p>c) <b>Site Organization and staffing</b> (Schedule of Technical proposal)</p>	

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Item	Qualification		Document To be	For
No.	Subject	Qualification Requirement	Completed/provided by	Procuring Entity's Use
			Tenderer	(Qualification met or Not Met)
7.	Pretender site visit	Attach pretender certificate	a) Pretender certificate  b) Site visit acknowledgement form	
<b>Tenderers who pass the technical evaluation will be evaluated further.</b>				

**TABLE 2: QUALIFICATION SCORE**

ITEM		DESCRIPTION	POINT SCALE	SCORE
1		FINANCIAL CAPACITY	MAX 13	
	a.	Audited statements	0-4	
	b.	Line of credit	0-3	
	c.	Bank statements (last six months to the date of tender)	0-3	
		Turn over	0-3	
2.		EXPERIENCE	MAX 13	
		General experience	0-3	
		Specific (local)experience in related works	0-10	
3.		CURRENT COMMITMENTS	MAX 2	
		On-going works	0-2	
4		KEY PERSONNEL	MAX 16	
		Site agent	Qualification	Degree and practicing licence
				5

			Relevant experience	15 years and above	4
				7-14 years	3
				3-6 years	2
				0-3 years	1
		Surveyor max 4 marks	Qualification	Degree	2
				HND	2
				Diploma	1
			Relevant experience	15 years and above	2
				7-14 years	1.5
				3-6 years	1
				0-3 years	0.5
		Foreman (max 4 marks)	Qualification	Degree	1.5
				HND	1.5
				Diploma	1
			Relevant experience	15 years and above	2.5
				7-14years	2
				3-6years	1.5
				0-3 years	1
5.		PLANT AND EQUIPMENT			Max 13
		Relevant Equipment	Owned (Max 15 marks)		0-13
			50% owned		0-13
			50% leased (max 15 marks)		
6.		WORK METHODOLOGY			Max 13
			Program of works		0-3
			Detailed methodology		0-6
			Proposed Equipment scheduling/work statement		0-2
			Methodology on safety during the construction period		0-2
7		PRE-TENDER SITE VISIT			
		Pre-tender site visit			30
		TOTAL			MAX 100
		MINIMUM QUALIFICATION SCORE			75

**C.**  
**FINANCIAL EVALUATION:** Lowest Evaluated Bidder is subjected to Post Qualification Evaluation

**D. POST QUALIFICATION:** The procuring entity shall verify the documents provided by the bidder with the issuing authority.

In line with ITT 3.12 Confirm Bidders Proof of registration with the National Construction Authority in Category 6,7,8 as Roads/Bridges Contractor (Attach copy of Current NCA Practicing License); Tax Compliance Certificate; bid security (where applicable); specific experience; equipment ownership; credit facility (determine financial capacity/soundness) and on-going works (where applicable)





ITEM	DESCRIPTION	Qualification Requirement	Document To be Completed/provided by Tenderer
	Computation of Financial Ratios	Financial Evaluation ratios). Firms incorporated within the last three years <b>MUST</b> demonstrate financial ability in the form of Line of Credit equivalent to required working capital.	<p>Computation shall be made for the following Ratios and marks awarded to each of the ratios:</p> <ul style="list-style-type: none"> <li>✓ Working Capital</li> <li>✓ Debt to Equity Ratio</li> <li>✓ Current ratio</li> <li>✓ Operating Cash Flow ratio</li> </ul>
	Working capital	<p>The Tenderer shall demonstrate that it has access to, or has available, liquid assets, unencumbered real assets, lines of credit, and other financial means (independent of any contractual advance payment) sufficient to meet the cashflow requirements estimated at a minimum of KShs200(two hundred million) for the subject contract(s) net of the Tenderer's other commitments.</p> <p>The Tenderers shall also demonstrate, to the satisfaction of the Procuring Entity, that it has adequate sources of finance to meet the cash flow requirements on works currently in progress and for future contract commitments</p>	<ul style="list-style-type: none"> <li>• Line of Credit</li> <li>• Bank statements</li> </ul>
	Turnover	Minimum average annual construction turnover of Kenya Shillings <b>15 million (five million)</b> , equivalent calculated as total certified <b>payments received for contracts in progress and/or completed</b>	Form FIN - 3.2 <i>Attachments include Financial Statements</i>

ITEM	DESCRIPTION		Qualification Requirement	Document To be Completed/provided by Tenderer
			within the last 3 years	
3	<b>EXPERIENCE</b>			
	Workload Analysis			
	General Experience			
	Specific experience in related works			
4	<b>KEY PERSONNEL</b>			
	Site Agent	Qualification	Degree	
			Registered	
		Relevant experience	Above 10 years	
			0 – 9 years	
5	<b>PLANT AND EQUIPMENT</b>			
	Relevant Equipment (As Detailed in FORM EQU)	Owned		
		100% Leased		
6	<b>PROGRAM OF WORKS AND WORK METHODOLOGY</b>			
6a	Work Methodology	Provided a detailed Work Methodology		
		Provided a Methodology on safety during the construction period		
		Provided a specific Quality management plan		
6b	Program of Works	PoW Resourced with Equipment -Min. allocation pursuant to the Schedule E of Technical Proposal :- To be submitted in well legible Fonts		
		PoW captures Monthly outputs for each activity		
		PoW details BoQ Quantities, Units and Rates		

ITEM	DESCRIPTION		Qualification Requirement	Document To be Completed/provided by Tenderer
		PoW is superimposed with cash flow Projections as detailed in Schedule A of the technical proposal		
	Site base facilities	Site Organization and staffing (Schedule B of Technical proposal). Proposal on office & stock yard facilities – identify location and condition of the planned site office and stockyard. Attachment of map and photo preferably		
	<b>Responsive/Non -responsive</b>			

## SECTION V - TENDERING FORMS

### QUALIFICATION FORMS

#### 1. FORM EQU: EQUIPMENT

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, or for alternative equipment proposed by the Tenderer.

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 the equipment <input type="checkbox"/> Owned <input type="checkbox"/> leased <input type="checkbox"/> Rented <input type="checkbox"/> 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	Telex
Agreements	Details of rental/lease/ manufacturer agreements specific to the project	

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 the equipment <input type="checkbox"/> Owned <input type="checkbox"/> leased <input type="checkbox"/> Rented <input type="checkbox"/> 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	Telex
Agreements	Details of rental/lease/ manufacturer agreements specific to the project	

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 the equipment <input type="checkbox"/> Owned <input type="checkbox"/> leased <input type="checkbox"/> Rented <input type="checkbox"/> Specially manufactured	
Omit the following information for equipment owned by the Tenderer		
Owner	Name of owner	
	Address of owner	
	Telephone	Contact name and tittle
	Fax	Telex
Agreements	Details of rental/lease/ manufacturer agreements specific to the project	

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 the equipment <input type="checkbox"/> Owned <input type="checkbox"/> leased <input type="checkbox"/> Rented <input type="checkbox"/> Specially manufactured	
Omit the following information for equipment owned by the Tenderer		
Owner	Name of owner	
	Address of owner	
	Telephone	Contact name and tittle
	Fax	Telex
Agreements	Details of rental/lease/ manufacturer agreements specific to the project	



## 2. FORM PER -1

### *Contractor's Representative and Key Personnel Schedule*

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

### *Contractor' Representative and Key Personnel*

1	<b>Title of position:</b> Contractor's Representative	
	<b>Name of Candidate:</b>	
	<b>Duration of appointment</b>	
	<b>Time commitment: for this position</b>	
	<b>Expected time schedule for this position</b>	
2	<b>Title of position</b>	
	<b>Name of Candidate:</b>	
	<b>Duration of appointment</b>	
	<b>Time commitment: for this position</b>	
	<b>Expected time schedule for this position</b>	
3	<b>Title of position:</b>	
	<b>Name of Candidate:</b>	
	<b>Duration of appointment</b>	
	<b>Time commitment: for this position</b>	
	<b>Expected time schedule for this position</b>	
4	<b>Title of position:</b>	
	<b>Name of Candidate:</b>	
	<b>Duration of appointment</b>	
	<b>Time commitment: for this position</b>	
	<b>Expected time schedule for this position</b>	
5	<b>Title of position:</b>	
	<b>Name of Candidate:</b>	
	<b>Duration of appointment</b>	
	<b>Time commitment: for this position</b>	
	<b>Expected time schedule for this position</b>	

### 3. FORM PER-2:

#### Resume and Declaration - Contractor's Representative and Key Personnel.

Name of Tenderer		
<i>Position[#]: [Title of position from Form PER-1]</i>		
Personnel Information	Name:	Date of birth
	Address:	Email:
	Professional qualifications:	
	Academic qualifications:	
	Language proficiency: <i>[language and levels of speaking, reading and writing skills]</i>	
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
<i>[Main project details]</i>	<i>[role and responsibilities on the project]</i>	<i>[time in role]</i>	<i>[describe the experience relevant to this position]</i>

## Declaration

I, the undersigned [*insert either "Contractor's Representative" or "Key Personnel" as applicable*], 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:

Commitments	Details
Commitments to duration of contracts:	
Time Commitment:	

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

- a) be taken into consideration during Tender evaluation;
- b) result in my disqualification from participating in the Tender;
- c) result in my dismissal from the contract.

Name of Contractor's Representative or Key Personnel: [*insert name*]

Name & Signature: \_\_\_\_\_

Date: (day month year): \_\_\_\_\_

Countersignature of authorized representative of the Tenderer:

Name & Signature: \_\_\_\_\_

Date: (day month year): \_\_\_\_\_

Resume and Declaration - Contractor's Representative and Key Personnel.

Name of Tenderer		
<i>Position[#]: [Title of position from Form PER-1]</i>		
Personnel Information	Name:	Date of birth
	Address:	Email:
	Professional qualifications:	
	Academic qualifications:	
	Language proficiency: <i>[language and levels of speaking, reading and writing skills]</i>	
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
<i>[Main project details]</i>	<i>[role and responsibilities on the project]</i>	<i>[time in role]</i>	<i>[describe the experience relevant to this position]</i>

**Declaration**

I, the undersigned [*insert either "Contractor's Representative" or "Key Personnel" as applicable*], 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:

Commitments	Details
Commitments to duration of contracts:	
Time Commitment:	

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

- d) be taken into consideration during Tender evaluation;
- e) result in my disqualification from participating in the Tender;
- f) result in my dismissal from the contract.

Name of Contractor's Representative or Key Personnel: [*insert name*]

Name & Signature: \_\_\_\_\_

Date: (day month year): \_\_\_\_\_

Countersignature of authorized representative of the Tenderer:

Name & Signature: \_\_\_\_\_

Date: (day month year): \_\_\_\_\_

Resume and Declaration - Contractor's Representative and Key Personnel.

Name of Tenderer		
<i>Position[#]: [Title of position from Form PER-1]</i>		
Personnel Information	Name:	Date of birth
	Address:	Email:
	Professional qualifications:	
	Academic qualifications:	
	Language proficiency: <i>[language and levels of speaking, reading and writing skills]</i>	
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
<i>[Main project details]</i>	<i>[role and responsibilities on the project]</i>	<i>[time in role]</i>	<i>[describe the experience relevant to this position]</i>

## Declaration

I, the undersigned [*insert either "Contractor's Representative" or "Key Personnel" as applicable*], 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:

Commitments	Details
Commitments to duration of contracts:	
Time Commitment:	

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

- g) be taken into consideration during Tender evaluation;
- h) result in my disqualification from participating in the Tender;
- i) result in my dismissal from the contract.

Name of Contractor's Representative or Key Personnel: [*insert name*]

Name & Signature: \_\_\_\_\_

Date: (day month year): \_\_\_\_\_

Countersignature of authorized representative of the Tenderer:

Name & Signature: \_\_\_\_\_

Date: (day month year): \_\_\_\_\_

#### 4. TENDERERS QUALIFICATION WITHOUT PRE-QUALIFICATION

To establish its qualifications to perform the contract in accordance with Section III, Evaluation and Qualification Criteria the Tenderer shall provide the information requested in the corresponding Information Sheets included hereunder.

##### *FORM ELI -1.1 Tenderer Information Form*

Date: \_\_\_\_\_

ITT No. and title: \_\_\_\_\_

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 'authorized representative information:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone / Fax numbers: \_\_\_\_\_

E-mail address: \_\_\_\_\_

1. Attached are original documents of

Articles of Incorporation (or equivalent document of constitution or association) and/or documents of registration of legal entity named above, in accordance with ITT 3.6

In case of JV, letter of intent to form JV or JV Agreement, in accordance with ITT 3.5

In case of state-owned enterprise or institution, in accordance with ITT3.8, documents establishing;

- legal and financial autonomy,
- Operation under commercial Law,
- Establishing that the tenderer is not under the supervision of the Procuring Entity in accordance with ITT 3.8

2. Included are the organizational chart, a list of Board of Directors and the beneficial ownership.



**FORM ELI -1.2:**

**Tenderer's JV Information Form**

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

Date: \_\_\_\_\_

ITT No. and title: \_\_\_\_\_

1. Tenderer's JV Name:
2. JV Member's name:
3. JV Member's country of registration
4. JV Member's year of Constitution :
5. JV Member's legal address in country of Constitution:
6. JV Member's Authorized Representative Information Name: Address: Telephone/Fax numbers: Email Address:
1. Attached are original documents of <input type="checkbox"/> Articles of Incorporation (or equivalent document of constitution or association) and/or documents of registration of legal entity named above, in accordance with ITT 3.6  <input type="checkbox"/> In case of state-owned enterprise or institution, documents establishing legal and financial autonomy, Operation under commercial Law, and that they are not under supervision of the Procuring Entity in accordance with ITT 3.8  2. Included are the organizational chart, a list of Board of Directors and the beneficial ownership.

**FORM CON - 2**

***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 Qualifications**

- Contract non-performance did not occur since 1 June 2018 specified in section III Evaluation and Qualification Criteria, Sub-Factor 2.1
- Contract(s) not performed since 1 June 2018 specified in section III Evaluation and Qualification Criteria, Sub-Factor 2.1

<b>Year</b>	<b>Non-performed portion of contract</b>	<b>Contract Identification</b>	<b>Total Amount value, exchange rate and Kenya Shilling equivalent)</b>
<i>[insert year]</i>	<i>[insert amount and percentage]</i>	Contract Identification: <i>[indicate complete contract name/ number, and any other identification]</i>  Name of Procuring Entity: <i>[insert full name]</i>  Address of Procuring Entity: <i>[insert street/city/country]</i>  Reason(s) for non-performance: <i>[indicate main reason(s)]</i>	

**Pending Litigation, in accordance with section III, Evaluation and Qualification Criteria**

- No pending litigation in accordance with section III, Evaluation and Qualification Criteria, Sub-Factor 2.3
- Pending litigation in accordance with section III, Evaluation and Qualification Criteria, Sub-Factor 2.3 as indicated below.

<b>Year of dispute</b>	<b>Amount in dispute (currency)</b>	<b>Contract Identification</b>	<b>Total Contract Amount (Currency), Kenya shillings Equivalent (Exchange Rate)</b>
		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.

<b>Year of award</b>	<b>Outcome as</b>	<b>Contract Identification</b>	<b>Total Contract Amount</b>
----------------------	-------------------	--------------------------------	------------------------------

	percentage of Net Worth		(Currency), Kenya shillings Equivalent (Exchange Rate)
<i>[insert year]</i>	<i>[insert percentage]</i>	<p>Contract Identification: <i>[indicate complete contract name, number, and any other Identification]</i></p> <p>Name of Procuring Entity: <i>[insert full name]</i></p> <p>Address of Procuring Entity: <i>[insert street/city/county]</i></p> <p>Matter in dispute: <i>[indicate main issue in dispute]</i>  Party who initiated the dispute: <i>[indicate "procuring entity" or "contractor"]</i></p> <p>Reason(s) for litigation and award decision  I<i>[indicate main reason(s)]</i></p>	<i>[insert amount]</i>

**5. 67: FORM FIN – 3.1**

**Financial Situation and Performance**

Tenderer's Name: \_\_\_\_\_

Date: \_\_\_\_\_

JV Member's Name \_\_\_\_\_

ITT No. and title: \_\_\_\_\_

**5.4.1. Financial Data**

<b>Type of Financial Information in KShs (currency)</b>	Historic information for previous <i>(insert as appropriate)</i> years,		
	<i>(Amount in currency (KShs))</i>		
	Year 1	Year 2	Year 3
<b>Statement of Financial Position (Information from Balance Sheet)</b>			
Total Assets(TA)			
Total Liability (TL)			
Total Equity/Net Worth (NW)			
Current Assets (CA)			
Current Liability (CL)			
Working Capital (WC)			
<b>Information from Income Statement</b>			
Total Revenue (TR)			
Profits Before Taxes (PBT)			
<b>Cash Flow Information</b>			
Cash Flow from Operating Activities			

**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 shillings equivalent)
1		
2		
3		

**Financial documents**

The Tenderer and its parties shall provide copies of financial statements for \_\_\_\_\_ 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 \_\_\_\_\_ years required above; and complying with the requirements

**5.5 FORM FIN – 3.2**

*Average Annual Construction Turnover*

Tenderer's Name: \_\_\_\_\_

Date: \_\_\_\_\_

JV Member's Name \_\_\_\_\_

ITT No. and title: \_\_\_\_\_

<b>Annual Turnover data ( Construction only)</b>	
<b>Year</b>	<b>Kenya Shillings</b>
<i>[indicate year]</i>	
<b>Average Annual Construction Turnover</b>	

\* See Section III, Evaluation and Qualification Criteria, Sub-Factor 3.2.

<sup>1</sup>*If the most recent set of financial statements is for a period earlier than 12 months from the date of Tender, the reason for this should be justified.*

### 5.69 FORM FIN – 3.3:

#### *Financial Resources*

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contract or contracts as specified in Section III, Evaluation and Qualification Criteria

<b>Financial Resource</b>			
<b>NO</b>	<b>Source of financing</b>	<b>Amount (Kenya Shilling Equivalent)</b>	
1			
2			
3			
4			

### 5.7 FORM FIN – 3.4:

#### *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 letter 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.

<b>Financial Resource</b>			
<b>NO</b>	<b>Source of financing</b>	<b>Amount (Kenya Shilling Equivalent)</b>	
1			
2			
3			
4			

**5.8 FORM EXP - 4.1**

***General Construction Experience***

Tenderer's Name: \_\_\_\_\_

Date: \_\_\_\_\_

JV Member's Name \_\_\_\_\_

ITT No. and title: \_\_\_\_\_

Page \_\_\_\_\_ of \_\_\_\_\_ pages

<b>Starting Year</b>	<b>Ending Year</b>	<b>Contract Identification</b>	<b>Role of Tenderer</b>
		Contract name: _____ Brief Description of the work performed by the tenderer: _____ Amount of contract: _____ Name of Procuring Entity: _____ Address: _____	
		Contract name: _____ Brief Description of the work performed by the tenderer: _____ Amount of contract: _____ Name of Procuring Entity: _____ Address: _____	
		Contract name: _____ Brief Description of the work performed by the tenderer: _____ Amount of contract: _____ Name of Procuring Entity: _____ Address: _____	

**5.9 FORM EXP - 4.2(a)**

***Specific Construction and Contract Management Experience***

Tenderer's Name: \_\_\_\_\_

Date: \_\_\_\_\_

JV Member's Name \_\_\_\_\_

ITT No. and title: \_\_\_\_\_

<b>Contract No.</b>	<b>Information</b>			
Contract Identification				
Award Date				
Completion Date				
Role in Contract	<input type="checkbox"/> Prime Contractor	<input type="checkbox"/> Member in JV	<input type="checkbox"/> Management Contractor	<input type="checkbox"/> Sub-contractor
Total Contract Amount				Kenya Shillings
If a member in JV or Sub-contractor specify participation in total contract amount				
Procuring Entity Name				
Address: Telephone/Fax Number: E-mail:				
Description of the similarity in with Sub-Factor 4.2 (a) of Section III:				
1. Amount				
2. Physical size of required works items				
3. Complexity				
4. Methods/Technology				
5. Construction rate for key activities				
6. Other Characteristics				



**10.1 FORM EXP - 4.2(b)**

***Construction Experience in Key Activities***

Tenderer's Name: \_\_\_\_\_

Date: \_\_\_\_\_

Tenderer's JV Member Name: \_\_\_\_\_

Sub-contractor's Name<sup>2</sup>(as per ITT 34): \_\_\_\_\_

ITT No. and title: \_\_\_\_\_

All Sub-contractors for key activities must complete the information in this form as per ITT 34 and Section III, Evaluation and Qualification Criteria, Sub-Factor 4.2.

1. Key Activity No One: -

Information				
Contract Identification				
Award Date				
Completion Date				
Role in Contract	<input type="checkbox"/> Prime Contractor	<input type="checkbox"/> Member in JV	<input type="checkbox"/> Management Contractor	<input type="checkbox"/> Sub-contractor
Total Contract Amount	Kenya Shillings			
Quantity (Volume, Number or rate of production, as applicable) Performed under the contract per year	Total Quantity in the contract (i)	Percentage participate (ii)	Actual Quantity Performed (i) x (ii)	
Year 1				
Year 2				
Year 3				
Year 4				
Procuring Entity's Name:				
Address: Telephone/ Fax number E-mail:				
Description of the key activities in according with Sub-Factor 4.2 (b) of Section III				

2. Activity No. Two 3. ....

If applicable

## **OTHER FORMS**

### **6. 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 CERTIFICATE OF INDEPENDENT TENDER DETERMINATION and the SELF DECLARATION OF THE TENDERER attached to this Form of Tender.*
- iv) *The Form of Tender shall include the following Forms duly completed and signed by the Tenderer.*
  - *Tenderer's Eligibility- Confidential Business Questionnaire*
  - *Certificate of Independent Tender Determination*
  - *Self-Declaration of the Tenderer*

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

**Request for Tender No.:** *[insert identification]*

**Name and description of Tender** *[Insert as per ITT]*

**Alternative No.:** *[insert identification No if this is a Tender for an alternative]*

**To:** *[insert complete name of Procuring Entity]* Dear Sirs,

1. In accordance with the Conditions of Contract, Specifications, Drawings and Bills of Quantities for the execution of the above named Works, we, the undersigned offer to construct and complete the Works and remedy any defects therein for the sum of Kenya Shillings *[[Amount in figures]* \_\_\_\_\_ Kenya Shillings *[amount in words]* \_\_\_\_\_.
2. We undertake, if our tender is accepted, to commence the Works as soon as is reasonably possible after the receipt of the notice to commence, and to complete the whole of the Works comprised in the Contract within the time stated in the Special Conditions of Contract.
3. We agree to adhere by this tender until \_\_\_\_\_ *[Insert days]*, and it shall remain binding upon us and may be accepted at any time before that date.
4. Unless and until a formal Agreement is prepared and executed, this tender together with your written acceptance thereof, shall constitute a binding Contract between us. We further understand that you are not bound to accept the lowest or any tender you may receive.
5. We, the undersigned, further declare that:
  - i) **No reservations:** We have examined and have no reservations to the tender document, including Addenda issued in accordance with ITT 28;
  - ii) **Eligibility:** We meet the eligibility requirements and have no conflict of interest in accordance with ITT 3 and 4;
  - iii) **Tender-Securing Declaration:** We have not been suspended nor declared ineligible by the Procuring Entity based on execution of a Tender-Securing or Proposal-Securing Declaration in the Procuring Entity's Country in accordance with ITT 19.8;
  - iv) **Conformity:** We offer to execute in conformity with the tendering documents and in accordance with the implementation and completion specified in the construction schedule, the following Works: *[insert a brief description of the Works]*;
  - v) **Tender Price:** The total price of our Tender, excluding any discounts offered in item 1 above is: *[Insert one of the options below as appropriate]*
  - vi) **Tender Validity Period:** Our Tender shall be valid for the period specified in TDS 18.1 (as amended, if applicable) from the date fixed for the Tender submission deadline specified in TDS 22.1 (as amended, if

applicable), and it shall remain binding upon us and may be accepted at any time before the expiration of that period;

- viii) **Performance Security:** If our Tender is accepted, we commit to obtain a Performance Security in accordance with the Tendering document;
- ix) **One Tender Per Tender:** We are not submitting any other Tender(s) as an individual Tender, 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 3.4, other than alternative Tenders submitted in accordance with ITT 13.3;
- x) **Suspension and Debarment:** We, along with any of our subcontractors, suppliers, Project Manager, 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 Public Procurement Regulatory Authority or any other entity of the Government of Kenya, or any international organization.
- xi) **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 3.8];
- xii) **Commissions, gratuities, fees:** We have paid, or will pay the following commissions, gratuities, or fees with respect to the tender 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	Address	Reason	Amount

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

- xiii) **Binding Contract:** We understand that this Tender, together with your written acceptance thereof included in your Letter of Acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed;
- xiv) **Not Bound to Accept:** We understand that you are not bound to accept the lowest evaluated cost Tender, the Most Advantageous Tender or any other Tender that you may receive;
- xv) **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;
- xvi) **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.
- xvii) We undertake to adhere by the Code of Ethics for Persons Participating in Public Procurement and Asset Disposal, copy available from \_\_\_\_\_ (specify website) during the procurement process and the execution of any resulting contract.
- xviii) 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.
  - c) Self-Declaration of the Tenderer – to declare that we will, if awarded a contract, not engage in any form of fraud and corruption.
  - d) Declaration and commitment to the Code of Ethics for Persons Participating in Public Procurement and Asset Disposal

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** .....

Date signed \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_

*Notes*

- \* In the case of the Tender submitted by joint venture specify the name of the Joint Venture as Tenderer*
- \*\* Person signing the Tender shall have the power of attorney given by the Tenderer to be attached with the Tender.*

**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	DESCRIPTION
1	Name of the procuring entity	
2	Reference Number of the Tender	
3	Date and Time of Tender Opening	
4	Name of the tenderer	
5	Full Address and Contract Detail of the Tenderer;	Country City Location Building Floor Postal Address Name and email of contact person
6	Current Trade License Registration Number and Expiring date	
7	Name, country and full address( <i>postal and physical addresses, email and telephone number</i> ) of Registration Body Agency	
8	Description of Nature of Business	
9	Maximum value of business which the Tenderer handles	
10	State if Tenders Company is listed in stock exchange, give name and full address ( <i>postal and physical addresses, email, and telephone number</i> ) 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.

	Names 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.

	<b>Names of Directors</b>	<b>Nationality</b>	<b>Citizenship</b>	<b>% shares owned</b>
1				
2				
3				
4				
5				
6				
7				
8				

(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.

	<b>Names of person</b>	<b>Designation in the Procuring Entity</b>	<b>Interest or Relationship with Tenderer</b>
1			
2			
3			

**ii) Conflict of interest disclosure**

	Type of Conflict	Disclosure OR NO	YES	If YES provide details of the relationship with Tenderer
1	Tenderer is directly or indirectly controls, is controlled by 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.			
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 Tenderer 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 \_\_\_\_\_ [Name of Procuring Entity] for: \_\_\_\_\_ [Name and number of tender] in response to the request for tenders made by: \_\_\_\_\_ [Name of Tenderer] 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 SD1**

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 ..... (*insert name of the Company*) who is a Bidder in respect of Tender No. /.....for.....(*insert tender name/description*) for ..... (*insert name of the Procuring entity*) 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 SD2:**

**SELF DECLARATION THAT THE PERSON/TENDERER WILL NOT ENGAGE IN ANY CORRUPT OR FRAUDULENT PRACTICE**

I, ..... of P. O. Box ..... being a resident of ..... in the Republic of ..... do hereby make a statement as follows: -

1. THAT I am the Chief Executive/Managing Director/Principal Officer/Director of ..... (*insert name of the Company*) who is a Bidder in respect of Tender No. .... for ..... (*insert tender name/description*) for ..... (*insert name of the Procuring entity*) and duly authorized and competent to make this statement.
  
2. 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 ..... (*insert name of the Procuring entity*) which is the procuring entity.
  
3. 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 ..... (*insert name of the Procuring entity*)
  
4. THAT the aforesaid Bidder will not engage /has not engaged in any corrosive practice with other bidders participating in the subject tender
  
5. 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

**DECLARATION AND COMMITMENT TO THE CODE OF ETHICS**

I ..... (person) on behalf of (*Name of the Business/ Company/Firm*) ..... 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.....

## D. APPENDIX 1- FRAUD AND CORRUPTION

*(Appendix 1 shall not be modified)*

### 1. Purpose

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

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.

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 direct or 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.

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

- a) **Defines** broadly, for the purposes of the above provisions, the terms set forth below as follows:
  - i) "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 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 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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<sup>1</sup> 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.

<sup>2</sup> 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.

**FORM OF TENDER SECURITY (TENDER BOND)**

*[The Surety shall fill in this Tender Bond Form in accordance with the instructions indicated.]*

BOND NO. \_\_\_\_\_

1. BY THIS BOND *[name of tenderer]* as Principal (hereinafter called “the Principal”), and *[name, legal title, and address of surety]*, **authorized to transact business in** *[name of country of Procuring Entity]*, as Surety (hereinafter called “the Surety”), are held and firmly bound unto *[name of Procuring Entity]* as Obligee (hereinafter called “the Procuring Entity”) in the sum of *[amount of Bond]**[amount in words]*, for the payment of which sum, well and truly to be made, we, the said Principal and Surety, bind ourselves, our successors and assigns, jointly and severally, firmly by these presents.

2. WHEREAS the Principal has submitted or will submit a written Tender to the Procuring Entity dated the \_\_\_\_\_ day of \_\_\_\_\_, 20 , for the supply of *[name of Contract]* (hereinafter called the “Tender”).

3. NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal:  
a) has withdrawn its Tender during the period of Tender validity set forth in the Principal's Letter of Tender (“the Tender Validity Period”), or any extension thereto provided by the Principal; or  
b) having been notified of the acceptance of its Tender by the Procuring Entity during the Tender Validity Period or any extension thereto provided by the Principal; (i) failed to execute the Contract agreement; or  
(ii) has failed to furnish the Performance Security, in accordance with the Instructions to tenderers (“ITT”) of the Procuring Entity's Tendering document.

Then the Surety undertakes to immediately pay to the Procuring Entity up to the above amount upon receipt of the Procuring Entity's first written demand, without the Procuring Entity having to substantiate its demand, provided that in its demand the Procuring Entity shall state that the demand arises from the occurrence of any of the above events, specifying which event(s) has occurred.

4. The Surety hereby agrees that its obligation will remain in full force and effect up to and including the date 30 days after the date of expiration of the Tender Validity Period set forth in the Principal's Letter of Tender or any extension thereto provided by the Principal.

5. IN TESTIMONY WHEREOF, the Principal and the Surety have caused these presents to be executed in their respective names this \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_\_.

Principal: \_\_\_\_\_  
Corporate Seal

Surety \_\_\_\_\_

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Printed name and title)

\_\_\_\_\_  
(Printed name and title)

## TENDER-SECURING DECLARATION FORM

*[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 **twenty-four (24) months starting on the date of tender award or date of termination**, 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 (30) 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

## Appendix to Tender

### *Schedule of Currency requirements*

Summary of currencies of the Tender for \_\_\_\_\_ *[insert name of Section of the Works]*

Name of Currency	Amounts payable
Local Currency (KShs)	
Provisional sums expressed in local currency <hr/>	<i>[to be entered by the Procuring Entity]</i>

### ***TECHNICAL PROPOSAL***

The tender shall complete these sections as a Technical proposal to indicate how he/she intends to proceed with the works. The Procuring entity will review these Proposals and determine the extent to which they meet the required standards to complete the works.

#### ***Site Organization***

*[insert Site Organization information]*

#### ***Method Statement***

*[insert Method Statement]*

#### ***Mobilization Schedule***

*[insert Mobilization Schedule]*

#### ***Construction Schedule***

*[insert Construction Schedule]*



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**PART 2 - WORKS' REQUIREMENTS**

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## **SECTION VII- BILLS OF QUANTITIES**

### **1. Objectives**

The objectives of the Bill of Quantities are:

- a) to provide sufficient information on the quantities of Works to be performed to enable tenders to be prepared efficiently and accurately; and
- b) when a Contract has been entered into, to provide a priced Bill of Quantities for use in the periodic valuation of Works executed.

In order to attain these objectives, Works should be itemized in the Bill of Quantities in sufficient detail to distinguish between the different classes of Works, or between Works of the same nature carried out in different locations or in other circumstances which may give rise to different considerations of cost. Consistent with these requirements, the layout and contents of the Bill of Quantities should be as simple and brief as possible.

### **2. Day work Schedule**

A Day work Schedule should be included only if the probability of unforeseen work, outside the items included in the Bill of Quantities, is high. To facilitate checking by the Procuring Entity of the realism of rates quoted by the Tenderers, the Day work Schedule should normally comprise the following:

- a) A list of the various classes of labor, materials, and Constructional Plant for which basic day work rates or prices are to be inserted by the Tenderer, together with a statement of the conditions under which the Contractor shall be paid for work executed on a day work basis.
- b) Nominal quantities for each item of day work, to be priced by each Tenderer at day work rates as Tender. The rate to be entered by the Tenderer against each basic day work item should include the Contractor's profit, overheads, supervision, and other charges.

### **3. Provisional Sums**

A general provision for physical contingencies (quantity overruns) may be made by including a provisional sum in the Summary Bill of Quantities. Similarly, a contingency allowance for possible price increases should be provided as a provisional sum in the Summary priced Bill of Quantities. The inclusion of such provisional sums often facilitates budgetary approval by avoiding the need to request periodic supplementary approvals as the future need arises. Where such provisional sums or contingency allowances are used, the Special Conditions of Contract should state the manner in which they shall be used, and under whose authority (usually the Project Manager's).

The estimated cost of specialized work to be carried out, or of special goods to be supplied, by other contractors should be indicated in the relevant part of the Bill of Quantities as a particular provisional sum with an appropriate brief description. A separate procurement procedure is normally carried out by the Procuring Entity to select such specialized contractors. To provide an element of competition among the Tenderers in respect of any facilities, amenities, attendance, etc., to be provided by the successful Tenderer as prime Contractor for the use and convenience of the specialist contractors, each related provisional sum should be followed by an item in the Bill of Quantities inviting the Tenderer to quote a sum for such amenities, facilities, attendance, etc.

These Notes for Preparing a Bill of Quantities are intended only as information for the Procuring Entity or the person drafting the tendering document. They should not be included in the final tendering document.

### **4. The Bills of Quantities**

The Bills of Quantities should be divided generally into the following sections:

- a) Preambles
- b) Preliminary items
- c) Work Items
- c) Daywork Schedule; and
- d) Provisional items
- e) Summary.

### **5. The Summary to the Bills of Quantities will take this form or some other form but including these items.**

## **SECTION V - BILLS OF QUANTITIES**

### **PREAMBLE TO BILL OF QUANTITIES**

1. The Bills of Quantities forms part of the Contract Documents and are to be read in conjunction with the Instructions to Bidders, Conditions of Contract Parts I and II, Specifications and Drawings.
2. The brief description of the items in the Bills 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 set forth in the Bills of Quantities are estimated, representing substantially the work to be carried out, and are given to provide a common basis for bidding and comparing of Bids. 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. The basis of payment shall be the Contractor's rates and the quantities of work actually done in fulfilment of his obligation under the Contract.
4. Payments for emergency and/or instructed works will be paid as and when they occur using submitted rates and/or day works and shall require prior approval of the Employer.
5. The prices and rates inserted in the Bills of Quantities will be used for valuing the work executed, and the Engineer will only measure the whole of the works executed in accordance with this Contract.
6. A price or rate shall be entered in ink against every item in the Bills of Quantities with the exception of items that already have Provisional sums affixed thereto. The bidders are reminded that no "nil" or "included" rates or "lump-sum" discounts will be accepted. The rates for various items should include discounts if any. Bidders who fail to comply will be disqualified.
7. Provisional sums (including Day-works) in the Bills of Quantities shall be expended in whole or in part at the discretion of the Engineer.
8. The price and rates entered in the Bills of Quantities shall, except in-so-far as it is otherwise provided under the Contract, include all Constructional plant to be used, labor, 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.
9. Unless otherwise stated, all measurements shall be net 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





**COUNTY ROADS**

<b>Bill of Quantities</b>					<b>Page</b>
					<b>3</b>
<b>Bill 4</b>	<b>Site Clearance</b>	<b>Project:</b>			
<b>Item No</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Unit rate Kshs.</b>	<b>Amount Kshs.</b>
4.01	Site Clearance				
I	Bush clearing including Trees and Stumps removal	Ha	1.6		
ii	Stripping and Grubbing	M <sup>3</sup>	0		
iii	Cut in hard material	M <sup>3</sup>			
	<b>Bill 4: total Carried forward to Summary:</b>				



**COUNTY ROADS**

<b>Bill of Quantities</b>					<b>Page</b>
					<b>5</b>
<b>Bill 8</b>	<b>Road Drainage and Structure works</b>	<b>Project:</b>			
<b>Item No</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Unit rate Kshs.</b>	<b>Amount Kshs.</b>
8.01	Excavation of foundation for drainage structures	M <sup>3</sup>	153		
8.02	Culvert cleaning partially blocked				
	(i) 600 mm diameter	M	0		
	(ii) 900 mm diameter	M	0		
8.03	Culvert cleaning fully blocked				
	(i) 600 mm diameter	M	8		
	(ii) 900 mm diameter	M	8		
8.04	Provide and install pipe culvert				
i.	450mm dia	M	0		
ii.	600mm dia	M			
iii.	900mm dia	M	48		
iv.	1200mm dia	M	0		
v.	Class 15/20 concrete for bed and haunches	M <sup>3</sup>	42		
vi.	Class 25/20 concrete for wing-walls, head walls and toe beams	M <sup>3</sup>	24		
8.05	Provide material and construct scour checks-concrete	NO	0		
8.06	Rock-fill to gabion boxes/soft spots	M <sup>3</sup>	50		
	<b>Bill 8: total Carried forward to Summary:</b>				



**COUNTY ROADS**

<b>Bill of Quantities</b>					<b>Page</b>
					<b>6</b>
<b>Bill 10</b>	<b>Grading and Graveling Works</b>	<b>Project:</b>			
<b>Item No</b>	<b>Description</b>	<b>Unit</b>	<b>Quantity</b>	<b>Unit rate Kshs.</b>	<b>Amount Kshs.</b>
10.01	Supply and lay well selected approved gravel 150 mm thick and compact with a mechanical roller to make up levels and up to the acceptable density by the engineer as instructed.	M <sup>3</sup>	3000		
	<b>Bill 10: total Carried forward to Summary:</b>				

**COUNTY ROADS**

<b>Bill of Quantities</b>		<b>Page</b>
		<b>7</b>
<b>SUMMARY</b>		<b>Project:</b>
<b>Item No</b>	<b>Description</b>	<b>Amount Kshs.</b>
1	Preliminaries and General costs items	
2	Setting out	
4	Site Clearance	
5	Earthworks	
8	Road Drainage and Structure Works	
10	Grading and Gravelling Works	
A	Subtotal 1	
B	Add provision sum of 10 % of the Sub Total for contingencies to be expended only with the express approval of the Engineer	
C	Subtotal 2	
D	<b>Add 16% VAT</b>	
	<b>Carried to the page on the Form of Tender</b>	

## **SITE ACKNOWLEDGEMENT FORM**

Tenderer Name.....

Name of Road.....

I have visited the above named Road as was scheduled with the employer's representative and am fully aware of the scope of works to be

Executed,

I abide myself with the quoted bills and rates and hence therefore commit to execute the works as

Per the contract if am successful/Awarded the Contract.

Name of the Contractor's Representative: \_\_\_\_\_

Date: \_\_\_\_\_

Signature and stamp.....

Director Roads and Transport

## SECTION VII: SPECIFICATIONS

## SECTION VI1A: STANDARD SPECIFICATIONS

The Standard Specifications referred to in this document is the Standard Specifications for Road and Bridge Construction, 1986 Edition published by the Ministry of Transport and Communications. This document shall form part of the Contract

**SECTION VIIB: SPECIAL SPECIFICATIONS**

## SECTION 1 - GENERAL

### 100 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 shall take precedence

### 101 LOCATION OF THE PROJECT

The road lies entirely in Migori County, Nyanza Region of the Republic of Kenya. It starts at the junction to ombo and connects county government offices.

The road section forms an approximate 4 km stretch of road. The road project also includes several spur roads .

The site of the works shall be the area within the road reserve and any other area as may be designated in the contract.

### 102 SCOPE OF WORKS

The major works to be executed under the Contract comprises mainly of, but are not limited to, the following:

- i) surface repair, shoulder and base repair and resurfacing of the road.

The works detailed above are only indicative of the scope associated with this Contract and the Engineer may where necessary substitute some of the works with others without substantially altering the overall Scope of the Works.

The time for completion of the Works shall be: 30 months

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.

#### Documents

The following manuals that are important and relevant to the contract, will not be issued with the tender documents but will be available for inspection during normal working hours at the offices of the Director (Highway Planning and Design), Kenya National Highways Authority, P.O. Box 49712 - 0100, Nairobi, Kenya.

#### Road Design Manual:

Part 1: Geometric Design of Rural Roads

Part 3: Materials and Pavement Design for New Roads

#### Manual for Traffic Signs:

Part 1: Road Markings

Part 2: Traffic Signs

### 104 PROGRAMME OF EXECUTION OF THE WORKS

The contractor shall provide the works programme, required under clause 14 of the Conditions of Contract, within 14 days of receipt of the Engineer's Order to commence work



The programme shall be coordinated with climatic and other conditions to provide for the completion of the works in the order and by the time specified. The information to be supplied to the Engineer shall include drawings showing the general arrangement of the temporary offices and any other temporary buildings or structures which the Contractor proposes to use, details of the constructional plant, temporary works and all other devices which he proposes to adopt for the construction and completion of the whole of the Works, and in addition, details of the labour strength, skilled and unskilled, and supervision arrangements.

The provision and maintenance of all temporary works, plant, equipment and appliances required for the Works shall be the responsibility of the Contractor in regard to construction, type, sufficiency and safety and approval by the Engineer shall in no way relieve the Contractor of this responsibility.

The order in which it is proposed to execute the permanent works shall be subject to adjustment and approval by the Engineer, and the Contract Price shall be held to include for any reasonable and necessary adjustments required by the Engineer during the course of the Works.

The Contractor shall carry out the Contract 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 of his obligations to complete the Works in the prescribed order and by the prescribed completion date, and he shall from time to time review his progress and make such amendments to his rate of execution of the Works as may be necessary to fulfill these obligations.

Once the proposed programme is approved by the Engineer, the Contractor shall not depart from the programme without the written consent of the Engineer. In the event of unforeseen difficulties or disturbances arising which force the Contractor to depart from the approved programme of Works, he shall advise the Engineer in writing of such occurrences without delay and submit proposals for any necessary remedial measures, for which he shall obtain the Engineer's approval before putting such measures into effect.

The Contractor shall allow in his programme for construction of trial sections and carrying out tests upon them as directed by the Engineer in accordance with the provisions of Clause 129 of the Standard Specification. The time for completion of the Contract shall not be extended because of the time taken to carry out tests and evaluate trial sections

## ORDER OF EXECUTION OF WORKS

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

107 TAKING OVER CERTIFICATE/ CERTIFICATE OF COMPLETION

The minimum length of the road segment of the project road for which a Taking-over certificate of will be issued at the request of the Contractor is the 32Km of the project road when substantially completed.

Borrow pits and quarries within the Taking-Over section, and no longer required for use, shall be restored prior to issue of the Certificate. As built drawings and maintenance manuals in accordance with Clause 305 are required prior to issue of the Certificate.

108 METHOD OF CONSTRUCTION

Delete the first sentence in the third paragraph of the Standard Specification and insert instead:

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

109 NOTICE OF OPERATIONS

Add the following sub- Clause.

109.1 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.

Explosive and Blasting

- (a) 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.
- (b) No explosives of any kind shall be used without prior written consent of the Engineer.
- (c) The Contractor shall be solely responsible for the provision, handling, storage and transporting of all explosives, ancillary materials and all other items of related kind whatsoever required for blasting.

111 NATIONAL SPECIFICATIONS

Add the following at the end of this clause

“The Contractor shall provide all such specifications not more than 60 days after commencement of contract and at least 14 days before the execution of work to which the specification is applicable.”

117 HEALTH, SAFETY AND ACCIDENTS

The Contractor shall prepare and implement a specific Occupational Health and Safety Management Plan for the project, which shall be submitted to the Engineer not later than 28 days after the notice to commence the Works. This Management Plan shall incorporate but not be limited to, the requirements of Clause 117 and the approved project Environmental and Social Impact Assessment, and identify the risks and mitigation measures, and specify monitoring indicators and reporting requirements.

As part of the occupational health and safety program the Contractor shall provide training for all employees on how to ensure their own personal safety, and on ways to reduce the accident risk on site. The Safety Officer shall provide training in safe work practices and general awareness of potential danger situations to avoid injuries. In addition, all employees handling dangerous/toxic materials shall be trained on how to handle such substances.

All the Contractor's personnel shall, before commencing work, have an induction course on safety and health at the site. The information and training shall be on site and have a duration of at least two (2) hours. It shall be conducted in a language which is appropriate for the personnel, to ensure that all personnel can understand the information and instruction. Three monthly follow-up training sessions shall be carried out during the course of the project.

There is no separate payment for these requirements and the costs should be included in the Contractor's rates and prices generally.

119 USE OF EXPLOSIVES FOR BLASTING

- (a) 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.
- (b) No explosives of any kind shall be used without prior written consent of the Engineer.
- (c) The Contractor shall be solely responsible for the provision, handling, storage and transporting of all explosives, ancillary materials and all other items of related kind whatsoever required for blasting.

121 DIVERSION OF SERVICES

- (a) 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 BID rates.
- (b) Subject to the agreement with the Engineer, the Contractor shall be responsible for removal of alteration and relocation of existing services.

(c) The Contractor shall indemnify the Employer against claims originating from damage to existing services or works.

123 LIAISON 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 there from. 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 competent surveyors 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 ARTICLES

Notwithstanding the provision of Clause 126 of the Standard Specifications, the Contractor's attention is drawn to his obligation 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 or used by the Contractor upon the Works, he shall be empowered to reject goods and materials and shall order that they be replaced by others of acceptable quality. Any more work that may consequently have to be redone and the costs of the new suppliers shall all be borne by the Contractor.

127 INFORMATION FROM EXPLORATORY BORINGS 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 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 plants 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

*Add the following paragraphs to Clause 130 of the Standard Specifications*

Video Coverage of the Progress of Works

The Contractor shall arrange for and pay for professional video coverage of the works which shall be undertaken immediately after handing over the site to the Contractor, upon completion of works and at other frequencies and intervals instructed by the Engineer.

Two copies of each set of recordings in Digital Video Disk (DVD) or similar format shall be delivered to the Engineer within 14 days after recording.

Processing of Digital Photograph

The Contractor shall, in addition pay for production, processing and printing of ten (10) copies of digital photographs taken by the Engineer. The Contractor shall also provide the Engineer with two copies of the digital photography stored on DVD/CD ROM or similar.

Payment for processing of videos and digital photographs shall be made from the PC Sum for the items allowed in the Bill of Quantities

131 SIGNBOARDS

The Contractor shall provide and erect three (3) publicity signboards on each of the road links as directed by the Engineer. The Engineer shall, as shown in the Drawings, direct the minimum dimensions of the boards. The signs shall be printed reflective Vinyl Stickers on galvanised steel plates min 350mm high. Posts shall be galvanised steel. Main headings lettering shall be Yellow and min 80mm high, while subheadings lettering shall be White and min 60mm high as per the drawings.

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

132.1 HOUSING ACCOMMODATION FOR ENGINEER'S STAFF

The Contractor shall provide and maintain furnished houses as indicated in the drawing or as approved by the Engineer.

132.2 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 respectively:

All the houses and furniture mentioned above shall revert to the Employer after the completion of the contract.

Payments shall be made under the relevant provisions in the Bills of Quantities.

Item Description	Quantity per House Type			
	Type I	Type II	Type III	Type IV
<b>FURNITURE</b>				
Kitchen table (2m x 0.8m approx.)	1	1	1	0
Kitchen chair	5	4	3	1
Kitchen shelves (per sq. m)	2	2	1	1
Dining Table (2m x 1m approx.)	1	1	1	1
Dining Chairs	6	6	5	4
Writing Desk with drawers and chairs	1	1	1	1
Book case (2m long with 3 shelves)	1	1	1	0
3-piece lounge chairs	1	1	1	0
Armchair with cushions	4	3	2	1
Coffee table 40 x 45cm high	1	1	1	0
Side Board	1	1	1	1
Resident table	5	4	3	2
Double Bed (5x6) with "Slumberland" Mattress	1	1	0	0
Single Bed (3 ½ x 6) with "Slumberland" Mattress	4	3	3	2
Occasional tables, 70x70x45 cm high	3	2	1	0
Wardrobe (movable)	3	3	2	1
Dressing table with mirror and stool	1	1	0	0
Chest of 5No. drawers with mirror	2	2	2	1
Bedroom chair	4	3	2	1
600mm x 450mm high medicine cabinet with mirror	1	1	1	0
Bathroom stool	1	1	0	0
<b>EQUIPMENT</b>				
Refrigerator (at least 19 cu.ft.) including a freezer compartment of about 3 cuft capacity	1	1	0	0
Refrigerator (at least 7 cu.ft) including a freezer compartment	0	0	1	1
Electric & Gas cooker with 4 burners, a grill and an oven	1	1	0	0
Electric cooker 2 elements	0	0	1	1
Primus stove	0	0	1	1
Air conditioner unit (medium size)	3	3	2	0
Water filter at least 15 L capacity	2	2	1	1
Dustbin	1	1	1	1
Door mats	2	2	2	2
Pressure paraffin lamp	3	2	2	2
Electric fan	2	2	1	1
Fire extinguisher at least 9L capacity	1	1	1	1
Cold water storage tank of at least 400 L capacity	1	1	1	1
Table lamps	5	4	2	1
Toilet tissue holders	1	1	1	1

Item Description	Quantity per House Type			
	Type I	Type II	Type III	Type IV
Waste paper basket	4	4	2	1
2m x 1.5m high curtain with lining	9	9	4	0
1m x 1.5m high curtain with lining	3	3	6	16
Towel Rail	1	1	1	1
Gas or Electric hot water unit for kitchen	1	1	1	0
Gas or Electric hot water unit for bathroom	1	1	1	0

### 132.3 ENGINEER'S MAIN OFFICE

The contractor shall provide a furnished and equipped main office of plan area not smaller than 155 metre square that is equivalent of the MoPW Standard Resident Engineer's Office. This office shall be of weatherproof construction, provided with mosquito proof and burglar-proof windows and lockable doors and suitably insulated against heat and cold, fitted with air conditioning units, all to the satisfaction of the Engineer. The room to be occupied by the Engineer's Representative and its front office shall be provided with a floor carpet to be approved by the Engineer. All other floors shall be given a PVC tile finish using approved adhesive including 150mm wood skirting or superior finish. The windows shall be fitted with curtains and blinders.

A telephone shall also be provided for the Resident Engineer's office for his exclusive use. All the charges and fees related to the installation, maintenance and operation of the telephone including provision of internet services shall be deemed to have been included in the rates for providing and maintaining the Main Office.

The offices 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 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.

Measurement and payment for the Engineers office and laboratory shall be as specified in the standard specifications. The rate inserted for provision of the main office shall include the cost of complying with the requirements of clauses 117, 124, 125, 132, 133, 134, 135, 136 and 137 of the standard specifications. The office building shall revert to the Contractor at the end of the project.



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 appropriate bill items in the BoQ.

The Contractor, when instructed, shall provide and install at the Engineer's office the Equipment specified below with a dealer's certificate and warranty:

a) Photocopying Machine 2No.

Digital copier with the following minimum specifications:

Printing Method - PrecisionCore™ Micro TFP printhead

Nozzle Configuration - 8,676 Nozzles Black

Minimum Droplet Size - 3.5 pl

Ink Technology - DURABrite™ Pro

Category - Office Departmental

All-in-One Functions - Print, Scan, Copy

First Page Out - Monochrome 5 Seconds

Printing Speed ISO/IEC 24734 - 100 pages/min Monochrome

Duplex Printing Speed ISO/IEC 24734 - 100 A4,

Pages/min Monochrome

Printing Speed ISO/IEC 24734 (A3) -

54 pages/min Monochrome

Duplex Printing Speed ISO/IEC 24734 (A3) - 36 A4

Pages/min Monochrome

Printing Speed - 100 pages/min Monochrome (plain paper 75 g/m<sup>2</sup>)

Printing Resolution - 600 x 2,400 DPI

Printing Volume - 400,000 pages per month

Recommended Duty Cycle - 20,000 - 100,000 pages per month

Colours - Colored

Features - Touchscreen

Panel - Type: Color, Touchscreen, Diagonal: 22.7 cm

Media Handling - Duplex (A4/A3, plain paper)

Security Functions - Limit access function with Epson Web

Config, Secure confidential printing with PIN code release, LDAP

Address Book, IPsec, IEEE802.1x, SSL (Server authentication),

Panel Admin Mode

(b) Personal Computer (PC) 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.

Technical Specifications

Display - 18.5" Screen Size & LED Backlit Monitor

System - Processor: Intel Core i7, Chipset: Intel® H110

Graphics: Intel HD Graphics

Operating System - OS: Free DOS,

Storage - RAM: 8 GB ,1TB HDD

Optical Drive - Optical drive type: DVD Super Multi

Interface Type: SATA BD

Connectivity - Ethernet LAN connection

Ports

Front:1 microphone/headphone jack, 2 USB 3.0

1 SD reader (optional)&One 5.25" slim-height bay supporting an optical disk drive (optional)

Back:1 HDMI ,1 power connector, 1 RJ-45 ,1 VGA ,2 USB 3.0 ,4 USB 2.0, 1 security lock slot ,1 audio in connector ,1 audio out connector, 1 padlock slot, 1 serial, 2 PS/2 ,Expansion slots ,1 PCIe (x1) , 1 PCIe (x16) ,1 M.2 ,1 PCI 2.3

Power - 180 W external AC power adapter

(c) Laptop 5No.

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

Operating system: Windows10

Processor and graphics: Intel® Core™ i7-8200U (1.8 GHz, up to 4 GHz)+ Intel® UHD Graphics 620 (16 GB system memory)

Display: 13.3" diagonal FHD IPS micro-edge WLED-backlit touchscreen with Corning® Gorilla® Glass NBT™  
Memory: 16 GB LPDDR3-2133 SDRAM (onboard)

Storage: 512 GB PCIe® NVMe™ M.2 SSD

Theft protection: ComputraceLoJack for Laptops, Two Years

Primary battery: 3-cell, 60 Wh Li-ion polymer

Keyboard: Full-size island-style backlit keyboard (pale rose gold)

Personalization: HP TrueVision FHD IR Camera with Dual array digital microphone (pale rose gold)

Wireless technology: Intel® 802.11b/g/n/ac (2x2) Wi-Fi® and Bluetooth® 4.2 Combo

Battery life: Up to 16 hours and 45 minutes with FHD panel; Up to 10 hours with UHD panel

Video Playback Battery Life: Up to 12 hours and 15 minutes with FHD panel; Up to 8 hours and 45 minutes with UHD panel

Audio: Bang & Olufsen, quad speakers, HP Audio Boost

Expansion slots: 1 microSD media card reader

External I/O Ports: 2 Thunderbolt™ 3 (Data Transfer up to 40 Gb/s, Power Delivery, DP1.2, HP Sleep and Charge); 1 USB 3.1 Gen 1 (HP Sleep and Charge); 1 headphone/microphone combo

### Laser jet Printer specifications

1. Speed 20ppm
2. Memory 32MB expandable to 80MB
3. Resolution 1200Xx1200dpi
4. Compatibility MS Windows 95/98/2000/XP/Vista
5. Power input 220-240V
6. Paper size A6 – A4 (A3 for 1No. printer)

1No. Laptop shall be supplied with a printer capable of printing in A3 paper size. While the rest PCs and laptops to be supplied with A4 LaserJet printers of model Hp2050 or better approved.

### UPS specifications

1. Rating 650 VAC (minimum)
2. Input Voltage 220-240V (minimum)
3. Output 220-240V (minimum)
4. Output frequency 50-60HZ
5. Battery module minimum 60 minutes' backup time on 50% rated
  - a. Sealed Lead-acid
  - b. Short recharge time (max. 5 hours for 100%)
6. Protection Output overload  
Input output short-circuit

### Software

1. Microsoft Office 2007 Professional or later with licence
2. Autodesk Civil3D 2017 or later
3. Antivirus: McAfee Virus Scan Professional (Latest Version)

Prior to purchase of the computers, laptops and printers, the contractor shall submit the specifications of the same to the Engineer for approval. The Personal Computers, Laptops, printers, UPSs and Photocopying Machine 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 FOR ENGINEER'S OFFICE

ITEM	DESCRIPTION	No.
1	Executive office desk	2
2	Executive office chair	2
3	Conference table 12 seater	1
4	Standard office desk 2.2x0.9 lockable drawers	6
5	Standard office chairs	3

6	Office desks 1.4x0.9 lockable drawers	10
7	Office chairs	22
8	Office desks 3x1 drawers	9
10	Filing cabinets 6 drawers	8
11	Filing cabinets 4 drawers	3
12	Curtains	As applicable
13	Office cupboard	3
14	Refrigerator min. capacity 1.0 m <sup>3</sup>	1
15	Water dispenser (hot and cold)	2
16	Waste paper basket	10
17	Stapling machine (ofrex) and pins	3
18	Paper punch	3
19	Scientific calculator (fx 992s)	10
20	Fully equipped first Aid Kit	2
21	Electric heater fans	4
22	Wall clocks battery powered	5
23	Filing trays	12

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

Note: No separate payment shall be made for provision and maintaining of the above furniture for both the RE's office and houses. This will be deemed to have been included in the rate for provision of the same under the appropriate bill items.

#### 132.4 ENGINEER'S LABORATORY AND SURVEY EQUIPMENT

The Contractor shall provide and maintain for the duration of the contract the Engineer's laboratory as shown in the Book of Drawings and provide all the laboratory equipment, reagents and survey equipment as required by the Engineer. The Contractor shall be paid under appropriate bill items in the Bills of Quantities or on provision of receipts as required by the Engineer.

The laboratory shall be sited adjacent to the Resident Engineer's main office and shall revert to the contractor at the end of the contract.

The laboratory shall have piped potable water supply and a continuous electricity supply adequate for lighting, heating and operating the laboratory equipment.

The laboratory shall have a height from floor to ceiling of not less than 2.75 metres and all rooms shall be fitted with electric lighting and power points as instructed by the Engineer's Representative, and each door shall be fitted with a good quality mortise lock and provide with two keys.

Soaking tanks for CBR specimens shall be provided at floor level in the laboratory. Concrete cube curing tanks of adequate size shall also be provided. Both the CBR tanks and concrete cube curing shall have drainage pipes built-in.

The following rooms and facilities shall be provided in the Laboratory: -

(i) Office

This room shall have a total floor area of not less than 14 square metres and a total window area of not less than 2 square meters. The door and windows shall be fitted with fly screens covered with mosquito gauze. The floor shall be of concrete with a float finish. The walls shall be lined and ceiling provided.

A display board of soft board or similar approved material, with a minimum surface area of 3 square metres shall be provided and securely fixed to the wall.

(ii) Main Laboratory

This room shall have a total area of not less than 55 square meters and a total window area of not less than 7 square metres. The external entrance shall be a double door and single doors shall be provided for access to the adjacent offices. The external door and all windows shall be fitted with fly screens covered with mosquito gauze.

The floor shall be of concrete and float finished. The room shall be fitted out as indicated by the Engineer's Representative with three rigidly constructed work benches each minimum 2 metres long by 1-metre-wide by 1 metre high and with top comprising either metal lined hard wood or steel float finished concrete at least 75mm thick and suitably reinforced, with a sink minimum size 600mm long by 450mm wide by 300mm deep fitted with a tap and waste pipe. Wall shelves, 450mm in width and having a surface area of at least 6 square metres, shall be provided and securely fitted.

Two display boards of soft board or similar approved material, each with minimum area of 3 square metres, shall be securely affixed to the walls as directed by the Engineer's Representative.

(iii) Small Laboratory Room

This room shall have a total floor area of not less than 20 square metres and a total window area of not less than 2 square metres. The windows shall be fitted with fly screens covered with mosquito gauze. A single door shall provide access to the main laboratory room. The floor shall be fitted out as indicated by the Engineer's Representative with two rigidly constructed work benches each of minimum dimensions 2 metres long by 1-metre-wide by 1 metre high with a top comprising either metal lined hardwood or a steel float concrete finish of at least 75mm thickness and suitably reinforced, with a sink of minimum size 600mm long by 450mm wide by 300mm deep fitted with a tap and waste pipe and concreted to the water supply for the main laboratory room. An approved air extractor fan shall be fitted through an outside wall.

(iv) Store Rooms

These rooms having a total floor area of not less than 20 square metres shall be provided adjacent to the main laboratory building in a position to be indicated by the Engineer's Representative.

(v) Concrete Slab for Sample Drying

A reinforced concrete slab 100mm thick and of total area not less than 20 square metres shall be provided adjacent to the main laboratory building in a position to be indicated by the Engineer's Representative. The slab shall have a smooth finish to the satisfaction of the Engineer.

The laboratory equipment would include:

Stop Clock	2No.
Shovel	10No.
Metal Scoop	6No.
Hammer	2No.
Palette Knife 100mm long (blade)	6No.
Palette Knife 200mm long (blade)	6No.
Measuring Cylinder	8No.
Mercury thermometer range 0° - 150°c	2No.
Laboratory thermometer range up to 250°c	2No.
Rain Gauge	2No.
Digital thermometer	2No.
Air thermometer	1No.
Probe thermometer range 0°c - 360°c minimum Length 750mm dial 100mm complete with handle	2No.
Cotton waste in Kg	10No.
Karais (juakali)	3No.
Padlock	2No.
Scientific Calculator fx-992s	2No.
30m tape measure linen	3No.
Jerrycan 20 litres capacity	2No.
Pair of gloves (asbestos)	6No.
Spatulas	2No.
Paper punch	1No.
Stapler (Ofrex) and pins	1No.
Wood ruler	4No.
Tray lifting callipers	4No.
A4 Clipboards with clips	8No.
Moisture content bottles	20No.
Moisture content pans	20No.
Sieve brushes	4No.
Dustpan brush	4No.
Chisel (cold)	4No.
Laboratory Dust coats	16No.
Laboratory gumboots pairs	20No.

Safari boots	8No.
Heavy-duty plastic bags 24 x 16 x 500g	150No.
Small moisture plastic bags	100No.
Sieves (assorted)	10No.
Reagents	
Sodium Hexametaphosphate 500g container	1No.
Turpentine 500g	1No.
Trichloroethane 200 litres container	1No.
Dichloromethane 200 litres container	2No.

It shall also be the Contractor's obligation to replenish consumables.

The survey equipment to be provided would include:

1. Engineer's automatic level Wild NAK 2 or similar - 2No
2. Total station reading 1" with tripod and setting on pole with data logger and survey software to match Total Station Data logger. Include data transfer program, and plotting modes, setting out calculations and Cogo facilities - 1No.
3. Levelling staff 5m. with levelling bubble Wild GNLE or similar - 4No.
4. 50m. Steel band measuring tape 2No.
5. 30m. Linen measuring tape 2No.
6. 3m. Aluminium straight edge 2No.
7. 1m. Stainless steel straight edge 1No.
8. 100m. Steel band tape 2No.
9. Draughtsman's stool 2No.
10. Complete set of highway curves 1No.
11. Programmable scientific calculators FX 880P or equivalent 4No.
12. Survey umbrella 2No.
13. Roll of tracing paper 10No.
14. Protractor 360 2No.
15. Graph paper A3 size 100No.
16. Drawing table 2No.
17. Erasing shield 4No.
18. 3m. Ranging rods 9No.
19. Marker pens 30No.

The contractor may be directed to pay for stationery, equipment or reagents that are foresaid and also pay for servicing and repair of the laboratory equipment being used on the project.

The equipment shall be of approved manufacture, and shall be made available to the Engineer for the Engineer's exclusive use throughout the Contract, not later than three (3) weeks after the Engineer's order to supply. All equipment shall be ready to use and complete to perform the tests. The equipment shall revert to the Employer on completion of the Contract

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 and/or maintain the said equipment shall be deemed to have been caused entirely by the Contractors 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 provide or maintain the equipment 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.

132.5 MOBILE PHONES FOR ENGINEER'S STAFF AND OFFICE

The Contractor shall, if so instructed by the Engineer provide, connect and maintain mobile phones for the exclusive use by the Engineer and for the duration of the contract. The Contractor shall provide air-time for these mobile phones as directed by the Engineer and be reimbursed under appropriate items in the Bills of Quantities.

133 TIME FOR ERECTION OF THE ENGINEER'S OFFICE AND LABORATORY

As per standard Specifications

135 MAINTENANCE OF THE ENGINEER'S STAFF HOUSES, OFFICES LABORATORIES, FURNITURE AND EQUIPMENT

Until the issue of the Taking-over certificate for the whole of the Works, and if required for a period thereafter until the Contractor has completed any outstanding work."

137 ATTENDANCE UPON THE ENGINEER AND HIS STAFF

The Contractor shall pay wages (including all overtime) and house all attendant staff to fulfill the requirements of Clause 137 of the Standard Specification.

The number of junior support staff required by the Engineer shall be as indicated in the Bill of Quantities or as instructed by the Engineer. The Contractor will be paid on a prime cost basis plus a percentage for overheads and profits under appropriate items in the Bills of Quantities. The payment referred to in this clause shall exclude the cost of maintaining the offices in compliance with clause 137, paragraphs 1, 2 and 4 of the standard specifications which are deemed to be included in the rates for providing the Office. The officers will be entitled for overtime as may be deemed appropriate and accommodation.

Junior Support Staff	Number
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Engineers	1
Inspectors	4
Material Tech	1
Lab Attendant	5
Lab Technologist	1
Administrator	1
surveyor	1
General Attendant	2
Chainmen	4
Leveller	1

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 Engineer and his staff throughout the contract, brand new vehicles, right hand drive, diesel powered and fitted with air-conditioner, CD/mp3 music player, SRS Air bags, power windows, central locking, alarm system, alloy wheels and power steering as described below. The Engineer will approve the type of vehicle and confirm the number of each type to be provided.

- a) 1No. Type 1- new Turbo diesel propelled 4WD Single Cabin Pick-up vehicles of minimum engine capacity 2800cc fitted with all the necessities mentioned in paragraph one of this clause for the exclusive use 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 including recognised days of rest.

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 per veh.month), shall be by vehicle months. Payment for mileage above 4,000Km per vehicle month, shall be made at a rate per Kilometre. 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.

Ownership of all the vehicles to revert to the Contractor on completion of the contract.

139 RECEIPTED ACCOUNTS

The Contractor may be instructed by the Engineer to make payments of general miscellaneous accounts for such items as stationary, stores and equipment and miscellaneous supervision personnel and claims or the Engineer may direct the Contractor to purchase or pay for the above. The Contractor will be paid on a prime cost basis plus a percentage for overheads and profits under appropriate items in the Bills of Quantities.

140 PAYMENT OF OVERTIME FOR ENGINEER’S JUNIOR STAFF

In the last line delete the words “shall be at the Contractor’s expense” and substitute with “including the approved percentage for administrative overheads shall be paid by the Contractor to the Engineer”.

If the Contractor wishes to execute permanent works outside the Engineer’s normal working hours as stated in Clause 45.1 of the Conditions of Contract, then the payment for overtime for the Engineer’s junior staff shall be reimbursed in full by the Contractor to the Engineer plus a 20 percent additional amount to cover for the Engineer’s administrative overheads.

For purposes of this clause, In addition to the support staff provided by the contractor, the following shall also constitute part of the Engineer’s junior staff:

✘	Designation	✘	Number
	Survey Assistants/Leveller		
	Senior Materials Technologist		
	Laboratory Technologists		
	Senior Roads Inspector		
	Roads Inspector		
	Draftsmen		
	Secretary/Typist		
	Clerk		

If the Contractor wishes to execute the works on regular basis outside the Engineer's normal working hours, over a prolonged period, the Engineer may, if he deems it necessary, employ additional supervisory staff for which the required salaries, plus twenty (20%) percent additional amount to cover for the Engineer's administrative overheads shall be reimbursed in full by the Contractor to the Engineer. In addition, the Contractor shall provide the required accommodation for such staff at his own cost. The Contractor shall not be reimbursed any of these costs.

141 MEASUREMENT AND PAYMENT

Delete Sub-Clause 141 (a) entirely and substitute with: ~

- a) No Preliminary item has been included in this Contract. All Contractor's mobilisation and general costs shall therefore be included in relevant rates in the Bill of Quantities.

Delete Sub-Clause 141 (m) entirely

142 ENVIRONMENTAL PROTECTION

Further to the requirements of Clause 19.1 of the Conditions of Contract, the Contractor shall be responsible for the following measures to protect the environment:

- 1) Compliance with national and local statutes and regulations relating to protection of the environment. The Contractor will be responsible for familiarizing himself with all existing national and local legislation in this regard.
- 2) All construction activities shall be carried out using the best possible means to reduce environmental pollution such as noise, dust and smoke. All vehicles and plant shall be regularly serviced in accordance with the manufacturer's recommendations to ensure that they operate efficiently and without excessive noxious emissions. The Engineer will have the authority to instruct the Contractor to temporarily cease operations and/or remove from the site vehicles or plant which do not comply with this requirement, until such time that he is satisfied that best practicable means to reduce environmental pollution to a minimum are being used.
- 3) The Contractor shall at all times maintain all sites under his control in a clean and tidy condition and shall provide appropriate and adequate facilities for the temporary storage of all waste prior to proper approved disposal.
- 4) The Contractor shall be responsible for the safe transportation and disposal of all waste generated as a result of his activities in such a manner as will not give rise to environmental pollution in any form, or hazard to human or animal health. In the event of any third party being employed to dispose of waste, the Contractor shall be considered to have discharged his responsibilities under this clause from the time at which waste leaves sites under his control, providing that he has satisfied himself that the proposed

transportation and disposal arrangements are such as will not give rise to pollution or health hazard.

- 5) The Contractor shall be responsible for the provision of adequate sanitary facilities for his workforce, and that of his sub-contractors, at all construction and ancillary sites. The Contractor shall not allow the discharge of any untreated sanitary waste to groundwater or any surface watercourse.

Prior to the mobilization of the workforce the Contractor shall provide details of proposed sanitary arrangements to the Engineer for approval, such as will allow him to assess whether or not the proposed facilities are adequate and are unlikely to pollute water resources, and also that the facilities will be properly operated and maintained.

- 6) All concrete and asphalt plants shall be operated and maintained in accordance with the original manufacturer's specifications and manuals, and in such a manner as to minimize emissions of hydrocarbons and particulates. If, in the opinion of the Engineer, the operation of such plant is causing, or is likely to cause nuisance or health problems to site staff or the general public, the Contractor shall carry out such work as is necessary to reduce emissions to an acceptable level within a time-scale agreed with the Engineer.
- 7) The Contractor shall regularly douse with water all exposed dirt surfaces to reduce dust levels.
- 8) The Contractor shall take all reasonable measures, at all sites under his control, to prevent spillage and leakage of materials likely to cause pollution of water resources. Such measures shall include, but not be limited to the provision of bunds around fuel, oil and bitumen storage facilities, and provision of oil and grease traps for servicing and fuelling areas. Prior to construction of such facilities, the Contractor shall submit details of pollution prevention measures to the Engineer for his approval.
- 9) The Contractor shall be responsible for ensuring that exposed surfaces are re-vegetated as construction progresses, all to the satisfaction of the Engineer.
- 10) The removal of trees shall be kept to the minimum necessary to accommodate the Permanent Works.

Prior to the removal of any trees the Contractor shall inform the Engineer of the intended operation and obtain the permission of the Engineer for the removal of the trees. If any tree is removed without permission the Contractor shall replant another approved tree at no additional cost to the Employer.

- 11) The Contractor shall ensure that fires, except for controlled fires for burning rubbish, do not start within the Site or in the environs thereto as a result of

the works or from the actions of his employees. The burning of waste, such as vehicle tyres causing noxious emissions is prohibited. The Contractor shall have available at all times trained fire-fighting personnel provided with adequate fire-fighting equipment to deal with all fires. The Contractor shall additionally at all times provide sufficient fire protection and fighting equipment local to parts of the Works which constitute particular fire hazards.

- 12) The contractor shall as instructed by the Engineer carry out off – road mitigation measures to the approval and satisfaction of the Engineer and to the required standards. The contractor shall obtain Environmental mitigation licence for the same and also comply with Environmental Management Coordination Act (EMCA) 1999, and Environmental Impact Assessment (EIA) and Environmental Audit (EA) Regulations 2003.

No separate payment shall be made in respect of this Clause 142 and the Contractor shall be deemed to have allowed in his general rates and prices for the cost of complying with the requirements of this Clauses.

144 COPIES OF ORDERS AND REQUISITIONS

The Contractor shall provide the Engineer with copies of all orders for supply of materials and goods required in connection with the works as the Engineer may require.

145 SHORTAGE OF BITUMEN AND OTHER MATERIALS

The Contractor shall make provisions for obtaining bitumen and other materials required for the Contract if they are not available locally. In particular, the Employer shall not be liable for any additional costs due to local lack of bitumen or any other materials.

146 CONTRACTOR'S MOBILIZATION AND DEMOBILIZATION

No separate payment shall be made to the Contractor in respect of mobilization and demobilization of plant and equipment, and such costs shall be deemed to have been included in the rates entered by the Contractor in the Bills of Quantities.

147 ROAD SIDE AMENITIES AND OTHER FACILITIES

The contractor shall provide roadside amenities and other social facilities as instructed by the Engineer.

A Provisional Sum has been allowed for in the Bill of Quantities for the design and the construction of roadside amenities and other social facilities.

## SECTION 2 - MATERIALS AND TESTING OF MATERIALS

All materials testing shall be in accordance with Section 2 of the Standard Specifications.

### 202 TESTING BY THE CONTRACTOR AND QUALITY CONTROL

Amend 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

Amend the following: -

#### 204.1 SIEVE SIZES

A standard set of sieves for general use shall consist of the following sieve sizes mm:  
100-63-50-37.5-25-20-14-10-6.3-5-4.25-3-1.5-0.75-0.425-0.300-0.150-0.075 mm.  
The sieves from 0.425 to 0.075 mm shall be suited for wet sieving.

### 205 SOILS AND GRAVEL

Whenever in the Contract Document a minimum California Bearing Ratio (CBR) is specified, the CBR of the material shall be determined at the specified state 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

### 211 BITUMINOUS BINDERS

(c) Requirements:

(ii) Straight-run Bitumen

In addition to the requirements of the Standard Specification, the ash content of penetration grade bitumen shall not exceed 5% by weight.

(d) Types of Bitumen:

Prime coat shall be type MC 30.

Tack coat shall be type K 1-70.

For surface dressing, binder 80/100 bitumen shall be used.

For Asphalt Concrete, binder course, binder 60/70 penetration grade bitumen shall be used.

### 226 TRIAL 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.

## 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/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

## SECTION 3 - SETTING OUT & TOLERANCES

### 301 SETTING OUT

- a) In addition to the provisions of clause 3.01(a) 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 will have to 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. 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 road reserve boundary posts shall have 12mm diameter steel pins embedded in concrete, 200mm long with 25mm exposed to the air, sticking out from its top surface. This pin shall be co-ordinated and heighted and result of the same shall be provided to the Engineer for approval. Cost of these works shall be included in the rates as no separate item has been provided.

Any abortive setting out resulting from survey errors on the part of the Contractor, and any construction work carried out on the basis of such abortive setting out, shall be rectified entirely at the Contractor's expense.

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 Kms of the road.

- b) Detailed Setting Out

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

All the main points of curves shall be referenced clear off the works on either side of the centreline by pins in concrete class 20. All reference pegs shall be maintained as long as they are required by the Engineer to check the accuracy of the Works

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



c) Grid System

The start and finish of geometric elements along the centerline of the horizontal alignment and intermediate points at regular intervals between these have been identified by coordinates which refer to UTM Grid System. The datum refers to Survey of Kenya Beacons. The Contractor shall make himself fully conversant with this system prior to commencement of any survey work.

302 TOLERANCES

(d) Surface regularity

The tolerances below a straight edge for Base and Bituminous wearing course given in Table 3-1 are amended from 6 mm to 4 mm.

g) Pavement Widths

The edges of the wearing course, base and sub-base shall nowhere lie closer to the carriageway centreline than the dimensions shown on or calculated from the design data given on the drawings or as amended by the Engineer in writing to the Contractor, and the half widths of wearing course, base and sub-base measured at any point along the road shall not exceed the nominal width by more than 50 mm for wearing course, base and sub-base.

h) Drainage

The maximum deviation from the specified horizontal line of a pipe culvert shall be 30 mm in 3 m and the vertical line 30 mm in 15 m. The Contractor shall correct any excess deviation before proceeding with the work.

The invert level of drainage ditches both lined and unlined shall be within +0 mm to -50 mm of that specified by the Engineer and trimmed such that water does not pond. In the event of the Contractor over-excavating any lined or unlined drainage ditches or channels outside the specified tolerances, the Contractor will be held responsible for any additional work ordered by the Engineer as being, in his opinion, necessary to maintain acceptable invert grades. Such remedial work shall be carried out entirely at the Contractor's expense. Replacement of the over-excavated material within the ditches and channels will not be permitted, unless such material is compacted and that part of the channel is lined, all to the satisfaction of the Engineer. The Contractor should be aware that the most likely form of remedial work to be ordered by the Engineer for unlined ditches would be the deepening of the remainder of the ditch or channel downstream of the over-excavated section for such length as the Engineer deems necessary to avoid ponding, and, in his opinion, sufficient to adequately cope with the design flows.

SECTION 4- SITE CLEARANCE AND TOP SOIL STRIPPING

401 SITE CLEARANCE

SECTION 4- SITE CLEARANCE AND TOP SOIL STRIPPING

401 SITE CLEARANCE

Site Clearance shall be carried out as directed by the Engineer.

Add the following as the last paragraph in Sub-clause (a):

Site clearance is not required over the gravelled width of existing road and shoulders. No measurement and payment for site clearance will be made for this width. The remaining area within the road reserve including sides of existing embankments and cuttings shall be cleared as instructed by the Engineer.

c) Removal of Trees

In the first paragraph delete all the words "but within the road reserve having a trunk girth of more than 450 mm at a point 600 m above the ground".

402 REMOVAL OF TOPSOIL

Topsoil shall be removed only in areas instructed by the Engineer. Topsoil shall be removed to a depth of 150-200mm or as directed by the Engineer and evenly spread within the road reserve, or stockpiled for top soiling of side slopes as directed by, and to the satisfaction of the Engineer.

403 REMOVAL OF STRUCTURES, FENCES AND OBSTRUCTIONS

When instructed by the Engineer, the Contractor shall demolish or remove any structure. Measurement for the works shall be done on dayworks basis and payments made under the appropriate item in the Bills of Quantities.

## SECTION 5 – EARTHWORKS

### 501 SCOPE OF SECTION

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

### 504 PREPARATION PRIOR TO FORMING EMBANKMENT

In cuttings, the contractor shall excavate to a level that would accommodate the 450mm 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 new cross section, the rate for compaction of resultant 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. This shall be confirmed through proof-rolling.

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

### 505 CONSTRUCTION OF EMBANKMENTS

In Clause 505 of the Standard Specification in paragraph 3 line 2 delete "25" and substitute "60" and in paragraph 3, line 3 delete "8%" and substitute "6%".

Unsuitable material shall include the following:

- Material containing more than 5% by weight of organic matter such as topsoil, humus, materials from swamps, mud, log stumps and perishable material;
- Material with a swell of more than 3%
- Clay with a Liquid Limit exceeding 50%
- Material having a moisture content greater than 105% of OMC in its naturally occurring state.

Only material approved by the Engineer shall be used for construction of fills and subgrade.

Material with a natural moisture content exceeding the optimum moisture content shall not be used for the construction of embankments, unless

specifically directed by the Engineer in writing. During the "short" and the "long" rains the material is expected to contain a high residual moisture content. The above material can be used in the work if allowed to dry out sufficiently to the satisfaction of the Engineer.

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.

508                    **COMPACTION 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.

509                    **MASS-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".

510                    **SPOIL MATERIAL**

The Contractor's attention is drawn to the fact that no payment for spoil of unsuitable material will be made, unless the Engineer has instructed to spoil such material.

511                    **BORROW PITS**

Clause 511 of the Standard Specification is deleted, and substituted by the following.

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

the Engineer. The Contractor will be entirely responsible for locating suitable sources of borrow material for fills.

Once the Contractor has identified the materials sources to be used, he will be responsible for acquiring or leasing such land at his own cost, and such costs shall be deemed to be included in the Contractor's tendered rates.

The Engineer may direct that materials be selected in borrow pits for "fill in soft material", and that other materials be excluded. The Contractor's rates shall include for all such requirements plus the cost of site clearance, selection of materials, double handling, stockpiling and provision of adequate supervision in every borrow pit to ensure that approved material is not contaminated with unsuitable material.

Unsuitable material shall be spoiled in accordance with the second paragraph of Clause 510 of the Standard Specification. Borrow pits shall be excavated to regular widths and shapes and shall be cleaned up on completion so that the sides are neatly trimmed and bottoms levelled and drained away from the works all in accordance with the provisions of Section 6 of the Standard Specification.

The Contractor shall propose to the Engineer the haulage route he intends to use for the haulage of material, and shall not divert from this route without the approval of the Engineer. The Contractor shall be responsible for the maintenance of this selected route, at his own cost.

#### 515 SIDE DRAINS

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

#### 517 MEASUREMENT 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.

Delete in Clause 517 the third paragraph and its sub-clauses numbered (i) to (iv).

Delete in Standard Specification Clause 517(e) and substitute with "No

separate payment shall be made for earthworks overhaul and all transportation of material whether in fill, spoil or otherwise shall be regarded as free-haul. The Contractor shall be deemed to have included for all necessary hauls in the relevant item for earthworks.”

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

(n) Item: Compaction around Pipe Culverts.

Unit: m<sup>3</sup>

Compaction of fill material to 97% MDD (AASHTO T.180) around pipe culverts in accordance with Clause 508 of the Special Specification shall be measured by the cubic metre. The volume of material so compacted shall be measured as the product of the area specified and the final compacted thickness. The rates shall include for any additional costs, incurred in achieving the required state of compaction.

(p) Item: Mill the existing pavement to a depth directed by the Engineer.

Unit: m<sup>3</sup>

Pavement to be reconstructed by scarifying, milling and mixing existing pavement layers shall be measured by the cubic metre, milled on the road calculated as a product of the length instructed to be milled and the cross-sectional area shown on the drawings or instructed by the Engineer.

(q) Item: Additional aggregate

Unit: m<sup>3</sup>

The additional aggregate required for milled materials shall be extra aggregate instructed by the Engineer, to be added to the milled material.

The rate for additional aggregate shall include for the cost of provision, and spreading the aggregate and incidentals that may be required to account for losses and to comply with the requirements of the Specification.

(r.) Item: Mixing milled material in Item (p) with additional aggregate Item (q), transport, spread and compact in accordance with the specifications.

Unit: m<sup>3</sup>

The rate shall include for the cost of mixing in fresh aggregate (complying with section 13) spreading to specified levels, watering and compacting the mix, including testing to confirm compliance with specifications.

Improved subgrade material shall be provided, spread and compacted as shown on the drawing or as otherwise instructed by the Engineer. The material used for construction of the Improved Subgrade layer shall possess the following characteristics:

(i)	CBR and MDD (AASHTO T.99)	14% min /
(ii)	MDD	1500 kg/m <sup>3</sup>
(iii)	Organic Content (percentage by weight)	3% max.
(iv)	Swell max	2%
(iv)	Plasticity index	50% max

Improved subgrade material shall be compacted to 97% MDD (AASHTO T.180) in layers not exceeding 150 mm compacted thickness.

519

#### PROTECTION OF ROAD PRISM

During construction, the road prism shall be kept well drained and protected at all times. All windrows shall be cut away after construction so as to prevent concentrated flow on completed subgrade layers. Where necessary, flat berms shall be constructed to prevent undue erosion of the subgrade slopes. All permanent drains shall be constructed as soon as possible, including sufficient additional temporary drains as may be necessary to protect the road prism and these shall be maintained in good working order.

All cuts and fill slopes shall be maintained by the Contractor until final acceptance of the road.

## SECTION 6 - QUARRIES, BORROW PITS, STOCKPILES AND SPOIL AREAS

### SECTION 6 - QUARRIES, BORROW PITS, STOCKPILES AND SPOIL AREAS

#### 601 GENERAL

Notwithstanding the provisions of this Clause, the Contractor shall be responsible for locating, identifying sources for borrow material, quarries, stockpiles and spoil areas, including related land acquisition costs. All such sources and locations subject to the approval of the Engineer.

The Engineer will not make available to the Contractor any land for quarries, borrow pits, stockpiles, and spoil areas except those areas in the road reserve.

The Contractor will be entirely responsible for locating suitable sources of material complying with the specification and for the procuring, winning, haulage, to the site of 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.

No additional payment will be made to the Contractor to cover costs arising from the requirement for this clause and the Contractor will be deemed to have included these costs in his tendered rates.

#### 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 times the public safety is endangered in any way."

#### 607 SITE CLEARANCE AND REMOVAL OF TOPSOIL AND OVERBURDEN

Faces of quarries or borrow pits that are higher than 4 metres shall be shaped stepped with benches 1.5 m wide, sloping 1:10 out of the face at an interval of 4 metres height. 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. As a reinstatement measure, the bottom of a quarry or borrow pit shall be covered with 0.20 m of topsoil.

#### 610 MEASUREMENT AND PAYMENT

Delete the following paragraph:

"Reimbursement for land acquisition shall be made in accordance with the provisions of Section 1 of this Specification."



## (a) Borrow Pit Locations

Borrow material shall be located and obtained by the Contractor. Borrow material shall comply with the requirements of these Specifications for 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 is 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.

If the Contractor chooses not to utilize all the identified suitable material but haul material over longer distance and in excess of the free haul distance, possible overhaul computations will be based on the identified suitable sources and not the actually utilized sources

The Contractor shall plan his exploitation of the borrow pit 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 specified in the Method of Measurement. No material reserved for a specific purpose shall be used for other purposes without the written approval of the Engineer.

## (a) 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.

## (b) 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.

#### (c) 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.

#### (d) 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.

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 of any borrow material whether processed or not either by sale or donation to any person without the written authority of the Employer.

## SECTION 7 - EXCAVATION AND FILLING FOR STRUCTURES

### 703 EXCAVATION 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"

### 707 BACKFILLING FOR STRUCTURES

All backfilling material shall be selected backfill complying with the requirements for a natural sub base 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  $d_{50}$  between 0.4mm and 1.2mm and less than 5% particles finer than 75micron sieve. The  $d_{100}$  must be lower than 5mm

### 709 EXCAVATIONS FOR RIVER TRAINING AND NEW WATER COURSES

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.

### 710 STONE PITCHING

All pitching stone shall, when soaked for 24 hours, be capable of withstanding a crushing stress of 20 N/mm<sup>2</sup>. The source of stone shall be approved by the Engineer and all stone shall be free from overburden, mudstone, cracks, sand holes, veins, laminations or other imperfections.

The stone shall be of specific gravity not less than 2.0.

The mix proportion for mortar is expressed as part of cement to part of aggregate by volume.

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.

711

#### GABIONS

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 KeNHA's Regional Director's offices

The rock fill to gabions shall be of Specific Gravity not less than 2 and shall consist of sound material which is capable of resisting the erosive action of running water to the satisfaction of the Engineer.

Where instructed by the Engineer, the Contractor shall place a filter fabric ('Polyfelt TS 700' or similar approved) below and behind gabions. The filter fabric shall be Polypropylene continuous filament needle punched non-woven type. The filter fabric shall have a mass of not less than 280 g/m<sup>2</sup> and CBR puncture resistance of not less than 2600 Newtons to BS 6904/4 and a Pyramid puncture resistance of not less than 900 Newtons to ASTM-D5494 (A). It shall have an effective pore size of 0.09 mm.

The filter fabric shall be installed in accordance with the manufacturer's instructions. When placing the filter fabric, the Contractor shall ensure that the filter fabric is not punctured or damaged in any way.

712

#### RIP-RAP PROTECTION WORK

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)

713

MEASUREMENT AND PAYMENT

Items (i) to (m) of the Standard Specification shall allow for all costs occurring when constructing up to 3 m high gabion retaining walls.

Replace the description of Item 713(g) with the following:

"(g) Item: Grouted Stone Pitching

Unit: m<sup>2</sup>

Grouted stone pitching shall be measured and paid for by the square metre calculated as the net area, measured on the slope, instructed by the Engineer.

The rate shall include for the cost of excavating, trimming to line and level, providing and laying the stone, sand, cement, mortar, wetting of the stone to be grouted, ramming the grout into the gaps and smoothing off flush with the pitched face and complying with the requirements of Clause 710 of the Standard Specification.

Delete Item (h) of the standard specification entirely.

714

BACKFILL BELOW STRUCTURES

All backfilling material shall be selected backfill complying with the requirements for a natural sub base 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).

## SECTION 8 - CULVERTS AND DRAINAGE WORKS

All concrete works for culverts and other drainage structures shall be done in accordance with Section 17 of the specifications

### 801 SCOPE 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.

### 804 EXCAVATION 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, "95% MDD (AASHTO T99)" and insert "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.

805 EXCAVATION 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<sup>3</sup> occurring in soft material shall be classified as hard material.

809 BEDDING 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.

810 JOINTING CONCRETE PIPES

Add 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.

811 CONCRETE 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.

812 BACKFILLING 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:

	Mass g/m <sup>2</sup>	Wide Strip Tensile Strength kN/m <sup>2</sup>	Mullen Burst Strength kPa
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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 specifications.

#### 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 gully chambers.

Precast concrete invert block side drains and gully 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 stabilized 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.

817 MITRE 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

Replace the description of Item 820(f) with the following:

(f) Item: Excavation in 'Hard' Material

Unit: m<sup>3</sup>

In the second paragraph of Clause 820(f) of the Standard Specification, delete the words "for extra over Clause 820 (a) to (e)" and the words "shall be extra over for excavating in soft material and".

Add Sub-Clause 823(r): -

Item : Concrete for balloon cast pipes/culverts  
cast in-situ

Unit : m<sup>3</sup>

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.

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.

Add Sub-Clause 823(s): -

Item : Invert Block Drain

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.

Add Sub-Clause 823(t): -

Item : Geotextile

Unit : m<sup>2</sup>

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

821 LINED OUTFALL CHANNELS

From the outlet of cross-culverts, if so ordered by the Engineer, and at other sites which may necessitate similar measures, stone pitched outfall channels shall be constructed, linked to the culvert outfall apron and conveying rainfall run-off to the nearest natural watercourse.

Dimensions shall be as shown on the drawings, unless modified by the Engineer.

The Contractor will be granted possession of standard wayleaves 5 m in width; from the edge of the road reserve to the designated end of the channel, and 2.5 m either side of the channel centreline. Such wayleaves will be negotiated for and on behalf of the Commissioner of Lands by the Engineer. The Contractor will be limited to the wayleaves for all his necessary construction activities, but he may make his own arrangements - all at his own expense - with landowners, if he so desires.

All outfall channels shall be constructed from grouted stone pitching.

## 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 convenience 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 Kshs. 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.

903 MAINTENANCE 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. The cost for maintenance of the existing road is deemed to be covered under Bill item 9 of the BOQ

904 CONSTRUCTION OF DEVIATIONS

a) General

It is envisaged that deviations will be required over the entire length of the road section.

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 5Km 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 deviations shall be 6.5 m suitable for 2-way lorry traffic or such other widths as instructed by the Engineer.

The maximum length of diversions permitted at any one time shall be 5 km unless otherwise instructed.

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 and Special 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<sup>2</sup> in regular interval to minimize the effects of dust. Latest sprinkling time shall be one hour before the sunset.

906 PASSAGE OF TRAFFIC THROUGH THE WORKS

In Clause 906 of the Standard Specification, add the following sub-clause:

"The Contractor shall from time of taking possession of the site of the Works assume responsibility for the safe and convenient passage of public traffic."

The Contractor shall arrange for passage of traffic through the works in accordance with Clause 906 of the Standard Specifications 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 and to the satisfaction of the Engineer.

907 SIGNS, BARRIERS AND LIGHTS

The Contractor shall provide temporary reflective traffic 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 number, type and siting of these signs shall be as directed by the Engineer.

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".

909 ASSISTANCE 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.

911 CONTRACTOR' S CONSTRUCTION T RAFFIC

- (a) Once formation of the new road has been completed, it may only be trafficked by construction traffic within the legal limits stipulated within the relevant legislation of the Republic of Kenya.

912 MEASUREMENT 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.

## SECTION 11 – SHOULDERS

### 1101 GENERAL

1.5m wide shoulders whose construction approach is detailed in the drawings shall be constructed in accordance with sections 5, 12, 15 and 16 of the specifications as appropriate

## SECTION 12 - NATURAL MATERIAL SUBBASE AND BASE

### 1203 MATERIAL REQUIREMENTS

Natural materials for base and subbase shall conform to the specifications given in Section 12 of the Standard Specifications for cement or lime improved base and subbase.

### 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

## SECTION 13 - CEMENT TREATED GRADED CRUSHED STONE (GCS) FOR BASE-COURSE

Treatment of GCS shall be carried out in accordance with Section 14 of the specifications with the following additional guidelines

### 1303 MATERIAL REQUIREMENTS

#### a) Graded Crushed Stone

##### 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 0/30mm in accordance with Clause 1303(c)

#### b) Cement

Cement for treatment shall be CEM II, 42.5N Portland Cement manufactured to KS EAS 18-1: 2001 - Part 1, KS 1725: 2001 standards. The cement content of the treated material shall be 2% by weight of the GCS

#### c) Mixing

The material to be treated and the cement shall be mixed in an approved batching plant

#### b) Laying and compaction

##### Laying

Treated 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 treated 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 AND CURING

Protection and curing shall be carried out in accordance with the provisions of Clause 1409 (i) of the Standard Specification. The treated GCS layer shall be kept continuously damp by spraying with water for seven days after laying to be followed by application of MC70 prime coat

1310 MEASUREMENT AND PAYMENT

Stabilizer

The provision of the stabilizer shall be measured by the tonne calculated as the specific weight of stabilizer added to the material

## SECTION 14 - CEMENT TREATED MATERIALS

### 1401 CEMENT TREATMENT

#### 1401.1 Cement

Cement for improvement shall be CEM II, 42.5N Portland Cement manufactured to KS EAS 18-1: 2001 - Part 1, KS 1725: 2001 standards. The cement content for the treated material shall be between 2-4% of the total weight of gravel to be improved. In adopting the cement content for improvement care shall be taken to ensure that base quality improved gravel for sub-base is avoided. The Engineer shall exercise his discretion to any variation in the rate of application of the cement, which he may see fit to order from time to time

#### 1401.2 Lime treatment

Lime treatment will be as outlined in the Standard Specifications for road and bridge construction. The lime content of the stabilized material shall be as indicated by the Engineer.

#### 1401.3 Moisture content and Compaction

The moisture content of the treated material shall be as directed by the Engineer but nevertheless within the range of 95% to 105% of the Optimum Moisture Content (AASHTO T180). Minimum compaction shall be 97% MDD (AASHTO T180")

#### 1401.4 Mixing

The material to be treated and the cement shall be mixed in an approved batching plant.

#### 1401.5 Laying and compaction

##### Laying

Treated gravel 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 treated material shall be as directed by the Engineer but nevertheless within the range of 95% to 105% of the Optimum Moisture Content (AASHTO T 180). Minimum compaction shall be 95% MDD (AASHTO T 180)

### 1409 PROTECTION AND CURING

Protection and curing shall be carried out in accordance with the provisions of Clause 1409 (i) of the Standard Specification. The treated sub-base layer shall be kept continuously damp by spraying with water for seven days after laying to be followed by laying of GCS base-Course.

## 1412 MEASUREMENT AND PAYMENT

### Stabilizer

The provision of the stabilizer shall be measured by the tonne calculated as the specific weight of stabilizer added to the material

### Mix-in stabilizer

Mixing stabilizer into the material shall be measured by the cubic metre of treated material calculated as the product of the compacted sectional area treated and the length.



## SECTION 15 - BITUMINOUS SURFACE TREATMENTS

### PART A - GENERAL

#### 1501A GENERAL

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, ALD of the chippings, surface conditions and requirements for specific locations. Application rates of the bitumen spray and the chippings 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 i.e;

a) Chippings

10/14mm size pre-coated chippings at a spread rate of 75-90 square meters per cubic meter as single seal.

b) Bitumen Spray Rates

1.0 - 1.4 l/m<sup>2</sup> of 80/100 penetration grade bitumen (cut back or straight run) for the single seal.

### PART B - PRIME COAT AND TACK COAT

#### 1502B MATERIALS FOR PRIME COAT AND TACK COAT.

For prime coat, the binder shall be a medium-curing cutback MC 70 unless otherwise directed by the Engineer

The rate of spray of bituminous prime coat refers to the gross volume of the cutback bitumen, that is to say the volume of the bitumen plus dilutants

The rates of spray of the prime coat shall be as instructed by the Engineer and shall generally be within the range 1.0-1.2 litres/square metre

Prime coat shall be applied to all GCS and gravel surfaces that are to receive asphalt concrete

The tack coat shall consist of bitumen emulsion K1-70 unless otherwise directed by the Engineer.

The rates of spray of the tack coat shall be as instructed by the Engineer and shall generally be within the range 0.3 - 0.8 litres/square metre.

## PART C – SURFACE DRESSING

### 1502C MATERIALS FOR SURFACE DRESSING

#### Binder

The bituminous binder shall be 80/100 penetration grade bitumen (cut-back with kerosene fuel in accordance with prevailing road temperatures or straight run), and conforming to Clause 211 of the Standard Specification

The Contractor jointly with the Engineer shall carry out a minimum of five (5) bitumen affinity tests on each single size aggregate stockpiles to be used into the works and if any result is less than 95% coverage, then the binder shall be blended with ColAmin or similar approved adhesive additive as per manufacturer's instructions at 0.2 - 0.5% by mass of binder. The Contractor shall propose optimum dosage of the adhesive additive by carrying out bitumen affinity tests on the crushed aggregates for approval by the Engineer

#### Chippings

Chippings for all surface dressings on this contract shall be of class 1 material and shall comply in all respects with Clause 1502C of the Standard Specification. The contractor's attention is drawn to the requirements of Clause 1502C and 1504C of the Standard Specification with regard to cleanliness and dust content of chippings for surface dressing. Should it prove necessary in the Engineer's opinion to wash chippings, no extra payment will be made to the contractor for this operation.

### 1503C SPRAY AND SPREAD RATES OF BITUMEN AND CHIPPINGS

Spray and Spread Rates for bitumen and chippings cannot be calculated until samples of the chippings to be used are available for test

After submission of samples and completion of laboratory tests on chippings and binder, the Contractor shall in the presence of the Engineer and the Chief Materials Engineer or representatives, lay trial sections of seal at various rates of spray and spread as directed by the Engineer and in accordance with clause 1503C of the Standard Specification.

Should any change occur in nature of source of chippings or bitumen, the Contractor shall advise the Engineer accordingly who will then decide if any revisions are required to the spray and spread rates

If any changes are required, the Contractor shall carry out further trials as instructed by the Engineer

Payment for binder and chippings will be based on the instructed spray and spread rates used which may not necessarily be those specified. The Engineer will specify the spray rates of bitumen as residual bitumen per square meter. Actual spray rates used by the Contractor must be adjusted to compensate for any cutter added

## 1505C PRECOATED CHIPPINGS

Chippings utilized for surface dressing works under this contract shall be pre-coated in accordance with clause 1505C of the Standard Specification. The binder used for pre-coating chippings shall be MC30 cut-back bitumen

The amount of bituminous binder used to pre-coat chippings will be as instructed by the Engineer and will normally be between 0.4% and 1.0% residual bitumen as percentage of the total dry weight.

Prior to laying any pre-coated chippings the Contractor shall prepare trial mixes of bitumen and chippings in the presence of the Engineer. After completion of trial mixes the Engineer shall issue written instructions to the Contractor indicating the amount of binder to be added in pre-coated chippings. The Contractor shall maintain this proportion unless the surface or nature of the chippings changes when the Contractor shall repeat the trials and the Engineer will issue revised instruction.

No separate payments shall be made for the pre-coating exercise. The contractor shall have included in his rates the cost of complying with this clause

## 1509C AFTERCARE AND CONTROL OF TRAFFIC

Surface dressing shall not be trafficked for at least seven days. Where the surface dressing is to be applied to new asphaltic concrete, a period of 60 to 90 days must elapse before commencing the surface dressing, subject to satisfactory hardness probe test.

## 1511C MEASUREMENT AND PAYMENT

### (a) Seal coat

Seal coats shall be measured by the litre, for each type of bituminous binder for each seal coat, calculated as the product of the area in square metres sprayed and the rate of application in litres/square metres instructed, corrected to 15.6 C°

### (b) Precoated Chippings

Chippings shall be measured by the cubic metre of each nominal size for each class calculated as the product of the area in square metres covered and the reciprocal of the instructed rate of application in square metres/cubic metre or the actual rate of application in square metres/cubic metre whichever calculation gives the lower volume.

## SECTION 16 - BITUMINOUS MIX BASES, BINDER COURSES AND WEARING COURSES

All Bituminous mixes works shall be done in accordance with the standard specifications.

### PART A – GENERAL

#### 1601A SCOPE OF PART A

Part A comprises all the general requirements for bituminous mixes which apply to Parts B to D inclusive.

#### 1602A REQUIREMENTS FROM OTHER SECTIONS

The following Sections of this Specification apply to Parts B to D of this Section and shall be read in conjunction therewith:

Section 2 Materials and Testing of Materials

Section 3 Setting -Out and Tolerances

Section 6 Quarries, Borrow Pits, Stockpile and Spoil Areas

Section 15 Bituminous Surface Treatments and Surface Dressing

The Contractor shall as often as necessary test and correct the quality of the materials received by him from suppliers to ensure that the materials always comply with the specified requirements.

#### 1603A CONSTRUCTION PLANT

##### (a) General

The Contractor shall submit to the Engineer in accordance with Section 1 of this Specification, full details of the construction plant he proposes to use and the procedures he proposes to adopt for carrying out the permanent Works.

The Engineer shall have access at all times to construction plant for the purposes of inspection. The Contractor shall carry out regular calibration checks in the presence of the Engineer and shall correct forthwith any faults which are found.

All construction plant used in the mixing, laying and compacting of bituminous mixes shall be of adequate rated capacity, in good working condition, and shall be acceptable to the Engineer. Obsolete or worn -out plant will not be allowed on the work.

##### (b) Mixing plant

Bituminous materials shall be mixed in a plant complying with ASTM Designation D995 and shall be located on the Site unless otherwise agreed by the Engineer. It shall be equipped with at least four bins for the storage of heated aggregates and a separate bin for filler. One of the bins shall be used for storage and batching of the 0 to 1 mm size of heated aggregates and another for the 1.0 mm to 6.3 mm heated aggregate. The plant shall be equipped with an effective dust collection/recycling system. All bins shall be covered to prevent the ingress of moisture.

The grading of the combined aggregate including any mineral filler added in an approved mix shall be a smooth curve without any marked gaps or excessive quantities at a particular size. The approved grading shall be designated as the target grading and the compaction of the job mix shall be maintained within the tolerances specified in clause 1614 A of this specification. The target grading shall preferably not be near the finer limits of the grading envelope.

The plant shall be batch-mix type and shall be capable of regulating the composition of the mixture to within the tolerances specified in Clause 1614A of this Specification.

The bitumen tank shall be capable of maintaining its contents at the specified temperature within a tolerance of plus or minus 5 °C and shall be equipped with a thermostat to prevent the temperature rising above 180°C and a fixed thermometer easily read from outside the tank. Any bitumen which has been heated above 180°C or has suffered carbonisation from prolonged heating shall be removed from the plant and disposed of.

### (c) Laying plant

Bituminous materials shall be laid by a self-propelled paver fitted with an automatic electronic screed control to maintain the required levels, cambers and crossfalls. Pavers shall be equipped with a hopper, delivery augers and a heated adjustable vibrating screed. It shall be capable of laying bituminous materials with no segregation, dragging, burning or other defects and within the specified level and surface regularity tolerances. Delivery augers shall terminate not more than 200mm from the edge plates. The mixture shall be delivered continuously to the paver to avoid stop-go paving operation. The screed shall be equipped with 60 ° or 45° angle confining side plates to provide stable pavement edges. Pavers shall be equipped with infrared joint heating systems.

### (d) Compaction plant

The Contractor shall provide sufficient vibrating rollers of adequate size and weight to achieve the specified compaction. Prior to commencing the laying of bituminous mixes in the permanent Works the Contractor shall carry out site trials in accordance with Section 2 of this Specification to demonstrate the adequacy of his plant and to determine the optimum method of use and sequence of operation of the rollers.

It is important to achieve as high a density as possible at the time of Construction and it is expected that vibrating rollers will be required to produce the best results. However, it is essential that thorough pre-construction trials are carried out to ensure that;

- i) The roller is set up to have the optimum amplitude and frequency of vibration for the particular material being laid.
- ii) That the roller does not cause breakdown of the aggregate particles.
- iii) That the optimum compaction temperatures are established which allow compaction without causing ripple effects or other distortions of the surfacing.

1604 A PREPARATION OF SURFACE

Immediately before placing the bituminous mix in the pavement, the existing surface shall be cleaned of all loose material and foreign matter with mechanical brooms or by other approved methods. The debris shall be deposited well clear of the surface to be covered

Any defect of the surface shall be made good and no bituminous mix shall be laid until the surface has been approved by the Engineer.

If instructed by the Engineer a tack coat shall be applied in accordance with Section 15 of this Specification. If the Engineer considers a tack coat is required prior to laying the bituminous mix or between layers of the bituminous mix, due solely to the Contractor's method of working, then such tack coat shall be at the Contractor's expense.

1605A DESIGN AND WORKING MIXES

Delete the second paragraph and insert the following:

At least two months, prior to laying asphalt concrete, the contractor jointly with the Engineer shall carry out design mixes STRICTLY complying with SUPERPAVE requirements (clause 1602B, 1603B & 1604B) using approved constituent materials.

The design process shall be phased as follows:

Phase 1: Testing of constituent materials to confirm compliance

Phase 2: Laboratory mix designs complying with all the specifications

Phase 3: Plant mixing to confirm compliance with laboratory parameters

Phase 4: Site trials

Should any changes occur in the nature or source of the constituent materials, the Contractor shall advise the Engineer and a new mix design shall be established using the procedure set above

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 170 °C. The temperature of the stone at entry to the mixing chamber shall not be more than 15 °C 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 135 °C and 165 °C when it is laid and not less than 120 °C 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 135 °C 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, gully pots and chambers in accordance with final finished road level before laying the final wearing course.

#### 1612A SAMPLING AND TESTING OF BITUMINOUS MIXTURES

The sampling of bituminous mixtures shall be carried out in accordance with AASHTO T168 (ASTM Designation D979).

#### 1613A QUALITY CONTROL TESTING

During mixing and laying of bituminous mixtures, control tests on the constituents and on the mixed material shall be carried out in accordance with Clause 1612A and Section 2 of this Specification.

If the results of any tests show that any of the constituent materials fail to comply with this Specification, the Contractor shall carry out whatever changes may be necessary to the materials or the source of supply to ensure compliance.

If the results of more than one test in ten on the mixed material show that the material fails to comply with this Specification, laying shall forthwith cease until the reason for the failure has been found and corrected. The Contractor shall remove any faulty material laid and replace it with material complying with this Specification all at his own expense.

#### 1614A TOLERANCES

Surfacing courses and base shall be constructed within the geometric tolerances specified in Section 3 of this Specification.

The Contractor shall maintain the composition of the mixture as determined from the laboratory and site trials within the following tolerances, per single test:

Bitumen Content:	±0.3 % (by total weight of total mix)
Passing 10mm sieve and larger sieves	± 6 % (by total weight of dry aggregate including mineral filler)
Passing Sieves between 10mm and 1.0 mm sieves	± 4% (by total weight of dry aggregate including mineral filler)
Passing Sieves between 1.0mm and 0.075 mm sieve	± 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)

The average amount of bitumen in any length of any layer, calculated as the product of the bitumen contents obtained from single tests and the weight of mixture represented by each test, shall not be less than the amount ordered.

The average amount of bitumen for each day's production calculated from the checked weights of mixes shall not be less than the amount ordered.

The final average overall width of the upper surface of a bituminous mix layer measured at six equidistant points over a length of 100m shall be at least equal to the width specified. At no point shall the distance between the centerline of the road and the edge of the upper surface of a bituminous mix layer be narrower than that specified by more than 13mm.

1615A ROAD REINFORCEMENT GRID

Where shown on the drawings or where directed by the Engineer, asphalt reinforcement in form of geotextile shall be used to reduce reflective cracking and/or to act as water barrier.

Paving geotextile reinforcement composite shall consist of 'ARMAPAL' reinforcement geosynthetic or similar approved. It shall meet the following physical requirements.

Property	Units	Requirements	Test method
Tensile strength	KN/m	50	SABS 02210 - 88
Elongation at break	%	<7	SABS 02210 - 88
Melting point	°c	260	ASTM D276
Bitumen Retention	l/m <sup>2</sup>	1.2	

Where the use of reinforcing for asphalt has been specified, the Contractor shall, at least three months before the material is to be used, submit samples of the type he/she intends to use, together with complete specifications of the material, load-strain relationship of the material, as well as the manufacturer's instructions for use, to the Engineer for approval. Where the material does not carry the mark of an acknowledged standards authority, the Engineer may instruct the Contractor to have the material tested by an approved laboratory and to submit the results.

1616A MEASUREMENT AND PAYMENT FOR ROAD REINFORCEMENT

Item: Geogrid reinforcement netting  
Unit: square metres (m<sup>2</sup>)

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, 7<sup>th</sup> 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°C		D5	40-50	60-70	80-100
Softening point (°C)		D36	49-59	46-56	42-51
Flash point (°C)	Min	D92	232	232	219
Solubility in trichloroethylene (%)	Min	D 2042	99	99	99
TFOT heating for 5 hr at 163 °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 °C	Min	D 113	-	50	75

The bitumen for asphalt concrete works shall be 60/70 penetration grade. The Contractor jointly with the Engineer shall carry out a minimum of five (5) bitumen affinity tests on each single size aggregate stockpiles to be used into the works and if any result is less than 95% coverage, then the binder shall be blended with ColAmin or similar approved adhesive additive as per manufacturer’s instructions at 0.2 - 0.5% by mass of binder. The Contractor shall propose optimum dosage of the adhesive additive by carrying out bitumen affinity tests on the crushed aggregates for approval by the Engineer.

b) Aggregate

In the Standard Specifications rename Table 16B-1 as 16B-1 (a) Add the following:

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 <sup>1</sup>	> 40
	Plasticity index for materials passing 0.425mm sieve <sup>2</sup>	<4
	Linear shrinkage for materials passing 0.425mm sieve, %	<2
Particle shape	Flakiness Index (FI) <sup>3</sup>	<25
Strength	Aggregate Crushing Value, (ACV) <sup>4</sup>	< 25
	Aggregate Impact Value, (AIV) <sup>4</sup>	<25
	10% FACT (dry) kN <sup>4</sup>	> 160
	Los Angeles Abrasion, (LAA) <sup>5</sup>	<30
Abrasion	Aggregate Abrasion Value <sup>4</sup>	< 14
Soundness <sup>7</sup>	Sodium Sulphate Soundness (SSS) Coarse aggregate	<10
	Sodium Sulphate Soundness (SSS) Fine aggregate	<16
5cycles	Magnesium Sulphate Soundness (MSS) Coarse aggregate	<15
% loss	Magnesium Sulphate Soundness (MSS) Fine aggregate	<20
Polishing	Polished Stone Value	>57
Water absorption	Water absorption, % <sup>6</sup>	<2
Bitumen affinity	Immersion Mechanical Test: Index of retained Marshall stability, % <sup>8</sup>	>75
	Static Immersion Test, % coating retained <sup>9</sup>	>95
	Retained Indirect Tensile Strength % at 7% VIM <sup>10</sup>	>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

Unless otherwise instructed by the Engineer aggregates shall satisfy the following Superpave aggregate consensus properties which requirements are presented in Table 16B-1(c):

- Coarse Aggregate Angularity (CAA) – ASTM D 5821
- Fine Aggregate Angularity (FAA) – AASHTO T 304
- Flat and elongated particles – ASTM D 4791
- Sand equivalent – AASHTO T 176

**Table 16B-1(c) Superpave aggregate consensus property requirements**

Cumulative Equivalent Standard Axles (CESA) <sup>1</sup> in Million	Fractured faces, Coarse Aggregate, Percent Minimum		Uncompacted Void Content of Fine Aggregate, Percent Minimum		Sand Equivalent, Percent Minimum	Flat and Elongated <sup>3</sup> , Percent Maximum
	Depth from surface		Depth from surface			
	≤100mm	>100mm	≤100mm	>100mm		
<0.3	55/-	-/-	-	-	40	-
0.3 to <3	75/-	50/-	40	40	40	10
3 to <10	85/80 <sup>2</sup>	60/-	45	40	45	10
10 to <30	95/90	80/75	45	40	45	10
≥ 30	100/100	100/100	45	45	50	10

<sup>1</sup>The anticipated project traffic level expected over a 20year design period

<sup>2</sup>85/80 denotes that 85 percent of the coarse aggregate has one fractured face and 80 percent has two or more fractured faces

<sup>3</sup>Criterion based upon a 5:1 maximum to minimum ratio

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

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. The recommendations given in the SHRP SUPERPAVE system are provided in Table 16B-1(d) as guidance towards identifying a suitable grading.

Table 16B-1 (d) - SuperPave Aggregate Grading Control Point

Nominal Maximum Size (mm) (Note 1 below)	Sieve size (mm)	Control point (%passing)	
		Minimum	Maximum
19.0	25	100	~
	19	90	100
	12.5	~	90
	2.36	23	49
	0.075	2	8
12.5	19	100	~
	12.5	90	100
	9.5	~	90
	2.36	28	58
	0.075	2	10

Note 1: The definition of Nominal Maximum Size of aggregate is one sieve larger than the first sieve to retain more than ten per cent of the aggregate. It is also recommended that where possible the largest particle size should not be more than 25 mm so that the requirements of the Marshall test can be complied with.

1604B REQUIREMENTS FOR ASPHALT CONCRETE

The mix design should be carried out using the Marshall and/or the Superpave test procedures. The Engineer should instruct in writing if either or both of these methods should be applied.

The mix design specifications for the two methods are as follows:

- (a) Superpave method

The mix design, when compacted in accordance with AASHTO T 312 (Preparing and determining the density of Hot Mix Asphalt (HMA) specimens by means of the Superpave gyratory compactor) shall meet the relative density, voids in the mineral aggregate (VMA), Voids filled with Asphalt (VFA) and dust to binder ratio requirements specified in Table 16-B2(a).

The initial, design and maximum number of gyrations are specified in AASHTO R 35, Superpave volumetric design for Hot Mix Asphalt (HMA).

TABLE 16B-2(a) Superpave volumetric Mixture Design Requirements

Cumulative Equivalent Standard Axles (CESA) <sup>1</sup> in Million	Required Relative Density, Percent of theoretical maximum specific gravity			Voids in the Mineral Aggregate (VMA), Percent Minimum Nominal maximum size Aggregate (mm)		Voids Filled with Asphalt (VFA) Range, Percent	Dust-to-Binder Ratio Range
	N initial	N design	N max				
0.3 to < 3	≤91.5		~	19.0	12.5	70-80	0.6-1.2
≥3	≤89.0	96.0	≤98.0	13.0	14.0	65-78	0.6-1.2

<sup>1</sup>The anticipated project traffic level expected over a 20-year design period

(b) Marshall method

The mixture shall comply with the requirements given in Table 16B-2(b).

TABLE 16B-2(b) Requirements for Asphalt Concrete

Asphalt concrete	No. of blows Marshall compaction	Minimum Stability (KN)	Flow (mm)	Air voids (VIM) (%)	Void in Mineral Aggregate (VMA) (%)
19	75 <sup>1</sup>	9	2 - 4	3 - 6	Minimum 13
12.5	75 <sup>1</sup>	9	2 - 4	3 - 6	Minimum 14

Note 1: Satisfactory volumetric composition must be confirmed by refusal density testing

The nominal binder content shall be 5.5%. In addition to the requirements given in Table 16B-2 (b), the maximum Marshall Stability for 2x75 blows shall be 18 kN, and at compaction to refusal shall retain a minimum of 3% VIM.

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 a crushed rock which is known from past experience to give good results in this test procedure and should meet the requirements presented in Table 16B-1(b).

Having established the suitability of the aggregate source, several gradings satisfying the requirements of Table 16B-1(c) and Table 16B-1(d) shall be tested in the laboratory, including that used for the Marshall test, to establish relationships between bitumen content and VIM at refusal density. For each mix, samples will be made up to a range of bitumen contents and compacted to refusal using a vibratory hammer in accordance with BS 598 (Part 104:1989) with the following revision:

“It should first be confirmed that compaction on one face of the sample gives the same refusal density as when the compaction cycle is applied to both faces of the same sample. The procedure which gives the highest result shall be used.”

From the bitumen content-VIM relationship a bitumen content which corresponds to a VIM of 3% shall be identified. Compaction trials shall be undertaken, to confirm the workability of the mix. At least two or more gradings will be required for compaction trials. The compaction trials will identify a workable mix which can be made to a bitumen content which gives 3% Voids in Mix (VIM) at 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

Add the following:

The temperature of the bitumen and aggregates when mixed should be determined using both Penetration Index (PI) and softening point of the bitumen on the bitumen tests data chart (BTDC). The temperature of the bitumen and aggregates when mixed shall be 110+/-3°C above the softening point (Ring and Ball) of the bitumen.



Compaction shall commence as soon as the mix can support the roller without undue displacement of material and completed before the temperature of the mix falls below 90°C.

The mixing and placing of asphalt concrete must be carried out only under favorable weather conditions. Mixing and placing of asphalt concrete will not be allowed if the moisture content of aggregate affects the uniformity of temperature, or if free water is present on the working surface. Mixing shall not be allowed to take place more than two hours before placing begins unless provision had been made for storing. Storage of mixed materials will only be permitted in insulated hot mix bins. In any case, storage will not be permitted for a period longer than 12 hours after mixing, unless otherwise approved by the Engineer.

The minimum thickness of the compacted layer shall be 35mm when 12.5mm nominal maximum size aggregate is used (on the carriage way or road shoulders) and 50mm when 19mm nominal maximum size aggregate is used (on the carriage way or road shoulders).

#### 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

#### 1608B SEALING BITUMINOUS SURFACE

After the wearing course has been trafficked and bitumen has hardened, the wearing course shall be sealed with class 1, 10/14 mm pre-coated chippings in accordance with Clause 1505C. The period of hardening will depend on the traffic level and should be such that the chippings will not become embedded in the wearing surface. The Contractor will propose and the Engineer will approve a section to be ready for sealing.

#### 1610B MEASUREMENT AND PAYMENT

##### (a) Item: Asphalt concrete or Binder Course

Unit: m<sup>3</sup> of each type, binder and nominal size for each layer

Asphalt concrete or Binder Course shall be measured by the cubic metre compacted on the road calculated as the product of the length instructed to be laid and the compacted cross-sectional area shown on the Drawings or instructed by the Engineer.

The rate for asphalt concrete or Binder Course shall include for the cost of providing, transporting, laying and compacting the mix with the nominal binder content and complying with the requirements of Parts A and B of Section 16 of this Specification.

No payment shall be made for any variation in binder content or Mineral Filler or sand, and cost of any variation shall be deemed to be included in the Contractor's rates.

PART C – DENSE BITUMEN MACADAM FOR BASE

1601C DEFINITION

Dense bitumen means a hot –laid plant mixture of well graded aggregated and penetration grade bitumen.

1602C MATERIAL REQUIREMENTS

a) Penetration grade bitumen

This shall be 60/70 penetration grade bitumen unless otherwise instructed by the Engineer and shall meet the requirements stated in 1602B of this specification.

(b) Course Aggregate

Should comply with requirements of section 1602C (b) of standard specification And shall have water absorption <2% when tested with BS 812, part bitumen affinity by static immersion test >95% coating retained (AASHTO T 182)

The crushing ratio shall not be less than 100%

(c) Fine Aggregate (passing a 6.3mm sieve)

This shall be free from clay, silt organic matter and other deleterious matter. It Shall consist of entirely crushed rock produced from stone having a Los Angeles Abrasion of not more than 40. The sand Equivalent of the aggregate shall be not less than 40 and the SSS not more than 12.

1603C GRADING REQUIREMENTS FOR DENSE BITUMEN MACADAM

The grading of the mixture of coarse and fine aggregate shall be 0/30 and within and approximately parallel to the following grading envelope:

Sieve Size (mm)	0/30
37.5	100
28	95-100
20	71-95
14	58-82
6.3	44-60
2	26-40
1	20-32
0.300	7-17
0.150	-
0.075	2-7

In addition to the above, the material shall comply with the following SHRP SuperPave aggregate grading control and aggregate restricted zone.

Table 16C- (c) –Super pave Aggregate Grading control point

Normal Maximum size 25.0 mm (Note 1)		
Sieve Size (mm)	Control Point (% passing)	
	Minimum	Maximum
0.075	1	7
2.36	19	45
19.0	~	90
25.0	90	100
37.50	100	-

Note: The SUPERPAVE definition of Normal Maximum Size of Aggregate is one sieve size larger than the first sieve to retain more than ten per cent of the aggregate  
 Table 16c-1(d)-Superpave boundaries of Aggregate Restricted zone

Sieve size within restricted zone (mm)	Minimum and maximum Boundaries of sieve size for nominal Maximum aggregate size (minimum/maximum % passing)
	25.0
4.75	39.5-39.5
2,35	26.8-30.8
1,18	18.1-24.1
0.6	13.6-17.6
0.3	11.4-11.4

**1604C REQUIREMENTS FOR DENSE BITUMEN MACADAM**

The mixture shall comply with the appropriate requirements given in table 16c-1(a) as stated below.

The normal bitumen content, by weight of total mix, shall be 4.5%. The binder content of the working mix be approved by the Engineer following laboratory and site trials.

Table 16C-1(a)-Requirements for Dense Bitumen Macadam

Mix Properties	0/30
Marshall Stability 75 blows (N)	Min.7000
Flow Value	2 – 4
Voids in total mix(%)	4-8
Immersion Mechanical Test: Index of Retained Marshall Stability	>75

In order to determine the suitable coarse aggregate source, a Marshall test Programme shall be carried out by the contractor. A grading confirmation to 0/30 DBM mix, as specified in section 1602C of standard specification and 1603C of Special Specification shall be tested to ensure that it can meet the requirements of Table 16C-1(a) above.

Having established the suitability of the aggregate source and grading, several grading shall be tested in the laboratory, including that used for the Marshall test.

The blended grading shall pass on the coarser side of the grading envelope to ensure adequate interlocking between aggregates and it shall be coarser than the asphalt concrete grading. For each mix, samples shall be made up to a range of bitumen content, at reducing interval of 0.25% from the nominal binder content and compacted to refusal density using a gyratory compactor and a vibratory hammer in accordance with the procedure described in BS 598 (Part 104:1989), to establish a relationship between bitumen content and VIM at refusal density for all the aggregate grading. The contractor must confirm whether 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. The contractor must submit the results of these tests to the Engineer for approval before proceeding with the design.

From the above bitumen content –VIM @ refusal density relationship, the contractor shall identify a bitumen content which corresponds to VIM of 3% for each grading. To determine the workability of the mix, compaction trials shall be undertaken. In these grading with designed binder content @ 3% VIM. It is advisable to establish two or more grading for compaction trials.

The compaction trials will identify a workable mix which can be made to a bitumen which gives 3% VIM at refusal density meeting the design requirements minimum VMA 13%, VFB 65-75%.

The mixes identified in compaction trials should be manufactured to the laboratory design bitumen content and to two other bitumen contents. Cores shall be cut to determine the density of the compacted material. Having completed, these cores are to be reheated by the Contractor to 145+/-5 C in the appropriate mould and compacted to refusal density by the vibrating hammer test. 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 these tests and the contractor's recommendations are to be submitted to the Engineer for approval.

Further the site compacted mix shall have a VIM of 4 to 10% and VMA min 14%.

#### 1605C MIXING AND LAYING DENSE BITUMEN MACADAM

The temperature of the freshly mixed dense bitumen macadam shall be between 140°C and 170°C. Where possible, the viscosity of the bitumen should be measured over a range of temperatures and plotted on the Bitumen Test Data Chart so that the ideal mixing temperature, at which the viscosity of the bitumen is between approximately 0.2 and 0.5 Pas, can then be read from the chart. The minimum temperature at laying and commencement of compaction shall be 120°C and at completion of compaction shall be not less than 90°C.

The requirements regarding laying specified in Clause 1609A shall be modified as follows:

Laying plant capable of spreading the mixture over the full carriageway width shall be used as much as possible, otherwise two mechanical pavers working in echelon shall be used and the longitudinal joint shall be compacted before the temperature of the existing lane has dropped to 70°C where 60/70 bitumen is used. This temperature limitation requires the use of at least two mechanical pavers working in echelon.

All pavers shall be fitted with automatic electronic screed control to maintain the required levels, cambers and crossfall. The screed shall be equipped with 60 or 45

angle confining side planes to produce neat and stable pavement edges. The mixture shall be delivered continuously to the paver to avoid a stop-go paving operation.

The mixing and placing of Dense Bitumen Macadam must be carried out only under favorable weather conditions. Mixing and placing of Dense Bitumen Macadam will not be allowed if the moisture content of aggregate affects the uniformity of temperature, or if free water is present on the working surface. Mixing shall not be allowed to take place more than two hours before placing begins unless provision had been made for storing. Storage of mixed materials will only be permitted in insulated hot mix bins. In any case storage will not be permitted for a period longer than 12 hours after mixing, unless otherwise approved by the Engineer.

The minimum thickness of the compacted layer shall be 75mm and no compacted layer shall exceed 125mm.

#### 1606C COMPACTION

Rolling shall be continued until the voids measured in the completed layer are in accordance with the requirement for a minimum mean value of 95% of refusal density (no value less than 93%) and the voids measured in the compacted layer are within the specified range in section 1604 of special specification as appropriate.

#### 1608C MEASUREMENT AND PAYMENT

- (a) Item: Dense bitumen macadam  
Unit: m<sup>3</sup> of each type, binder and nominal size for each layer

Dense bitumen macadam shall be measured by the cubic metre compacted on the road as the product of the length instructed to be laid and the compacted cross-sectional area shown on the Drawings or instructed by the Engineer.

The rate for dense bitumen macadam shall include for the cost of providing, transporting, laying and compacting the mix with the nominal binder content and complying with the requirements of Parts A and C of Section 16 of this Specification.

No payment shall be made for any variation in binder content or Mineral Filler or sand, and cost of any variation shall be deemed to be included in the Contractor's rates.

## 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
- Class 30/20 for bridge all bridge members: abutments, piers, beams and deck

Specifications for construction materials and quality control shall be in accordance with the standard specifications.

#### CLASS 15/20

This work shall consist of placing and levelling lean Concrete Class 15/20 over the prepared bed of stone boulders in the foundation for bottom slab and wingwalls in accordance with these specifications and which conformity with the lines, grades, thickness and typical cross-sections shown on the drawings unless otherwise directed by the Engineer.

#### a) Materials for Levelling Concrete

Requirement for the concrete Class 15/20 is specified as follows: -

Design compressive strength twenty eight (28) days	: 15N/mm <sup>2</sup>
Maximum size of coarse aggregate	: 20mm
Minimum cement content	: 300 kg/m <sup>3</sup> .
Maximum water/cement ration of 50% with slump of 80mm.	

#### b) Construction Method

The bed of stone boulders or formation upon which the levelling concrete will be placed shall be free from water, smooth, compacted and true to the grades and cross-section shall be set to the required lines and grades.

c) Measurement and payment

Measurement for levelling concrete (Class 15/20) shall be made in cubic metres completed and accepted levelling concrete work measured in place which is done in accordance with the Drawings and the Specifications.

Payment for this work shall be the full compensation for furnishing and placing all materials, labour, equipment and tools, and other incidentals to Specifications and as directed by the Engineer.

Pay Item No. 17/02 Levelling Concrete Works (Class 15/20) for Box Culvert and wingwalls inclusive of Cost of Form works.

CLASS 25/20

This work shall consist of furnishing, mixing, delivering and placing of the concrete for the construction of culvert walls and slabs, in accordance with these Specifications and in conformity with the requirements shown on the Drawings.

Concrete Class 25/20, with UF2 finish on roof and floor slabs, shall be used for Culvert walls and slabs.

a) Concrete Materials

i) Cement

Cement shall be of Portland type and shall conform to the requirements of BS 12 or equivalent.

The Contractor shall select only one type or brand of cement or others. Changing of type or brand of cement will not be permitted without a new mix design approved by the Engineer. All cement is subject to the Engineer's approval; however, approval of cement by the Engineer shall not relieve the Contractor of the responsibility to furnish concrete of the specified compressive strength.

Conveyance of cement by jute bags shall not be permitted. Storage in the Contractor's silo or storehouse shall not exceed more than two (2) months, and age of cement after manufacture at mill shall not exceed more than four (4) months. The Contractor shall submit to the Engineer for his approval the result of quality certificate done prepared by the manufacturer.

Whenever it is found out that cement have been stored too long, moist, or caked, the cement shall be rejected and removed from the project.

b) Aggregates

(v) Fine and coarse aggregates must be clean, hard, strong and durable, not susceptible to ASR and free from absorbed chemicals, clay coating, or

materials in amounts that could affect hydration, bonding, strength and durability of concrete.

Grading of aggregates shall conform to the following requirements:

i) Grading of Fine Aggregates

Sieve Size (mm)	Percentage by Weight Passing
10	100
5	89 - 100
2.5	60 - 100
1.2	30 - 100
0.6	15 - 54
0.3	5 - 40
0.15	0 - 15

ii) Grading of Coarse Aggregates

Size of Coarse Aggregate	Amounts finer than each standard sieve percentage by weight							
	40	30	25	20	15	10	5	2.5
% by weight	100	-	-	90-100	-	30-69	0-10	-

Other requirements for aggregates are as follows:

iii) Fine Aggregates

- Fitness Modulus, AASHTO M-6 : 2.3 – 3.1
- Sodium Sulphate Soundness, AASHTO T104 : Max. 10% loss
- Content of Friable Particles AASHTO 112 : Max 1% by weight
- Sand Equivalent, AASHTO T176 : Min. 75

iv) Coarse Aggregate

- Abrasion, AASGTO T96 : Max. 405 loss
- Soft Fragment and shale, AASHTO M80 : Max. 5% by weight
- Thin and elongated Pieces, AASHTO M80 : Max. 15%

v) Water

All sources of water to be used with cement shall be approved by the Engineer. Water shall be free from injurious quantities of oil, alkali, vegetation matter and salt as determined by the Engineer.

vi) Admixture

Only admixture, which have been tested and approved in the site laboratory through trial mixing for design proportion shall be used.



Before selection of admixture, the Contractor shall submit to the Engineer the specific information or guarantees prepared by the admixture supplier.

The Contractor shall not exclude the admixture from concrete proportions.

- c) Concrete Class 25/20  
The requirements of Concrete Class 25/20 are provided as follows unless otherwise the Engineer will designate any alteration.  
Design compressive strength twenty eight (28) days : 25N/mm<sup>2</sup>  
Minimum cement content : 300kg/m<sup>3</sup>  
Maximum cement content : 540kg/m<sup>3</sup>  
Maximum size of coarse aggregates : 20mm  
Maximum water/cement ratio of 50% with slump of 80mm

- d) Proportioning Concrete  
The Contractor shall consult with the Engineer as to mix proportions at least sixty (60) days prior to beginning the concrete work. The actual mix proportions of cement, aggregates, water and admixture shall be determined by the Contractor under supervision of the Engineer in the site laboratory.

The Contractor shall prepare the design proportions which has 120% of the strength requirement specified for the designated class of concrete.

No class of concrete shall be prepared or placed until its job-mix proportions have been approved by the Engineer.

i. Concrete Works

1. Batching

Batching shall be done by weight with accuracy of:

Cement	: ½ percent
Aggregate	: ½ percent
Water and Admixture	: 1 percent.

Equipment should be capable of measuring quantities within these tolerances for the smartest batch regularly used, as well as for larger batches.

The accuracy of batching equipment should be checked every month in the presence of the Engineer and adjusted when necessary.

2. Mixing and delivery

Slump of mixed concrete shall be checked and approved at an accuracy of +25mm against designated slump in these Specifications.

3. Concrete in hot weather

No concrete shall be placed when the ambient air temperature is expected to exceed 33°C during placement operations.

4. Concreting at night  
No concrete shall be mixed, placed or finished when natural light is insufficient, unless an adequate approved artificial lighting system is operated; such night work is subject to approval by the engineer.
5. Placing  
In preparation of the placing of concrete, the interior space of forms shall be cleaned and approved by the engineer prior to placing concrete. All temporary members except tie bars to support forms shall be removed entirely from the forms and not buried in the concrete. The use of open and vertical chute shall not be permitted unless otherwise directed by the engineer.

The Contractor shall provide a sufficient number of vibrators to properly compact each batch immediately after it is placed in the forms.

- ii. Measurement and Payment  
Measurements for the Concrete Works Class 25/20 of culvert walls and slabs, shall be made in cubic metres for the walls and slabs actually constructed, measured from their dimensions shown on the Drawings. Payment for the Concrete Works (Class 25/20) of culvert walls and slabs shall be the full compensation for furnishing all materials of the concrete mixing, delivering, placing, finishing horizontal surfaces to class UF2 finish, and curing the concrete, equipment and tools, labour and other incidental necessary for the completion of the work in accordance with the Drawings and these Specifications and as directed by the Engineer.

#### CLASS 30/20

##### Description

This work shall consist of furnishing, mixing, delivering and placing of the concrete for the construction of the in-situ beams and deck slab, in accordance with Standard Specifications and in conformity with the requirements shown on the Drawings.

Concrete Class 30/20 shall be used for beams and slab.

##### Concrete Materials

###### a) Cement

Cement shall be of Portland type and shall conform to the requirements of BS or equivalent.

###### b) The Contractor shall select only one type or brand of cement or others.

Changing of type or of cement will not be permitted without a new mix design approved by the Engineer. All cement is subject to the Engineers approval

- however, approval of cement by the Engineer shall not relieve the Contractor of the responsibility to furnish concrete of the specified compressive strength.
- c) Conveyance of cement by jute bags shall not be permitted. Storage in the Contractor's silo or store house shall not exceed more than two (2) months, and age of cement after submit to the Engineer for his approval the result of quality certificate done prepared by the manufacturer.
- d) Whenever it is found out that cement have been stored too long, moist, or caked, the cement shall be rejected and removed from the project.

a) Aggregates

Fine and coarse aggregates must be clean, hard, strong and durable, not susceptible to ASR and free from absorbed chemicals, clay coating, or materials in amounts that could affect hydration, bonding, strength and durability of concrete. The aggregates should conform to BS 882.

b) Grading of aggregates shall conform to BS 812.

Other requirements for aggregates are as follows:

Fine Aggregates

Fitness Modulus, AASHTO M-6	: 2.3 - 3.1
Sodium Sulphate Soundness, AASHTO T104	: Max. 10% loss
Content of Friable Particles AASHTO 112	: Max. 1% by weight
Sand Equivalent, AASHTO T176	: Min. 75

Coarse Aggregate

Abrasion, AASGTO T96	: Max. 40% loss
Soft Fragment and shale, AASHTO M80	: Max. 5% by weight
Thin and elongated pieces, AASHTO M80	: Max. 15%

Water

All sources of water to be used with cement shall be approved by the Engineer. Water shall be free from injurious quantities of oil, alkali, vegetation and salt as determined by the Engineer.

Admixture

Only admixture, which have been tested and approved in the site laboratory through trial mixing for design proportion shall be used.

Before selection of admixture, the Contractor shall submit to the Engineer the specific information or guarantees prepared by the admixture supplier.

The Contractor shall not exclude the admixture from concrete proportions.

Concrete Class 30/20

Concrete Class 30/20 shall be used for in situ beams and deck slab. The requirements of Concrete Class 30/20 are provided as follows unless otherwise the Engineer will designate any alteration:

Design compressive strength twenty-eight (28) days	: 30N/mm <sup>2</sup>
Maximum size of coarse aggregates	: 20mm
Minimum cement content	: 340kg/m <sup>3</sup>

Maximum cement content : 540kg/m<sup>3</sup>  
Maximum water/cement ratio of 45% with slump of 80mm

#### Proportioning Concrete

The Contractor shall consult with the Engineer as to mix proportions at least sixty (60) days prior to beginning the concrete work. The actual mix proportions of cement, aggregates, water and admixture shall be determined by the Contractor under supervision of the Engineer in the site laboratory.

The Contractor shall prepare the design proportions which has 120% of the strength requirement specified for the designated class of concrete.

No Class of Concrete shall be prepared or placed until its job-mix proportions have been approved by the Engineer.

#### Concreting Work

##### a) Batching

Batching shall be done by weight with accuracy of;

Cement : 1/2 percent

Aggregate : 1/2 percent

Water and Admixture : 1 percent

Equipment should be capable of measuring quantities within these tolerances for the smallest batch regularly used, as well as for larger batches.

The accuracy of batching equipment should be checked every month in the presence of the Engineer and adjusted when necessary.

##### b) Mixing and Delivery

Slump of mixed concrete shall be checked and approved against designated slump in these specifications. The time elapsing from when the water is added to the mix until the concrete is deposited in place at the site of the work shall not exceed thirty (30) minutes in case that the concrete is hauled in non agitative type trucks or carries, nor more than sixty (60) minutes in case that it is hauled in truck mixers or other carriers with agitators.

##### c) Concrete in Hot Weather

No concrete shall be placed when the ambient air temperature is expected to exceed 33 °C during placement operations.

##### d) Concreting at Night

No concrete shall be mixed, placed or finished when natural light is insufficient, unless an adequate approved artificial lighting system is operated and such night work is subject to approval by the Engineer.

##### e) Placing

In preparation of the placing of concrete, the interior space of forms shall be cleaned and approved by the Engineer prior to placing concrete. All temporary members except tie bars to support forms shall be removed entirely from the forms and not buried in the concrete. The use of open and vertical chute shall not be permitted unless otherwise directed by the Engineer. The Contractor shall

provide a sufficient number of vibrators to properly compact each batch immediately after it is placed in the forms.

f) Measurement and Payment

Measurements for the Concrete Works Class 30/20 of beams and deck slab shall be made in cubic metres for the walls and slabs actually constructed, measured from their dimensions shown on the Drawings.

Payment for the Concrete Works (Class 30/20) of beams and deck slab shall be the full compensation for furnishing all materials of the concrete mixing, delivering, placing, finishing horizontal surfaces to class UF2 finish, and curing the concrete, equipment and tools, labour and other incidentals necessary for the completion of the work in accordance with the Drawings and these Specifications and as directed by the Engineer.

1713 FINISHES ON UNFORMED SURFACES

All unformed finishes shall be as follows:

- (i) All unformed surfaces in contact with water or the eye shall be finished to class UF 3 Finish in accordance with the standard specifications
- (ii) All unformed surfaces in contact with soil or on which asphaltic concrete is to be laid shall be finished to class UF 2 Finish in accordance with the standard specifications

The payment for such finishes shall be paid in accordance with the standard specifications and as captured in the bills items.

1722 FORMWORK FOR CULVERT WALLS AND SLABS

This work shall consist of all temporary moulds for forming the concrete for culvert walls and slabs together with all temporary construction required for their support. Unless otherwise directed by the Engineer all formworks shall be removed on completion of the walls and slabs.

a) Materials

Forms shall be made of wood or metal and shall conform to the shape, lines and dimensions shown on the Drawings.

All timber shall be free from holes, loose material, knots, cracks, splits and warps or other defects affecting the strength or appearance of the finished structure.

Release Agents – Release agents shall be either neat oils containing a surface activating agent, cream emulsions, or chemical agents to be approved by the Engineer.

b) Construction Method

i) Formworks

Formworks shall be designed to carry the maximum loads which may be imposed, and so be rigidly constructed as to prevent deformation due to

load, drying and wetting, vibration and other causes. After forms have been set in correct location, they shall be inspected and approved by the Engineer before the concrete is placed.

If requested, the Contractor shall submit to the Engineer working drawings of the forms and also, if requested, calculations to certify the rigidity of the forms.

Unless otherwise described in the Contract, all form joints for exposed surfaces of concrete shall form a regular pattern with horizontal and vertical lines continuous throughout each structure and all construction joints shall coincide with these horizontal and vertical lines.

Form joints shall be sealed against leakage of mortar. PVC pipes of 50mm diameter for weep holes shall be arranged as shown on the Drawings.

Unless otherwise specified, formwork shall be designed to form chamfers at all external corners whether or not such chamfers are shown on the Drawings to prevent cracks and other damage from arising.

The inside surface of forms shall be cleaned and coated with a releasing agent to prevent adhesion of the concrete. Release agents shall be applied strictly in accordance with the manufacturer's detailed instructions. The release agent shall be applied to the formwork prior to erection. Release agent must not come into contact with reinforcement. Immediately before concrete is placed, the forms shall thoroughly be thoroughly cleaned and freed from sawdust, shavings, dust, mud or other debris by hosing with water. Temporary openings shall be provided in the forms to drain away the water and rubbish.

ii) Scaffolding

All scaffolding required to support the forms shall be designed and constructed to provide necessary rigidity and support the loads without appreciable deflection or deformation.

Details, plans and structural and flexural calculations for scaffolding shall be submitted to the Engineer for approval, but in no case shall the

Contractor be relieved of his responsibility for the results obtained by use of these plans, etc.

- iii) Removal of formwork  
The time at which the formwork is struck shall be the Contractor's responsibility and the forms shall not be removed until the concrete strength has reached 20N/mm<sup>2</sup>
- c) Measurement and Payment  
Formwork shall be measured as the net area, in square metres, in contact with the finished concrete surface of the walls and slabs. No measurement shall be allowed for formwork of temporary construction joints.

Payment for the Formworks shall be full compensation for furnishing, erecting, jointing all the forms for the concrete including furnishing and applying release agent, and construction of the required scaffolding to support the forms, all conforming to the shape, lines, grade and dimensions of the structure as shown on the Drawings, all in accordance with the Drawings and as directed by the Engineer.

#### 1725 SURFACE FINISHES

All formed finishes shall be as follows:

- (i) All formed finishes in contact with water or the eye shall be finished to class F3 finish in accordance with the standard specifications.
- (ii) All formed surfaces in contact with soil shall be finished to class F 2 Finish in accordance with the standard specifications

The payment for such finishes shall be paid in accordance with the standard specifications and as captured in the bills items.

#### 1728 REINFORCEMENT FOR CONCRETE

This work shall consist of furnishing, fabricating and placing in the concrete of the bottom slab, top slab, beams, median wall, sidewalls, wingwalls and aprons, reinforcing bars of the quality, type and size in accordance with these Specifications and in conformity with the requirements shown on the Drawings.

Reinforcing bars shall be high yield deformed bar and shall meet the requirements of British Standard BS 4449 and steel mesh fabric to BS 4483, unless otherwise called for the drawings or approved by the Engineer.

No reinforcing bar shall be delivered without a Certificate guaranteeing the yield stress.

All testing for compliance will be at the Contractor's expense

#### 1729 STORAGE OF REINFORCEMENT

Reinforcement shall be kept off the ground, free from dirt, oil, grease and rust and stored within a building or provided with suitable covers.

#### 1730 BENDING REINFORCEMENT

The Contractor shall prepare bar bending schedules for the approval of the Engineer showing the location types, sizes, bending dimensions and cut lengths of the reinforcing bar required to be fixed in the works.

Qualified men shall be employed for the cutting and bending, and proper application shall be provided for such work.

Bars shall be cut and bent cold to the dimensions indicated and with equipment and methods approved by the Engineer.

Stirrups and tie bars shall be bent around a pin having a diameter not less than 15 times the minimum diameter of the bar. Bends of other bars, where full tension in the bar may occur, shall be made around a pin having a diameter not less than 7.5 times the bar diameter as shown on the Drawings.

Reinforcing bars shall be accurately formed to the shapes and dimensions indicated on the Drawings, and shall be fabricated in a manner that will not injure the materials.

#### 1731 FIXING REINFORCEMENT

Reinforcing bars shall be accurately placed in proper position, and so that they be firmly held during placing of concrete. Bars shall be tied at all intersections by using annealed iron wire 0.9mm or larger diameter, or suitable clips.

Distances from the forms shall be maintained, corrected by means of metal hangers, metal blocks, metal supports or other supports approved by the Engineer.

The Engineer shall inspect reinforcing bars after placing. When a long time has elapsed after placing reinforcing bars, they shall be cleaned and inspected again by the Engineer before placing concrete.

When it is necessary to splice reinforcing bars at points, position and methods of splicing shall be determined based on strength calculations and approved by the Engineer.

In lapped splices, the bars shall be lapped by the required length, and wired together at several points by using annealed iron wire larger than 0.9mm. The minimum splice length shall be 40 times diameter of the bar unless otherwise shown on the drawings or instructed by the Engineer.

Exposed reinforcing bars intended for bonding with future extensions shall be effectively protected from injury and corrosion.



Oxyacetylene welding joint of reinforcing steel shall be done only if authorized by the Engineer in writing.

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 m<sup>2</sup> of formwork shall cover inclined formwork of all slopes and angles.

Bending and installation of reinforcement bars shall be measured in terms of tons. In computing the weight to be measured, the theoretical weights of bars of the cross-section shown on the Drawings or authorized shall be used.

These weights are given in the following table: -

Bar type and the 56 Cross section in mm	Weight of Bar in Kilogram per 21m length of bar
T10	7.40
T12	10.66
T16	18.95
T20	29.60
T25	46.30

## SECTION 19 – STRUCTURAL STEEL

### 1901. APPLICABLE STANDARDS.

The latest applicable corresponding standards shall be applicable in lieu of those indicated in the Standard Specifications. In particular the following standards shall be applicable:

#### a) Steel

EN 10021, EN 10025-1, EN 10025-2  
EN 10025-3  
EN 10025-4  
EN 10029 EN 10034 EN 10051  
EN 10056-2 EN 10163-1  
EN 10163-2 EN 10163-3  
EN 10204 BS 4-1

#### (b) Bolts, Anchor rods, Nuts and Washers

EN ISO 898-1  
EN 20898-2  
EN 14399-1, EN 14399-2  
EN 14399-4  
EN 14399-6  
EN ISO 4017  
EN ISO 4034, EN ISO 4032  
DIN 7989-1  
EN ISO 4026 DIN 976-1 DIN 125 DIN 529

#### (c) Galvanizing

EN ISO 1461, EN ISO 10684

#### (d) Elastomer

EN 1337-3  
Structural bearings - Part 3: Elastomeric Bearings.

## SECTION 20 - ROAD FURNITURE

### 2001 ROAD RESERVE BOUNDARY POSTS

Road reserve boundary posts shall be provided as directed by the Engineer and in compliance with Standard Specification clause 2001. They shall be placed at 100m intervals along the boundary of the road reserve.

### 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 the requirements of 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.

The posts for the signs shall be cylindrical galvanised wrought iron tubes of minimum 75mm diameter and vandal-proofed by in-filling with concrete class 15/20.

The sign plates shall be made from approved metal or plastic sheet 3mm thick and vandal-proofed by the drilling of 3mm diameter holes at 100mm centres

The rate inserted for the signs shall include for all the costs of complying with this clause.

### 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. The signs shall be stored as directed by the Engineer.

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 stored as directed.

## (a) General

Paint for road marking shall be internally reflectorized hot applied thermoplastic material in accordance with Clause 219 of the Standard Specification complying to BS 3262 and BS 6088.

## (b) Application

In paragraph 3, line 3, delete "0.125" and insert instead "0.250 mm for white line and 0.300 mm for yellow line".

The rates inserted in the Bills of Quantities for road marking shall include for prior application of approved tack coat.

**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 98.5mm<sup>2</sup>. 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 ASTM E 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 bright as 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/l 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 markers. 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 °C
- (iii) Rotational cure time: between 20 and 30 minutes at 20 °C
- (iv) Hard cure: Between 40 and 60 minutes at 20 °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 galvanised 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.

"Swareflex" ART 3240 or similar approved guardrail reflectors two way reflective one side red and another white shall be installed on the flex beams every 4m.

The rate inserted shall include for provision of the flex beams, posts, Swareflex reflectors, flex beam end bits and installation in accordance with the standard specifications and drawings.

2007 KERBS

(a) Vertical Joints

Vertical joints between adjacent kerbs shall not be greater than 5 mm in width and shall 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 ramped kerbs shall consist of 2 units of raised kerbs as shown on the drawing, thus the transition occurs over 2.0 m

2008 KILOMETRE MARKER POSTS

Kilometre marker posts shall be provided as directed by the Engineer and in compliance with Standard Specification Clause 2008.

2009 RUMBLE STRIPS AND BUMPS

Rumble strips on shoulders and bumps shall be constructed using Asphalt Concrete Type 1 complying with the requirements of Section 16, Part B of the specifications. These shall be constructed to the shapes as shown on the drawings.

The rumble strips on the carriageway shall be constructed by double surface dressing chippings.

Road humps should be painted with white thermoplastic paint of 45 ° diagonal strips as shown on the drawings.

2010 TREES

Trees will be planted according to the advice given by the District Forest Officer or relevant Government office and 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

#### SERVICES DUCTS

Where instructed by the Engineer, the Contractor shall install services ducts. The 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 marker posts shall be installed by the Contractor at each end of services ducts provided under Clause 2015.

The duct marker posts shall be located immediately beyond the outer edge of the shoulder or footpath (as appropriate) and as close to the line of the duct as physical constraints permit. In situations where several ducts are laid side by side, only one duct marker posts shall be installed at each end of the group of ducts.

The duct marker posts shall be constructed as shown in the Drawing and shall be clearly and durably marked on the side facing away from the road with the inscription 'X DUCT(S)', 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 as directed by the Engineer, the contractor shall construct permanent bollards. The bollards shall be precasted 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.

## SECTION 21 - MISCELLANEOUS BRIDGE WORKS

### 2102 BRIDGE BEARINGS

Add the following

The bridge bearings shall be laminated elastomeric bearings to BS EN 1337-3 Structural bearings - Part 3: Elastomeric Bearings.

The contractor shall have the source of the bearings approved by Engineer and shall provide the engineer with a sample as shall be instructed for destructive testing. Upon importation of the bearings the engineer shall do random sampling for another sample for destructive testing to confirm the quality of the bearings to be used on the bridge.

The contractor shall make provision for the samples and their testing in his rates for other bearings since no separate payment shall be made for the test samples and their testing.

### 2101 BRIDGE BEARINGS

Bearings shall be manufactured and installed in accordance with the details shown on the Drawings or as described in the Special Specification.

The levels shown on the Drawings are the soffit levels of the beams or deck at the bearing locations. Bearings shall be accurately set in their correct positions and shall be maintained in position during beam installation and deck construction. Bearing surfaces of bearings shall be kept free from contamination and after the deck has been completed, each bearing and the area around it shall be left clean.

All bearings shall be indelibly marked with the appropriate Type Numbers and shall be supplied complete with dowels and ^dowel caps, nuts, bolts, adhesives, mortars and the like as required.

Should the contractor wish to use an alternative system to that shown on the drawings, he should provide the engineer with full details and technical specifications of the alternative system and shall satisfy the engineer with the suitability of the alternative system.

Bearings shall not be dispatched to the site until the tests described in the special specification have been satisfactorily completed and the certified results of the tests approved by the engineers.

This Clause covers the construction of load bearing piles for bridge foundations.

#### (a) Materials

##### (i) General

When requested by the Engineer, the Contractor shall submit test certificates from an approved, independent testing authority to show that the respective materials comply with the specified requirements, or a certificate from the patent holder or designer certifying that the manufactured item complies in all respects with relevant product specifications.

Unless otherwise specified, all the materials used for manufacturing the bearings shall comply with the requirements of BS EN 1337-2:2004, BS EN 1337-3:2005, BS EN 1337-5.

##### (ii) Roofing felt

Roofing felt shall be 3-ply and comply with the requirements of BS 8217:1994 or equivalent for Type 1 roofing felt.

(iii) Elastomer

The elastomer used in the manufacture of bearings shall be natural rubber or synthetic rubber.

Natural rubber shall comply with the requirements of BS 1154:2003 for specified IRHD hardness.

Synthetic rubber shall comply with the requirements of BS 2752:2003 for specified IRHD hardness.

(iv) Stainless steel plate

The texture of the sliding surface of stainless steel plate used in conjunction with PTFE to form low-friction sliding surfaces shall be equal to or better than 0.2  $\mu\text{m}$  Ra in accordance with the requirements of BS 1134:1988 Parts 1 and 2.

(v) Mortar

Mortar beddings for seating the bearings shall be composed of an approved sand and either cement or epoxy resin, or may consist of an approved proprietary mortar. The mortar shall comply with the following strength requirements:

a) Sand-cement mortar

The 7-day compressive strength of 150 mm cubes made from the mortar and cured in a moist atmosphere for the first 24 hours and afterwards in water at 20  $^{\circ}\text{C}$  shall be not less than 1.5 times the average contact stress under the bearing or 15 MPa, whichever is the greater.

b) Sand-epoxy resin mortar.

The cured compressive cube strength of the mortar shall be not less than two times the average contact stress under the bearing, or 20 MPa, whichever is the greater.

c) Proprietary mortar

The strength requirements for proprietary mortars shall be in accordance with either with the requirement of this Specification.

When requested by the Engineer, the Contractor shall submit test certificates from an approved, independent testing authority to show that the respective materials comply with the specified requirements, or a certificate from the patent holder or designer certifying that the manufactured item complies in all respects with relevant product specifications.

Unless otherwise specified, all the materials used for manufacturing the bearings shall comply with the requirements of BS EN 1337-2:2004, BS EN 1337-3:2005, BS EN 1337-5.

(b) Concrete hinges

Concrete hinges shall be constructed in accordance with the details shown on the Drawings.

Construction joints shall not be formed in the throat area. Where a joint is necessary, it shall be formed as a recess below the throat, level with the top reinforcement mat. The width of the recess shall be slightly greater than that of the throat.

Care shall be taken to eliminate the formation of shrinkage cracks within the throat. During construction, adequate bracing and support shall be provided to the satisfaction of the Engineer to prevent rotation in the throat from the time of casting to completion of the structure incorporating the hinge. During the course of construction, the hinge shall not be subjected to conditions which will induce tensile stresses in the throat area. Upon completion of the structural members incorporating the hinge, the space around the throat shall be filled and sealed with an approved compressible material.

(c) Roofing felt

Roofing felt used as bearing strips shall consist of at least three layers. Where lubricated linings are specified, the roofing felt shall be saturated with motor oil and then liberally dusted with graphite powder before it is laid on the bearing surface.

(d) Elastomeric bearings

(i) Technical data

The following technical data for the elastomeric bearings will be supplied on the Drawings, and shall also be supplied on drawings prepared by the Contractor for submission to the Engineer:

a) Design loads and deformations

The critical design-load combinations and co-existing rotations and horizontal displacements for each bearing or each group of identical bearings.

b) Size and construction of bearing

The size and construction of the bearing shall be designated by:

$L \times B \times n(t)$

where:

$L$  = length of bearing in the transverse direction, in mm

$B$  = width of bearing in the span direction, in mm

$n$  = number of elastomer layers.

$t$  = thickness of individual elastomer layers, in mm

The steel plates shall be encased in a 3 mm thick elastomer layer.

c) Hardness and type of elastomer

The IRHD hardness and type of elastomer, i.e. natural or synthetic rubber, from which the specified bearings are to be manufactured.

d) Identification

Each bearing shall be identified by a number.

(ii) Alternative bearings

Where alternative bearings are offered by the Contractor, they shall be designed in accordance with the requirements of BS EN 1337-2:2004, BS EN 1337-3:2005, BS EN 1337-4 for the loadings and deformations shown on the Drawings.

Where a bearing consisting of a type of rubber is offered which differs from that which is specified, the bearing shall be redesigned to make provision for the variation in hardness and/or type of rubber.

(iii) Inspection and testing

On completion of the manufacture of the bearings, the Contractor shall submit bearings selected by the Engineer, or specially manufactured bearings to serve as samples as authorized by the Engineer, to an independent testing authority for testing.

The testing facilities of the manufacturer or supplier may be used if so approved and on condition that the tests are conducted in the presence of the Engineer.

The Engineer shall determine which tests are to be conducted, and the tests shall comply with the appropriate requirements of this Specification.

Copies of test results and certificates for the above mentioned tests shall be submitted by the Contractor to the Engineer in good time to enable the Engineer to assess the information before the bearings are installed.

The dimensional tolerances for the bearings shall comply with the requirements of this Specification.

Before the bearings are dispatched to the site of the Works, each bearing, with the exception of large bearings as provided for in the Special Specifications shall be subjected simultaneously to a vertical load equal to 150% of the maximum design load, and to a shear distortion equal to 150% of the maximum design value. The bearings shall be visually inspected for defects by the Engineer or his/her nominee and shall not at any stage under this test show any cracks visible to the naked eye or any other defects.

The Engineer may instruct that one bearing of each consignment shall be cut open, at the Contractor's expense, with a view to a visual assessment of the bonding and the thickness of layers.

(e) Proprietary bearings

(i) General

This Clause covers custom-built bearings and bearings manufactured under licence, except elastomeric bearings. Combined bearings, consisting of an assembly of an elastomeric bearing in conjunction with a low-friction sliding or mechanical component shall fall under this Clause.

The bidder may base his/her bid on any bearing which complies with the specified requirements, provided that the efficacy of the bearing has been verified by tests and successful previous use. Evidence hereof as well as information on the durability and

suitability of the bearings for the specified use shall be submitted to the Engineer for consideration.

Details of the product guarantee shall be submitted with the bid.

(ii) Drawings and approval

Prior to manufacturing the bearings, the Contractor or his/her nominee shall submit the following information to the Engineer for consideration:

- a) The manufacturer's specification containing detailed information on the design standards, materials, manufacture and technical data.
- b) Drawings complying with the provision in this Specification showing the bearing construction and installation details.
- c) Friction properties based on actual tests conducted on the relevant materials.

(iii) Technical requirements

The following technical requirements will be supplied on the Drawings, and shall also be supplied on the Drawings prepared by the Contractor for submission to the Engineer:

a) Design loads and movement

The maximum and minimum vertical loads and co-existing horizontal loads as well as the maximum horizontal load and co-existing vertical load. The maximum values in each direction of the reversible and irreversible movements and the rotation about each axis.

b) Identification

Identification of each bearing by a number, data on the degree of freedom of movement (fixed, multi-directional or unidirectional bearings) and the type of bearing (spherical, elastomer-pot, etc.) shall appear on each bearing.

iv) Design

The bearings shall be designed in accordance with the requirements and recommendations of BS 5400:1983 Part 9.1. The following shall also be complied with:

- a) The average pressure on the area of the elastomer shall not exceed 25 MPa under the serviceability Limit State, unless otherwise prescribed by the Engineer.
- b) The maximum average contact stress and maximum edge stress on the concrete or mortar bedding shall not exceed 0.5 and 0.6 times the 28-day cube characteristic compressive strength under the serviceability Limit State respectively, unless otherwise prescribed by the Engineer.
- c) The bearing pad shall be of dimensions as will fit into the space allowed for its installation. Major alterations to the contiguous members will not be permitted.

(v) Construction

Unless otherwise specified, the following shall be complied with:

- a) The thickness of the elastomer disc shall be not less than 0.066 times its diameter.
- b) Approved lubricants only shall be used on the PTFE sliding surfaces.
- c) The bearing shall be provided with tight-fitting seals to prevent the ingress of dust or deleterious matter onto the moving parts. The seals shall be of an approved type and sufficiently durable to last in excess of 50 years.
- d) The assembled bearing shall be supplied with welded or bolted lugs or straps, temporarily securing the moving parts firmly in position to ensure that no undesirable relative movement occurs before or during construction.

e) The bearing shall be recessed into adaptor plates or be of such construction as to facilitate removal of the bearing from the installed position without damage to any part of the bearing or the surrounding material after the relevant structural member has been raised by 15 mm or the distance specified.

f) Anchors and holding-down bolts shall be of the specified material.

g) Corrosion protection of all exposed steel surfaces, with the exception of the stainless-steel sliding plate, shall involve the following treatment:

Preparing the surfaces by abrasive blasting to a finish equal to the Sa3 finish of BS EN ISO 8501-1:2007, BS EN ISO 5801-1, Swedish Standard SIS 05 59 00 or equivalent.

Spraying the surfaces with zinc to comply with the requirements of AASHTO M32-97 or equivalent on approval of the Engineer for Type Zn 150 surfacing.

Coating the zinc-sprayed surfaces within four hours with a sealer compatible with the zinc and the subsequent coats of paint.

Applying a coat of chlorinated rubber paint with a minimum of 75 • m of dry-film thickness and of a colour which differs from that of the final coat of paint.

Applying a final coat of chlorinated rubber paint with a minimum of 75 • m of dry-film thickness and of dark grey colour.

Surfaces in contact with concrete shall be sprayed with zinc so that it complies with the requirements of AASHTO M32-97 or equivalent on approval of the Engineer for Type Zn 150 surfacing.

(vi) Inspection and testing

The Engineer may require tests to be conducted to verify compliance of the bearing with the specifications and/or its satisfactory performance under the design loads.

Test certificates of all the tests conducted shall be submitted to the Engineer.

The Contractor shall give the Engineer at least seven days notice prior to final assembly of the bearings to enable the Engineer to inspect the bearings at the factory.

Under no circumstances shall bearings be taken apart and reassembled on the site, except where it is an unavoidable feature of the installation procedure, in which case the dismantling, installation and reassembly shall be under the supervision of qualified personnel.

Rehabilitation, modification and repair work to bearings shall be carried out only in the factory or in an approved engineering Works.

(f) Dowels and guides

Where dowels and guides are used in conjunction with bearings they shall not complicate or prevent the removal of the bearings.

(g) Storage and handling

The bearings shall at all times be stored under cover and clear of the ground, away from sunlight, heat, oils and chemicals deleterious to the bearings. The bearings shall not be stacked in a manner or on a surface which will cause distortion of the bearings.

The bearings shall be handled with care to ensure that they are not subjected to impact loads or any other conditions which may be harmful.

(h) Installation

The concrete surfaces of elements required to receive bearings shall comply with the requirements of this Specification. Plastering of the surface will not under any circumstances be permitted.

Before the mortar bedding is constructed, the concrete surface shall be chipped back to expose the aggregate and leave a sound irregular surface. Bonding of the mortar bedding to the concrete surface shall be in accordance with the manufacturer's recommendations and the Engineer's instructions.

Unless otherwise shown on the Drawings, the bearings shall be installed on a horizontal plane and shall be in full contact with the concrete and bedding surfaces.

To accommodate soffit irregularities and camber in the case of precast members, the member shall be lowered onto a mortar skim on top of the bearing. The member shall then be propped until the mortar skim has hardened into a wedge.

The bearings shall be accurately installed to the specified level, alignment and orientation, all within the construction tolerances set out in this Specification and the details shown on the Drawings.

Where the bearing has long sliding plates, the latter shall be rigidly supported to prevent their being distorted under the weight of the wet concrete and the construction loads. Before the bearing is incorporated into the structure, it shall be cleaned to remove all deleterious substances and adhering matter, after which it shall be wrapped in polyethylene sheeting and so sealed as to prevent the ingress of mortar and/or slush onto the bearing during the course of construction.

After installation, the polyethylene wrapping shall be removed, the bearing and the space around the bearing thoroughly cleaned and the lugs removed as prescribed by the Engineer.

On completion of installation of proprietary bearings, the Contractor shall submit to the Engineer a certificate from the manufacturer or supplier of the bearings certifying acceptance of the installation, only if the manufacturer installed the bearings. The issuing of such a certificate shall not relieve the Contractor of his/her responsibility under this Contract. No separate payment will be made for the inspection of the bearings by the manufacturer or supplier and the issuing of the acceptance certificate.

#### 2103 MOVEMENT JOINT ON DECK

The Contractor shall provide and install a suitable Expansion joint as approved by the Engineer. The expansion joint shall have a maximum movement capacity of 25mm.

#### 2105 GUARDRAILS TO BRIDGES

Delete and replace with the following:

The bridge crush barriers shall be of reinforced concrete as shown on drawings and shall be of the same concrete specification as for the concrete deck slab.

Their measurement and payment shall be in cubic metres under the relevant item under bill number 17.



2106 SURFACING TO BRIDGES

The surfacing to bridges shall consist of 50 mm thick Asphalt Concrete laid to the tolerances given in Section 3 of the Standard Specification.

SECTION 21A - MISCELLANEOUS BRIDGE WORKS-PILING

Add this as a subsection to Section 21.

2100 A.1 GENERAL

The following shall be taken into consideration in the piling works for bridges. The piling works shall be carried out in accordance with the provisions of BS 8004 or other approved code subject to the approval of the engineer. The piles shall be bored cast-in-place or as approved by the engineer.

2100 A. 2 BORED CAST-IN-PLACE PILES

Bored cast-in-place piles shall be formed by boring or grabbing and subsequently filling the hole with reinforced concrete. Piles diameters as shown on drawings shall be used.

Ready-mixed concrete shall be used with the approval of the engineer and shall be in accordance with BS 5328. The concrete shall be supplied in sufficient quantity to ensure that the concreting of each pile proceeds without interruption. In addition to meeting the strength requirements the concrete shall have adequate workability so that it can flow against the walls of the shaft, and into every cavity. The slump shall be as per the approved mix design. The minimum characteristic strength requirement at 28 days shall be 30 N/mm<sup>2</sup>.

**Table 22 - Suggested slump details for typical concreting situation; for cast in place piles**

Typical concrete use	slump	
	Range	
	mm	in
Fouled into water, free unlined bore, widely spaced reinforcement, ample free movement between bars. While reinforcement is not spaced widely enough to give free movement between bars. While cutoff level of concrete is not easing. While pile diameter is less than 600 mm. While concrete is placed by use of under water or bentonite suspension.	75 to 125	3 to 5
	100 to 175	4 to 7
	150 to Collapse	6 to c

Generally the concrete shall contain not less than 300 kg/m<sup>3</sup> cement. To avoid segregation, honeycombing and bleeding, and other defects resulting from the high water content required for workability, the use of a water reducing/plasticizing admixture shall be used upon the approval of the engineer. However, to ensure the required cohesion of the mix

the fines content of cement or aggregate shall also have to be increased subject to the approval of the engineer.

The engineer shall have access for inspection to the supplier's works at all times.

The reinforcement shall be carried down for the full length of the piles using approved method. Spacer rollers shall be attached to the reinforcement cage to ensure cover to reinforcement.

#### 2100 A. 3 PILE LOAD TESTING USING MAINTAINED LOADS AND SETTLEMENT MEASUREMENT

Working piles shall be tested as instructed by the engineer. At least one working pile shall be tested for every foundation location. In testing the following shall be ensured.

i) Preparation. The pile head shall be cut off or built up to the necessary elevation and shall be capped appropriately to produce a bearing surface perpendicular to the axis of the pile. The arrangement shall be such that none of the test load is carried by the ground under the cap.

ii) Method of loading. The test load may be applied in one of the following ways or any other approved by the engineer:

a) by means of a jack which obtains its reaction from kentledge heavier than the required test load;

b) by means of a jack which obtains its reaction from tension piles or other suitable anchors.

The load shall be measured by a calibrated load gauge and also by a calibrated pressure gauge in the hydraulic system. The jack and load gauge shall be carefully aligned so that the load applied is co-axial with the pile.

When using method a) care shall be taken to ensure that the centre of gravity of the kentledge is on the axis of the pile. The nearest edge of the crib supporting the kentledge stack shall not be closer than 1.3 m to the surface of the test pile. Kentledge shall not be used for tests of raking piles. In appropriate circumstances an existing structure of adequate mass and suitable construction may be used as kentledge.

When using method b) all anchor piles shall be at a distance of at least three test pile shaft diameters from the test pile, centre to centre, and in no case less than 2 m. This spacing may need increasing in certain situations where knowledge of the absolute value of settlement of an individual pile is essential.

Where a pile to be tested has an enlarged base the same criterion should apply with regard to the shaft and, in addition, the surfaces of anchor pile shafts shall not be closer than one-half of the diameter of the enlarged base to the test pile base. If the anchor piles are to be permanent working piles, their level should be observed during application of the test load to ensure there is no residual uplift. Where ground anchors are employed with method b),

no part of the anchor transferring load to the ground shall be closer to the test pile than 3 test pile shaft diameters.

Where the pile to be tested has an enlarged base this criterion shall apply with regard to the pile shaft and, in addition, no section of the anchor-transferring load to the ground should be closer to the pile base than the base diameter.

iii) Measurement of settlement.

Settlement shall be measured by one of the following four methods.

a) Level and staff. The level and the scale of the staff shall be chosen to enable readings to be made to an accuracy of 0.5 mm. A scale attached to the pile or pile cap may be used instead of a levelling staff. A datum shall be established on a permanent object or other well-founded structure or deep datum point. The datum shall be situated so that only one setting up of the level is needed. It is preferable that the datum shall be duplicated in case one is inadvertently demolished. The datum shall not be affected by the test loading or other operations on the site.

b) Reference frame. A frame shall be supported on two foundations or stakes placed sufficiently far from the pile and the reaction system as to be unaffected by ground movements resulting from the test; the distance shall be not less than 3 test pile diameters and in no case less than 2 m.

The foundations or stakes shall be placed at a sufficient depth below ground to be unaffected by movements of the reaction system and movements of the ground caused by moisture changes or frost. The measurement of settlement is made by dial gauges fixed to the frame and bearing on the top of the pile, or lugs or other reference points on the pile to register the movement of the pile. If preferred the gauges may be fixed to the pile and bear on surfaces on the reference frame. Electrical displacement transducers can be used in place of dial gauges. Readings should be taken to an accuracy of 0.1 mm. During the test, observation of any movements of the stakes with reference to a datum as in a) above shall be made by means of a level and staff.

c) Reference wire. A strained high tensile wire may be used instead of the reference frame.

The wire is positioned against a scale fixed to the pile and the movement of the scale relative to the wire is determined. Readings shall be taken to an accuracy of 0.5 mm.

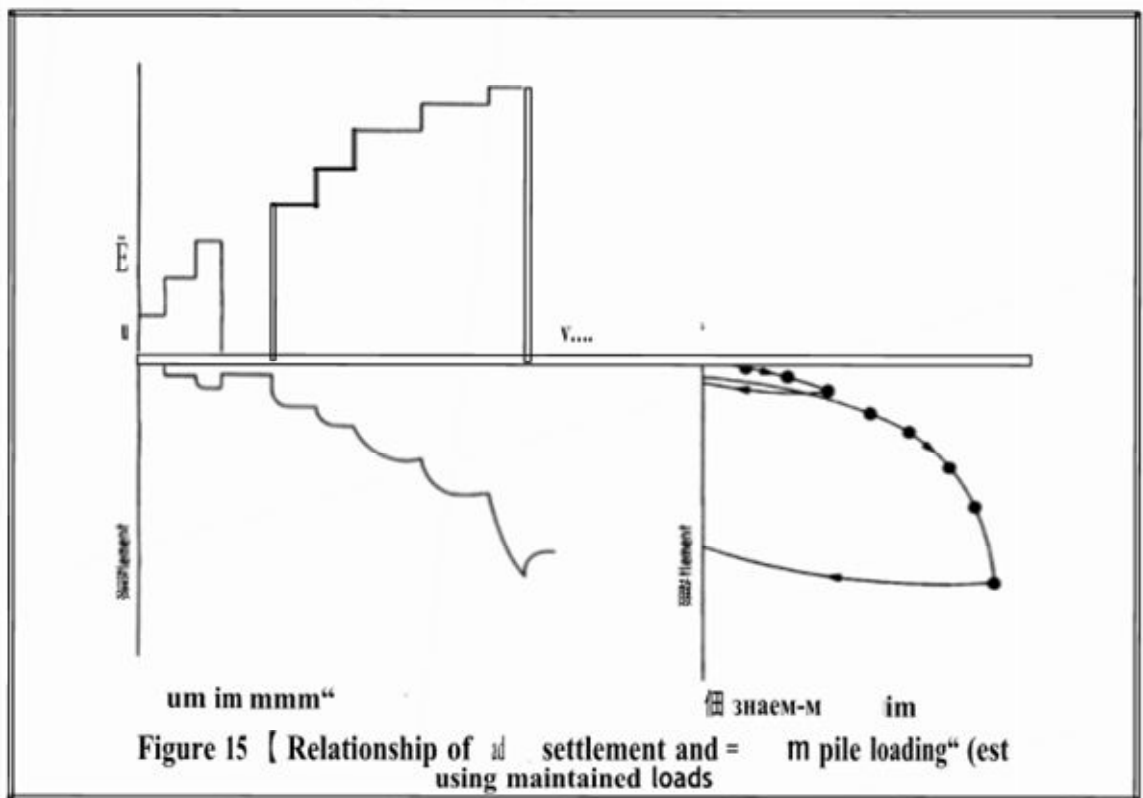
d) Electro-optic position sensing. A laser beam focused by a lens attached to the pile may be used to produce an image on a photoelectric detector. Movement of the pile produces an electrical signal proportional to the movement. The foundations for the laser and detector units shall be as described under b) above but it is convenient and likely to lead to greater accuracy if they are placed at least 10 test pile diameters from the test pile.

Where method b) or c) is used, protection of the frame or wire from sun and wind shall be made and variations in the air temperature shall be recorded.

Loading Procedure. The engineer shall state the working load and prescribe the stages of loading. It shall be convenient to make the increments of load about 25 % of the working load up to the working load, and appropriately smaller thereafter as shall be determined by Engineer. Each load increment shall be sustained for at least 15 minutes and readings taken. The pile shall be unloaded and reloaded after the completion of any stage of loading. The reloading shall be at least 1.5 times the working load and shall be sustained for at least 20 hours with readings being taken as appropriate but at least every 60 minutes. Three readings shall be taken for each load increment at intervals of 5 minutes in both cases before another increment is done.

During unloading, readings of time and settlement should be made at suitable intervals and, after removal of the load, readings shall be continued until the movement effectively ceases.

On completion of the necessary stages of loading a pair of graphs showing load and settlement versus time as abscissa shall be plotted as indicated in Figure 15(a). A graph of load versus the settlement at the end of each stage of loading shall be plotted as in Figure 15(b). These shall form integral part of the report to be produced on the works.



#### 21A. 4 PILE INTEGRITY TESTING

All piles shall be subjected to pile integrity testing using an approved method subject to the approval of the engineer. An expert firm approved by the engineer shall do the pile integrity testing and a comprehensive report shall be produced.

## SECTION 22-DAYWORKS

### 2202 MEASUREMENTS AND PAYMENT

#### (a) Plant

Where items of major plant listed in the schedule of Dayworks are specified by type (e.g. Concrete mixer etc.) the power rating of such items of plant provided by the Contractor shall not be lower than the power ratings of such plant manufactured within the last two years prior to the date of BID. Any item of major plant employed upon Dayworks that has a power rating lower than specified above 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 above.

## SECTION 23 ELECTRICAL AND STREET LIGHTING INSTALLATIONS

### 2301 INTRODUCTION

These Specifications set out the minimum standards of materials, workmanship and design to be used by the Contractor for the electrical, mechanical and civil works of the street lighting system.

These Specifications are to be read in conjunction with the Drawings and Bill of Quantities.

### 2302 STANDARDS

#### 2302.1 STANDARDS OF MATERIALS

Where the materials and equipment are specifically described and named in the Bill of Quantities or in the Specification followed by approved equivalent, they are so named or described for the purpose of establishing a standard to which the Contractor shall adhere.

The lighting system to be installed shall withstand the maximum stresses under the most severe condition of normal service. Materials shall have a high resistance to change in their properties due to the passage of time, exposure to light, temperature and any other cause which may have a detrimental effect upon the performance or life of the Works.

Materials shall be selected taking into consideration their location and duty.

The Contractor shall provide as an integral part of his bid, a statement of compliance in which he shall clearly declare any items of the Specification to which his offer does NOT comply and the alternative which is included in his offer.

Should the Contractor install any material not specified herein before receiving approval from the proper authorities, the Engineer shall direct the Contractor to remove the material in question immediately. The fact that this material has been installed shall have no bearing or influence on the decision by the Engineer.

All material condemned by the Engineer as not suitable for use shall be removed from the site and suitable material delivered and installed in their place at the expense of the Contractor. All materials required for the work shall be new and the best of the respective kind and shall be of uniform pattern.

### 2303 Standards of Workmanship

The works shall include, but not necessarily limited to, trenching for and installation of electrical cables, erection of lighting columns and mounting of street light lanterns, installation of controls and all associated electrical wiring, liaison and payment of fees to the electric power provider, and testing and commissioning of the full system

The Works as a whole shall be new, of sound workmanship, and robustly designed for a long, reliable operating life in the climatic and working conditions prevailing at the Site.

Workmanship and the general finish of installations shall be of first-class, commercial quality and in accordance with the best workshop practice, and shall be performed by persons skilled in their respective trades and to the satisfaction of the Engineer. Helpers shall have qualified supervision.

Permits, Certificates or Licenses must be held by all tradesmen for the type of work in which they are involved where such Permits, Certificates or Licenses exist under Government Legislation.

Any work that does not, in the opinion of the Engineer, conform to the best standard practice will be removed and reinstated at the Contractor's expense.

2304 Drawings

2304.1 Working Drawings

Before manufacture or fabrication is commenced the Contractor shall submit two (2) copies of detailed Drawings of all feeder pillars and switch or control boards including their components showing all pertinent information including sizes, capacities, construction details etc. as may be required to determine the suitability of the equipment for the approval of the Engineer. Approval of the detailed Drawings shall not relieve the Contractor of the full responsibility of errors or the necessity of checking the Drawings himself or of furnishing the materials and equipment and performing the work required by the plans and specifications.

2304.2 As Built Drawings

These Diagrams and Drawings shall show the completed installation including sizes, runs and arrangements of the installation. The Drawings shall be to scale not less than 1:50 and shall include plan views and section.

The Drawings shall include all the details which may be useful in the operation, maintenance or subsequent modifications or extensions to the installation.

Three sets of Diagrams and Drawings, including one electronic copy, shall be provided, all to the approval of the Engineer.

One coloured set of line diagrams, relating to operation and maintenance instructions, shall be framed and mounted in a suitable location.

2305 Setting out Work

The Contractor, at his own expenses, is to set out works and take all measurements and dimensions required for the erection of his materials on site; making any modifications in details as may be found necessary during the progress of the works, submitting any such modifications or alterations in detail to the Engineer before proceeding and must allow in his Tender for all such modifications and for the provision of any such sketches or Drawings related thereto.



2306            Positions of Electrical Plant and Apparatus

The routes of cables and positions of transformers, feeders and equipment shall be part of the final design and must be agreed on site with the Engineer before any work is carried out.

2307            Road Condition and Lighting Classification

Luminaire installed shall be suitable for roads as specified in this document.

The road is classified as Traffic Situation B1 in towns and villages and as A3 outside towns and villages. Lighting Classes vary between ME5 and ME3c. For details please see the design sheet. The road surface is Tarmac C2.

If pedestrians will be using the road on separate lanes, the lane shall be, according to BS 5489-1 “Code of practice for the design of road lighting”, regarded as separate areas to the road.

2308            Luminaire Maintenance Factor

Assuming exterior installation in a town and a maintenance cycle exceeding 3 years, a Maintenance Factor (MF) of 0.6 has been applied for the preliminary design. The exact Maintenance Factor (MF) might be readjusted in the final design but shall not exceed 0.83 and shall be subject to approval by the consultant.

2309            Road Lighting Requirements

Performance Requirements

The Contractor is expected to build the road lighting according to “BS EN 13201 - Performance Requirements for Road Lighting”. If construction deviates from the engineer’s design, suitability of the design shall be proven by producing photometric results using DIALUX or similar software.

Performance requirements for road way section are stated in the design table attached.

Luminaire Requirements

Luminaire manufacturer shall be regularly involved in the manufacturing of luminaires. Luminaires shall comply with “BS EN 60598-1 Luminaires - General requirements and tests” and shall be type tested to “IEC 60529 - Degrees of protection provided by enclosures (IP Code)” IP 66.

Manufacturers shall be certified to “EN ISO 14001 – Development, Design, Production and Distribution of Technical Lighting Systems” and “ISO 9001: Quality Management Systems”.

Luminaires shall carry a warranty not less than 5 years.

If requested by the Engineer, copies of the certificates and warranty documentation shall be made available to the Engineer.

The luminaire shall be luminaires similar to TRILUX 9711SG-AB7L/9100-740 10G1S ET.

The electrical block shall contain all electric components including a 3-pole connection terminal to 2,5mm<sup>2</sup>

#### Column Requirements

The Contractor shall supply and install lighting columns according to “BS EN 40-5 - Requirements for Lighting Columns”, under consideration of local guidelines and the WHO Wind speed hazard distribution map (10-year return period).

The Contractor shall consider that poles are commonly placed in the road shoulders. Road shoulders are only 1m width, which limits the dimension of concrete foundations. Therefore, the preliminary design uses poles higher than 8m only in exceptional locations like larger road crossings.

The lowest point of overhang of luminaires or bracket arms with respect to the road way should be not less than 5.7m.

The distance of poles to the edge of other roadway on crossings or T-junction should be not less than 0.8m.

Columns shall be manufactured by a steel construction manufacturer regularly involved in the manufacturing of lighting columns. Column manufacturer shall be certified to:

EN ISO 3834 – 2 to 4: Quality Requirements for fusion welding of metallic material

EN 1090: Fabrication and assembly of steel and aluminum structures

ISO 9001: Quality Management Systems

If requested by the Engineer, copies of the certificates shall be made available to the Engineer.

Attached Drawings are indicating a principle design and shall be deemed sufficient for tendering.

The columns shall be manufactured in conformity with and to the approval of the local City Council. The Contractor shall submit detailed workshop drawings to the Engineer for approval prior to commencement of fabrication.

The columns must be carefully aligned and set vertically with doors facing away from on-coming traffic.

Doors giving access to the mounting plate for cut-outs shall be weather proof, and provided with a locking device.

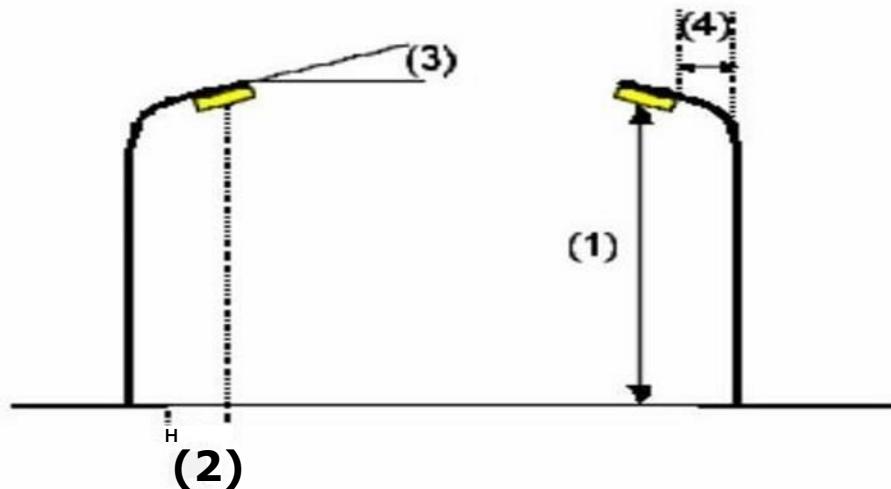
The column shall be electrically continuous and shall be provided with an easily accessible corrosion resistant earth terminal having substantial contact surface for attachment of an earthing lead.

The columns shall be coated with powder using automatic reciprocators to maintain even film thickness. The sections shall then be cured in the oven. The final colour shall be to the Engineer's approval.

Columns shall be provided with all accessories such as mcb's, cabling, etc.

A sample of the column shall be availed to the Engineer for approval before fabrication commences.

Arrangement:	According to attached tables/final design;
Pole Distance:	According to attached tables/final design;
Mounting Height (1):	According to attached tables or final design.
Overhang (2):	According to attached tables or final design.
Boom Angle (3):	0 to 15 degrees.
Boom Length (4):	According to attached tables or final design.



## 2310 Switchgear and Control Gear Requirements

The Contractor shall design and install the electrical power supply to following standards:

- 17th Edition IEE (Institution of Electrical Engineers) Regulations;
  - IEC 60439 "Low voltage switchgear and control gear assemblies";
  - IEC 60364 "Electrical Installations for Buildings" (Especially chapters for safety and earthing);
  - IEC 62305 "Protection against lightning";
  - BS EN 61386 "Conduit systems for cable management";
  - IEC 61084 "Cable trunking and ducting systems for electrical installations";
  - IEC 60502 "Requirements for Cable";
  - IEC 60076 "Power transformers";
  - IEC 60529 "Degrees of protection provided by enclosures (IP Code)";
  - IEC 62262 "Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)".
- More standards may apply, as appropriate.

### Incoming Electricity Supply

The electricity supply shall be derived from the existing local network. The incoming underground cables shall be supplied, installed and connected to the feeder pillar by the local Electricity Distribution Company. The control pillar shall be supplied and

installed under this Contract. Additionally, needed transformers shall be foreseen in the detailed design.

The Contractor shall ascertain the size and type of incoming L.V. supply line/cable that shall be installed by the supply authority and thereby ensure that the correct glands and terminations for the service cables entries into the control pillars are provided.

The Contractor shall ensure that the power supply is availed at site by the Power Authority in time for testing and commissioning of the installation. The necessary application for the supply shall be submitted to the Authority in good time.

Power supply shall be derived from a distribution board to be enclosed in the control pillar and controlled via a Contractor and a photocell.

#### Feeder Pillar, Photocell Panel, Switchboards

The Feeder Pillar shall be the point of linking the cable from the local power supply authority to the lighting system. It shall contain power meter, isolator, protection equipment and contactors according to the Contractor's design and Engineer's approval. Please refer to attached schematic drawings for principal functions.

Feeder pillars shall be mounted on a 225mm thick foundation of mix ST2 concrete.

The Photocell Panel shall accommodate daylight switches, timers, protection equipment and contactors according to the contractor's design and Engineer's approval. Please refer to attached schematic drawings for principal functions. Photocell panels shall be designed to switch on when the ambient dusk lighting requires so.

Access doors to enclosures shall be fitted with suitable locks.

Enclosures shall be type tested in compliance with IEC 60439-1 manufactured by a switchboard builder regularly involved in the building of boards, enclosures and panels.

The Degree of Protection shall not be less than IP 55 according to IEC 60529.

The level of impact protection shall not be less than K10 according to IEC 62262.

Enclosures shall form a robust and rigid structure. Exterior edges and corners shall be rounded to give a smooth overall appearance and assembly bolts, screws or rivets shall not be visible on the front face.

Copies of following documents shall be made available to the Engineer:

- Certificates of compliance to the degree of Protection (IP) according to IEC 60529;
- Certificates of compliance to the impact protection according to IEC 62262 IEC;

- Test reports proving compliance to IEC 60439; and
- Manufacturer's CE Declaration of Conformity.

### Low Voltage Circuit-Breaker

Circuit-breakers shall comply with BS EN 60947: Part 2, and shall be of the air-break type, and shall be moulded case or open construction design.

Circuit-breakers shall be Utilisation Category B and shall have an ultimate short-circuit capacity not less than the prospective short-circuit current at the point of installation.

Circuit-breakers for incoming supplies shall have a service short-circuit breaking capacity equal to the ultimate short-circuit capacity.

Circuit-breakers shall be suitable for isolation and shall be to Over-Voltage Category IV to BS EN 60947: Part 1 Table H1.

The specified rated current shall be that with the circuit-breaker mounted within an enclosure.

Unless otherwise specified, open construction circuit-breakers shall be used for rated currents of 630A and above.

Circuit breakers shall be lockable in the OFF position.

### Miniature Circuit-Breakers

Miniature circuit-breakers (MCB) shall be in accordance with BS EN 60898 and BS EN 60947.

Miniature circuit-breakers shall directly indicate the true position of the contacts.

Operating mechanisms shall be mechanically trip-free from the operating handle to prevent the contacts being held closed under overload or short-circuit conditions.

The operating handle shall be of the toggle type.

Each pole shall be fitted with a MCB. MCBs shall, except for LED luminaires, be of "C" characteristic.

Miniature circuit-breakers shall be capable of accepting a full range of accessories such as auxiliary switches, terminal shrouds and inter-phase barriers.

Miniature circuit-breakers shall have a rated current and category of duty as specified in the detailed design.

The short-circuit rating shall be not less than that of the system to which they are connected. Where this cannot be attained, a back-up fuse link or links shall be fitted.

Miniature circuit-breakers shall have a rated current and category of duty shall be specified in the detailed design.

A complete list of circuit details on typed cartridge paper glued to stiff cardboards and covered with a sheet of Perspex, and held in position with four suitable fixings, shall be fitted to the inner face of the lids of each distribution panel. The appropriate MCB ratings shall be stated on the circuit chart against each circuit in use.

#### Residual Current-Operated Circuit-Breakers

Residual current-operated circuit-breakers shall comply with BS 4293. They shall be double pole for single phase and four pole for three phase and neutral circuits. The rated current shall be specified in the final design.

Unless otherwise specified, the trip settings shall be as follows:

- (a) Rated current up to and including 40A: 30mA
- (b) Rated current above 40A and up to 100A: 100mA
- (c) Rated current above 100A: 300mA

No intentional time-delay shall be fitted unless specified.

#### Daylight Switch / Twilight Switch

Twilight switch, wall or mast mounted, (IP 55) with a brightness range of 2 - 200 lux.

On/off switching delay should be adjustable to 2-100 seconds.

The twilight switch should have minimum 1 No. contact 16(10)A 230V~.

#### Contactors

Contactors shall be electrically-held lighting contactors approved for lighting loads. The contactors shall be designed to withstand the large initial inrush currents of tungsten and ballast lamp loads as well as resistive loads without contact welding.

#### Conduits and Conduit Runs

Conduit systems are to be installed so as to allow the loop-in system of wiring.

All conduits shall be black rigid super high impact heavy gauge Class' A' PVC in accordance with BS EN 50086-2-4. No conduit less than 20mm in diameter shall be used anywhere in this installation.

The Contractor's attention is drawn to the necessity of keeping all conduits entirely separate from other piping services such as water and no circuit connections will be permitted between conduits and such pipes.

All conduit systems shall be arranged wherever possible to be self-draining.

The systems, when installed and before wiring, shall be kept plugged with well-fitting plugs.

All conduit systems shall be kept sealed until the particular section of the conduit installation is complete in every respect.

The sets and bends in conduit runs are to be formed on site using appropriate size bending springs and all radii of bends must not be less than 2.5 times the outside diameter of the conduit. No solid or inspection bends, tees or elbows shall be used.

Conduit connections shall either be by a demountable (screwed up) assembly or adhesive fixed and water tight by solution. When connections are made between the conduit and switch boxes, circular or non-screwed boxes and care must be taken to ensure that no rough edges of conduit stick out into the boxes.

Runs between draw in boxes are not to have more than two right angle bends or their equivalent. The Contractor may be required to demonstrate to the Engineer that wiring in any particular run is easily withdrawable and the Contractor may, at no extra cost to the Contract, be required to install additional draw-in boxes required. If conduit is installed in straight runs in excess of 6,000mm, expansion couplings as manufactured by Egatube shall be used at intervals of 6,000mm.

Where conduit runs are to be concealed in pillars and beams, the approval of the Engineer shall be obtained. The Contractor shall be responsible for marking the accurate position of all holes, chases etc., on site or, if the Engineer so directs, shall provide the Contractor with dimensional drawings to enable him to mark out and form all holes and chases. Should the Contractor fail to inform the Engineer of any inaccuracies in this respect, they shall be rectified entirely at the Contractor's expense.

It will be the Contractor's responsibility to ascertain from site, the details of reinforced concrete or structural steelwork and check from the builder's Drawings the positions of walls, structural concrete and finishes. No reinforced concrete or steelwork may be drilled without first obtaining the written consent of the Engineer.

#### Conduit Boxes and Accessories

All conduit outlets and junction boxes are to be either malleable iron and of standard circular pattern of the appropriate type to suit saddles being used or super high impact PVC.

Small circular pattern boxes are to be used with conduits up to and including 25mm outside diameter. Rectangular pattern adaptable boxes are to be used for conduits of 32mm outside diameter and larger. For drawing in of cables in exposed runs of conduit, standard pattern through boxes are to be used.

Boxes are to be not less than 50mm deep and of such dimensions as will enable the largest appropriate number of cables for the conduit sizes to be drawn in without excessive bending.

Outlet boxes for lighting fittings are to be of the loop-in type where conduit installation is concealed and the Contractor shall allow one such box per fitting, except where fluorescent fittings are specified when two such boxes per fitting shall

be fitted flush with ceiling and, if necessary, fitted with break joint rings. Pattresses shall be fitted where required to outlets on surface conduit runs.

Adaptable boxes are to be of PVC or mild steel (of not less than 12swg) and black enamelled or galvanized finish according to location. They shall be of square or oblong shape location. They shall be of square or oblong shape complete with lids secured by four 2 BA brass roundhead screws. No adaptable box shall be less than 75mm x 75mm x 50mm or larger than 300mm x 300mm x 75mm and shall be adequate in depth in relation to the size of conduit entering it. Conduits shall only enter boxes by means of conduit bushes.

### Labels

Labels fitted to switches and fuse boards shall:

- (i) be Ivory engraved black on white.
- (ii) be secured by R.H. brass screws of same manufacturing throughout.
- (iii) indicate on switches:-
  - a) Reference number of switch;
  - b) Specified current rating;
  - c) Item of equipment controlled.
- (iii) indicate on MCB panels:
  - a) Reference number;
  - b) Type of board, i.e., lighting, sockets, etc.;
  - c) Size of cable supplying panel;
  - d) Where to isolate feeder cable.
- (iv) be generally not less than 75mm x 50mm.

### 2311 Earthing

All metal work other than that intended to carry current must be earthed using PVC insulated copper cable, colour coded green and yellow.

Earthing shall be carried out, pending the used network type, according to IEC 60364 "Electrical Installations for Buildings" and the 17th Edition IEE Regulations, Section 5.2.

A minimum 1.5mm<sup>2</sup> circuit protective conductor must connect the earth terminal in each luminaire to the earth terminal associated with the service cut-out unit.

A separate 2.5mm<sup>2</sup> circuit protective conductor must connect all metal enclosures of all electrical components to the main earth terminal.

All extraneous conductive parts must be bonded to the main earth terminal using an equipotential bonding conductor of 6mm<sup>2</sup>. Column doors must be bonded using 6mm<sup>2</sup> flexible cable.

All earth connections must be made by means of a crimped lug type termination.

### 2312 Cables and Wires

All cables used in this Contract shall be manufactured in accordance with IEC60332-1 and IEC 60502.



No cable with aluminium conductors shall be allowed.

Switchboard wiring shall be carried out in 600/1000 V PVC insulated cable to comply with BS 6231. The conductors shall be stranded or flexible (where applicable): solid cores will not be accepted. The conductor size shall be not less than 1.5 mm<sup>2</sup> for control and indication circuits and not less than 2.5 mm<sup>2</sup> for CT secondary circuits.

Cable for street lighting shall be laid underground.

Cable shall be PVC/SWA/PVC – PVC insulated, extruded PVC bedding, galvanised steel wire armoured , flame retardant black PVC sheathed overall, stranded copper conductors suitable for operation on a system at a rated voltage of 0.6/1 kV.

Conductor temperature shall not exceed 70°C for continuous operation. No polythene insulated flexible cable shall be used in any lighting fitting or other appliance.

The Contractor shall, at the Engineer's discretion, be required to submit samples of cables for the Engineer's approval. The Engineer reserves the right to call for the cables of an alternative manufacture without any extra cost being incurred.

#### Heat Resisting Cables

This type of cable shall be used in all instances where a temperature exceeding 100°F (37.7°C), but not exceeding 150°F (65.55°C) is likely to be experienced. Final connections to all lighting fittings (and other equipment where a temperature in excess of 150°C (302°F) is likely to be experienced) shall be made using silicon rubber insulated cable or equivalent and approved.

#### Cable Ends and Phase Colours

All cable ends connected up in switchgear, MCB panels etc., shall have the insulation carefully cut back and the ends sealed with rubber slip on cable end markers. The markers shall be of appropriate phase colour for switch and all other live feeds to the details of the "Cable Insulation Colours" Clause. Black cable with black end markers shall only be used for neutral cables.

#### Cable Insulation Colours

Unless otherwise stated in later clauses, the insulation colours shall be in accordance with the table below.

System, Lighting & Power      Insulation colour      Cable end marker

Main and Sub – Mains

a)	Phase	Red	Red
b)	Neutral	Black	Black

#### Sub-Circuits

a)	Phase	Red	Red
b)	Neutral	Black	Black

#### Cable Laying

Cables shall be laid in a cable trench 750 mm deep along the road sides and 900 mm deep across the roads and 900 mm away from the road kerb or 1,500 mm away from the edges of the road. 'Loop-in' and 'Loop-out' arrangement shall be used at every pole. Cables laid under the roadway shall be protected by concrete interlocking cover tiles

The cable shall be laid on 50 mm bed of sifted soil or sand and covered with a 100 mm layer of sifted soil or sand.

Cable tiles in the standard design shall be laid on top in a continuous formation without gaps in between.

When passing under roadways and/or driveways, ducting as specified shall be provided.

No trench shall be backfilled without the approval of the Engineer. Failure to comply with this clause may lead to re-excavation at the Contractor's own expense.

Cables shall be "snaked" along their route to allow for ground subsidence and a 2% allowance shall be added to the measured route length.

All necessary excavations and reinstatement of ground, including sanding or trenches, will be carried out by the Contractor, unless otherwise stated.

All cables measurements shall be deemed to include allowance for the above precautions. "Loop-in" and "Loop-out" arrangements shall be used at every pole.

Wiring to the lanterns on each pole shall be with 1.5 mm twin insulated and sheathed cable with earth wire and shall be protected by MCB.

No underground cable joints shall be permitted.

After installation, the cables shall be tested in accordance with IEE and IEC standards and the results recorded.

#### Sub-circuit Wiring

For all lighting and sockets, wiring shall be carried out in the "looping in" system and there shall be no joints whatsoever. No lighting circuits shall comprise more than twenty (20) points when protected by 10 Amps MCB. Cables with different cross-section area of copper shall not be used in combination.

#### Space Factor

The maximum number of cables that may be accommodated in a given size of conduit or trunking or duct is not to exceed the number in Tables B.5 and B.6 or as stated in Regulation B.91, B.117 and B.118 of the I.E.E Regulations, whichever is appropriate.

### Insulation

The insulation resistance to earth and between poles of the whole wiring system, fittings and lamps, shall not be less than the requirements of the latest edition of the I.E.E Regulations. Complete tests shall be made on all circuits by the Contractor before the installations are handed over.

A report of all tests shall be furnished by the Contractor to the Engineer. The Engineer will then check test with his own instruments if necessary.

2313

### Testing on Site

The Contractor shall conduct during and at the completion of the installation and, if required, again at the expiry of the maintenance period, tests in accordance with the relevant sections of the current edition of the I.E.E., the Government's Electrical Specification and the Electric Supply Company's By-Laws.

- a) Tests shall be carried out to prove that all single pole switches and MCBs are installed in  
the 'live' conductor.
- b) Phase tests shall be carried out on completion of the installation to ensure that correct  
phase sequence is maintained throughout the installation.
- c) Tests shall be carried out to prove that all isolation requirements are met.
- d) Tests shall be carried out to prove that all earthing requirements are met.
- e) More tests shall be carried out if required by the local power supply company.

Any faults, defects or omissions or faulty workmanship, incorrectly positioned or installed parts of the installation made apparently by such inspections or tests shall be rectified by the Contractor at his own expense.

The Contractor shall provide accurate instruments and apparatus and all labour required to carry out the above tests. The instruments and apparatus shall be made available to the Engineer to enable him to carry out such tests as he may require.

Triplicate copies of the results of the above tests shall be provided within fourteen (14) days of the witnessed tests and the Contractor will be required to issue to the Engineer the requisite certificate upon completion as required by the regulations referred to above.

The Contractor shall generally attend on other Contractors employed on the project and carry out such electrical tests as may be necessary.

The Contractor shall test, to the Engineer's approval and as specified elsewhere in this specification or in the standards and regulations already referred to, all

equipment, plant and apparatus forming part of the works and before connecting to any power or other supply and setting to work.

Where such equipment etc., forms part of or is connected to a system whether primarily or of an electrical nature or otherwise (e.g. air conditioning system) the Contractor shall attend on and assist in balancing, regulating, testing and commissioning, or if primarily an electrical or other system forming part of works, shall balance, regulate, test and commission the system to the Engineer's approval.

The Contractor shall submit a completion certificate to the Kenya Power & Lighting Company for electricity connection and furnish copies of all test results mentioned in this section to the Engineer.

2314

#### Measurement and Payment

Measurement and payment for electrical and street lighting installations will be made for the Items listed in the bills of quantities under Bill No 23.

## SECTION 25 - HIV/AIDS, GENDER ISSUES, SOCIAL ISSUES AND LOCAL PARTICIPATION

### 2501 SCOPE

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 and amongst all local communities along the project road 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, at least ten (10) of the Contractor's vehicles, regularly used on site shall display HIV/AIDS awareness posters. 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) HIV/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 and comply with the current ISO Standards or WHO/UNAIDS Specifications and Guidelines for Condoms, 1998, or any more recent publication. 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.

County 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 other organisations.

The project will involve both local labour and other contractor's labour. It is a contractual requirement for the Contractor to carry out HIV/AIDS awareness and prevention activities during the construction period as stipulated in this specification.

#### Objective

The objective of the HIV/AIDS training programme is to reduce the risk of exposure to and spread of the HIV virus in the area influenced by the construction. The target group will be local labourers and their supervisors employed by the works contractors, and the local communities along the road. 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, etc.) and on contractor's vehicles.
- 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 50 employees).
- iv) Small focus group discussions to disseminate information covering key issues.
- v) Theatre groups and video presentations.
- vi) Promotional events (such as football matches) to encourage openness and discussion of HIV/AIDS issues.
- vii) Promotional bill boards to raise awareness of the integration of construction and HIV/AIDS activities.
- viii) Inclusion of HIV/AIDS activities at site meetings with the District Aids Committee and other approved representatives.
- ix) 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 labourers, and local communities and should involve participatory approaches to ensure that they are appropriate 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:

- a. preventive behaviours including partner reduction, condom use, awareness and appreciation of the importance of treatment of sexually transmitted infections (STIs);
- b. skills including negotiating safer sex, correct condom use, purchase of condoms without embarrassment; and

c. referral to local health centres and available services.

Tasks to be undertaken to support the above activities include:

- (a) Establishing the status and focus of all current and planned HIV/AIDS activities in the area to ensure complementarity and determining potential involvement in project activities.
- (b) Carrying out a brief review of regional activities combining road construction with HIV/AIDS campaigns to determine options, best practice key issues, constraints, etc.
- (c) Reviewing of Information, Education and Communication (IEC) materials available and their relevance to road construction, making recommendations for future development of IEC materials.
- (d) Providing education and training for site personnel, supervisors and peer educators for the scope of activities as above.
- (e) Providing 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.
- (f) Providing mechanisms for the social marketing of condoms and distribution of materials.
- (g) Monitoring activities regularly to assess 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 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). County, 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 ongoing 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 fulltime, to be approved by the Engineer, who will work closely with the Client, MOH 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:

- i) Scheduling appropriate timing and durations of 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.
- ii) Identification of suitable individuals from recruitment records for education with the implementing organization.
- iii) Provision of suitable sites for communication activities and for condom distribution.

- iv) Monitoring of the implementation of peer educator activities.
- v) Provision of support as necessary to the implementing organization.

#### Inputs

An organization experienced in the provision of HIV/AIDS awareness and prevention activities will be selected as a subcontractor to provide the above scope of activities on behalf of the main Contractor.

#### Reporting

The implementing organization will produce the following reports to be submitted to the Contractor, The Engineer, County and NACC:

- monthly progress briefs for inclusion in site meetings.
- quarterly reports detailing activities carried out, issues, follow up, 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.

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 KURA, 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 through-out the 24 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

The payment items in this clause shall include full compensation for all work associated with the provision of HIV/AIDS related services as specified.

Item: Instituting an HIV/AIDS awareness and 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, materials including the procurement and distribution of condoms and full compensation for transport, meals, accommodation and any other reasonable allowances for the Participation of local health authorities, provincial director of health and NACC and



other resources required for the provision of the service in compliance with clause 2503 (a) & (b) above.

Item: Instituting an HIV/AIDS Training – Engagement of specialist HIV/AIDS sub-contractor

Unit: Provisional Sum

Compensation for HIV/AIDS Specialists and resources for the implementation of Clause 2503(c). Any amount required under this item will be paid as per the programme approved by the Engineer and the Client (KeNHA) prior to expenditure.

## SECTION 25 - HIV/AIDS, GENDER ISSUES, SOCIAL ISSUES AND LOCAL PARTICIPATION

### 2501 SCOPE

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, at least ten (10) of the Contractor's vehicles, regularly used on site shall display HIV/AIDS awareness posters. 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 and comply with the current ISO Standards or WHO/UNAIDS Specifications and Guidelines for Condoms, 1998, or any more recent publication. 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. 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.

County 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 other organisations.

The project will involve both local labour and other contractor's labour. It is a contractual requirement for the Contractor to carry out HIV/AIDS awareness and prevention activities during the construction period as stipulated in this specification.

Objective

The objective of the HIV/AIDS training programme is to reduce the risk of exposure to and spread of the HIV virus in the area influenced by 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, etc.) and on contractor's vehicles.
- (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 50 employees).
- (iv) Small focus group discussions to disseminate information covering key issues.
- (v) Theatre groups and video presentations.
- (vi) Promotional events (such as football matches) to encourage openness and discussion of HIV/AIDS issues.
- (vii) Promotional bill boards to raise awareness of the integration of construction and HIV/AIDS activities.
- (viii) Inclusion of HIV/AIDS activities at site meetings with the District Aids Committee and other approved representatives.
- (ix) 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 labourers, and should involve participatory approaches to ensure that they are appropriate 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:

- (a) preventive behaviours including partner reduction, condom use, awareness and appreciation of the importance of treatment of sexually transmitted infections (STIs);
- (b) skills including negotiating safer sex, correct condom use, purchase of condoms without embarrassment; and
- (c) referral to local health centres and available services.

Tasks to be undertaken to support the above activities include:

- (h) Establishing the status and focus of all current and planned HIV/AIDS activities in the area to ensure complementarity and determining potential involvement in project activities.
- (i) Carrying out a brief review of regional activities combining road construction with HIV/AIDS campaigns to determine options, best practice key issues, constraints, etc.

- (j) Reviewing of Information, Education and Communication (IEC) materials available and their relevance to road construction, making recommendations for future development of IEC materials.
- (k) Providing education and training for site personnel, supervisors and peer educators for the scope of activities as above.
- (l) Providing 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.
- (m) Providing mechanisms for the social marketing of condoms and distribution of materials.
- (n) Monitoring activities regularly to assess 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 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). County, 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 fulltime, to be approved by the Engineer, who will work closely with the Client, MOH 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:

- (i) Scheduling appropriate timing and durations of 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.
- (ii) Identification of suitable individuals from recruitment records for education with the implementing organization.
- (iii) Provision of suitable sites for communication activities and for condom distribution.
- (iv) Monitoring of the implementation of peer educator activities.
- (v) Provision of support as necessary to the implementing organization.

### Inputs

An organization experienced in the provision of HIV/AIDS awareness and prevention activities will be selected as a subcontractor to provide the above scope of activities on behalf of the main Contractor.

### Reporting

The implementing organization will produce the following reports to be submitted to the Contractor, The Engineer, County and NACC:

- monthly progress briefs for inclusion in site meetings.
- quarterly reports detailing activities carried out, issues, follow up, 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.

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 County, 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 through-out the 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

The payment items in this clause shall include full compensation for all work associated with the provision of HIV/AIDS related services as specified.

Item: Instituting an HIV/AIDS awareness and 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, materials including the procurement and distribution of condoms and full compensation for transport, meals, accommodation and any other

reasonable allowances for the Participation of local health authorities, provincial director of health and NACC and other resources required for the provision of the service in compliance with clause 2503 (a) & (b) above.

Item: Instituting an HIV/AIDS Training – Engagement of specialist HIV/AIDS sub-contractor

Unit: Provisional Sum

Compensation for HIV/AIDS Specialists and resources for the implementation of Clause 2503(c). Any amount required under this item will be paid as per the programme approved by the Engineer and the Client (County) prior to expenditure.

## SECTION 26 – ROAD SAFETY CAMPAIGN

### 2601 SCOPE

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, 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.

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 behaviour change. 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 up, 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 throughout 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

Item: Provisional Sum for Road Safety awareness campaigns

Unit: Provisional Sum

Plus % for Contractor's Overheads and Profit

Reimbursement for all costs associated with complying with the above Specifications shall be made against receipts and invoices, plus a percentage for overheads and profits. The percentage entered for overheads and profit shall be deemed to cover all administrative and other costs incurred with respect to pre-financing and payments made in complying with these specifications.

## SECTION 27 – CONCRETE BLOCK PAVING

### 2701 GENERAL

The concrete block paving shall generally be constructed in accordance with The requirements of Section 5, 13, 17 and 20 of the Standard Specification together with modifications in this section.

### 2702 MATERIAL REQUIREMENTS

The concrete block paving shall comply with the following requirements:

Shape	:	Rectangular
Thickness	:	80 mm
Compressive Strength	:	49 N/mm <sup>2</sup>
Laying pattern	:	Herringbone bond

Precast concrete paving blocks shall be chamfered and shall conform to BS EN 1338 and the shape, dimensions, tolerances, colours and performances and classes required are as described below.

Shape	Rectangular
Sizes	200mm x 100mm x 100mm
Colour	Grey
Pattern	Herringbone

Precast paving blocks shall be laid in accordance with BS 7533-3.

### 2703 LAYING REQUIREMENTS

The concrete blocks shall be laid to the surface tolerances specified. Minor adjustments may be made to ensure that the optimum joint spacing of 3 mm is achieved.

An order of laying which maintains an open working face and does not trap blocks shall be used. The first row of blocks shall be aligned against an edge restraint.

Wherever possible, infilling to boundaries and obstructions should be completed as the laying of the surface course proceeds.

Paving blocks shall be trimmed to shape and size to form boundaries. The blocks shall be cut to shape using a block splitter. Pieces of a size less than one-third of a full block shall not be inserted.

To work round any obstructions paving blocks shall be trimmed the obstruction surrounded with concrete with a maximum aggregate size of 10 mm and a 28 day cube compressive strength of 40N/mm<sup>2</sup> to form a more regular shape, and the paving blocks cut to abut this surround.

If paving cannot be completed in one day, laying shall be stopped about half a metre short of the screeded sand edge to prevent the displacement of the unsupported sand, and temporary restraints placed to contain the block laying surface. A plastic sheet shall be used to cover the temporary restraints and the exposed sand in case of overnight rain.

2704                    **COMPACTION OF BLOCK PAVING**

The surface course shall be compacted using a plate area of not less than 0.25 m<sup>2</sup>, transmitting an effective force of not less than 75 kN/m<sup>2</sup> of plate at a frequency of vibration in the range 75 Hz to 100 Hz. Alternatively, any compacting equipment which will achieve the same degree of compaction may be used. It is important to fill the lower portion of the block-to-block joint with the laying course material, before compaction.

Compaction shall be carried out as soon as possible after laying but not within 1 m of any laying face. Apart from this edge strip, no area of paving shall be left uncompacted at the completion of the day's work.

2705                    **JOINT FILLING**

After compaction of the surface course, sand shall be spread over the surface and brushed into the joints.

The block paving shall then be vibrated to ensure complete filling of the block to block joint by the surface applied sand. Where necessary more sand shall be added and the paving revibrated. Joint filling shall be completed as soon as practicable after laying.

surface level tolerances	± 6mm
flatness of the pavement	10 mm under 3m straight edge
difference in levels between blocks	2mm
joint width	2mm to 5mm and consistent
joints are correctly aligned	+/- 15mm in 15m
there are no damaged or cracked blocks	

2706                    **ADDITIONAL WORK AFTER EARLY TRAFFICKING**

The surface shall be inspected after an early period of traffic use and additional joint filling sand brushed in where necessary.

If movement of the surface is noted under traffic, the paving blocks in the effected section shall be removed, the cause of failure established, and rectified to the Engineer's satisfaction, and the blocks relaid.

2707                    **MEASUREMENT AND PAYMENT**

- (a)     Item     : Provide transport, lay and vibrate 80 mm thick Heavy Duty concrete block paving on a 50mm thick sand bed.

Unit : m<sup>2</sup>

This shall be measured and paid for by the square metre laid and compacted, including the provision of a 50 mm sand bed.

The rate shall include for provision and laying of all materials, including precast concrete paving blocks, bedding sand vibrated, cutting & shaping of concrete blocks around the periphery of the pavement area, and around manhole covers and gully gratings, etc., as necessary, to comply with the construction drawings.

## SECTION VIII: DRAWINGS

1. Set of design drawings is annexed separately (Book of Drawings)
2. Standard drawings will be used where applicable
3. Materials Factual Report
4. Engineering Report

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PART 3 - CONDITIONS OF CONTRACT

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## SECTION IX: GENERAL CONDITIONS

### SECTION IX 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 X: PARTICULAR CONDITIONS OF CONTRACT

### SECTION IX: 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.

## CONDITIONS OF CONTRACT PART II (CONDITIONS OF PARTICULAR APPLICATION)

### SUBCLAUSE 1.1 – DEFINITIONS

(a) Amend this sub-clause as follows:

- i. The “Employer” is the County government of migori , represented by the chief officer - Roads and transport.
- ii. The “Employer’s Representative/Engineer ” is the Director Roads and transport Migori county.

(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 “BID” is synonymous with “bid” and the word “Appendix to BID” with “Appendix to Bid” and the word “BID 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.

- (a) 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) The Drawings;
- (9) The priced Bills of Quantities
- (10) Other documents as listed in the Appendix to form of Bid

#### 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 21 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 Engineer 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.

#### SUBCLAUSE 10. 3 - CLAIMS UNDER PERFORMANCE SECURITY

Delete the entire sub-clause 10.3.

#### SUBCLAUSE 10. 4 - COST OF PERFORMANCE SECURITY

The cost of complying with the requirements of this clause shall be borne by the Contractor.

#### SUBCLAUSE 11. 1 - INSPECTION OF SITE

In line 17 after “affect his BID” 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.

#### 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.

#### 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 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 road works 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 for the following public holidays per calendar year during which the Contractor shall not be permitted to work.

- New Years Day (1st January)
- Good Friday

- Easter Monday
- Labour day (1<sup>st</sup> May)
- Madaraka Day (1<sup>st</sup> June)
- Idd Ul Fitr
- Mashujaa Day (20<sup>th</sup> October)
- Jamhuri day (12<sup>th</sup> December)
- Christmas Day (25<sup>th</sup> December)
- Boxing day (26<sup>th</sup> 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 14.3- CASH FLOW 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 seven (7) 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.”

Add the following Sub-clause 15.2

#### SUBCLAUSE 15.2- LANGUAGE ABILITY AND QUALIFICATIONS OF CONTRACTOR'S AUTHORISED AGENT

The Contractor's Agent or Representative on the site shall be a Registered Engineer as registered by the Engineer's Registration Board Of Kenya in accordance with the Laws Of Kenya Cap 530 or have equivalent status approved by the Engineer and shall be able to read and write English fluently. The Contractor's Agent or Representative shall have at least 10 years' experience as an Engineer.

#### SUBCLAUSE 16.2- ENGINEER AT LIBERTY TO OBJECT

At the end of this Clause add

“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

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-recognized institutions or equivalent institutions of the levels set out in Section 5, Part 6.

- Site Agent
- Structural/bridge Engineer
- Site Surveyor
- Senior Foremen
- Inspectors/Technicians
  - a. 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. The Employer shall only accept approval of foreign staff NOT exceeding 5 Personnel.

#### 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.

#### SUBCLAUSE 20.4 - EMPLOYERS RISKS

(a) Delete Sub-Clause (h) and substitute with;

(b) (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

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"

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:"

#### 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.

#### 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 of insurance

Amend Sub-Clause 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 25.6, 25.7

#### SUBCLAUSE 25.6 – 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 25.7 – 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.”

#### 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 or 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.”

#### SUBCLAUSE 52.1 – VALUATION AND VARIATIONS

Add new Clause 52.2(c)

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.

Modification to Clause 52(3)

#### 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.

#### 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

- such an amount (not exceeding 90 percent of the value) as the Engineer may consider proper on account of materials for permanent work delivered by the Contractor in the site
- such amount as the Engineer may consider fair and reasonable for any Temporary Works for which separate amounts are provided in the Bill of Quantities
- adjustments under Clause 70
- 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 reasonable 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.
- (ii) In the case of the Final Payment Certificate pursuant to Subclause 60.8, within the time stated in the Appendix to Form of Bid, after the Engineer has signed the Final Payment Certificate.

- (iii) 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 averaged 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 subclause 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

“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 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.

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.

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.

The amount to be repaid by way of successive deductions shall be calculated by the means of the formula:

$$RI = \frac{A(x-X)}{80-20}$$

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 60.13 MATERIALS FOR PERMANENT WORKS

With respect to materials brought by the Contractor to the site for incorporation into the permanent works, the Contractor shall,

-Receive a credit in the month in which these materials are brought to site,

-Be charged a debit in the month in which these materials are incorporated in the permanent works.

Both such credit and debit to be determined by the Engineer in accordance with the following provisions.

- a) No credit shall be given unless the following conditions shall have been met to the Engineers satisfaction
  - The materials are in accordance with the specifications for the works;
  - The materials have been delivered to site and are properly stored and protected against loss, damage or deterioration;
  - The Contractors record of the requirements, orders receipts and use of materials are kept in a form approved by the Engineer, and such records are available for inspection by the Engineer;
  - The Contractor has submitted a statement of his cost of acquiring and delivering the materials and plant to the Site, together with such documents as may be required for the purpose of evidencing such cost;
  - The materials are to be used within a reasonable time.
- b) The amount to be credited to the Contractor shall not be more than 75% of the Contractor's reasonable cost of the materials delivered to site, as determined by the Engineer after review of the documents listed in subparagraphs (a) (iv) above;
- c) The amount to be debited to the Contractor for any materials incorporated into the works shall be equivalent to the credit previously granted to the Contractor for such materials pursuant to Clause (b) above as determined by the Engineer.

#### SUBCLAUSE 67.1 – ENGINEER'S DECISION

Delete the entire subclause 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).”

#### SUBCLAUSE 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 chief officer,  
Roads and transports,  
public works, roads and transport,  
P.O. Box 195 - 40400  
Suna
- b. The Engineer’s address is:  
Director (Roads and transport),  
Roads and transport,  
public works, roads and transport,  
P.O. Box 195 - 40400  
Suna

#### SUBCLAUSE 68.4 CORRESPONDENCES

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.

## CLAUSE 69 – DEFAULT OF EMPLOYER

Delete in Sub-Clause 69.1 (a) the words ("28 days") and insert the words "ninety (90) days".

Delete Sub-Clause 69.1 (c)

Delete in Sub-Clause 69.1 (d) the words "for unforeseen reasons, due to economic dislocation".

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 Contract 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 – INCREASE OR DECREASE OF COST

Delete Sub-Clause 70.1 of part 1 in its entirety and substitute the following:

“The Contract Price shall be deemed to have been calculated in the manner set below and shall be subject to the adjustment in the event specified hereunder:

The rates contained in the priced Bills of Quantities are based upon the rates of wages and other emoluments and expenses applicable at the site at the date of Bid pricing (as defined in Sub-Clause 70.4 hereinafter);

- (a) If the said rates of wages and other emoluments and expenses shall be increased or decreased by Act, Statute, Decree, Regulation and the like after the said Date of Bid Pricing then the net amount of increase or decrease the emoluments and expenses shall, as the case may be, be paid to or allowed by the Contractor;
- (b) The rates contained in the priced Bills of Quantities are based upon the rates of the Contractor’s compulsory contributions payable at the date of Bid under or by virtue of any Act, Statute, Regulations and the like applicable at the site;
- (c) If any of the said rates of contribution shall be increased or decreased by any Act, Statute, Decree, Regulation and the like after the said Date of Bid Pricing, or if any new statutory contribution becomes payable after that date then the net amount of increase or decrease of the emoluments and expenses shall, as the case may be, be paid to or allowed by the Contractor. The difference between what the Contractor actually pays in respect of work people engaged upon or in connection with the works and what he would have paid in respect of such person had any of the said rates not been increased or decreased or had a new contribution not become payable as aforesaid, shall as the case may be, be paid to or allowed by the Contractor. Provided always that the Engineer and the Contractor may agree a sum which shall be deemed to be the net amount of the aforesaid difference, and such sum shall be deemed for the purpose of this contract to be that which is to be paid to or allowed by the Contractor by virtue of this sub-paragraph;
- (d) The rates contained in the priced Bills of Quantities are based upon the market prices of the materials and goods specified in the Schedule of Basic Materials attached hereto and current at the Date of Bid Pricing (hereinafter referred to as “the basic prices” and the Contractor shall state in the said schedule the basic prices of such materials and goods. Such prices shall be supported by bona fide quotations from suppliers;
- (e) If the market price of any materials or goods specified as aforesaid shall be increased or decreased after the said Date of Bid Pricing, then the net amount of difference between the basic price and the market price payable by the Contractor and current when any such goods and materials are bought shall, as the case may be, be paid to or allowed by the Contractor. Orders for materials and goods listed as aforesaid shall have been placed within a reasonable time after the date at which sufficient information is available for the placing of such orders, and the placing of orders at that time shall be a condition precedent to any payments being made to the Contractor in respect of increased market prices.”

### SUB-CLAUSE 70.2: SUBSEQUENT LEGISLATION

Add the following to sub clause 70.2:



“Notwithstanding the foregoing, such additional or reduced cost shall not be separately paid for or credited as aforesaid if the same shall already have been taken into account in accordance with the other provisions of Clause 70.

Add the following sub clause: -

#### SUB-CLAUSE 70.3: SUB-CONTRACT

(a) If the Contractor shall decide subject to Clause 4 thereof to sub-let any portion of the work he shall incorporate in the sub-contract provisions to the like effect as those contained in sub-clause (1) of this Clause;

(a) If the price payable under a sub-contract as aforesaid is increased above or decreased below the price in such sub-contract by reason of the operation of the incorporated provisions of sub-clause (1) of this clause then the net amount of such increase or decrease shall as the case may be, be paid to or allowed by the Contractor under this contract.

#### SUB-CLAUSE 70.4: NOMINATED SUB-CONTRACTORS

This clause shall not apply in respect of work executed by any nominated sub-Contractor (fluctuation in relation to nominated sub-Contractors shall be dealt with under provisions in relation thereto which may be included in the appropriate sub-contract or contract of sale).

#### SUB-CLAUSE 70.5: DATE OF BID PRICING

The expression “the date of Bid pricing” as used in this Clause means the date 30 days prior to the final date for submission of Bids as determined by the Employer in the Bid documents.

#### SUB-CLAUSE 70.6: PRIME COST

For imported materials, the supplier's/ manufacturer's Prime costs shall be C.I.F. cost at point of entry by the same means of transport as determined by the Contractor's Basic Rate.

For locally produced materials, the supplier's or manufacturer's prime costs shall be at their nearest depot or the nearest railway station relevant to the works.

For materials which are subject to Government Price Control, payments for price variations will be determined from the difference between the control price in force at a date 30 days prior to the final date for submission of Bids and the price in force on the date of purchase.

#### SUB-CLAUSE 70.7: MATERIALS TO WHICH VARIATION CLAUSE APPLIES

The materials to which this Variation Clause applies are:

- Petroleum Products & All bituminous products
- Cement
- Lime
- Flex beam guardrail
- Gabion mesh
- Reinforcing steel
- All specified fuels and lubricants

#### SUB-CLAUSE 70.8: CHANGE OF SUPPLIER

The Contractor shall not change the supplier or manufacturer during the Contract without the approval of the Engineer.

#### SUB-CLAUSE 70.9: CONTRACTORS HEAD OFFICE EXPENSES

No payments will be made for price variation related to expenses incurred by the Contractor in his Head Office in Kenya, or overseas.

#### SUB-CLAUSE 70.10: CURRENCY OF PAYMENTS UNDER CLAUSE 70

All payments made pursuant to Clause 70 shall be in Kenya Shillings.

#### SUB-CLAUSE 70.11 – COST OF PREPARING VARIATION OF PRICE CLAIMS

No payments will be made for the cost of preparing V.O.P. claims.

#### 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:

“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 Clause 74.1:

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.

**FORM No 1: 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 on the format below.

**FORMAT**

1. For the attention of Tenderer's Authorized Representative
- i) Name: *[insert Authorized Representative's name]*
  - ii) Address: *[insert Authorized Representative's Address]*
  - iii) Telephone: *[insert Authorized Representative's telephone/fax numbers]*
  - iv) 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.]*

2. Date of transmission: *[email]* on *[date]* (local time)

This Notification is sent by *(Name and designation)* \_\_\_\_\_

3. Notification of Intention to Award

- i) Procuring Entity: *[insert the name of the Procuring Entity]*
- ii) Project: *[insert name of project]*
- iii) Contract title: *[insert the name of the contract]*
- iv) Country: *[insert country where ITT is issued]*
- v) ITT No: *[insert ITT reference number from Procurement Plan]*

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:

4. Request a debriefing in relation to the evaluation of your tender

Submit a Procurement-related Complaint in relation to the decision to award the contract.

- a) The successful tenderer
  - i) Name of successful Tender: \_\_\_\_\_
  - ii) Address of the successful Tender: \_\_\_\_\_
  - iii) Contract price of the successful Tender Kenya Shillings  
(in words) \_\_\_\_\_

- b) Other Tenderers

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. For Tenders not evaluated, give one main reason the Tender was unsuccessful.

S.No.	Name of Tenderer	Tender Price as read out	Evaluated Tender price (Note a)	One reason why not evaluated
1				
2				
3				
4				
5				

*(Note a) State NE if not evaluated*

5. **How to request a debriefing**

- a) DEADLINE: The deadline to request a debriefing expires at midnight on *[insert date]* (local time).
- b) 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.
- c) Provide the contract name, reference number, name of the Tenderer, contact details; and address the request for debriefing as follows:
  - i) Attention: *[insert full name of person, if applicable]*
  - ii) Title/position: *[insert title/position]*
  - ii) Agency: *[insert name of Procuring Entity]*
  - iii) Email address: *[insert email address]*
- d) If your request for a debriefing is received within the 3 Days deadline, we will provide the debriefing within five (3) 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 (3) 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.
- e) 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.
- f) 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) Days from the date of publication of the Contract Award Notice.

6. **How to make a complaint**

- a) Period: Procurement-related Complaint challenging the decision to award shall be submitted by midnight, *[insert date]* (local time).
- b) Provide the contract name, reference number, name of the Tenderer, contact details; and address the Procurement-related Complaint as follows:
  - i) Attention: *[insert full name of person, if applicable]*
  - ii) Title/position: *[insert title/position]*
  - iii) Agency: *[insert name of Procuring Entity]*
  - iv) Email address: *[insert email address]*
- c) 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.
- d) Further information: For more information refer to the Public Procurement and Disposals Act 2015 and its Regulations available from the Website [info@ppra.go.ke](mailto:info@ppra.go.ke) or [complaints@ppra.go.ke](mailto:complaints@ppra.go.ke).  
You should read these documents before preparing and submitting your complaint.
- e) There are four essential requirements:
  - i) 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.
  - ii) The complaint can only challenge the decision to award the contract.
  - iii) You must submit the complaint within the period stated above.
  - iv) You must include, in your complaint, all of the information required to support your complaint.

7. **Standstill Period**

- i) DEADLINE: The Standstill Period is due to end at midnight on *[insert date]* (local time).
- ii) The Standstill Period lasts ten (14) Days after the date of transmission of this Notification of Intention to Award.
- iii) The Standstill Period may be extended as stated in paragraph Section 5 (d) above.

If you have any questions regarding this Notification please do not hesitate to contact us. On behalf of the Procuring Entity:

**Signature:** \_\_\_\_\_ **Name:** \_\_\_\_\_

**Title/position:** \_\_\_\_\_ **Telephone:** \_\_\_\_\_ **Email:** \_\_\_\_\_

**FORM NO 2: NOTIFICATION OF AWARD - LETTER OF ACCEPTANCE**

*[letterhead paper of the Procuring Entity] [date]*

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 Contract Data]* 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 ..... *(name of Procuring Entity)*.

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 VIII, Contract Forms, of the Tender Document.

Authorized Signature: .....

Name and Title of Signatory: .....

Name of Procuring Entity.....

Attachment: *Contract Agreement*.....

**FORM NO 3: CONTRACT AGREEMENT**

THIS AGREEMENT made the \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_, between \_\_\_\_\_ of \_\_\_\_\_ (hereinafter "the Procuring Entity"), of the one part, and \_\_\_\_\_ of \_\_\_\_\_ (hereinafter "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.
  - (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) The Drawings;
  - (9) The priced Bills of Quantities
  - (10) The completed Schedules and any other documents forming part of the contract.

In consideration of payments to be made by the Procuring entity to the contractor as specified in this

3. 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 and sealed by ..... (for the Procuring Entity)  
In the presence of Director roads and transport

Signed and sealed by ..... (for the Contractor).  
Contractor's witness

**FORM NO. 4 - PERFORMANCE SECURITY**

***[Option 1 - Unconditional Demand Bank Guarantee]***

*[Guarantor letterhead]*

**Beneficiary:** \_\_\_\_\_ *[insert name and Address of Procuring Entity]* **Date:** \_\_\_\_\_

\_\_\_\_\_ *[Insert date of issue]*

**Guarantor:** *[Insert name and address of place of issue, unless indicated in the letterhead]*

1. We have been informed that \_\_\_\_\_ (hereinafter called "the Contractor") has entered into Contract No. \_\_\_\_\_ dated \_\_\_\_\_ with (name of Procuring Entity) \_\_\_\_\_ (the Procuring Entity as the Beneficiary), for the execution of \_\_\_\_\_ (hereinafter 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 Contractor, we as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of \_\_\_\_\_ (in words), 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.....<sup>2</sup>, and any demand for payment under it must be received by us at the 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.*

<sup>1</sup>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 of the Contract or a freely convertible currency acceptable to the Beneficiary.

<sup>2</sup>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.

**FORM No. 5 - PERFORMANCE SECURITY**

**[Option 2- Performance Bond]**

[Note: Procuring Entities are advised to use Performance Security – Unconditional Demand Bank Guarantee instead of Performance Bond due to difficulties involved in calling Bond holder to action]

[Guarantor letterhead or SWIFT identifier code]

**Beneficiary:** \_\_\_\_\_ [insert name and Address of Procuring Entity] **Date:** \_\_\_\_\_ [Insert date of issue].

**PERFORMANCE BOND No.:** \_\_\_\_\_

**Guarantor:** [Insert name and address of place of issue, unless indicated in the letterhead]

1. By this Bond \_\_\_\_\_ as Principal (hereinafter called "the Contractor") and \_\_\_\_\_] as Surety (hereinafter called "the Surety"), are held and firmly bound unto \_\_\_\_\_] as Obligee (hereinafter called "the Procuring Entity") in the amount of \_\_\_\_\_ for the payment of which sum well and truly to be made in the types and proportions of currencies in which the Contract Price is payable, the Contractor and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

2. WHEREAS the Contractor has entered into a written Agreement with the Procuring Entity dated the \_\_\_\_\_ day of \_\_\_\_\_, 20 , for \_\_\_\_\_ in accordance with the documents, plans, specifications, and amendments thereto, which to the extent herein provided for, are by reference made part hereof and are hereinafter referred to as the Contract.

3. NOW, THEREFORE, the Condition of this Obligation is such that, if the Contractor shall promptly and faithfully perform the said Contract (including any amendments thereto), then this obligation shall be null and void; otherwise, it shall remain in full force and effect. Whenever the Contractor shall be, and declared by the Procuring Entity to be, in default under the Contract, the Procuring Entity having performed the Procuring Entity's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

- 1) complete the Contract in accordance with its terms and conditions; or
- 2) obtain a tender or tenders from qualified tenderers for submission to the Procuring Entity for completing the Contract in accordance with its terms and conditions, and upon determination by the Procuring Entity and the Surety of the lowest responsive Tenderers, arrange for a Contract between such Tenderer, and Procuring Entity and make available as work progresses (even though there should be a default or a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the Balance of the Contract Price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "Balance of the Contract Price," as used in this paragraph, shall mean the total amount payable by Procuring Entity to Contractor under the Contract, less the amount properly paid by Procuring Entity to Contractor; or
- 3) pay the Procuring Entity the amount required by Procuring Entity to complete the Contract in accordance with its terms and conditions up to a total not exceeding the amount of this Bond.

4. The Surety shall not be liable for a greater sum than the specified penalty of this Bond.

5. Any suit under this Bond must be instituted before the expiration of one year from the date of the issuing of the Taking-Over Certificate. No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Procuring Entity named herein or the heirs, executors, administrators, successors, and assigns of the Procuring Entity.

6. In testimony whereof, the Contractor has hereunto set his hand and affixed his seal, and the Surety has caused these presents to be sealed with his corporate seal duly attested by the signature of his legal representative, this day \_\_\_\_\_ of \_\_\_\_\_ 20 \_\_\_\_\_.

SIGNED ON..... on behalf of By \_\_\_\_\_ in the capacity of

In the presence of

SIGNED ON..... on behalf of By..... in the capacity of

In the presence of



**FORM NO. 6 - ADVANCE PAYMENT 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 \_\_\_\_\_ (hereinafter called "the Contractor") has entered into Contract No. \_\_\_\_\_ dated \_\_\_\_\_ with the Beneficiary, for the execution of \_\_\_\_\_ (hereinafter called "the Contract").
2. Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum \_\_\_\_\_ (in words) is to be made against an advance payment 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 \_\_\_\_\_ (in words \_\_\_\_\_) <sup>1</sup> 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 the 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 Contractor 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 Contractor 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, <sup>2</sup> whichever is earlier. Consequently, a 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.*

<sup>1</sup>The Guarantor shall insert an amount representing the amount of the advance payment and denominated either in the currency of the advance payment as specified in the Contract.

<sup>2</sup>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.

**FORM NO. 7 - 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]* (hereinafter 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]* (hereinafter 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 \_\_\_\_\_]*)<sup>1</sup> 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 a c c o u n t number \_\_\_\_\_ at \_\_\_\_\_ *[insert name and address of Applicant's bank]*.
5. This guarantee shall expire no later than the ..... Day of ..... , 2..... , and<sup>2</sup>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 footnotes) is for use in preparing this form and shall be deleted from the final product.*

<sup>1</sup>The Guarantor shall insert an amount representing the amount of the second half of the Retention Money.

<sup>2</sup>Insert a date that is twenty-eight days after the expiry of retention period after the actual completion date of the contract. 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.

# ANNEX DRAWINGS

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