

SOUTH EASTERN KENYA UNIVERSITY



TENDER FOR THE PROPOSED CONSTRUCTION OF HUMANITIES AND SOCIAL SCIENCES LECTURE HALLS - SEKU MAIN CAMPUS

TENDER NUMBER: [SEKU/PROC/ONT/011/2023/2024](#)

Deadline: 17th May 2024 , 10:00AM



SOUTH EASTERN KENYA UNIVERSITY

TENDER NOTICE

South Eastern Kenya University invites sealed bids from interested, eligible bidders for the following listed tenders

S/N	TENDER NO	ITEM DESCRIPTION	ELIGIBILITY
1	SEKU/PROC/ONT/011/2023/2024	PROPOSED CONSTRUCTION OF HUMANITIES AND SOCIAL SCIENCES LECTURE HALL	Y, W & PWDs (NCA 5)
2	SEKU/PROC/ONT/012/2023/2024	DISPOSAL OF OBSOLETE ASSORTED ITEMS	Open

Bid documents can be downloaded and printed free of charge from the University Website www.seku.ac.ke or from the Treasury tender portal www.ppip.go.ke. Duly completed tender documents in plain sealed envelopes, marked the tender number, item name and bearing no indication of the tenderer should be addressed to:

The Vice Chancellor,
South Eastern Kenya University,
P. O. Box 170-90200,
KITUI

And placed in the Tender Box at the **Procurement Parking Yard, Kitui Main Campus**, or sent by post so as to reach the above address not later than **17th May 2024 at 10.00 AM**. Submitted bids will be opened publicly at the Procurement Parking Yard, immediately after the above stated closing date and time in the presence of the tenderers or their representatives who choose to attend. Late bids will be returned unopened.

SOUTH EASTERN KENYA UNIVERSITY

TENDER FOR THE PROPOSED CONSTRUCTION OF HUMANITIES AND SOCIAL SCIENCES LECTURE HALLS - SEKU MAIN CAMPUS

TENDER DOCUMENTS

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INVITATION TO TENDER

PROCURING ENTITY: SOUTH EASTERN KENYA UNIVERSITY

CONTRACT NAME AND DESCRIPTION: PROPOSED CONSTRUCTION OF HUMANITIES AND SOCIAL SCIENCES LECTURE HALLS - SEKU MAIN CAMPUS

1. The SOUTH EASTERN KENYA UNIVERSITY invites sealed tenders for the construction of construction of an Anatomy for a construction period of **6 (Six) Calendar Months** at The SEKU MAIN CAMPUS– KITUI COUNTY
2. Tendering will be conducted under open competitive method nationally using a standardized tender document. Tendering is open to all qualified and interested Tenderers.
3. Qualified and interested tenderers may obtain further information and inspect the Tender Documents during office hours 0800 to 1500 hours at the address given below.
4. A Tender documents may be viewed and downloaded for free from the website www.seku.ac.ke or www.tenders.go.ke . Tenderers who download the tender document must forward their particulars immediately to procurement@seku.ac.ke for registration purposes and also for communication of any addendum.
5. Tenders shall be quoted in Kenya Shillings and shall include all taxes. Tenders shall remain valid for 182 (One Hundred Eighty Two) days from the date of opening of tenders.
6. All Tenders must be accompanied by a Tender Securing Declaration form, stipulating a bid validity of 182 (One Hundred Eighty Two) days from the date of opening of tenders, certified by a commissioner of oaths.
7. The Tenderer shall chronologically serialize all pages of the tender documents submitted.
8. Completed tenders must be delivered to the address below on or before **17th May 2024, 10.00 am Local Time** Electronic Tenders will not be permitted.
9. Tenders will be opened immediately after the deadline date and time specified above or any date and time specified later. Tenders will be publicly opened in the presence of the Tenderers' designated representatives who choose to attend at the address below.
10. Late tenders will be rejected.
11. The addresses referred to above are:

A. **Address for obtaining further information and for purchasing tender documents**

Vice Chancellor
South Eastern Kenya University
Box 170-90200 KITUI
Email: vc@seku.ac.ke or info@seku.ac.ke

B. **Address for Submission of Tenders.**

Vice Chancellor
South Eastern Kenya University
Box 170-90200 KITUI
Email: vc@seku.ac.ke or info@seku.ac.ke

C. **Address for Opening of Tenders.**

Vice Chancellor
South Eastern Kenya University
Box 170-90200 KITUI
Email: vc@seku.ac.ke or info@seku.ac.ke

PART1: TENDERING PROCEDURES

SECTION I- INSTRUCTIONS TO TENDERERS

A. GENERAL PROVISIONS

1.0 Scope of tender

1.1 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.

1.2 Throughout this tendering document:

- a) The term “in writing” means communicated in written form (e.g. by mail, e-mail, fax, including if specified in the TDS, distributed or received through the electronic-procurement system used by the Procuring Entity) with proof of receipt;
- b) if the context so requires, “singular” means “plural” and vice versa;
- c) “Day” means calendar day, unless otherwise specified as “Business Day”. A Business Day is any day that is an official working day of the Procuring Entity. It excludes official public holidays.

2.0 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 (whether 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.

3.0 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 agree mentor with the intent to enter in to 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.

- 33** 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;
 - b) Receives or has received any direct or indirect subsidy from another tenderer;
 - c) Has the same legal representative as another tenderer;
 - 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;
 - 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;
 - f) Any of its affiliates has been hired (or is proposed to be hired) by the Procuring Entity as a consultant for Contract implementation;
 - 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;
 - 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.
- 34** 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
- 35** 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 sub-contractor 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.
- 36** 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 sub-contractors or sub-consultants for any part of the Contract including related Services.
- 37** 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.
- 38** A Tenderer that is a state-owned enterprise or a public institution in Kenya may be eligible to tender and be awarded 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;
 - (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 sub-contracts 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 II - EVALUATION AND QUALIFICATION CRITERIA, Item 9*”.

3.11 Pursuant to the eligibility requirements of ITT 3.10, a tender is considered a foreign tenderer, If it is registered in Kenya and has less than 51 percent ownership by nationals of Kenya and if it does not subcontract to foreign firms or individuals more than 10 percent of the contract price, excluding provisional sums. JVs are considered as foreign tenderers if the individual member firms registered in Kenya have less 51 percent ownership by nationals of Kenya. The JV shall not subcontract to foreign firms more than 10 percent of the contract price, excluding provisional sums.

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

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

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

40 Eligible goods, equipment, and services

41 Goods, equipment and services to be supplied under the Contract may have their origin in any country that is not ineligible under ITT 3.9. At the Procuring Entity's request, Tenderers may be required to provide evidence of the origin of Goods, equipment and services.

42 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.

50 Tenderer's responsibilities

51 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.

52 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 bear the tenderer's own expense.

53 The Tenderer and any of its personnel or agents will be granted permission by the Procuring Entity to enter upon its premises and lands for the purpose of such visit. The Tenderer shall indemnify the Procuring Entity against stall 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.

- 54** 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

60 Sections of Tender Document

- 61** 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 ITT 10.

PART 1: Tendering Procedures

Section I – Instructions to Tenderers
Section II – Tender Data Sheet (TDS)
Section III- Evaluation and
Qualification Criteria Section
IV – Tendering Forms

PART 2: Works' Requirements

Section V - Bills of Quantities
Section VI - Specifications Section VII – Drawings

PART 3: Conditions of Contract and Contract Forms

Section VIII - General Conditions (GCC)
Section IX - Special Conditions of Contract
Section X- Contract
Forms

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

- 63** 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.

70 Clarification of Tender Document, Site Visit, Pre-tender Meeting

- 71** A 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 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.

- 72** 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.

- 73** 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.

- 74 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.
- 75 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.

80 Amendment of Tender Documents

- 81 At any time prior to the deadline for submission of Tenders, the Procuring Entity may amend the Tender Documents by issuing addenda.
- 82 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.
- 83 To give Tenderers reasonable time in which to take an addendum into account in preparing their Tenders, the Procuring Entity should extend the dead line for the submission of Tenders, pursuant to ITT 22.2.

C. PREPARATION OF TENDERS

9. Cost of Tendering

The Tenderer shall bear 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.

10.0 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.

11.0 Documents Comprising the Tender

- 111 The Tender shall comprise the following:
- a) Form of Tender prepared in accordance with ITT 12;
 - b) Schedules including priced Bill of Quantities, completed in accordance with ITT 12 and ITT 14;
 - c) Tender Security or Tender-Securing Declaration, in accordance with ITT 19.1;
 - d) Alternative Tender, if permissible, in accordance with ITT 13;
 - e) **Authorization**: written confirmation authorizing the signatory of the Tender to commit the Tenderer, in accordance with ITT 20.3;
 - f) **Qualifications**: documentary evidence in accordance with ITT 17 establishing the Tenderer's qualifications to perform the Contract if its Tender is accepted;
 - g) **Conformity**: a technical proposal in accordance with ITT 16;
 - h) Any other document required in the TDS.

- 112 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.

12.0 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.

14.0 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 12.1, 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 12.1.
- 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, except in 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.

147 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.

150 Currencies of Tender and Payment

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

152 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.

153 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.

16.0 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.

17.0 Documents Establishing the Eligibility and Qualifications of the Tenderer

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

172 In accordance with Section III, 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 IV, Tender Forms.

173 If a margin of preference applies as specified in accordance with ITT 33.1, 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.

174 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 contractor 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 a possibility of collusion between tenderers, and thereby help to prevent any corrupt influence in relation to the procurement process or contract management.

175 The purpose of the information described in ITT 17.4 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.

176 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.

177 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.

- 178** 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.
- 179** 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 ongoing, 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 pending the outcome of (iii),
 - iii) the tenderer will be referred to the relevant law enforcement authorities for investigation of whether the tenderer or any other person have committed any criminal offence.
- 1710** 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 of 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 tenderer.

18.0 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 the request shall not be required or permitted to modify its Tender.

190 Tender Security

- 191** 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.
- 192** 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;
 - (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.
- 193** 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.
- 194** 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.
- 195** 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.

196 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.

197 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 ITT47; or
 - ii) furnish a Performance Security and if required in the TDS, and any other documents required in the TDS.

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

199 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.

200 Format and Signing of Tender

201 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.

202 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.

203 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.

204 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.

205 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

21.0 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.

212 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 misplaced or opened prematurely will not be accepted.

220 Deadline for Submission of Tenders

221 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**.

222 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.

23.0 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.

24.0 Withdrawal, Substitution, and Modification of Tenders

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

- a) prepared and submitted in accordance with ITT 20 and ITT 21 (except that withdrawals notices do not require copies), and in addition, the respective envelopes shall be clearly marked “WITHDRAWAL,” “SUBSTITUTION,” “MODIFICATION;” and
- b) received by the Procuring Entity prior to the deadline prescribed for submission of Tenders, in accordance with ITT 22.

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

243 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

251 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 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**.

- 252 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.
- 253 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.
- 254 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.
- 255 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.
- 256 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.
- 257 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).
- 258 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 new as required;
 - e) number of pages of each tender document submitted.
- 259 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 the tender opening register shall be distributed to all Tenderers.

E. EVALUATION AND COMPARISON OF TENDERS

26. Confidentiality

- 261 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.
- 262 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.
- 263 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.

27.0 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.

272 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.

280 Deviations, Reservations, and Omissions

281 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.

290 Determination of Responsiveness

291 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.

292 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;
- 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;
- c) if rectified, would unfairly affect the competitive position of other tenderers presenting substantially responsive tenders.

293 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.

294 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.

300 Non-material Non-conformities

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

302 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 non-material 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.

303 Provided that a tender is substantially responsive, the Procuring Entity shall rectify quantifiable non-material 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.

310 Arithmetical Errors

311 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 any way by any person or entity.

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

- a) Any error detected if considered a major deviation that affects the substance of the tender, shall lead to disqualification of the tender as non-responsive.
- b) Any errors in the submitted tender arising from a miscalculation of unit price, quantity, subtotal and total bid price shall be considered as a major deviation that affects the

substance of the tender and shall lead to disqualification of the tender as non-responsive.
and

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

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

32.0 Conversion to Single Currency

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

33.0 Margin of Preference and Reservations

331 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.

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

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

334 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.

34.0 Nominated Subcontractors

341 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.

342 Tenderers may propose sub-contracting 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.

343 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** a scan 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

351 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.

352 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 Daywork 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.

353 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.

354 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 base done 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 will be required to prepare the Eligibility and Qualification Criteria Form for each Lot.

36.0 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.

37.0 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** Incase of a nab normally 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.

38.0 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 frontloaded, 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;
- b) require that the total amount of the Performance Security be increased at the expense of the Tenderer to a level not exceeding a 30% of the Contract Price;
- c) agree on a payment mode that eliminates the inherent risk of the Procuring Entity paying too much for undelivered works;
- d) reject the Tender,

390 Qualifications of the tenderer

391 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.

392 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 Sub-contractors if permitted in the Tender document), or any other firm(s) different from the Tenderer.

393 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.

400 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.

41.0 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. Incase of annulment, all Tenders submitted and specifically, Tender securities, shall be promptly returned to the Tenderers.

F. AWARD OF CONTRACT

42.0 Award criteria

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

43.0 Notice of Intention to Enter into a Contract/Notification of Award

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) instruction son how to request a debriefing and/ or submit a complaint during the stand still period;

44.0 Stand still Period

441 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.

442 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.

45.0 Debriefing by The Procuring Entity

451 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 written request to the Procuring Entity for a debriefing on specific issues or concerns regarding their tender. The Procuring Entity shall provide the debriefing within five days of receipt of the request.

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

46.0 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 with in 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.

47.0 Signing of Contract

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

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

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

48.0 Performance Security

481 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.

482 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.

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

49.0 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 readout at Tender opening.

50.0 Procurement related Complaints and Administrative Review

50.1 The procedures for making Procurement-related Complaints are as specified in the TDS.

50.2 A request for administrative review shall be made in the form provided under contract forms.

Section II - Tender Data Sheet (TDS)

The following specific data 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.

Reference to ITC Clause	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
A. General	
ITT 1.1	<p>The name of the contract is: TENDER FOR THE PROPOSED CONSTRUCTION OF HUMANITIES AND SOCIAL SCIENCES LECTURE HALLS - SEKU MAIN CAMPUS</p> <p>The reference number of the Contract is: SEKU/PROC/ONT/011/2023/2024 The number and identification of lots (contracts) comprising this Tender is 1</p> <p>Lot 1- Name: SEKU/PROC/ONT/011/2023/2024 – TENDER FOR THE PROPOSED CONSTRUCTION OF HUMANITIES AND SOCIAL SCIENCES LECTURE HALLS - SEKU MAIN CAMPUS</p>
ITT 2.4	The Information made available on competing firms is as follows:
ITT 2.4	<p>The firms that provided consulting services for the contract being tendered for are:</p> <p>The firms that provided consulting services for the contract being tendered for are:</p> <ol style="list-style-type: none"> 1) The term Architect shall be deemed to mean Messrs. Skylon Designs Limited. P.O. Box 26011-00100, NAIROBI, Email: skylondesigns.sd@gmail.com 2) The term "Quantity Surveyor" shall be deemed to mean the firm of Messrs Billconsult Quantity Surveyors Ltd of address P.O. Box 36940-00200 Nairobi. Email: billconsultqs@gmail.com 3) The term "Mechanical Engineer/Electrical Engineer" shall be deemed to mean Messrs. Infraplus Exceptional Engineering Limited of P.O. Box 28901-00100, NAIROBI. Email: info@infraplus.co.ke 4) The term "Structural & Civil Engineer" shall be deemed to mean Messrs. Amplus Consulting Engineers Ltd of P.O. Box 42450-00100, NAIROBI. Email: amplus2017@gmail.com
ITT 3.1	Maximum number of members in the Joint Venture (JV) shall be: 2
B. Contents of Tender Document	

ITT 7.1

(i) The Tenderer will submit any request for clarifications in writing at the Address:

Vice Chancellor

South Eastern Kenya University Box 170-90200 KITUI

Email: vc@seku.ac.ke or info@seku.ac.ke

To reach the Procuring Entity not later than **Ten (10) Days to the submission of the tender.**

(ii) The Procuring Entity shall publish its response at the website: www.seku.ac.ke

Reference to ITC Clause	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
ITT 7.2	<p>(A) A pre-arranged pretender site visit shall not take place.</p> <p>(A) (B) Pre-Tender meeting SHALL NOT take place at the following date, time and place:</p> <p>Date: _____</p> <p>Time: _____</p> <p>Place: _____</p>
ITT 7.3	The Tenderer will submit any questions in writing, to reach the Procuring Entity not later than N/A before the meeting.
ITT 7.5	The Procuring Entity’s website where Minutes of the pre-Tender meeting and the pre-arranged pretender will be published is: N/A
ITT 9.1	<p>For Clarification of Tender purposes, for obtaining further information and for purchasing tender documents, the Procuring Entity’s address is:</p> <p>Vice Chancellor South Eastern Kenya University Box 170-90200 KITUI Email: vc@seku.ac.ke or info@seku.ac.ke Website: www.seku.ac.ke</p>
C. Preparation of Tenders	
ITT 11.1 (h)	<p>The Tenderer shall submit the following additional documents in its Tender: The list of additional documents should include the following:</p> <p>Mandatory Requirements</p> <ol style="list-style-type: none"> 1. Certified Copy of Company Registration Certificates. (Be a registered company incorporated in Kenya under the Companies Act CAP 486). 2. Valid AGPO certificate for the Main Contractor 3. Certified copy of year Current Valid Tax Compliance Certificate, including a certified copy of the company’s Pin No. 4. Certified copy of Registration certificate from National Construction Authority, Category 5 and Above in Building works (General Building Contractor). 5. Certified copy of Current Valid Practicing License from National Construction Authority (General Building Contractor). 6. Current Business License. 7. All Tenders must be accompanied by a Tender Securing Declaration form, stipulating a bid validity of 182 (One Hundred Eighty Two) days from the date of opening of tenders, certified by a commissioner of oaths. 8. Provide Letter of Authority to seek references from tenderer’s bank (letter addressed to specific Banks giving authority to Client (Specifying the client’s name) to verify the bank statements). 9. Evidence of physical location of office by providing certified copies of premises ownership/lease, and utility bills. 10. A copy of the company list of directors, beneficial owners, name of proprietor or names

	of partners (Copy of CR12) issued within the last one year and showing the list of directors.
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Reference to ITC Clause	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
	<p>11. Power of Attorney (of Tender signatory if not a director). Properly fill and sign with copy of National ID Card. Power of the Attorney shall be signed and stamped by a commissioner of oath.</p> <p>12. Conflict of Interest Form– To state explicitly as per format provided, stamped and signed.</p> <p>13. Debarment Form – Attached signed and stamped. Declaration stating that the firm has not been debarred by Public Procurement Regulatory Authority (PPRA) in the format provided.</p> <p>14. Anticorruption Declaration Commitment – Properly filled, signed and Stamped. Declaration that the firm will not be involved in corrupt or fraudulent practices in the format provided.</p> <p>15. Confidential Business Questionnaire (CBQ) – Duly filled, signed and stamped in the format provided.</p> <p>16. Duly filled, signed and stamped Form of Tender</p> <p>17. Duly filled, signed and stamped Certificate of independent tender determination with clear selection of item no.5 (a) or (b)</p> <p>18. Duly filled, signed and stamped declaration and commitment to the code of ethics</p> <p>19. Presentation of Bid Document – Provide One Original and Three Copy of tender documents including specialist works. Paginated/Serialized/Numbered in a sequential manner on all pages and all attachments. The document should be bound properly i.e. BE TAPE BOUND. Spiral Binding and Use of Spring or Box Files will not be accepted and will lead to automatic disqualification.</p> <p>NB: Failure to meet any of the above mandatory requirements which will be evaluated on the basis of YES/NO will lead to automatic disqualification and bidder will not be allowed to proceed to the next stage of evaluation.</p> <p>Technical Evaluation Criteria.</p> <p>Bidders MUST meet the following criteria:</p> <ol style="list-style-type: none"> 1. Domestic Sub-contractors’ agreement – a duly signed agreement not earlier than 6 months between the main contractor and the Electrical & Mechanical Subcontractors. Stating that if the main contractor is awarded the works, they shall work with the firms as their domestic subcontractors 2. 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 of Kshs. 5,000,000.00 (Kenya Shillings Five Million) 3. Audited accounts for the last five (5) years (2019-2023) by a certified audit firm 4. At least 2 (two) contract(s) of a similar nature executed within Kenya in the last 5 years (2019-2023), that have been satisfactorily and substantially completed as a prime contractor, or joint venture member or sub- contractor each of minimum value Kenya shillings Fifty Million equivalent. Provide the following:

Reference to ITC Clause	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
	<p style="text-align: center;">i. Completion certificates for 2 projects</p> <p style="text-align: center;">ii. Duly completed and signed handing over certificates for 2 similar projects signed by relevant parties e.g. consultants, client and contractor</p> <p style="text-align: center;">iii. Recommendation letters for similar works from 2 different clients with their contacts</p> <p style="text-align: center;">5. Contractor's Representative and Key Personnel, which are specified below;- Provide detailed proposal of key technical staff for the proposed project, copies of CVs, copies of academic certificates:</p> <p>i. Site Manager with at least 5 years' experience (Minimum qualification is a Degree in Building & Construction / Civil Engineering/Architectural, Quantity surveying or related discipline)</p> <p>ii. 1 No. Builder's Works Site Agent with at least 5 years' experience (Minimum qualification is diploma in Building & Construction/ Civil Engineering or related discipline)</p> <p>iii. 1no. Mechanical Works Site Agent with at least 5 years' experience (Minimum Higher Diploma in Mechanical Engineering)</p> <p>iv. 1no. Electrical Works Site Agent with at least 5 years' experience (Minimum Higher Diploma in Electrical/Electronic Engineering)</p> <p>v. 5 No Supervisors; specialized in Masonry, Steel Works, Painting, Electrical Installation Works, Mechanical Installation Works. With at least 5 years' experience (Minimum qualification is to possess Grade I Test Certificates) Registered by NCA</p> <p>vi. 1 No. Environmental Expert with at least 5 years' experience (Minimum Higher Diploma in Relevant Environmental Sciences as well as registration by NEMA)</p> <p>vii. 1 No. Social Expert with at least 5 years' experience (Minimum qualification is diploma in any Sociology Related Course)</p> <p>viii. 1 No. Health and Safety Expert with at least 5 years' experience (Minimum Higher Diploma in Occupational Health and Safety or Equivalent)</p> <p>6.The Bidder must demonstrate that it will have access to the key Contractor's equipment listed hereafter: (Provide logbooks or lease agreement with relevant leasing agencies):</p> <p>ix. 1 No. Lorry(ies)</p> <p>x. 1 No. Pick-Up(s)</p> <p>xi. 1 No. Concrete mixer(s)</p> <p>xii. Scaffolding</p> <p>7.Detailed work plan</p> <p>NB</p> <ul style="list-style-type: none"> • FOR FOREIGN FIRMS PROVIDE EQUIVALENT OF ALL THE ABOVE WHEREAPPLICABLE. • FOR A SUCCESSFUL FOREIGN FIRM, IT WILL BE WILL BE A REQUIREMENT TO REGISTER WITH KENYA NATIONAL CONSTRUCTION AUTHORITY BEFORESIGNING OF THE CONTRACT. <p>NCA Website: http://nca.go.ke/.</p> <ul style="list-style-type: none"> • Submitted tender documents must be properly TAPE BOUND and PAGINATED in thecorrect sequence and all pages must be initiated/signed/stamped. <p>Spiral binding and use of spring or box file will NOT BE ALLOWED and will result in automatic disqualification</p>
ITT 13.1	Alternative Tenders shall not be considered.
ITT 13.2	Alternative times for completion shall not be permitted.
ITT 14.5	The prices quoted by the Tenderer shall be: fixed.

ITT 15.2 (a)	Foreign currency requirements are not allowed .
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Reference to ITC Clause	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
ITT 18.1	The Tender validity period shall be 180 (One Hundred Eighty) Days
ITT 19.1	All Tenders must be accompanied by a Tender Securing Declaration form, stipulating a bid validity of 182 (One Hundred Eighty Two) days from the date of opening of tenders, certified by a commissioner of oaths.
ITT 20.1	In addition to the original of the Tender, the number of copies is: One Original and Two hardcopies
ITT 20.3	The written confirmation of authorization to sign on behalf of the Tenderer shall consist of: Power of Attorney which demonstrates that the signatory is duly authorized to sign the bid on behalf of the bidder partners. Power of the Attorney shall be signed and stamped by a commissioner of oath.
D. Submission and Opening of Tenders	
ITT 22.1	(A) For <u>Tender submission purposes only</u> , the Procuring Entity's address is: Vice Chancellor South Eastern Kenya University Box 170-90200 KITUI Email: vc@seku.ac.ke or info@seku.ac.ke Date and time for submission of Tenders: 16th April 2024, 10.00 am Local Time Tenderers shall not submit tenders electronically.
ITT 25.1	The Tender opening shall take place at the time and the address for Opening of Tenders provided below: Vice Chancellor South Eastern Kenya University Box 170-90200 KITUI Email: vc@seku.ac.ke or info@seku.ac.ke Date and time for submission of Tenders: 16th April 2024, 10.00 am Local Time
ITT 25.1	If tenderers are allowed to submit tenders electronically, they shall follow the electronic tender submission procedures specified below: Not Applicable
E. Evaluation, and Comparison of Tenders	

Reference to ITC Clause	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
TT 32.1	<p>The currency that shall be used for Tender evaluation and comparison purposes only to convert at the selling exchange rate all Tender prices expressed in various currencies into a single currency is: Kenya Shillings</p> <p>The source of exchange rate shall be: The Central bank of Kenya (mean rate)</p> <p>The date for the exchange rate shall be: the deadline date for Submission of the Tenders.</p> <p><i>For comparison of Tenders, The Tender Price, Corrected pursuant to ITT 31, shall first be broken down into the respective amounts payable in various currencies by using the selling exchange rates specified by the Tenderer in accordance with ITT 15.1.</i></p> <p><i>In the second step, the procuring entity will convert the amounts in various currencies in which the Tender Price is payable (excluding Provisional Sums but including Daywork where priced competitively) to the single currency identified above at the selling rates established for similar transactions by the authority specified and, on the date, stipulated above.</i></p>
ITT 33.2	A margin of preference “shall not” apply.
ITT 33.4	The Invitation to Tender is Extended to the following group that qualify for Reservations: Not Applicable
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	<p>The parts of the Works for which the Procuring Entity permits Tenderers to propose Specialized Subcontractors are designated as follows:</p> <ol style="list-style-type: none"> 1. Plumbing Drainage Installations Subcontractor 2. Electrical Installations Subcontractor <p>For the above-designated parts of the Works that may require Specialized Subcontractors, the relevant qualifications of the proposed Specialized Subcontractors will be added to the qualifications of the Tenderer for the purpose of evaluation.</p>
ITT 35.2 (e)	Additional requirements apply. These are detailed in the evaluation criteria in Section III, Evaluation and Qualification Criteria.
ITT 48.1	Other documents required in addition to the Performance Security are Insurances (WIBA, Contractor’s all risk policy)
ITT 50.1	<p>The procedures for making a Procurement-related Complaint are detailed in the “Notice of Intention to Award the Contract” herein and are also available from the PPRa Website www.ppra.go.ke or email complaints@ppra.go.ke.</p> <p>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:</p> <p>Vice Chancellor South Eastern Kenya University Box 170-90200 KITUI Email: vc@seku.ac.ke or info@seku.ac.ke</p>

Reference to ITC Clause	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
	<p>In summary, a Procurement-related Complaint may challenge any of the following (among others):</p> <ul style="list-style-type: none">(i) the terms of the Tender Documents; and(ii) the Procuring Entity's decision to award the contract.

SECTION III - EVALUATION AND QUALIFICATION CRITERIA

1. GENERAL PROVISIONS

ii.0.0 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.

- ii.1** Wherever a Tenderer is required to state a monetary amount, Tenderers should indicate the Kenya Shilling equivalent using the rate of exchange determined as follows:
- a) For construction turnover or financial data required for each year - Exchange rate prevailing on the last day of the respective calendar year (in which the amounts for that year is to be converted) was originally established.
 - b) Value of single contract - Exchange rate prevailing on the date of the contract signature.
 - c) Exchange rates shall be taken from the publicly available source identified in the ITT 14.3. Any error in determining the exchange rates in the Tender may be corrected by the Procuring Entity.

ii.2.2 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

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 mandatory requirements in the ITT, and that the tender is complete in all aspects in meeting the requirements provided for in the preliminary evaluation criteria outlined below. The Standard Tender Evaluation Report Document for Goods and Works for evaluating Tenders provides very clear guide on how to deal with review of these requirements. Tenders that do not pass the Preliminary Examination will be considered non-responsive and will not be considered further.

Preliminary Requirements (For Main Contractor); Bidder must meet the following Requirements;

Mandatory Requirements

1. Certified Copy of Company Registration Certificates. (Be a registered company incorporated in Kenya under the Companies Act CAP 486).
2. Valid AGPO certificate for the main contractor.
3. Certified copy of year Current Valid Tax Compliance Certificate, including a certified copy of the company's Pin No.
4. Certified copy of Registration certificate from National Construction Authority, Category 5 and Above in Building works (General Building Contractor).
5. Certified copy of Current Valid Practicing License from National Construction Authority (General Building Contractor).
6. Current Business License.
7. All Tenders must be accompanied by a Tender Securing Declaration form, stipulating a bid validity of 182 (One Hundred Eighty Two) days from the date of opening of tenders, certified by a commissioner of oaths.

8. Provide Letter of Authority to seek references from tenderer's bank (letter addressed to specific Banks giving authority to Client (Specifying the client's name) to verify the bank statements).
9. Evidence of physical location of office by providing certified copies of premises ownership/lease, and utility bills.
10. A copy of the company list of directors, beneficial owners, name of proprietor or names of partners (Copy of CR12) issued within the last one year and showing the list of directors.
11. Power of Attorney (of Tender signatory if not a director). Properly fill and sign with copy of National ID Card. Power of the Attorney shall be signed and stamped by a commissioner of oath.
12. Conflict of Interest Form– To state explicitly as per format provided, stamped and signed.
13. Debarment Form – Attached signed and stamped. Declaration stating that the firm has not been debarred by Public Procurement Regulatory Authority (PPRA) in the format provided.
14. Anticorruption Declaration Commitment – Properly filled, signed and Stamped. Declaration that the firm will not be involved in corrupt or fraudulent practices in the format provided.
15. Confidential Business Questionnaire (CBQ) – Duly filled, signed and stamped in the format provided.
16. Duly filled, signed and stamped Form of Tender
17. Duly filled, signed and stamped Certificate of independent tender determination with clear selection of item no.5 (a) or (b)
18. Duly filled, signed and stamped declaration and commitment to the code of ethics
19. Presentation of Bid Document – Provide One Original and One three of tender documents including specialist works. Paginated/Serialized/Numbered in a sequential manner on all pages and all attachments. The document should be bound properly i.e. BE TAPE BOUND. **Spiral Binding and Use of Spring or Box Files will not be accepted and will lead to automatic disqualification.**

NB: Failure to meet any of the above mandatory requirements which will be evaluated on the basis of YES/NO will lead to automatic disqualification and bidder will not be allowed to proceed to the next stage of evaluation.

Technical Evaluation. All bidders MUST meet the following conditions

1. Domestic Sub-contractors' agreement – a duly signed agreement not earlier than 6 months between the main contractor and the Electrical & Mechanical Subcontractors. Stating that if the main contractor is awarded the works, they shall work with the firms as their domestic subcontractors. **Total Marks 7**
2. 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 of Kshs. 5,000,000.00 (Kenya Shillings Five Million) **Total Marks 7**
3. Audited accounts for the last three (3) years by a certified audit firm **Total Marks 15**
4. At least 2 (two) contract(s) of a similar nature executed within Kenya in the last 5 years (2019-2023), that have been satisfactorily and substantially completed as a prime contractor, or joint venture member or sub-contractor each of minimum value Kenya shillings Fifty Million equivalent. Provide the following: **Total Marks 10 (Prorate)**
 - i. Completion certificates for 2 projects
 - ii. Duly completed and signed handing over certificates for 2 similar projects signed by relevant parties e.g. consultants, client and contractor
 - iii. Recommendation letters for similar works from 2 different clients with their contacts

5. Contractor's Representative and Key Personnel, which are specified below;-

Provide detailed proposal of key technical staff for the proposed project, copies of CVs, copies of academic certificates: **Total Marks 16 (Prorate)**

- i. Site Manager with at least 5 years' experience (Minimum qualification is a Degree in Building & Construction / Civil Engineering/Architectural, Quantity surveying or related discipline)
- ii. 1 No. Builder's Works Site Agent with at least 5 years' experience (Minimum qualification is diploma in Building & Construction/ Civil Engineering or related discipline)
- iii. 1no. Mechanical Works Site Agent with at least 5 years' experience (Minimum Higher Diploma in Mechanical Engineering)
- iv. 1no. Electrical Works Site Agent with at least 5 years' experience (Minimum Higher Diploma in Electrical/Electronic Engineering)
- v. 5 No Supervisors; specialized in Masonry, Steel Works, Painting, Electrical Installation Works, Mechanical Installation Works. With at least 5 years' experience (Minimum qualification is to possess Grade I Test Certificates)
- vi. 1 No. Environmental Expert with at least 5 years' experience (Minimum Higher Diploma in Relevant Environmental Sciences as well as registration by NEMA)
- vii. 1 No. Social Expert with at least 5 years' experience (Minimum qualification is diploma in any Sociology Related Course)
- viii. 1 No. Health and Safety Expert with at least 5 years' experience (Minimum Higher Diploma in Occupational Health and Safety or Equivalent)

6. The Bidder must demonstrate that it will have access to the key Contractor's equipment listed hereafter: (Provide logbooks or lease agreement with relevant leasing agencies): **Total Marks 20 (Prorate)**

- i. 1 No. Lorry(ies)
- ii. 1 No. Pick-Up(s)
- iii. 1 No. Concrete mixer(s)
- iv. Scaffolding

7. Detailed work plan. **Total Marks 25**

NB: Bidders who score less than 70% will NOT be subjected to further evaluation .

Preliminary Requirements (For Domestic Sub-Contractor); Bidder must meet the following Requirements;

NB: Not necessary if the main contractor is also registered for specialist works)

SUB-CONTRACTOR	REQUIREMENT
Plumbing Drainage Installations Subcontractor	<ol style="list-style-type: none"> 1. Certified Copy of Company Registration Certificates. (Be a registered company incorporated in Kenya under the Companies Act CAP 486). 2. Certified copy of year Current Valid Tax Compliance Certificate, including a certified copy of the company's Pin No. 3. Certified copy of Registration certificate from National Construction Authority, Category 7 and Above in Electrical/Mechanical Engineering Services. 4. Certified copy of current Valid Practicing License from National Construction Authority (Electrical/Mechanical Engineering Services) 5. Current Business License.
Electrical Installations Subcontractor:	<ol style="list-style-type: none"> 1. Certified Copy of Company Registration Certificates. (Be a registered company incorporated in Kenya under the Companies Act CAP 486). 2. Certified copy of Current Valid Tax Compliance Certificate, including a certified copy of the company's Pin No. 3. Certified copy of Registration certificate from National Construction Authority, Category 7 and Above in Electrical/Mechanical Engineering Services. 4. Certified copy of Current Valid Practicing License from National Construction Authority (Electrical/Mechanical Engineering Services) 5. Current Business License. 6. Energy & Petroleum Regulatory Authority (EPRA) Class B and Above

3. FINANCIAL EVALUATION

Upon completion of the technical evaluation a detailed financial evaluation for the bidder (and all their joint venture partners) shall follow:

The financial evaluation shall proceed in the manner described in the Public Procurement and Disposal Act (2015) of the laws of Kenya and the Public Procurement and Disposal Regulations, 2020 specifically section 77.

The evaluation shall be in three stages:

- a) Comparison of rates for the bidder (and all their joint venture partners); and
- b) Consistency of the Rates for the bidder (and all their joint venture partners);

A) Comparison of Rates for the Bidder (and all their Joint Venture partners)

The Evaluation Committee will compare the bidders quoted rates with the prevailing market rates

B) Consistency of The Rates

The evaluation committee will compare the consistency of rates for similar items and note all inconsistencies of rates for similar items

4. DUE DILIGENCE AND RECOMMENDATION FOR AWARD

Particulars of Post – Qualification if applicable. The employer, South Eastern Kenya University, may inspect the premises and under due diligence seek further clarification/ confirmation of necessary, to confirm authenticity/compliance of any condition of the tender / qualifications of the tenderer in line with section 83 of the public Procurement and Asset Disposal Act 2015

Award Criteria:

The firm achieving the lowest evaluated price will be awarded the contract in line with section 86 of the Public Procurement and Disposal act, 2015.

30 TENDER EVALUATION (ITT 35)

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

- (i) Alternative Completion Times, if permitted under ITT13.2, will be evaluated as follows: NOT APPLICABLE

- (ii) Alternative Technical Solutions for specified parts of the Works, if permitted under ITT 13.4, will be evaluated as follows: NOT APPLICABLE
- (iii) Other Criteria; if permitted under ITT 35.2(j): AS LISTED UNDER PRELIMINARY REQUIREMENTS POINT 2.0 ABOVE

40 MULTIPLE CONTRACTS

- 41** Multiple contracts will be permitted in accordance with ITT 35.4. Tenderers are evaluated on basis of Lots and a 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 tenderer will be awarded a contract for all won Lots, provided the tenderer meets the aggregate Eligibility and Qualification Criteria for all the won Lots. The tenderer will be awarded only the combinations 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 combination with the lowest evaluated price. Tenders will then be awarded to the Tenderer or Tenderers in the combination provided the tenderer meets the aggregate Eligibility and Qualification Criteria for all the won Lots.

5.0 ALTERNATIVE TENDERS (ITT 13.1)

Alternative Tenders (ITT 13.1)

An alternative if permitted under ITT 3.1, will be evaluated as follows:

The Procuring Entity shall consider Tenders offered for alternatives as specified in Part 2 - Works requirements. Only the technical alternatives, if any, of the Tenderer with the Best Evaluated Tender conforming to the basic technical requirements shall be considered by the Procuring Entity.

60 MARGIN OF PREFERENCE

- 61** If the TDS so specifies, the Procuring Entity will grant a margin of preference of fifteen percent (15%) to be loaded on evaluated prices of the foreign tenderers, where the percentage of share holding of Kenyan citizens is less than fifty- one percent (51%).
- 62** Contractors 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 contractor or group of contractors qualifies for a margin of preference.
- 63** 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 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%).
- 64** 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 of contract. If a tender from Group B is the lowest, an amount equal to the percentage indicated in Item 6.1 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 B and the lowest evaluated tender from Group A. If the tender from Group A is still the lowest tender, it shall be selected forward. If not,

the lowest evaluated tender from Group B based on the first evaluation price shall be selected.

7. **Post qualification and Contract Award (ITT 39), more specifically,**

- a) In case the tender was subject to post-qualification, the contract shall be awarded to the lowest evaluated tenderer, subject to confirmation of pre-qualification data, if so required.
- b) In case the tender was not subject to post-qualification, the tender that has been determined to be the lowest evaluated tenderer shall be considered for contract award, subject to meeting each of the following conditions. N/A

- a) **History of non-performing contracts:**

Tenderer and each member of JV in case 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 5 (Five) years. The required information shall be furnished in the appropriate form.

- b) **Pending Litigation**

Financial position and prospective long-term profit ability 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.

- c) **Litigation History**

There shall be no consistent history of court/arbitral award decisions against the Tenderer, in the last 5 (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 on going 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.

QUALIFICATION FORM*

1	2	3	4	5
Item No.	Qualification Subject	Qualification Requirement	Document To be Completed by Tenderer	For Procuring Entity's Use (Qualification met or Not Met)
1	Nationality	Nationality in accordance with ITT 3.6	Forms ELI – 1.1 and 1.2, 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.	Attachment Tax Compliance Certificate 2022-2023	
3	Conflict of Interest	No conflicts of interest in accordance with ITT 3.3	Form of Tender	
4	PPRA Eligibility	Not having been declared ineligible by the PPRA as described in ITT 3.7	Form of Tender	
5	State- owned Enterprise	Meets conditions of ITT 3.8	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 – 1.1 and 1.2, with attachments	
7	History of Non-Performing Contracts	Non-performance of a contract did not occur as a result of contractor default since 1 st January 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 ITT 19.9	Form of Tender	
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 Tenderer.	Form CON – 2	
10	Litigation History	No consistent history of court/arbitral award decisions against the Tenderer since 1 st January 2018	Form CON – 2	
11	Financial Capabilities	(i) (i) 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 as Kenya Shillings Five Million equivalent for the subject contract(s) net of the Tenderer's other commitments. (ii) The Tenderers shall also demonstrate, to the satisfaction	Form FIN – 3.1, with attachments: Bank Statements of the last 12 months from the date of closing of bids Audited Accounts for the last 5 years 2018, 2019, 2020,2021,2022	

1	2	3	4	5
Item No.	Qualification Subject	Qualification Requirement	Document To be Completed by Tenderer	For Procuring Entity's Use (Qualification met or Not Met)
		<p>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> <p>(iii) The 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 five years (2019, 2020, 2021, 2022, 2023) shall be submitted and must demonstrate the current soundness of the Tenderer's financial position and indicate its prospective long-term profitability.</p>		
12	Average Annual Construction Turnover	Minimum average annual construction turnover of Kenya Shillings Fifty Million, equivalent calculated as total certified payments received for contracts in progress and/or completed within the last Five years, divided by five Years 2019-2023	Form FIN – 3.2 Audited Accounts for the last 5 years 2019, 2020, 2021, 2022, 2023	
13	General Construction Experience	Experience under construction contracts in the role of prime contractor, JV member, sub-contractor, or management contractor for at least the last Five years, starting 1st January 2019.	Form EXP – 4.1	
14	Specific Construction & Contract Management Experience	<p>A minimum number of 2 similar contracts specified below that have been satisfactorily and substantially completed as a prime contractor, joint venture member, management contractor or sub-contractor between 1st January 2019 and tender submission deadline i.e. 2 (number) contracts, each of minimum value Kenya shillings 50,000,000.00 equivalent.</p> <p>The similarity of the contracts shall be based on the following: Construction of a commercial block/residential block/mixed use/office block with middle -high quality finishes.</p>	<p>Form EXP 4.2(a) Attach;</p> <ul style="list-style-type: none"> - Completion certificates for 2 projects - Duly completed and signed handing over certificates for 2 similar projects signed by relevant parties e.g. consultants, client and contractor - Recommendation letters for similar works from 2 different clients with their contacts 	

SECTION IV - TENDERING FORMS

QUALIFICATION FORMS

1. FOREIGN TENDERERS 40%RULE

Pursuant to ITT 3.9, a foreign tenderer must complete this form to demonstrate that the tender fulfils this condition.

ITEM	Description of Work Item	Describe location of Source	COST in K. shillings	Comments, if any
A	Local Labor			
1				
2				
3				
4				
5				
B	Sub contracts from Local sources			
1				
2				
3				
4				
5				
C	Local materials			
1				
2				
3				
4				
5				
D	Use of Local Plant and Equipment			
1				
2				
3				
4				
5				
E	Add any other items			
1				
2				
3				
4				
5				
6				
	TOTAL COST LOCAL CONTENT		XXXXX	
	PERCENTAGE OF CONTRACT PRICE			

2. FORMEQU: 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"/> Rented <input type="checkbox"/> Leased <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 / manufacture agreements specific to the project	

3. 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.	Title of position: Contractor's Representative	
	Name of candidate:	
	Duration of appointment:	<i>[insert the whole period (start and end dates) for which this position will be engaged]</i>
	Time commitment: for this position:	<i>[insert the number of days/week/months/ that has been scheduled for this position]</i>
	Expected time schedule for this position:	<i>[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]</i>
2.	Title of position: [_____]	
	Name of candidate:	
	Duration of appointment:	<i>[insert the whole period (start and end dates) for which this position will be engaged]</i>
	Time commitment: for this position:	<i>[insert the number of days/week/months/ that has been scheduled for this position]</i>
	Expected time schedule for this position:	<i>[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]</i>
3.	Title of position: [_____]	
	Name of candidate:	
	Duration of appointment:	<i>[insert the whole period (start and end dates) for which this position will be engaged]</i>
	Time commitment: for this position:	<i>[insert the number of days/week/months/ that has been scheduled for this position]</i>
	Expected time schedule for this position:	<i>[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]</i>
4.	Title of position: [_____]	
	Name of candidate:	
	Duration of appointment:	<i>[insert the whole period (start and end dates) for which this position will be engaged]</i>
	Time commitment: for this position:	<i>[insert the number of days/week/months/ that has been scheduled for this position]</i>
	Expected time schedule for this position:	<i>[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]</i>
5.	Title of position: <i>[insert title]</i>	
	Name of candidate:	
	Duration of appointment:	<i>[insert the whole period (start and end dates) for which this position will be engaged]</i>
	Time commitment: for this position:	<i>[insert the number of days/week/months/ that has been scheduled for this position]</i>
	Expected time schedule for this position:	<i>[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]</i>

4. FORM PER - 2:

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

Name of Tenderer		
Position [#1]: <i>[title of position from Form PER-I]</i>		
Personnel information	Name:	Date of birth:
	Address:	E-mail:
	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:

Commitment	Details
Commitment to duration of contract:	<i>[insert period (start and end dates) for which this Contractor's Representative or Key Personnel is available to work on this contract]</i>
Time commitment:	<i>[insert period (start and end dates) for which this Contractor's Representative or Key Personnel is available to work on this contract]</i>

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*]

Signature: _____

Date: (day month year): _____

Countersignature of authorized representative of the Tenderer:

Signature: _____

Date: (day month year): _____

5. TENDERERS QUALIFICATION WITHOUT PREQUALIFICATION

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.

51 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: <i>[indicate country of Constitution]</i>
Tenderer's actual or intended year of incorporation:
Tenderer's legal address [in country of registration]:
Tenderer's authorized representative information Name: _____ Address: _____ Telephone/Fax numbers: _____ E-mail address: _____
<p>1. Attached are copies of original documents of</p> <p><input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or documents of registration of the legal entity named above, in accordance with ITT 3.6</p> <p><input type="checkbox"/> In case of JV, letter of intent to form JV or JV agreement, in accordance with ITT 3.5</p> <p><input type="checkbox"/> In case of state-owned enterprise or institution, in accordance with ITT 3.8, documents establishing:</p> <ul style="list-style-type: none"> • Legal and financial autonomy • Operation under commercial law <p style="margin-left: 40px;">1. Establishing that the Tenderer is not under the supervision of the Procuring Entity</p> <p style="margin-left: 40px;">2. Included are the organizational chart and a list of Board of Directors</p>

52 FORM ELI -1.2

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

Date: _____ ITT No. and title: _____

Tenderer's JV name:
JV member's name:
JV member's country of registration:
JV member's year of constitution:
JV member's legal address in country of constitution:
JV member's authorized representative information Name: _____ Address: _____ Telephone/Fax numbers: _____ E-mail address: _____
1. Attached are copies of original documents of <input type="checkbox"/> Articles of Incorporation (or equivalent documents of constitution or association), and/or registration documents of the legal entity named above, in accordance with ITT 3.6. <input type="checkbox"/> In case of a state-owned enterprise or institution, documents establishing legal and financial autonomy, operation in accordance with commercial law, and that they are not under the supervision of the Procuring Entity, in accordance with ITT 3.5.
2. Included are the organizational chart and a list of Board of Directors.

Historical Contract Non-Performance, Pending Litigation and Litigation History

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

Non-Performed Contracts in accordance with Section III, Evaluation and Qualification Criteria			
<input type="checkbox"/> Contract non-performance did not occur since 1 st January <i>[insert year]</i> specified in Section III, Evaluation and Qualification Criteria, Sub-Factor 2.1.			
<input type="checkbox"/> Contract(s) not performed since 1 st January <i>[insert year]</i> specified in Section III, Evaluation and Qualification Criteria, requirement 2.1			
<input type="checkbox"/> Contract(s) withdrawn since 1 st January <i>[insert year]</i> specified in Section III, Evaluation and Qualification Criteria, requirement 2.1			
Year	Non-performed portion of contract	Contract Identification	Total Contract Amount (current value, currency, exchange rate and Kenya Shilling equivalent)
<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 nonperformance: <i>[indicate main reason(s)]</i>	<i>[insert amount]</i>
Pending Litigation, in accordance with Section III, Evaluation and Qualification Criteria			
<input type="checkbox"/> No pending litigation in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.3.			
<input type="checkbox"/> Pending litigation in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.3 as indicated below.			

Year of dispute	Amount in dispute (currency)	Contract Identification	Total Contract Amount (currency), Kenya Shilling Equivalent (exchange rate)
		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			
<input type="checkbox"/> No Litigation History in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.4.			
<input type="checkbox"/> Litigation History in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.4 as indicated below.			

Year of dispute	Amount in dispute (currency)	Contract Identification	Total Contract Amount (currency), Kenya Shilling Equivalent (exchange rate)
<i>[insert year]</i>	<i>[insert 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> Matter in dispute: <i>[indicate main issues in dispute]</i> Party who initiated the dispute: <i>[indicate "Procuring Entity" or "Contractor"]</i> Reason(s) for Litigation and award decision <i>[indicate main reason(s)]</i>	<i>[insert amount]</i>

Include details relating to potential bid-rigging practices such as previous occasions where tenders were withdrawn, joint bids with competitors, subcontracting work to unsuccessful tenderers, etc.

54 **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

Type of Financial information in _____ (currency)	Historic information for previous _____ years, (amount in currency, currency, exchange rate*, USD equivalent)				
	Year 1	Year 2	Year 3	Year 4	Year 5
Statement of Financial Position (Information from Balance Sheet)					
Total Assets (TA)					
Total Liabilities (TL)					
Total Equity/Net Worth (NW)					
Current Assets (CA)					
Current Liabilities (CL)					
Working Capital (WC)					
Information from Income Statement					
Total Revenue (TR)					
Profits Before Taxes (PBT)					
Cash Flow Information					
Cash Flow from Operating Activities					

*Refer to ITT 15 for the exchange rate

5.4.2 Sources of Finance

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

No.	Source of finance	Amount (Kenya Shilling equivalent)
1		
2		
3		

5.4.3 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 statements¹ for the _____ years required above; and complying with the requirements

¹ 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.

55 **FORM FIN – 3.2:**

Average Annual Construction Turnover

Tenderer’s Name: _____

Date: _____

JV Member’s Name _____

ITT No. and title: _____

Annual turnover data (construction only)			
Year	Amount Currency	Exchange rate	Kenya Shilling equivalent
<i>[indicate year]</i>	<i>[insert amount and indicate currency]</i>		
Average Annual Construction Turnover *			

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

56 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

Financial Resources		
No.	Source of financing	Amount (Kenya Shilling equivalent)
1		
2		
3		

57 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.

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

General Construction Experience

Tenderer's Name: _____

Date: _____

JV Member's Name _____

ITT No. and title: _____

Page _____ of _____ pages

Starting Year	Ending Year	Contract Identification	Role of Tenderer
		Contract name: _____ Brief Description of the Works performed by the Tenderer: _____ Amount of contract: _____ Name of Procuring Entity: _____ Address: _____	
		Contract name: _____ Brief Description of the Works performed by the Tenderer: _____ Amount of contract: _____ Name of Procuring Entity: _____ Address: _____	
		Contract name: _____ Brief Description of the Works performed by the Tenderer: _____ Amount of contract: _____ Name of Procuring Entity: _____ Address: _____	

59 FORM EXP - 4.2(a)

Specific Construction and Contract Management Experience

Tenderer's Name: _____

Date: _____

JV Member's Name _____

ITT No. and title: _____

Similar Contract No.	Information			
Contract Identification				
Awarddate				
Completion date				
Role in Contract	Prime Contractor <input type="checkbox"/>	Member in JV <input type="checkbox"/>	Management Contractor <input type="checkbox"/>	Sub-contractor <input type="checkbox"/>
TotalContract Amount				Kenya Shilling
If member in a JV or sub-contractor, specify participation in total Contract amount				
Procuring Entity's Name:				
Address: Telephone/fax number E-mail:				

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: _____

Similar Contract No.	Information			
Contract Identification				
Awarddate				
Completion date				
Role in Contract	Prime Contractor <input type="checkbox"/>	Member in JV <input type="checkbox"/>	Management Contractor <input type="checkbox"/>	Sub-contractor <input type="checkbox"/>
TotalContract Amount				Kenya Shilling
If member in a JV or sub-contractor, specify participation in total Contract amount				
Procuring Entity's Name:				
Address: Telephone/fax number E-mail:				

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

Specific Construction and Contract Management Experience (cont.)

Similar Contract No.	Information
Description of the similarity in accordance 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	

5.10 FORM EXP - 4.2(b)

Construction Experience in Key Activities

Tenderer's Name: _____

Date: _____

Tenderer's JV Member Name: _____

Sub-contractor's Name² (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.

I. Key Activity No One: _

Information				
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor <input type="checkbox"/>	Member in JV <input type="checkbox"/>	Management Contractor <input type="checkbox"/>	Sub-contractor <input type="checkbox"/>
Total Contract Amount				Kenya Shilling
Quantity (Volume, number or rate of production, as applicable) performed under the contract per year or part of the year	Total quantity in the contract (i)	Percentage participation (ii)		Actual Quantity Performed (i) x (ii)
Year 1				
Year 2				
Year 3				
Year 4				
Procuring Entity's Name:				
Address: Telephone/fax number E-mail:				

² If applicable

	Information
Description of the key activities in accordance with Sub-Factor 4.2(b) of Section III:	

- 2. Activity No. Two
- 3.

OTHER FORMS

6. FORM OF TENDER

(Amended and issued pursuant to PPRA CIRCULAR No. 02/2022)

INSTRUCTIONS TO TENDERERS

- i) All italicized text is to help the Tenderer in preparing this form.*
- ii) The Tenderer must prepare this Form of Tender on stationery with its letterhead clearly showing the Tenderer's complete name and business address. Tenderers are reminded that this is a mandatory requirement.*
- iii) Tenderer must complete and sign CERTIFICATE OF INDEPENDENT TENDER DETERMINATION and the SELF DECLARATION FORMS OF THE TENDERER as listed under (xxii) below.*

Date of this Tender submission:.....[insert date (as day, month and year) of Tender submission] **Tender Name**
and Identification:.....[insert identification] **Alternative**
No.:.....[insert identification No if this is a Tender for an alternative]
To [Insert complete name of Procuring Entity]

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 sum³ of Kenya Shillings [Amount in figures] _____ Kenya Shillings [amount in words] _____

The above amount includes foreign currency⁴ amount (s) of [state figure or a percentage and currency] [figures] _____ [words] _____

- 2. We undertake, if our tender is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Architect 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 date], and it shall remain binding upon us and may be accepted at any time before that date.
- 4. We understand that you are not bound to accept the lowest or any tender you may receive.
- 5. We, the under signed, 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;

³ This sum should be carried forward from the Summary of the Bills of Quantities.

⁴ The percentage quoted above should not include provisional sums, and not more than two foreign currencies are allowed.

- 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) Option 1, in case of one lot: Total price is: *[insert the total price of the Tender in words and figures, indicating the various amounts and the respective currencies]*; or
Option2, in case of multiple lots:
 - (a) Total price of each lot *[insert the total price of each lot in words and figures, indicating the various amounts and the respective currencies]*; and
 - (b) Total price of all lots (sum of all lots) *[insert the total price of all lots in words and figures, indicating the various amounts and the respective currencies]*;
- vii) Discounts: The discounts offered and the methodology for their application are:
- viii) The discounts offered are: *[Specify in detail each discount offered.]*
- ix) The exact method of calculations to determine the net price after application of discounts is shown below: *[Specify in detail the method that shall be used to apply the discounts]*;
- x) 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;
- xi) Performance Security: If our Tender is accepted, we commit to obtain a Performance Security in accordance with the Tendering document;
- xii) 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 sub-contractor, and meet the requirements of ITT 3.4, other than alternative Tenders submitted in accordance with ITT 13.3;
- xiii) Suspension and Debarment: We, along with any of our subcontractors, suppliers, Engineer, 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.
- xiv) 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 ITT3.8]*;
- xv) 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 of Recipient	Address	Reason	Amount

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

- xvi) **Binding Contract:** We understand that this Tender, together with your written acceptance there of included in your Letter of Acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed;
- xvii) **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;
- xviii) **Fraud and Corruption:** We here by 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; and
- xix) **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.
- xx) 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.
- xxi) **Beneficial Ownership Information:** We commit to provide to the procuring entity the Beneficial Ownership Information in conformity with the Beneficial Ownership Disclosure Form upon receipt of notification of intention to enter into a contract in the event we are the successful tenderer in this subject procurement proceeding.
- xxii) We, the Tenderer, have duly completed, signed and stamped 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: **[insert complete name of person signing the Tender]*

Name of the person duly authorized to sign the Tender on behalf of the Tenderer: ***[insert complete name of person duly authorized to sign the Tender]*

Title of the person signing the Tender: *[insert complete title of the person signing the Tender]*

Signature of the person named above: *[insert signature of person whose name and capacity are shown above]*

Date signed *[insert date of signing]* day of *[insert month]*, *[insert year]*

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 Contact Details of the Tenderer.	1. Country 2. City 3. Location 4. Building 5. Floor 6. Postal Address 7. Name and email of contact person.
6	Current Trade License Registration Number and Expiring date	
7	Name, country and full address (<i>postal and physical addresses, email, and telephone number</i>) of Registering 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.

	Names of Director	Nationality	Citizenship	% Shares owned
1				
2				
3				

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

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

If yes, provide details as follows.

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

(iii) Conflict of interest disclosure

	Type of Conflict	Disclosure YES OR NO	If YES provide details of the relationship with Tenderer
1	Tenderer is directly or indirectly controls, is controlled 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		

	Type of Conflict	Disclosure YES OR NO	If YES provide details of the relationship with Tenderer
	Tender document or specifications of the Contract, and/or the Tender evaluation process of such contract.		
8	Tenderer has a close business or family relationship with a professional staff of the Procuring Entity who would be involved in the implementation or supervision of the such 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.		

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 title/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 here in above is true to the best of my knowledge, information and belief.

.....

.....

..... (Title)
(Date)

(Signature)

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 ofdo 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 title/description*) for (*insert name of the Procuring entity*) and
duly authorized and competent to make this statement.
2. THAT the afore said 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.....(*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 here in 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 here by 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

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

2. Requirements

2.1 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.

2.2 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 as set 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 in to, take part in any decision relating to the procurement or contract; and
 - c) shall not be a subcontract or for the tender to whom was awarded contract, or a member of the group of tenderers 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.

3. 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; “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;
 - iv) “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 award¹ 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 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 inspect² 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.

¹For the avoidance of doubt, a party's eligibility 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.

²Inspections 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-[Option 1–Demand Bank Guarantee]

Beneficiary: _____ **Request for Tenders**
No: _____ **Date:** _____ **TENDER**
GUARANTEE No.: _____
Guarantor: _____

1. We have been informed that _____ (herein after called "the Applicant") has submitted or will submit to the Beneficiary its Tender (here in after called" the Tender") for the execution of _____ under Request for Tenders No. _____ ("the ITT").
2. Furthermore, we understand that, according to the Beneficiary's conditions, Tenders must be supported by a Tender guarantee.
3. At the request of the Applicant, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (_____) upon receipt by us of the Beneficiary's complying demand, supported by the Beneficiary's statement, whether in the demand itself or a separate signed document accompanying or identifying the demand, stating that either the Applicant:
 - (a) has withdrawn its Tender during the period of Tender validity set forth in the Applicant's Letter of Tender ("the Tender Validity Period"), or any extension thereto provided by the Applicant; or
 - b) having been notified of the acceptance of its Tender by the Beneficiary during the Tender Validity Period or any extension there to provided by the Applicant, (i) has failed to execute the contract agreement, or (ii) has failed to furnish the Performance.
4. This guarantee will expire: (a) if the Applicant is the successful Tenderer, upon our receipt of copies of the contract agreement signed by the Applicant and the Performance Security and, or (b) if the Applicant is not the successful Tenderer, upon the earlier of (i) our receipt of a copy of the Beneficiary's notification to the Applicant of the results of the Tendering process; or (ii) thirty days after the end of the Tender Validity Period.
5. Consequently, any demand for payment under this guarantee must be received by us at the office indicated above on or before that date.

[signature(s)]

Note: All italicized text is for use in preparing this form and shall be deleted from the final product.

FORMAT OF TENDER SECURITY [Option 2–Insurance Guarantee]

TENDER GUARANTEE No.: _____

1. Whereas [Name of the tenderer] (hereinafter called “the tenderer”) has submitted its tender dated [Date of submission of tender] for the [Name and/or description of the tender] (hereinafter called “the Tender”) for the execution of__under Request for Tenders No._____ (“the ITT”).
2. KNOW ALL PEOPLE by these presents that WE of [**Name of Insurance Company**] having our registered office at.....(hereinafter called “the Guarantor”), are bound unto [Name of Procuring Entity] (hereinafter called “the Procuring Entity”) in the sum of (Currency and guarantee amount) for which payment well and truly to be made to the said Procuring Entity, the Guarantor binds itself, its successors and assigns, jointly and severally, firmly by these presents.

Sealed with the Common Seal of the said Guarantor this ___day of _____20__.

3. NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Applicant:
 - 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 guarantee 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. This guarantee will expire: (a) if the Applicant is the successful Tenderer, upon our receipt of copies of the contract agreement signed by the Applicant and the Performance Security and, or (b) if the Applicant is not the successful Tenderer, upon the earlier of (i) our receipt of a copy of the Beneficiary's notification to the Applicant of the results of the Tendering process; or (ii)twenty-eight days after the end of the Tender Validity Period.
5. Consequently, any demand for payment under this guarantee must be received by us at the office indicated above on or before that date.

[Date]

[Signature of the Guarantor]

[Witness]

[Seal]

Note: All italicized text is for use in preparing this form and shall be deleted from the final product.

FORM OF TENDER - SECURING DECLARATION

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

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

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

To.....*[insert complete name of Purchaser]* I/We, the undersigned, declare

that:

1. I/We understand that, according to your conditions, bids must be supported by a Tender-Securing Declaration.
2. I/We accept that I/we will automatically be suspended from being eligible for tendering in any contract with the Purchaser for the period of time of *[insert number of months or years]* starting on *[insert date]*, if we are in breach of our obligation(s) under the bid conditions, because we—(a) have withdrawn our tender during the period of tender validity specified by us in the Tendering Data Sheet; or (b) having been notified of the acceptance of our Bid by the Purchaser during the period of bid validity, (i) fail or refuse to execute the Contract, if required, or (ii) fail or refuse to furnish the Performance Security, in accordance with the instructions to tenders.
3. I/We understand that this Tender Securing Declaration shall expire if we are not the successful Tenderer(s), upon the earlier of:
 - a) Our receipt of a copy of your notification of the name of the successful Tenderer; or
 - b) thirty days after the expiration of our Tender.
4. I/We understand that if I am /we are/ in a Joint Venture, the Tender Securing Declaration must be in the name of the Joint Venture that submits the bid, and the Joint Venture has not been legally constituted at the time of bidding, the Tender Securing Declaration shall be in the names of all future partners as named in the letter of intent.

Signed..... Capacity/title (director or partner or sole proprietor, etc.)

Name..... Duly authorized to sign

the bid for and on behalf of: *[insert complete name of Tenderer]*

Dated on day of,..... *[Insert date of signing]* Seal or stamp

Appendix to Tender

Schedule of Currency requirements

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

<i>Name of currency</i>	<i>Amounts payable</i>
Local currency: _____	
Foreign currency #1: _____	
Foreign currency #2: _____	
Foreign currency #3: _____	
Provisional sums expressed in local currency	<i>[To be entered by the Procuring Entity]</i>

PART II - WORKS REQUIREMENTS

SECTION V - BILLS OF QUANTITIES

A. Notes and Sample Items for Preparing a Bill of Quantities

1. These Notes for Preparing a Bill of Quantities are intended only as information for the Procuring Entity or the person drafting the Tender Documents. Priced Bills of Quantities shall be part and parcel of the Contract Documents.
2. The objectives and purpose of the Bills of Quantities are to provide sufficient information on the specifications, descriptions and quantities of Works to be performed to enable tenders to be prepared efficiently and accurately and 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 insufficient 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 content of the Bill of Quantities should be as simple and clear as possible.
3. 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.

4. NOTES TO PREPARING PREAMBLES

41. The Preambles should include only those items that constitute the cost of the works but would not be priced separately as they are expected to be included in the unit prices. Care should be taken to ensure that these items are not a part of the conditions of contract. The Preambles should indicate the inclusiveness of the unit prices and should state the methods of measurement that have been adopted in the preparation of the Bill of Quantities, that are to be used for the measurement of any part of the Works. The units of measurement and abbreviations should be defined and any mandatory national units defined and described. The methods of and procedure for re-measurement should be described in the Preambles.
42. Units of Measurement - The following units of measurement and abbreviations shall be used, unless other national units are mandatory in Kenya.

Unit	Abbreviation	Unit	Abbreviation
cubic meter	m ³ or cu m	millimetre	mm
hectare	ha	month	mon
hour	h	number	nr
kilogram	kg	square meter	m ² or sq m
lump sum	ls	square millimeter	mm ² or sq mm
meter	m	week	wk
metric ton	t		

43. The Bills of Quantities shall be read in conjunction with the Instructions to Tenders, General and Special Conditions of Contract, Technical Specifications, and Drawings.
44. The quantities given in the Bills of Quantities are estimated and partly provisional and are given to provide a common basis for tendering. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Architect and valued at the rates and prices tendered in the priced Bills of Quantities, where applicable, and otherwise at such rates and prices as the Architect may fix within the terms of the Contract.

45. The rates and prices tender in the priced Bills of Quantities shall, except in so far as it is otherwise provided under the Contract, include all Constructional Plant, labour, supervision, materials, erection, maintenance, insurance, profit, taxes, and duties, together with all general risks, liabilities, and obligations set out or implied in the Contract.
46. A rate or price shall be entered against each item in the priced Bill of Quantities, whether quantities are stated or not. The cost of Items against which the Contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bill of Quantities.
47. The whole cost of complying with the provisions of the Contract shall be included in the Items provided in the priced Bills of Quantities, and where no Items are provided, the cost shall be deemed to be distributed among the rates and prices entered for the related Items of Work.
48. General directions and descriptions of work and materials are not necessarily repeated nor summarized in the Bills of Quantities. References to the relevant sections of the Contract documents shall be made before entering prices against each item in the priced Bills of Quantities.
49. Provisional Sums and contingency sums included and so designated in the Bills of Quantities shall be expended in whole or in part at the direction and discretion of the Architect in accordance with Sub-Clause 13.5 and Clause 13.6 of the General Conditions of contract.
410. In preparing the Bills of Quantities, notes should be removed as they are intended to guide the person preparing the Tender Documents. The Contractor must allow in his rates for any costs associated with and complying with the requirements in the Preambles.
411. Should a tenderer/contractor not price any item in any section of the Bills of Quantities including Preliminary items, it will be assumed that he/she has spread its cost in other areas that he/she will have priced. Therefore, the item or items will be executed without any additional costs or without being treated like variations.

5. NOTES ON PREPARING BILLS OF QUANTITIES

51. The Preliminary Items should be limited to tangible items that should be priced by the tenderer, are identifiable and can be priced separately and included in the interim valuations precisely. Such items may include such items as site office, notice boards, and other temporary works, otherwise items such as security for the Works which are primarily part of the Contractor's obligations should be included in the Contractor's rates.
52. The work items in the Bills of Quantities should be grouped into sections to distinguish between those parts of the Works which by nature, location, access, timing, or any other special characteristics may give rise to different methods of construction, or phasing of the Works, or considerations of cost. Such groups could be ground excavations, structures, external works, services, etc. General items common to all parts of the Works may be grouped as a separate section in the Bill of Quantities.
53. Quantities should be computed net from the Drawings, unless directed otherwise in the Contract, and no allowance should be made for bulking, shrinkage or waste. Quantities should be rounded up where appropriate.
54. Where the measured items are deemed not to be exact because of the likelihood that the scope can change during the execution of the works, such items could be subject to re-measurement, the word "**provisional**" should be used to identify such cases. Where whole sections of the work items fall in this class, for example foundations, they should be labelled "Provisional Quantities" or "Provisional Items" so that the Tenderer/Contractor is advised up front that such items are subject to re-measurement to be done before such work is cover-up.
55. All items that have not been measured and therefore not subject to tenders pricing should be listed in the Bills of Quantities as **Provisional Sums** for particular item or class of Work, which may be subject to a nominated subcontract or separate measurements at a later date during the execution of the works. For example, if it is deemed not possible to measure electrical works before going to tender because detail designs are not ready, a provisional sum can be allowed in the Bills of Quantities for "Installation of Electrical Works" to be executed later when actual design details are completed. To the extent not covered above, there should be in the Bills of Quantities a general provision for physical and financial contingencies made as a "Provisional Sum for

Contingencies” and “Provisional Sum for Fluctuations”. The inclusion of such provisional sums often facilitates budgetary approval by avoiding the need to request periodic supplementary approvals as the future need arises.

- 56 Provisional sums to cover specialized works normally carried out by Nominated Sub Contractors should be avoided and instead Bills of Quantities of the specialized Works should be included as a section of the main Bills of Quantities to be priced by the Main Contractor. The Main Contractor should be required to indicate the name(s) of the specialized firms he proposes to engage to carry out the specialized Works as his approved domestic sub-contractors. Only provisional sums to cover specialized Works by statutory authorities should be included in the Bills of Quantities.
- 57 A Daywork Schedule should be included if the probability of unforeseen work, outside the items included in the Bill of Quantities, is relatively high. To facilitate checking by the Procuring Entity of the realism of rates quoted by the tenderers, the Daywork Schedule should normally comprise:
- i) A list of the various classes of labor, and materials for which basic.
 - ii) Daywork rates and prices for various categories of labor are to be inserted by the tenderer, together with a statement of the conditions under which the Contractor will be paid for Work executed on a Daywork basis.
 - iii) A percent a get o be entered by the tenderer agains teach basic Day work item.
 - iv) Subtotal amount for labor, materials and plant representing the Contractor's profit, overheads, supervision and other charges.
- 58 The Summary should contain a tabulation of the separate parts of the Bills of Quantities carried forward, with provisional sums for Daywork, Provisional sums and Contingencies, and provision for Total Costing. The last line should allow for tenderer to indicate any discounts before arriving at a total cost carried forward to the Form of Tender.

BILLS OF QUANTITIES

(a) Preambles

1. The method of measurement of completed work for payment shall be in accordance with *[insert the name of a standard reference guide, or full details of the methods to be used]*.
2. The Site is situated in (*provide full description where the site is situated, coordinates from the nearest known landmark like a town and its size*)_____ It is approximately _____ Kilometers from Nairobi. Access to the site shall be through _____.

Which is an existing public road. Any damage caused to the surfaces of this road shall be made good at the Contractor's expense. The Contractor shall visit the site and acquaint itself with its nature and position, the nature of the ground, substrata and other local conditions, positions of existing power, water and other services, access roads or any other limitations that might affect his cost or progress. No claim for extras shall be considered on account of lack of knowledge in this respect.

3. The Contractor shall obtain the Architect's approval on the siting of all temporary buildings, spoil heaps, temporary access path, and storage of materials. The Contractor shall also obtain the Architect approval and direction regarding the use of any materials found on the Site.
4. The drawings used in the preparation of these Bills of Quantities can be inspected at the offices of the Procuring Entity or Procuring Entity's Representative during normal working hours. Two sets of the Working Drawings shall be provided to the contractor but additional copies shall be provided at a cost to be determined by the Engineer.
5. The Contractor shall allow for the payment of all bank charges in connection with the procurement of Bank Guarantees and stamp charges in connection with this contract Agreement.
6. The Contractor shall carry out the various sections of the Works in such an order as the Architect May direct. The Procuring Entity reserves the right to occupy the Works by sections on completion provided that such occupation is considered to be both practical and reasonable and will not interfere with the Works. The Contractor shall allow any costs associated with such occupation.
7. The main Contractor will be fully responsible for paying his Sub-Contractor but the Procuring Entity reserves the right in very exceptional circumstances to make such payments direct in the interests of the project where the completion thereof might be jeopardized by any dispute or vicariousness between the Contractor and the Sub- Contractor involve.
8. The Contractor shall complete and deliver the Works in the period inserted in the Form of Tender as his time for completion of the Works from the date for Possession, to be agreed with the Engineer. The Contract Period is presumed to have been calculated making due allowance for seasonal inclement weather conditions. No claim for extension of time due to the normal inclement weather for this area shall be entertained.
9. The Contractor shall, upon receiving instructions to proceed with the Works, draw up a Programme and Progress Chart setting out the order in which the Works are to be carried out, with the appropriate dates thereof. This Chart shall be agreed with the Architect and no deviation from the order set out in it will be permitted without the written consent of the Engineer. The Contractor will be responsible for arranging the above programme with all his sub-Contractors and Specialties. The Contractor shall allow in his rates for carrying out this exercise, and for updating it as required.
10. The Contractor shall submit to the Architect on the first day of each week or such longer period as the Architect from time to time direct, a Progress Report and any information for the proceeding period, showing the progress during the period and the up-to-date cumulative progress on all important items of each section or portion of the Works.
11. The Contractor shall arrange for photographs of the Site to be taken by a professional photographer approved by the Engineer. The Photographs shall provide a record of the Site and adjacent areas as prior to the commencement of the Works and shall cover such portion of the works in progress and completion as the Architect shall direct. All prints shall be full plate size, unmounted, and marked on the reverse side with the date of exposure, identification reference and brief description. The copyright of all photographs shall be vested in the Procuring Entity. The negatives and four prints from each negative shall be delivered to the Architect within two weeks of exposure.

12. Figured dimensions are to be followed in preference to dimensions scaled from the Drawings, but whenever possible dimensions are to be taken on the Site or from the buildings. Before any work is commenced by Sub-Contractors or Specialist Firms, dimensions must be checked on the site comparable dimensions shown on the drawings. The Contractor shall be responsible for the accuracy of such dimensions.
13. Prior to commencement of any work the Contractor is to ascertain from the relevant Authorities the exact position, depth and level of all existing electric cables, water pipes or other services in there and he shall make whatever provisions may be required by the Authorities concerned for the support and protection of such services. Any damage or disturbance caused to any services shall be reported immediately to the Architect and the relevant Authority and shall be made good to their satisfaction at the Contractor's expense. Where appropriate the Contractor shall open up the ground in advance of the main work by hand digging if necessary, to locate precisely the position and details of the services which are likely to affect his operations.
14. The Contractor shall include in his prices for the transport of materials, workmen, etc./, to and from the site of the proposed works, at such hours and by such route as are permitted by the Authorities.
15. The Contractor will be required to make good, at his own expense and damage he may cause to the present road surface and pavements within or beyond the boundary of the Site, during the period of the works. All existing paths, storm water channels, etc., that may be destroyed or damaged during the progress of the Works shall be reinstated by the Contractor to the satisfaction of the Engineer.
16. The Contractor is to allow for complying with all instructions and regulations of the Police Authorities.
17. All water shall be fresh, clean and pure, free from earthly, vegetable or organic matter, acid or alkaline substance in solution. The Contractor shall provide at his own risk and cost all water for use in connection with the Works, (including works of sub-contractors). If need be, he shall make arrangements with the Local Water Authority for the installation of a separate meter for all water used by him throughout the Contract and pay all cost and fees in connection therewith. He shall also provide temporary storage tanks and tubing, etc., as may be necessary, and clear away at completion.
18. The Contractor shall provide all artificial lighting and power for his own use on the Works, (including Sub – Contractor's) including all temporary connections, wiring, fittings, etc., and clearing away on completion. The Contractor shall pay all fees and obtain all permits in connection there with.
19. The Contractor shall constantly keep on the Works a Literate English-speaking Agent or Representative, competent and experienced in the kind of work involved, who shall give his whole time to the superintendence of the works. (Including works of sub – contractors). Such Agent or Representative shall receive on behalf of the Contractor directions and instruction from the Engineer, and such directions and instructions shall be deemed to be given to the contractor in accordance with the Conditions of Contract. The Agent shall not be replaced without the specific approval of the Engineer.
20. The Contractor shall ensure that the safety of his work people and all authorized visitors to the site are protected at all times. In particular, there shall be the proper provision of guard-rails to scaffolding, protection against falling materials, tools on site, dust, nail and other sharp objects. The site shall be kept tidy and clear of dangerous rubbish. The Architect shall be empowered to suspend work on site should it be considered this condition is not being observed and no claim arising from such suspension will be allowed.
21. The are as available to the Contractor for work yards, offices and other facilities shall be directed by the Architect and any existing features to remain shall be protected from damage throughout the Contract Period and handed back in good condition when they are vacated at the end of the Contract. If additional areas are required, the contractor shall source then at own cost.
22. The Contractor shall give the Architect reasonable notice of the intention to set out or take levels for any part of the Works so that arrangements may be made for checking the work. The accuracy of setting out and leveling shall be within the tolerances specified in the Specifications or on the Drawings. The checking of setting out or leveling by the Architect shall not relieve the Contractor of his duties or responsibilities under the Contract.
23. The Contractor must take steps necessary to safe guard and shall beheld fully responsible for any damage caused to existing and adjacent property, including buildings that are not a subject of demolition. He shall make good at his own cost damage to persons and property caused there on, and he shall indemnify the Procuring Entity against any loss or claim that may arise.

24. The Contractor shall take such steps and exercise such care and diligence as to minimize nuisance arising from dust, noise or any other cause to the occupiers of the existing and adjacent property. He must provide such temporary and special screens and tarpaulins or gummy bags, hoarding, barriers, warning signs etc. as he considers necessary and sufficient for the protection of the existing and adjacent property and or prevention of nuisance etc. as directed by Engineer.
25. The Contractors attention is drawn to the standards levy order which was amended on 15th October 1998. Legal notice No.154 of 1998. The Contractor is required to pay a monthly level of 0.2% of his factory price of construction works with effect from January 1999. Tenderer shall allow for this in the build-up of his rates.
26. The Contractor shall provide temporary sheds, offices messrooms, sanitary, accommodation and other temporary buildings for the use of the contractor and sub-contractors, including lighting furniture equipment and attendance.
27. Contractor shall provide/build labor camp sat areas to be agreed with the Engineer. Labor camps shall be complete with sanitary accommodation and fencing gates.
28. The Contractor must provide the necessary toilet facilities to the requirement and satisfaction of the Health Authorities and maintain the same in a thoroughly clean and sanitary condition and pay all conservancy fees during the period of the Works and remove when no longer required.
29. The Contractor shall provide at his own risk and cost all watching and lighting as necessary to safeguard the Works, Plant and materials against damage and theft.
30. The Contractor shall provide all necessary hoists, tackle, plant, equipment, vehicles, tools and appliances of every description for the due and satisfactory completion of the Works and shall remove the same on completion. All such plant, tools and equipment shall comply with all regulations in force throughout the period of the Contract and shall be altered or adopted during the Contract period as may be necessary to comply with any amendments in or additions to such regulations.
31. Provide, erect and maintain all necessary scaffolding, sufficiently strong and efficient for the due performance of the works, including Sub-Contract Works, provide special scaffolding as required by Sub-Contractors, alter and adopt all scaffolding as and when required during the Works, and remove on completion. No scaffolding is measured here in after and the Contractor must allow in his rates for this.
32. The Contractor shall take all necessary precautions such as temporary fencing, hoarding fans, planked footways, guard-rails gantries screen, etc., for the safe custody of the Works, materials and public protection and adjacent properties.
33. Cover up all and protect from damage, including damage from inclement weather, all finished work and unfixed materials, including that of Sub-Contractors, etc., to the satisfaction of the Architect until the completion of the Contract.
34. The Contractor shall, after completion of the works, at his own expense, remove and clear away all surplus excavated demolition materials, plant, rubbish and unused materials and shall leave the whole of the Site and Works in a clean and tidy state to the satisfaction of the Engineer, sheds, camps, etc. Particular care shall be taken to leave clean all floors and windows and to remove all paint and cement all rubbish and dirt as it accumulates. The Contractor is to find his own dump and shall pay all charges in connection there with.
35. Concrete test cubes shall be prepared in a set of three, as described including testing fees, labor and materials, making molds, transport, handling, etc. Allow in your rates for making at least four cubes on each occasion, from different batches; the concrete being taken from the point of deposit.
36. The Contractors shall furnish at the earliest possible opportunity before work commences, and at his own cost, any samples of materials and workmanship that may be called for by the Architect for the approval or rejection, and any further samples in the case of rejection, until such samples are approved by the Engineer. Such samples, when approved, shall be the minimum standard for the work to which they apply. The procedure for submitting samples of materials for testing or approval and the method of marking for identification shall be as laid down by the Engineer. The Contractor shall allow in his Tender for such samples and tests, including those in connection with his Sub-Contractors work.

37. The Contractor's attention is drawn to the Finance Bill of the year 2000/2001 on withholding tax on contractual payment section 35(7)(i)(ii) which became effective on 1st July 2000. A 3% withholding tax will be applicable to all interim payments exceeding Kshs..... for work done in respect of building or civil works. The contractor shall allow for any costs arising resulting there from in the build-up of rates.
38. Blasting will only be allowed with the express permission of the Architect in writing. All blasting operations shall be carried out at the Contractor's sole risk and cost, in accordance with any Government regulations in force for the time being, and any special regulations laid down by the Architect governing the use and storage of explosives.
39. The National Construction Authority is a state corporation established under the national construction authority Act No.14 of 2011. The broad Mandate of the Authority is to oversee the construction industry and coordinate its development. The National Construction Authority Regulations 2014 with an effective date of 6th June 2014, regulation 25, - Allow 0.5% of the tender sum/contract sum for construction levy.
40. The Contractor attention is drawn to Finance Bill of 1993 where VAT was introduced in all contracts for construction services. The tenderer is also drawn to VAT Act Cap 476 clause 19(9). The tenderer must allow for VAT 1.19 as instructed elsewhere.
41. The contractor shall allow and pay for all insurance to cover risks and indemnities required Items 17 and 18 of the Conditions of contract and also specified in the Special Conditions of Contract.

BILL NO. 1 - PRELIMINARY ITEMS

ITEM No.	DESCRIPTION	AMOUNT
1.	<p>The Contractor shall provide, or erect and maintain an approved lock-up office for the sole use of the Architect and his own site staff. The office, which will have a total floor area of not less than----- square metres, will be divided into two separate interconnected offices. Services to be provided shall include a telephone, water sanitary and electrical supply and drainage. The offices shall be supplied with furniture and equipment that shall include: 4 No. desks with chairs; 1 No. large table with sufficient number of chairs; drawing table along the full length of one side with plan drawers and drawing stools; 4 No. waste paper baskets: sufficient number of pin boards: and any additional furniture and fittings as may reasonably be required during the Contract period. The Contractor shall provide the Architect and site staff with computer sets or laptops, printers and telephones all that are necessary for project use. The office furniture and equipment shall all be to the approval of the Engineer. The Contractor shall also provide all labor, equipment and consumable stores equipment throughout the currency of the contract.</p>	
2	<p>[OPTIONAL] Contractor shall provide a house for Engineers site agent, which shall be one bedroomed temporary house with a sitting room, toilet, bathroom and a kitchen complete with electrical and sanitary installations and provide maintenance and paying of bills of water and electricity up to and including end of the contract period.</p>	
3	<p>Provide a signboard not less than_____square meters in size of a design type, and with lettering and coloring and in a position approved by the Engineer. The signboard shall be for the display of the Main Contractor's name and the names of all his Sub-Contractors, with the Procuring Entity's name painted thereon. All Consultants names be printed in letters not exceeding 50 mm high. No other signboard or advertising shall be allowed. The signboard shall be fully maintained during the Contract Period and shall be pulled down and removed at the end of the contract.</p>	
4	Add others (if any)	
5		
6		
TOTAL CARRIED TO GRAND SUMMARY		

BILL NO. 2: WORK ITEMS

(Organized appropriately into work sections, such as foundations, walls/structure, finishes, doors and windows, mechanical installations. etc.

Bill No 2 - *(Name of Section e.g. Foundations).*

<i>Item no.</i>	<i>Description</i>	<i>Unit</i>	<i>Quantity</i>	<i>Rate</i>	<i>Amount</i>
Total for Bill No. 2 (carried forward to Summary, p.____)					_____

Bill No. 3: Schedule of Daywork Rates - Labor

Item no.	Description	Unit	Nominal quantity	Rate	Amount
	Subtotal				
	Allow ____percent ^a of Subtotal for Contractor's overhead, profit, etc., in accordance with paragraph 3 (b) above.				
	Total for Daywork (carried forward to Daywork Summary, p.____)				

a. To be entered by the Tenderer.

Bill No. 4: Schedule of Daywork Rates - Materials

Item no.	Description	Unit	Nominal quantity	Rate	Extended amount	
	Subtotal					
	Allow ____ percent a. of Subtotal for Contractor’s overhead, profit, etc., in accordance with paragraph 4 (b) above.					
	Total for Daywork: Materials (carried forward to Daywork Summary, p. _____)					

a. To be entered by the Tenderer.

Bill No. 5: Schedule of Daywork Rates - Contractor's Equipment

<i>Item no.</i>	<i>Description</i>	<i>Nominal quantity (hours)</i>	<i>Basic hourly rental rate</i>	<i>Extended amount</i>
	Allow _ percent ^a of Subtotal for Contractor's overhead, profit, etc., in accordance with paragraph 5 above.			
Total for Daywork: Contractor's Equipment (carried forward to Daywork Summary, p. __)				

a. To be entered by the Tenderer.

Bill No. 6: Daywork Summary

	<i>Amount^a</i>	<i>% Foreign</i>	<i>Currency</i>
1. Total for Daywork: Labor			
2. Total for Daywork: Materials			
3. Total for Daywork: Contractor's Equipment			
Total for Daywork (Provisional Sum) (carried forward to Summary of Bills of Quantities, p. _____)			

Bill No. 7: Provisional Sums

<i>Bill no.</i>	<i>Item no.</i>	<i>Description</i>	<i>Amount</i>
1			
2			
3			
4			
etc.			
Total for Specified Provisional Sums (carried forward to Grand Summary)			

GRAND SUMMARY

SUMMARY ITEMS	<i>Page</i>	<i>Amount</i>
Bill No. 1: Preliminary Items		
Bill No. 2: Work Items		
Bill No 3: Daywork Summary		
Bill No 4: Provisional Sums		
Subtotal of Bills No 1-4		
Allow for any Discounts ⁱ		
TOTAL TENDER PRICE Carried forward to Form of Tender		

(i) If a percentage used, it should be indicated on which Bill No. items but on Bill No.4 – Provisional Sums.

SECTION VI - SPECIFICATIONS

Specifications applicable are those by the Ministry of Public Works General Specifications dated March 1976 (together with any amendments issued thereof). The Contractor should obtain a copy from the Ministry of Public Works. No liability will be admitted nor claim allowed in respect of errors in Contractors tender arising from the lack of knowledge on the said specification.

SECTION VII - DRAWINGS

NO.	DESCRIPTION	DRAWING NO.
<u>ARCHITECTURAL DRAWINGS</u>		
1.0	Site Location	SDL-SEKU-01
2.0	Site Plan	SDL-SEKU-01
3.0	Floor Plan	SDL-SEKU-01
4.0	Roof Plan	SDL-SEKU-01
5.0	Section S-01	SDL-SEKU-01
6.0	Elevations	SDL-SEKU-01
<u>STRUCTURAL DRAWINGS</u>		
1.0	Foundation Details	2024/SEKU/140/09
2.0	Roof Details	2024/SEKU/140/09

**PART III - THE CONDITIONS OF CONTRACT AND
CONTRACT**

SECTION VIII - GENERAL CONDITIONS OF CONTRACT (GCC)

Name of Procuring Entity: SOUTH EASTERN KENYA UNIVERSITY

Name of Contract: PROPOSED CONSTRUCTION OF HUMANITIES AND SOCIAL SCIENCES LECTURE HALLS - SEKU MAIN CAMPUS

Architect Name and Address: Messrs. Skylon Designs Ltd. of P.O. Box 26011-00100, NAIROBI

General Conditions of Contract

1 GENERAL PROVISIONS

1.1 Definitions

In this Contract, except where context otherwise requires, the following terms shall be interpreted as indicated below. Words indicating persons or parties include corporations and other legal entities, except where the context requires otherwise.

“**Accepted Contract Amount**” means the amount accepted in the Letter of Acceptance for the execution and completion of the Works and the remedying of any defects.

“**Base Date**” means a date 30 day prior to the submission of tenders.

“**Bill of Quantities**” means the priced and completed Bill of Quantities forming part of the tender.

“**Completion Date**” means the date of completion of the Works as certified by the Engineer.

“**Contract Price**” means the price defined in the contract and thereafter as adjusted in accordance with the provisions of the Contract.

“**Contract**” means the agreement entered into between the Procuring Entity and the Contractor as recorded in the Agreement Form and signed by the parties including all attachments and appendices thereto and all documents incorporated by reference therein to execute, complete, and maintain the Works.

“**Contractor's Documents**” means the calculations, computer programs and other software, progress reports, drawings, manuals, models and other documents of a technical nature (if any) supplied by the Contractor under the Contract.

“**Contractor's Equipment**” means all apparatus, machinery, vehicles and other things required for the execution and completion of the Works and the remedying of any defects. However, Contractor's Equipment excludes Temporary Works, Procuring Entity's Equipment (if any), Plant, Materials and any other things intended to form or forming part of the Permanent Works.

“**Contractor's Personnel**” means the Contractor's Representative and all personnel whom the Contractor utilizes on Site, who may include the staff, labor and other employees of the Contractor and of each Subcontractor; and any other personnel assisting the Contractor in the execution of the Works.

“**Contractor's Representative**” means the person named by the Contractor in the Contractor appointed from time to time by the Contractor who acts on behalf of the Contractor.

“**Contractor**” means the person(s) named as contractor in the Form of Tender accepted by the Procuring Entity.

“**Cost**” means expenditure reasonably incurred (or to be incurred) by the Contractor, whether on or off the Site, including overhead and similar charges, but does not include profit.

“**Day**” means a calendar day and “**year**” means 365 days.

“Dayworks” means Work inputs subject to payment on a time basis for labour and the associated materials and plant.

“Defect” means any part of the Works not completed in accordance with the Contract.

“Defects Liability Certificate” means the certificate issued by Architect upon correction of defects by the Contractor.

“Defects Liability Period” means the period named in the Special Conditions of Contract and calculated from the Completion Date, within which the contractor is liable for any defects that may develop in the handed over works.

“Defects Notification Period” means the period for notifying defects in the Works or a Section (as the case maybe) under Sub-Clause 11.1 [Completion of Outstanding Work and Remedying Defects], which extends over the days stated in the Special Conditions of Contract.

“Drawings” means the drawings of the Works, as included in the Contract, and any additional and modified drawings issued by (or on behalf of) the Procuring Entity in accordance with the Contract.

“Final Payment Certificate” means the payment certificate issued under Sub-Clause 14.13 [Issue of Final Payment Certificate].

“Final Statement” means the statement defined in Sub-Clause 14.11 [Application for Final Payment Certificate].

“Force Majeure” is defined in Clause 19 [Force Majeure].

“Foreign Currency” means a currency of another country (not Kenya) in which part (or all) of the Contract Price is payable, but not the Local Currency.

“Goods” means Contractor's Equipment, Materials, Plant and Temporary Works, or any of them as appropriate.

“Interim Payment Certificate” means a payment certificate issued under Clause 14 [Contract Price and Payment], other than the Final Payment Certificate.

“Laws” means all national legislation, statutes, ordinances, and regulations and by-laws of any legally constituted public authority.

“Letter of Acceptance” means the letter of formal acceptance of a tender, signed by Procuring Entity, including any annexed memoranda comprising agreements between and signed by both Parties.

“Local Currency” means the currency of Kenya.

“Materials” means things of all kinds (other than Plant) intended to form or forming part of the Permanent Works, including the supply-only materials (if any) to be supplied by the Contractor under the Contract.

“Notice of Dissatisfaction” means the notice given by either Party to the other under Sub-Clause 20.3 indicating its dissatisfaction and intention to commence arbitration.

“Special Conditions of Contract” means the pages completed by the Procuring Entity entitled Special Conditions of Contract which constitute Part A of the Special Conditions.

“Party” means the Procuring Entity or the Contractor, as the context requires.

“Payment Certificate” means a payment certificate issued under Clause 14 [Contract Price and Payment].

“Performance Certificate” means the certificate issued under Sub-Clause 11.9 [Performance Certificate].

“Performance Security” means the security (or securities, if any) under Sub-Clause 4.2 [Performance Security].

“Permanent Works” means the permanent works to be executed by the Contractor under the Contract.

“Plant” means the apparatus, machinery and other equipment intended to form or forming part of the Permanent Works, including vehicles purchased for the Procuring Entity and relating to the construction or operation of the Works.

“Procuring Entity's Equipment” means the apparatus, machinery and vehicles (if any) made available by the

Procuring Entity for the use of the Contract or in the execution of the Works, as stated in the Specification; but does not include Plant which has not been taken over by the Procuring Entity.

“Procuring Entity's Personnel” means the Engineer, the Engineer, the assistants and all other staff, labor and other employees of the Architect and of the Procuring Entity; and any other personnel notified to the Contractor, by the Procuring Entity or the Engineer, as Procuring Entity's Personnel.

“Procuring Entity” means the Entity named in the Special Conditions of Contract.

“Engineer” is the person named in the Appendix to Conditions of Contract (or any other competent person appointed by the Procuring Entity and notified to the Contractor, to act in replacement of the Engineer) who is responsible for supervising the execution of the Works and administering the Contract and shall be an “Architect” or a “Quantity Surveyor” registered under the Architects and Quantity Surveyors Act Cap 525 or an “Engineer” registered under Engineers Registration Act Cap 530.

“Engineer” means the person appointed by the Procuring Entity to act as the Architect for the purposes of the Contract and named in the Special Conditions of Contract, or other person appointed from time to time by the Procuring Entity and notified to the Contractor

“Provisional Sum” means a sum (if any) which is specified in the Contract as a provisional sum, for the execution of any part of the Works or for the supply of Plant, Materials or services under Sub-Clause 13.5 [Provisional Sums].

“Retention Money” means the accumulated retention moneys which the Procuring Entity retains under Sub-Clause 14.3 [Application for Interim Payment Certificates] and pays under Sub-Clause 14.9 [Payment of Retention Money].

“Schedules” means the document(s) entitled schedules, completed by the Contractor and submitted with the Form of Tender, as included in the Contract.

“Section” means a part of the Works specified in the Special Conditions of Contract as a Section (if any)

“Site Investigation Reports” are those reports that may be included in the tendering documents which are actual and interpretative about the surface and sub-surface condition at the Site.

“Site” means the places where the Permanent Works are to be executed, including storage and working areas, and to which Plant and Materials are to be delivered, and any other places as may be specified in the Contract as forming part of the Site.

“Specification” means the document entitled specification, as included in the Contract, and any additions and modifications to the specification in accordance with the Contract. Such document specifies the Works.

“Start Date” or “Commencement Date” is the latest date when the Contractor shall commence execution of the Works. It does not necessarily coincide with the Site possession date(s).

“Statement” means a statement submitted by the Contractor as part of an application, under Clause 14 [Contract Price and Payment], for a payment certificate.

“Subcontractor” means any person named in the Contract as a subcontractor, or any person appointed as a subcontractor, for a part of the Works.

“Taking-Over Certificate” means a certificate issued under Clause 10 [Procuring Entity's Taking Over].

“Temporary Works” means all temporary works of every kind (other than Contractor's Equipment) required on Site for the execution and completion of the Permanent Works and the remedying of any defects.

“Temporary works” means works designed, constructed, installed, and removed by the Contractor which are needed for construction or installation of the Works.

“Tender” means the Form of Tender and all other documents which the Contractor submitted with the Form of Tender, as included in the Contract.

“Tests after Completion” means the tests (if any) which are specified in the Contract and which are carried out in

accordance with the Specification after the Works or a Section (as the case may be) are taken over by the Procuring Entity.

“**Tests on Completion**” means the tests which are specified in the Contractor agreed by both Parties or instructed as a Variation, and which are carried out under Clause 9 [Tests on Completion] before the Works or a Section (as the case may be) are taken over by the Procuring Entity.

“**Time for Completion**” means the time for completing the Works or a Section (as the case may be) as stated in the Special Conditions of Contract (with any extension calculated from the Commencement Date.

“**Unforeseeable**” means not reasonably foreseeable by an experienced contractor by the Base Date.

“**Variation**” means any change to the Works, which is instructed or approved as a variation under Clause 13 [Variations and Adjustments].

“**Works**” means the items the Procuring Entity requires the Contractor to undertake as defined in the Appendix to Conditions of Contract. “**Works**” may also mean the Permanent Works and the Temporary Works, or either of them as appropriate.

12 Interpretation

In the Contract, except where the context requires otherwise:

- a) Words indicating one gender include all genders;
- b) words indicating the singular also include the plural and words indicating the plural also include the singular;
- c) provisions including the word “agree”, “agreed” or “agreement” require the agreement to be recorded in writing;
- d) “written” or “in writing” means hand-written, type-written, printed or electronically made, and resulting in a permanent record; and

The marginal words and other headings shall not be taken into consideration in the interpretation of these Conditions.

13 Communications

13.1 Wherever these Conditions provide for the giving or issuing of approvals, certificates, consents, determinations, notices, requests and discharges, these communications shall be:

- a) In writing and delivered by hand (against receipt), sent by mail or courier, or transmitted using any of the agreed systems of electronic transmission as stated in the Special Conditions of Contract; and
- b) delivered, sent or transmitted to the address or the recipient's communications as stated in the Special Conditions of Contract. However:
 - i) if the recipient gives notice of another address, communications shall thereafter be delivered accordingly; and
 - ii) if the recipient has not stated otherwise when requesting an approval or consent, it may be sent to the address from which the request was issued.

13.2 Approvals, certificates, consents and determinations shall not be unreasonably withheld or delayed. When a certificate is issued to a Party, the certifier shall send a copy to the other Party. When a notice is issued to a Party, by the other Party or the Engineer, a copy shall be sent to the Architect or the other Party, as the case may be.

14 Law and Language

14.1 The Contract shall be governed by the laws of **Kenya**.

14.2 The ruling language of the Contract shall be **English**.

15 Priority of Documents

The documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents shall be in accordance with the following sequence:

- a) The Contract Agreement,
- b) The Letter of Acceptance,
- c) The Special Conditions – Part A,
- d) the Special Conditions – Part B
- e) the General Conditions of Contract
- f) the Form of Tender,
- g) the Specifications and Bills of Quantities
- h) the Drawings, and
- i) the Schedules and any other documents forming part of the Contract.

If an ambiguity or discrepancy is found in the documents, the Architect shall issue any necessary clarification or instruction.

16 Contract Agreement

The Parties shall enter into a Contract Agreement within 14 days after the Contractor receives the Contract Agreement, unless the Special Conditions establish otherwise. The Contract Agreement shall be based upon the form annexed to the Special Conditions. The costs of stamp duties and similar charges (if any) imposed by law in connection with entry into the Contract Agreement shall be borne by the Procuring Entity.

17 Assignment

The Contractor shall not assign the whole or any part of the Contract or any benefit or interest in or under the Contract. However, the contractor:

- a) May as sign the whole or any part with the prior consent of the Procuring Entity, and
- b) may, as security in favor of a bank or financial institution, assign its right to moneys due, or to become due, under the Contract.

18 Care and Supply of Documents

- 1.81 The Specifications and Drawings shall be in the custody and care of the Procuring Entity. Unless otherwise stated in the Contract, two copies of the Contract and of each subsequent Drawings and Bills of Quantities shall be supplied to the Contractor, who may make or request further copies at the cost of the Contractor.
- 1.82 Each of the Contractor's Documents shall be in the custody and care of the Contractor, unless and until taken over by the Procuring Entity. Unless otherwise stated in the Contract, the Contractor shall supply to the Architect two copies of each of the Contractor's Documents.
- 1.83 The Contractor shall keep, on the Site, a copy of the Contract, publications named in the Specification, the Contractor's Documents (if any), the Drawings and Variations and other communications given under the Contract. The Procuring Entity's Personnel shall have the right of access to all these documents at all reasonable times.
- 1.84 If a Party becomes aware of an error or defect in a document which was prepared for use in executing the Works, the Party shall promptly give notice to the other Party of such error or defect.

19 Timely provision of Drawings or Instructions

- 1.91 The Contractor shall give notice to the Architect whenever the Works are likely to be delayed or disrupted if any necessary drawing or instruction is not issued to the Contractor within a particular time, which shall be reasonable. The notice shall include details of the necessary drawing or instruction, details of why and by when it should be issued, and the nature and amount of the delay or disruption likely to be suffered if it is late.
- 1.92 If the Contractor suffers delay and/or incurs Cost as a result of a failure of the Architect to issue the notified drawing or instruction within a time which is reasonable and is specified in the notice with supporting details, the Contractor shall give a further notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
 - a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

b) payment of any other associated costs accrued, which shall be included in the Contract Price.

1.93 After receiving this further notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

1.94 However, if and to the extent that the Architect failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time, or costs accrued.

1.10 Procuring Entity's Use of Contractor's Documents

1.10.1 As agreed between the Parties, the Contractor shall retain the copyright and other intellectual property rights in the Contractor's Documents and other design documents made by (or on behalf of) the Contractor.

1.10.2 The Contractor shall be deemed (by signing the Contract) to give to the Procuring Entity a non-terminable transferable non-exclusive royalty-free license to copy, use and communicate the Contractor's Documents, including making and using modifications of them. This license shall:

- a) apply throughout the actual or intended working life (whichever is longer) of the relevant parts of the Works,
- b) entitle any person in proper possession of the relevant part of the Works to copy, use and communicate the Contractor's Documents for the purposes of completing, operating, maintaining, altering, adjusting, repairing and demolishing the Works, and
- c) in the case of Contractor's Documents which are in the form of computer programs and other software, permit their use on any computer on the Site and other places as envisaged by the Contract, including replacements of any computers supplied by the Contractor.

1.10.3 The Contractor's Documents and other design documents made by (or on behalf of) the Contractor shall not, without the Contractor's consent, be used, copied or communicated to a third party by (or on behalf of) the Procuring Entity for purposes other than those permitted under Sub-Clause 1.10.2.

1.11 Contractor's Use of Procuring Entity's Documents

As agreed between the Parties, the Procuring Entity shall retain the copyright and other intellectual property rights in the Specification, the Drawings and other documents made by (or on behalf of) the Procuring Entity. The Contractor may, at his cost, copy, use, and obtain communication of these documents for the purposes of the Contract. They shall not, without the Procuring Entity's consent, be copied, used or communicated to a third party by the Contractor, except as necessary for the purposes of the Contract.

1.12 Confidential Details

1.12.1 The Contractor's and the Procuring Entity's Personnel shall ensure confidentiality at all times. The confidentiality shall survive termination or completion of the contract. They shall disclose all such confidential and other information as may be reasonably required in order to verify compliance with the Contract and allow its proper implementation.

1.12.2 The Contractor's and the Procuring Entity's Personnel shall also treat the details of the Contract as private and confidential, except to the extent necessary to carry out their respective obligations under the Contract or to comply with applicable Laws. Each of them shall not publish or disclose any particulars of the Works prepared by the other Party without the previous agreement of the other Party. However, the Contractor shall be permitted to disclose any publicly available information, or information otherwise required to establish his qualifications to compete for other projects.

1.13 Compliance with Laws

The Contractor shall, in performing the Contract, comply with applicable Laws. Unless otherwise stated in the Special Conditions of Contract:

- a) The Procuring Entity shall have obtained (or shall obtain) the planning, zoning, building permit or similar permission for the Permanent Works, and any other permissions described in the Specifications as having been (or to be) obtained by the Procuring Entity; and the Procuring Entity shall indemnify and hold the Contractor harmless against and from the consequences of any failure

to do so; and

- b) the Contractor shall give all notices, pay all taxes, duties and fees, and obtain all permits, licenses and approvals, as required by the Laws in relation to the execution and completion of the Works and the remedying of any defects; and the Contractor shall indemnify and hold the Procuring Entity harmless against and from the consequences of any failure to do so, unless the Contractor is impeded to accomplish these actions and shows evidence of its diligence.

1.14 Joint and Several Liability

If the Contractor constitutes (under applicable Laws) a joint venture, consortium or other unincorporated grouping of two or more persons:

- a) These persons shall be deemed to be jointly and severally liable to the Procuring Entity for the performance of the Contract;
- b) these persons shall notify the Procuring Entity of their leader who shall have authority to bind the Contractor and each of these persons; and
- c) the Contractor shall not alter its composition or legal status without the prior consent of the Procuring Entity.

1.15 Inspections and Audit by the Procuring Entity

Pursuant to paragraph 2.2(e). of Appendix B to the General Conditions, the Contractor shall permit and shall cause its subcontractors and sub-consultants to permit, the Public Procurement Regulatory Authority, Procuring Entity and/or persons appointed or designated by the Government of Kenya to inspect the Site and/or the accounts and records relating to the procurement process, selection and/or contract execution, and to have such accounts and records audited by auditors appointed by the Procuring Entity if requested by the Procuring Entity. The Contractor's and its Subcontractors' and sub-consultants' attention is drawn to Sub-Clause 15.6 (Fraud and Corruption) which provides, inter alia, that acts intended to materially impede the exercise of the Procuring Entity's inspection and audit rights constitute a prohibited practice subject to contract termination (as well as to a determination of ineligibility pursuant to the Procuring Entity's prevailing sanctions procedures).

2 THE PROCURING ENTITY

2.1 Right of Access to the Site

- 2.1.1 The Procuring Entity shall give the Contractor right of access to, and possession of, all parts of the Site within the time (or times) stated in the **Special Conditions of Contract**. The right and possession may not be exclusive to the Contractor. If, under the Contract, the Procuring Entity is required to give (to the Contractor) possession of any foundation, structure, plant or means of access, the Procuring Entity shall do so in the time and manner stated in the Specification. However, the Procuring Entity may withhold any such right or possession until the Performance Security has been received.
- 2.1.2 If no such time is stated in the Special Conditions of Contract, the Procuring Entity shall give the Contractor right of access to, and possession of, the Site within such times as required to enable the Contractor to proceed without disruption in accordance with the programme submitted under Sub-Clause 8.3 [Programme].
- 2.1.3 If the Contractor suffers delay and/or incurs Cost as a result of a failure by the Procuring Entity to give any such right or possession within such time, the Contractor shall give notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
 - a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
 - b) payment of any such Cost-plus profit, which shall be included in the Contract Price.
- 2.1.4 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.
- 2.1.5 However, if and to the extent that the Procuring Entity's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time, Cost or profit.

22 Permits, Licenses or Approvals

- 221 The Procuring Entity shall provide, at the request of the Contractor, such reasonable assistance as to allow the Contractor to obtain properly:
- a) Copies of the Laws of Kenya which are relevant to the Contract but are not readily available, and
 - b) any permits, licenses or approvals required by the Laws of Kenya:
 - i) which the Contractor is required to obtain under Sub-Clause 1.13 [Compliance with Laws],
 - ii) for the delivery of Goods, including clearance through customs, and
 - iii) for the export of Contractor's Equipment when it is removed from the Site.

23 Procuring Entity's Personnel

The Procuring Entity shall be responsible for ensuring that the Procuring Entity's Personnel and the Procuring Entity's other contractor son the Site:

- a) co-operate with the Contractor's efforts under Sub-Clause 4.6 [Co-operation], and
- b) take action similar to those which the Contractor is required to take under sub-paragraphs (a), (b) and (c) of Sub-Clause 4.8 [Safety Procedures] and under Sub-Clause 4.18 [Protection of the Environment].

24 Procuring Entity's Financial Arrangements

The Procuring Entity shall make and maintain all necessary financial arrangements which will enable the Procuring Entity to pay the Contract Price punctually (as estimated at that time) in accordance with Clause 14 [Contract Price and Payment].

3 THE ENGINEER

3.1 Architect Duties and Authority

- 3.1.1 The Procuring Entity shall appoint the Architect who shall carry out the duties as signed to him in the Contract. The Architect staff shall include suitably qualified Assistants and other professionals who are competent to carry out these duties. The Architect Name and Address shall be provided in the **Special Conditions of Contract**.
- 3.1.2 The Architect shall have no authority to amend the Contract.
- 3.1.3 The Architect May exercise the authority attributable to the Architect as specified in or necessarily to be implied from the Contract. If the Architect is required to obtain the approval of the Procuring Entity before exercising a specified authority, the requirements shall be as stated in the **Special Conditions of Contract**. The Procuring Entity shall promptly inform the Contractor of any change to the authority attributed to the Engineer.
- 3.1.4 However, whenever the Architect exercises a specified authority for which the Procuring Entity's approval is required, then (for the purposes of the Contract) the contractor shall require the Architect to provide evidence of such approval before complying with the instruction.
- 3.1.5 Except as otherwise stated in these Conditions:
- a) Whenever carrying out duties or exercising authority, specified in or implied by the Contract, the Architect shall be deemed to act for the Procuring Entity;
 - b) the Architect has no authority to relieve either Party of any duties, obligations or responsibilities under the Contract;
 - c) any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by the Architect (including absence of disapproval) shall not relieve the Contractor from any responsibility he has under the Contract, including responsibility for errors, omissions, discrepancies and non-compliances; and
 - d) any act by the Architect in response to a Contractor's request shall be notified in writing to the Contractor within 14 days of receipt.

3.16 The following provisions shall apply:

The Architect shall obtain the specific approval of the Procuring Entity before taking action under the following Sub-Clauses of these Conditions:

- a) Sub-Clause 4.12: agreeing or determining an extension of time and/or additional cost.
- b) Sub-Clause 13.1: instructing a Variation, except;
 - i) In an emergency situation as determined by the Engineer, or
 - ii) If such a Variation would increase the Accepted Contract Amount by less than the percentage specified in the **Special Conditions of Contract**.
- c) Sub-Clause 13.3: Approving a proposal for Variation submitted by the Contractor in accordance with Sub Clause 13.1 or 13.2.
- d) Sub-Clause 13.4: Specifying the amount payable in each of the applicable three currencies.

3.17 Notwithstanding the obligation, as set out above, to obtain approval, if, in the opinion of the Engineer, an emergency occurs affecting the safety of life or of the Works or of adjoining property, he may, without relieving the Contractor of any of his duties and responsibility under the Contract, instruct the Contractor to execute all such work or to do all such things as may, in the opinion of the Engineer, be necessary to abate or reduce the risk. The Contractor shall forth with comply, despite the absence of approval of the Procuring Entity, with any such instruction of the Engineer. The Architect shall determine an addition to the Contract Price, in respect of such instruction, in accordance with Clause 13 and shall notify the Contractor accordingly, with a copy to the Procuring Entity.

32 Delegation by the Engineer

3.21 The Architect may from time to time assign duties and delegate authority to assistants and may also revoke such assignment or delegation. These assistants may include a resident Engineer, and/or independent inspectors appointed to inspect and/ or test items of Plant and/or Materials. The assignment, delegation or revocation shall be in writing and shall not take effect until copies have been received by both Parties. However, unless otherwise agreed by both Parties, the Architect shall not delegate the authority to determine any matter in accordance with Sub-Clause 3.5 [Determinations].

3.22 Each assistant, to whom duties have been assigned or authority has been delegated, shall only be authorized to issue instructions to the Contractor to the extent defined by the delegation. Any approval, check, certificate, consent, examination, inspection, instruction, notice, proposal, request, test, or similar act by an assistant, in accordance with the delegation, shall have the same effect as though the act had been an act of the Engineer. However:

- a) Any failure to disapprove any work, Plant or Materials shall not constitute approval, and shall therefore not prejudice the right of the Architect to reject the work, Plant or Materials;
- b) If the Contractor questions any determination or instruction of an assistant, the Contractor may refer the matter to the Engineer, who shall promptly confirm, reverse or vary the determination or instruction.

33 Instructions of the Engineer

3.31 The Architect may issue to the Contractor (at any time) instructions and additional or modified Drawings which may be necessary for the execution of the Works and the remedying of any defects, all in accordance with the Contract. The Contractor shall only take instructions from the Engineer, or from an assistant to whom the appropriate authority has been delegated under Clause 3.2.1.

3.32 The Contractor shall comply with the instructions given by the Architect or delegated assistant, on any matter related to the Contract. Whenever practicable, their instructions shall be given in writing. If the Architect or a delegated assistant:

- a) Gives an oral instruction,
- b) receives a written confirmation of the instruction, from (or on behalf of) the Contractor, within two working days after giving the instruction, and

- c) does not reply by issuing a written rejection and/or instruction within two working days after receiving the confirmation,

Then the confirmation shall constitute the written instruction of the Architect or delegated assistant (as the case may be).

34 Replacement of the Engineer

If the Procuring Entity intends to replace the Engineer, the Procuring Entity shall, in not less than 21 days before the intended date of replacement, give notice to the Contractor of the name, address and relevant experience of the intended person to replace the Engineer.

35 Determinations

35.1 Whenever these Conditions provide that the Architect shall proceed in accordance with this Sub-Clause 3.5 to agree or determine any matter, the Architect shall consult with each Party in an endeavor to reach agreement. If agreement is not achieved, the Architect shall make a fair determination in accordance with the Contract, taking due regard of all relevant circumstances.

3.5.1 The Architect shall give notice to both Parties of each agreement or determination, with supporting particulars, within 30 days from the receipt of the corresponding claim or request except when otherwise specified. Each Party shall give effect to each agreement or determination unless and until revised under Clause 20 [Claims, Disputes and Arbitration].

4 THE CONTRACTOR

4.1 Contractor's General Obligations

- 4.1.1 The Contractor shall design (to the extent specified in the Contract), execute and complete the Works in accordance with the Contract and with the Architect instructions, and shall remedy any defects in the Works.
- 4.1.2 The Contractor shall provide the Plant and Contractor's Documents specified in the Contract, and all Contractor's Personnel, Goods, consumables and other things and services, whether of a temporary or permanent nature, required in and for this design, execution, completion and remedying of defects.
- 4.1.3 All equipment, material, and services to be incorporated in or required for the Works shall have their origin in any eligible source country.
- 4.1.4 The Contractor shall be responsible for the adequacy, stability and safety of all Site operations and of all methods of construction. Except to the extent specified in the Contract, the Contractor (i) shall be responsible for all Contractor's Documents, Temporary Works, and such design of each item of Plant and Materials as is required for the item to be in accordance with the Contract, and (ii) shall not otherwise be responsible for the design or specification of the Permanent Works.
- 4.1.5 The Contractor shall, whenever required by the Engineer, submit details of the arrangements and methods which the Contractor proposes to adopt for the execution of the Works. No significant alteration to these arrangements and methods shall be made without this having previously been notified to the Engineer.
- 4.1.6 If the Contract specifies that the Contractor shall design any part of the Permanent Works, then unless otherwise stated in the Special Conditions:
 - a) The Contractor shall submit to the Architect the Contractor's Documents for this part in accordance with the procedures specified in the Contract;
 - b) these Contractor's Documents shall be in accordance with the Specification and Drawings, shall be written in the language for communications defined in Sub-Clause 1.4 [Law and Language], and shall include additional information required by the Architect to add to the Drawings for co-ordination of each Party's designs;
 - c) the Contractor shall be responsible for this part and it shall, when the Works are completed, befit for such purposes for which the part is intended as are specified in the Contract; and
 - d) prior to the commencement of the Tests on Completion, the Contractor shall submit to the Architect the "as-built" documents and, if applicable, operation and maintenance manuals in accordance with the Specification and in sufficient detail for the Procuring Entity to operate, maintain, dismantle, reassemble, adjust and repair this part of the Works. Such part shall not be considered to be completed

for the purposes of taking-over under Sub-Clause 10.1 [Taking Over of the Works and Sections] until these documents and manuals have been submitted to the Engineer.

42 Performance Security

- 421 The Contractor shall obtain (at his cost) a Performance Security for proper performance, in the amount stated in the **Special Conditions of Contract** and denominated in the currency (ies) of the Contract or in a freely convertible currency acceptable to the Procuring Entity. If an amount is not stated in the Special Conditions of Contract, this Sub-Clause shall not apply.
- 422 The Contractor shall deliver the Performance Security to the Procuring Entity within 30 days after receiving the Notification of Award and shall send a copy to the Engineer. The Performance Security shall be issued by a reputable bank selected by the Contractor and shall be in the form annexed to the Special Conditions, as stipulated by the Procuring Entity in the Special Conditions of Contract, or in another form approved by the Procuring Entity.
- 423 The Contractor shall ensure that the Performance Security is valid and enforceable until the Contractor has executed and completed the Works and remedied any defects. If the terms of the Performance Security specify its expiry date, and the Contractor has not become entitled to receive the Performance Certificate by the date 30 days prior to the expiry date, the Contractor shall extend the validity of the Performance Security until the Works have been completed and any defects have been remedied.
- 424 The Procuring Entity shall not make a claim under the Performance Security, except for amounts to which the Procuring Entity is entitled under the Contract.
- 425 The Procuring Entity shall indemnify and hold the Contractor harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from a claim under the Performance Security to the extent to which the Procuring Entity was not entitled to make the claim.
- 426 The Procuring Entity shall return the Performance Security to the Contractor within 14 days after receiving a copy of the Taking-Over Certificate.
- 427 Without limitation to the provisions of the rest of this Sub-Clause, whenever the Architect determines an addition or a reduction to the Contract Price as a result of a change in cost and/ or legislation, or as a result of a Variation, amounting to more than 25 percent of the portion of the Contract Price payable in a specific currency, the Contractor shall at the Architect request promptly increase, or may decrease, as the case may be, the value of the Performance Security in that currency by an equal percentage.

43 Contractor's Representative

- 431 The Contractor shall appoint the Contractor's Representative and shall give him all authority necessary to act on the Contractor's behalf under the Contract. The Contractor's Representative's Name and Address shall be provided in the **Special Conditions of Contract**.
- 432 Unless the Contractor's Representative **is named in the Contract**, the Contractor shall, prior to the Commencement Date, submit to the Architect for consent the name and particulars of the person the Contractor proposes to appoint as Contractor's Representative. If consent is withheld or subsequently revoked in terms of Sub-Clause 6.9 [Contractor's Personnel], or if the appointed person fails to act as Contractor's Representative, the Contractor shall similarly submit the name and particulars of another suitable person for such appointment.
- 433 The Contractor shall not, without the prior consent of the Engineer, revoke the appointment of the Contractor's Representative or appoint a replacement.
- 434 The whole time of the Contractor's Representative shall be given to directing the Contractor's performance of the Contract. If the Contractor's Representative is to be temporarily absent from the Site during the execution of the Works, a suitable replacement person shall be appointed, subject to the Architect prior consent, and the Architect shall be notified accordingly.
- 435 The Contractor's Representative shall, on behalf of the Contractor, receive instructions under Sub-Clause 3.3 [Instructions of the Engineer].
- 436 The Contractor's Representative may delegate any powers, functions and authority to any competent person, and may at any time revoke the delegation. Any delegation or revocation shall not take effect until the

Architect has received prior notice signed by the Contractor's Representative, naming the person and specifying the powers, functions and authority being delegated or revoked.

437 The Contractor's Representative shall be fluent in the language for communications defined in Sub-Clause 1.4 [Law and Language]. If the Contractor's Representative's delegates are not fluent in the said language, the Contractor shall make competent interpreters available during all working hours in a number deemed sufficient by the Engineer.

44 Sub-contractors

441 The Contractor shall not subcontract the whole of the Works. The contractor may however subcontract the works as provided in Clause 34.2.

442 The Contractor shall be responsible for the acts or defaults of any Subcontractor, his agents or employees, as if they were the acts or defaults of the Contractor. Unless otherwise stated in the Special Conditions:

- a) The Contractor shall not be required to obtain consent to suppliers solely of Materials, or to a subcontract for which the Subcontractor is named in the Contract;
- b) The prior consent of the Procuring Entity shall be obtained to other proposed Subcontractors;
- c) the Contractor shall give the Procuring Entity not less than 14 days' notice of the intended date of the commencement of each Subcontractor's work, and of the commencement of such work on the Site; and
- d) each subcontract shall include provisions which would entitle the Procuring Entity to require the subcontract to be assigned to the Procuring Entity under Sub-Clause 4.5 [Assignment of Benefit of Subcontract] (if or when applicable) or in the event of termination under Sub-Clause 15.2 [Termination by Procuring Entity].

443 The Contractor shall ensure that the requirements imposed on the Contractor by Sub-Clause 1.12 [Confidential Details] apply equally to each Subcontractor.

444 Where practicable, the Contractor shall give fair and reasonable opportunity for contractors from Kenya to be appointed as Subcontractors.

45 Assignment of Benefit of Subcontract

If a Subcontractor's obligations extend beyond the expiry date of the relevant Defects Notification Period and the Engineer, prior to this date, instructs the Contractor to assign the benefit of such obligations to the Procuring Entity, then the Contractor shall do so. Unless otherwise stated in the assignment, the Contractor shall have no liability to the Procuring Entity for the work carried out by the Subcontractor after the assignment takes effect.

46 Co-operation

461 The Contractor shall, as specified in the Contract or as instructed by the Engineer, allow appropriate opportunities for carrying out work to:

- a) The Procuring Entity's Personnel,
- b) Any other contractors employed by the Procuring Entity, and
- c) The personnel of any legally constituted public authorities, who may be employed in the execution on or near the Site of any work not included in the Contract.

462 Any such instruction shall constitute a Variation if and to the extent that it causes the Contractor to suffer delays and/or to incur Unforeseeable Cost. Services for these personnel and other contractors may include the use of Contractor's Equipment, Temporary Works or access arrangements which are the responsibility of the Contractor.

463 If, under the Contract, the Procuring Entity is required to give to the Contractor possession of any foundation, structure, plant or means of access in accordance with Contractor's Documents, the Contractor shall submit such documents to the Architect in the time and manner stated in the Specification.

47 Setting Out of the Works

471 The Contractor shall set out the Works in relation to original points, lines and levels of reference specified

in the Contractor notified by the Engineer. The Contractor shall be responsible for the correct positioning of all parts of the Works, and shall rectify any error in the positions, levels, dimensions or alignment of the Works.

- 4.72 The Procuring Entity shall be responsible for any errors in these specified or notified items of reference, but the Contractor shall use reasonable efforts to verify their accuracy before they are used.
- 4.73 If the Contractor suffers delay and/or incurs Cost from executing work which was necessitated by an error in these items of reference, and an experienced contractor could not reasonably have discovered such error and avoided this delay and/ or Cost, the Contractor shall give notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
 - b) payment of any such costs accrued, which shall be included in the Contract Price.
- 4.7.4 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) whether and (if so) to what extent the error could not reasonably have been discovered, and (ii) the matters described in sub-paragraphs (a) and (b) above related to these.

48 Safety Procedures

The Contractor shall:

- a) Comply with all applicable safety regulations,
- b) Take care for the safety of all persons entitled to be on the Site,
- c) Use reasonable efforts to keep the Site and Works clear of unnecessary obstruction so as to avoid danger to these persons,
- d) provide fencing, lighting, guarding and watching of the Works until completion and taking over under Clause 10 [Procuring Entity's Taking Over], and
- e) provide any Temporary Works (including roadways, footways, guards and fences) which may be necessary, because of the execution of the Works, for the use and protection of the public and of owners and occupiers of adjacent land.

49 Quality Assurance

- 49.1 The Contractor shall institute a quality assurance system to demonstrate compliance with the requirements of the Contract. The system shall be in accordance with the details stated in the Contract. The Architect shall be entitled to audit any aspect of the system.
- 49.2 Details of all procedures and compliance documents shall be submitted to the Architect for information before each design and execution stage is commenced. When any document of a technical nature is issued to the Engineer, evidence of the prior approval by the Contractor itself shall be apparent on the document itself.

Compliance with the quality assurance system shall not relieve the Contractor of any of his duties, obligations or responsibilities under the Contract.

410 Site Data

- 410.1 The Procuring Entity shall have made available to the Contractor for his information, prior to the Base Date, all relevant data in the Procuring Entity's possession on sub-surface and hydrological conditions at the Site, including environmental aspects. The Procuring Entity shall similarly make available to the Contractor all such data which come into the Procuring Entity's possession after the Base Date. The Contractor shall be responsible for interpreting all such data.
- 410.2 To the extent which was practicable (taking account of cost and time), the Contractor shall be deemed to have obtained all necessary information as to risks, contingencies and other circumstances which may influence or affect the Tender or Works. To the same extent, the Contractor shall be deemed to have inspected and examined the Site, its surroundings, the above data and other available information, and to have been satisfied before submitting the Tender as to all relevant matters, including (without limitation):
- a) The form and nature of the Site, including sub-surface conditions,

- b) the hydrological and climatic conditions,
- c) the extent and nature of the work and Goods necessary for the execution and completion of the Works and the remedying of any defects,
- d) the Laws, procedures and labour practices of Kenya, and
- e) the Contractor's requirements for access, accommodation, facilities, personnel, power, transport, water and other services.

411 Sufficiency of the Accepted Contract Amount

411.1 The Contractor shall be deemed to:

- a) Have satisfied itself as to the correctness and sufficiency of the Accepted Contract Amount, and
- b) have based the Accepted Contract Amount on the data, interpretations, necessary information, inspections, examinations and satisfaction as to all relevant matters referred to in Sub-Clause 4.10 [Site Data].

411.2 Unless otherwise stated in the Contract, the Accepted Contract Amount covers all the Contractor's obligations under the Contract (including those under Provisional Sums, if any) and all things necessary for the proper execution and completion of the Works and the remedying of any defects.

412 Unforeseeable Physical Conditions

412.1 In this Sub-Clause, "physical conditions" means natural physical conditions and man-made and other physical obstructions and pollutants, which the Contractor encounters at the Site when executing the Works, including sub-surface and hydrological conditions but excluding climatic conditions.

412.2 If the Contractor encounters adverse physical conditions which he considers to have been Unforeseeable, the Contractor shall give notice to the Architect as soon as practicable.

412.3 This notice shall describe the physical conditions, so that they can be inspected by the Architect and shall set out the reasons why the Contractor considers them to be Unforeseeable. The Contractor shall continue executing the Works, using such proper and reasonable measures as are appropriate for the physical conditions, and shall comply with any instructions which the Architect may give. If an instruction constitutes a Variation, Clause 13 [Variations and Adjustments] shall apply.

412.4 If and to the extent that the Contractor encounters physical conditions which are Unforeseeable, gives such a notice, and suffers delay and/or incurs Cost due to these conditions, the Contractor shall be entitled subject to notice under Sub-Clause 20.1 [Contractor's Claims] to:

- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- b) payment of any such Cost, which shall be included in the Contract Price.

412.5 Upon receiving such notice and inspecting and/or investigating these physical conditions, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) whether and (if so) to what extent these physical conditions were Unforeseeable, and (ii) the matters described in sub-paragraphs (a) and (b) above related to this extent.

412.6 However, before additional Cost is finally agreed or determined under sub-paragraph (ii), the Architect may also review whether other physical conditions in similar parts of the Works (if any) were more favorable than could reasonably have been foreseen when the Contractor submitted the Tender. If and to the extent that these more favorable conditions were encountered, the Architect may proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the reductions in Cost which were due to these conditions, which may be included (as deductions) in the Contract Price and Payment Certificates. However, the net effect of all adjustments under sub-paragraph (b) and all these reductions, for all the

physical conditions encountered in similar parts of the Works, shall not result in a net reduction in the Contract Price.

4.127 The Architect shall take account of any evidence of the physical conditions foreseen by the Contractor when submitting the Tender, which shall be made available by the Contractor, but shall not be bound by the Contractor's interpretation of any such evidence.

4.13 Rights of Way and Facilities

Unless otherwise specified in the Contract the Procuring Entity shall provide effective access to and possession of the Site including special and/or temporary rights-of-way which are necessary for the Works. The Contractor shall obtain, at his risk and cost, any additional rights of way or facilities outside the Site which he may require for the purposes of the Works.

4.14 Avoidance of Interference

4.14.1 The Contractor shall not interfere unnecessarily or improperly with:

- a) The convenience of the public, or
- b) The access to and use and occupation of all roads and foot paths, irrespective of whether they are public or in the possession of the Procuring Entity or of others.

4.14.2 The Contractor shall indemnify and hold the Procuring Entity harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from any such unnecessary or improper interference.

4.15 Access Route

4.15.1 The Contractor shall be deemed to have been satisfied as to the suitability and availability of access routes to the Site at Base Date. The Contractor shall use reasonable efforts to prevent any road or bridge from being damaged by the Contractor's traffic or by the Contractor's Personnel. These efforts shall include the proper use of appropriate vehicles and routes.

4.15.2 Except as otherwise stated in these Conditions:

- a) The Contractor shall (as between the Parties) be responsible for any maintenance which may be required for his use of access routes;
- b) the Contractor shall provide all necessary signs or directions along access routes, and shall obtain any permission which may be required from the relevant authorities for his use of routes, signs and directions;
- c) the Procuring Entity shall not be responsible for any claims which may arise from the use or otherwise of any access route;
- d) the Procuring Entity does not guarantee the suitability or availability of particular access routes; and
- e) Costs due to non-suitability or non-availability, for the use required by the Contractor, of access routes shall be borne by the Contractor.

4.16 Transport of Goods

Unless otherwise stated in the Special Conditions:

- a) the Contractor shall give the Architect not less than 21 days' notice of the date on which any Plant or a major item of other Goods will be delivered to the Site;
- b) the Contractor shall be responsible for packing, loading, transporting, receiving, unloading, storing and protecting all Goods and other things required for the Works; and
- c) the Contractor shall indemnify and hold the Procuring Entity harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from the transport of Goods and shall negotiate and pay all claims arising from their transport.

4.17 Contractor's Equipment

The Contractor shall be responsible for all Contractor's Equipment. When brought on to the Site,

Contractor's Equipment shall be deemed to be exclusively intended for the execution of the Works. The Contractor shall not remove from the Site any major items of Contractor's Equipment without the consent of the Engineer. However, consent shall not be required for vehicles transporting Goods or Contractor's Personnel off Site.

418 Protection of the Environment

- 418.1 The contractor shall comply with the applicable environmental laws, regulations and policies.
- 418.2 The Contractor shall take all reasonable steps to protect the environment (both on and off the Site) and to limit damage and nuisance to people and property resulting from pollution, noise and other results of his operations.
- 418.3 The Contractors shall ensure that emissions, surface discharges and effluent from the Contractor's activities shall not exceed the values stated in the Specification or prescribed by applicable Laws.

419 Electricity, Water and Gas

- 419.1 The Contractor shall, except as stated below, be responsible for the provision of all power, water and other services he may require for his construction activities and to the extent defined in the Specifications, for the tests.
- 419.2 The Contractor shall be entitled to use for the purposes of the Works such supplies of electricity, water, gas and other services as may be available on the Site and of which details and prices are given in the Specifications. The Contractor shall, at his risk and cost, provide any apparatus necessary for his use of these services and for measuring the quantities consumed.
- 419.3 The quantities consumed and the amounts due (at these prices) for such services shall be agreed or determined by the Architect in accordance with Sub-Clause 2.5 [Procuring Entity's Claims] and Sub-Clause 3.5 [Determinations]. The Contractor shall pay these amounts to the Procuring Entity.

420 Procuring Entity's Equipment and Free-Issue Materials

- 420.1 The Procuring Entity shall make the Procuring Entity's Equipment (if any) available for the use of the Contractor in the execution of the Works in accordance with the details, arrangements and prices stated in the Specification. Unless otherwise stated in the Specification:
- a) The Procuring Entity shall be responsible for the Procuring Entity's Equipment, except that
 - b) the Contractor shall be responsible for each item of Procuring Entity's Equipment whilst any of the Contractor's Personnel is operating it, driving it, directing it or in possession or control of it.
- 420.1 The appropriate quantities and the amounts due (at such stated prices) for the use of Procuring Entity's Equipment shall be agreed or determined by the Architect in accordance with Sub-Clause 2.5 [Procuring Entity's Claims] and Sub-Clause 3.5 [Determinations]. The Contractor shall pay these amounts to the Procuring Entity.
- 420.2 The Procuring Entity shall supply, free of charge, the "free-issue materials" (if any) in accordance with the details stated in the Specification. The Procuring Entity shall, at his risk and cost, provide these materials at the time and place specified in the Contract. The Contractor shall then visually inspect them and shall promptly give notice to the Architect of any shortage, defect or default in these materials. Unless otherwise agreed by both Parties, the Procuring Entity shall immediately rectify the notified shortage, defect or default.
- 420.3 After this visual inspection, the free-issue materials shall come under the care, custody and control of the Contractor. The Contractor's obligations of inspection, care, custody and control shall not relieve the Procuring Entity of liability for any shortage, defect or default not apparent from a visual inspection.

421 Progress Reports

- 421.1 Unless otherwise stated in the Special Conditions, monthly progress reports shall be prepared by the

Contractor and submitted to the Architect in six copies. The first report shall cover the period up to the end of the first calendar month following the Commencement Date. Reports shall be submitted monthly thereafter, each within 7 days after the last day of the period to which it relates.

421.2 Reporting shall continue until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works. Each report shall include:

- a) charts and detailed descriptions of progress, including each stage of design (if any), Contractor's Documents, procurement, manufacture, delivery to Site, construction, erection and testing; and including these stages for work by each nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]),
- b) photographs showing the status of manufacture and of progress on the Site;
- c) for the manufacture of each main item of Plant and Materials, the name of the manufacturer, manufacture location, percentage progress, and the actual or expected dates of:
 - i) commencement of manufacture,
 - ii) Contractor's inspections,
 - iii) tests, and
 - iv) shipment and arrival at the Site;
- d) the details described in Sub-Clause 6.10 [Records of Contractor's Personnel and Equipment];
- e) copies of quality assurance documents, test results and certificates of Materials;
- f) list of notices given under Sub-Clause 2.5 [Procuring Entity's Claims] and notices given under Sub-Clause 20.1 [Contractor's Claims];
- g) safety statistics, including details of any hazardous incidents and activities relating to environmental aspects and public relations; and
- h) comparison so factual and planned progress, with details of any events or circumstances which may jeopardize the completion in accordance with the Contract, and the measures being (or to be) adopted to overcome delays.

422 Security of the Site

Unless otherwise stated in the Special Conditions:

- a) The Contractor shall be responsible for keeping unauthorized persons off the Site, and
- b) authorized persons shall be limited to the Contractor's Personnel and the Procuring Entity's Personnel; and to any other personnel notified to the Contractor, by the Procuring Entity or the Engineer, as authorized personnel of the Procuring Entity's other contractors on the Site.

423 Contractor's Operations on Site

423.1 The Contractor shall confine his operations to the Site, and to any additional areas which may be obtained by the Contractor and agreed by the Architect as additional working areas. The Contractor shall take all necessary precautions to keep Contractor's Equipment and Contractor's Personnel within the Site and these additional areas, and to keep them off adjacent land.

423.2 During the execution of the Works, the Contractor shall keep the Site free from all unnecessary obstruction and shall store or dispose of any Contractor's Equipment or surplus materials. The Contractor shall clear away and remove from the Site any wreckage, rubbish and Temporary Works which are no longer required.

423.3 Upon the issue of a Taking-Over Certificate, the Contractor shall clear away and remove, from that part of the Site and Works to which the Taking-Over Certificate refers, all Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works. The Contractor shall leave that part of the Site and the Works in a clean and safe condition. However, the Contractor may retain on Site, during the Defects Notification Period, such Goods as are required for the Contractor to fulfil obligations under the Contract.

424 Fossils

424.1 All fossils, coins, articles of value or antiquity, and structures and other remains or items of geological or archaeological interest found on the Site shall be placed under the care and authority of the Procuring Entity.

The Contractor shall take reasonable precautions to prevent Contractor's Personnel or other persons from removing or damaging any of these findings.

4242 The Contractor shall, upon discovery of any such finding, promptly give notice to the Engineer, who shall issue instructions for dealing with it. If the Contractor suffers delay and/or incurs Cost from complying with the instructions, the Contractor shall give a further notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
 - b) payment of any such Cost, which shall be included in the Contract Price.
- After receiving this further notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

5 NOMINATED SUBCONTRACTORS

51 Definition of "nominated Subcontractor"

In this Contract, "nominated Subcontractor" means a Subcontractor:

- a) Who is nominated by the Procuring Entity, or
- b) Contractor has nominated as a Subcontractor subject to Sub-Clause 5.2 [Objection to Notification].

52 Objection to Nomination

The Contractor shall not be under any obligation to employ a nominated Subcontractor against whom the Contractor raises reasonable objection by notice to the Procuring Entity as soon as practicable, with supporting particulars. An objection shall be deemed reasonable if it arises from (among other things) any of the following matters, unless the Procuring Entity agrees in writing to indemnify the Contractor against and from the consequences of the matter:

- a) there are reasons to believe that the Subcontractor does not have sufficient competence, resources or financial strength;
- b) the nominated Subcontractor does not accept to indemnify the Contractor against and from any negligence or misuse of Goods by the nominated Subcontractor, his agents and employees; or
- c) the nominated Subcontractor does not accept to enter into a subcontract which specifies that, for the subcontracted work (including design, if any), the nominated Subcontractor shall:
 - i) undertake to the Contractor such obligations and liabilities as will enable the Contractor to discharge his obligations and liabilities under the Contract;
 - ii) indemnify the Contractor against and from all obligations and liabilities arising under or in connection with the Contract and from the consequences of any failure by the Subcontractor to perform these obligations or to fulfil these liabilities, and
 - iii) be paid only if and when the Contractor has received from the Procuring Entity payments for sums due under the Subcontract referred to under Sub-Clause 5.3 [Payment to nominated Subcontractors].

53 Payments to nominated Subcontractors

The Contractor shall pay to the nominated Subcontractor the amounts shown on the nominated Subcontractor's invoices approved by the Contractor which the Architect certifies to be due in accordance with the subcontract. These amounts plus other charges shall be included in the Contract Price in accordance with sub-paragraph (b) of Sub-Clause 13.5 [Provisional Sums], except as stated in Sub-Clause 54 [Evidence of Payments].

54 Evidence of Payments

541 Before issuing a Payment Certificate which includes an amount payable to a nominated Subcontractor, the Architect may request the Contractor to supply reasonable evidence that the nominated Subcontractor has received all amounts due in accordance with previous Payment Certificates, less applicable deductions for retention or otherwise. Unless the Contractor:

- (a) Submits this reasonable evidence to the Engineer, or
- (b) i) Satisfies the Architect in writing that the Contractor is reasonably entitled to withhold or refuse to pay these amounts, and

- ii) Submits to the Architect reasonable evidence that the nominated Subcontractor has been notified of the Contractor's entitlement, then the Procuring Entity may (at his sole discretion) pay, direct to the nominated Subcontractor, part or all of such amounts previously certified (less applicable deductions) as are due to the nominated Subcontractor and for which the Contractor has failed to submit the evidence described in sub-paragraphs (a) or (b) above. The Contractor shall then repay, to the Procuring Entity, the amount which the nominated Subcontractor was directly paid by the Procuring Entity.

6 STAFF AND LABOR

61 Engagement of Staff and Labor

Except as otherwise stated in the Specification, the Contractor shall make arrangements for the engagement of all staff and labor, local or otherwise, and for their payment, feeding, transport, and, when appropriate, housing. The Contractor is encouraged, to the extent practicable and reasonable, to employ staff and labor with appropriate qualifications and experience from sources within Kenya.

62 Rates of Wages and Conditions of Labor

621 The Contractor shall pay rates of wages, and observe conditions of labor, which are not lower than those established for the trade or industry where the work is carried out. If no established rates or conditions are applicable, the Contractor shall pay rates of wages and observe conditions which are not lower than the general level of wages and conditions observed locally by Procuring Entity's whose trade or industry is similar to that of the Contractor.

622 The Contractor shall inform the Contractor's Personnel about their liability to pay personal income taxes in Kenya in respect of such of their salaries, wages, allowances and any benefits as are subject to tax under the Laws of Kenya for the time being in force, and the Contractor shall perform such duties in regard to such deductions there of as may be imposed on him by such Laws.

63 Persons in the Service of Procuring Entity

The Contractor shall not recruit, or attempt to recruit, staff and labour from amongst the Procuring Entity's Personnel.

64 Labour Laws

The Contractor shall comply with all the relevant labour Laws applicable to the Contractor's Personnel, including Laws relating to their employment, employment of children, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights. The Contractor shall require his employees to obey all applicable Laws, including those concerning safety at work.

65 Working Hours

No work shall be carried out on the Site on locally recognized days of rest, or outside the normal working hours stated in the **Special Conditions of Contract**, unless:

- a) Otherwise stated in the Contract,
- b) The Architect gives consent, or
- c) The work is unavoidable, or necessary for the protection of life or property or for the safety of the Works, in which case the Contractor shall immediately advise the Engineer, provided that work done outside the normal working hours shall be considered and paid for as overtime.

66 Facilities for Staff and Labor

Except as otherwise stated in the Specification, the Contractor shall provide and maintain all necessary accommodation and welfare facilities on site for the Contractor's Personnel. The Contractor shall also provide facilities for the Procuring Entity's Personnel as stated in the Specifications. The Contractor shall not permit any of the Contractor's Personnel to maintain any temporary or permanent living quarters within the structures forming part of the Permanent Works.

67 Health and Safety

671 The Contractor shall at all times take all reasonable precautions to maintain the health and safety of the Contractor's Personnel. In collaboration with local health authorities, the Contractor shall ensure that medical staff, first aid facilities, sick bay and ambulance service are available at all times at the Site and at any accommodation for Contractor's and Procuring Entity's Personnel, and that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics.

672 The Contractor shall appoint an accident prevention officer at the Site, responsible for maintaining safety and protection against accidents. This person shall be qualified for this responsibility and shall have the authority to issue instructions and take protective measures to prevent accidents. Throughout the execution of the Works, the Contractor shall provide whatever is required by this person to exercise this responsibility and authority.

673 The Contractor shall send, to the Engineer, details of any accident as soon as practicable after its occurrence. The Contractor shall maintain records and make reports concerning health, safety and welfare of persons, and damage to property, as the Architect may reasonably require.

674 The Contractor shall conduct an awareness programme on HIV and other sexually transmitted diseases via an approved service provider and shall undertake such other measures taken to reduce the risk of the transfer of these diseases between and among the Contractor's Personnel and the local community, to promote early diagnosis and to assist affected individuals.

68 Contractor's Superintendence

681 Throughout the execution of the Works, and as long thereafter as is necessary to fulfil the Contractor's obligations, the Contractor shall provide all necessary super intendence to plan, arrange, direct, manage, inspect and test the work.

682 Superintendence shall be given by a sufficient number of persons having adequate knowledge of the language for communications (defined in Sub-Clause 1.4 [Law and Language]) and of the operations to be carried out (including the methods and techniques required, the hazards likely to be encountered and methods of preventing accidents), for the satisfactory and safe execution of the Works.

69 Contractor's Personnel

691 The Contractor's Personnel shall be appropriately qualified, skilled and experienced in their respective trades or occupations. The Contractors Key personnel shall be named in the Special Conditions of Contract. The Architect may require the Contractor to remove (or cause to be removed) any person employed on the Site or Works, including the Contractor's Representative if applicable, who:

- a) Persists in any misconduct or lack of care,
- b) Carries out duties in competently or negligently,
- c) fails to conform with any provisions of the Contract,
- d) persists in any conduct which is prejudicial to safety, health, or the protection of the environment, or
- e) based on reasonable evidence, is determined to have engaged in Fraud and Corruption during the execution of the Works.

692 If appropriate, the Contractor shall then appoint (or cause to be appointed) a suitable replacement person.

610 Records of Contractor's Personnel and Equipment

The Contractor shall submit, to the Engineer, details showing the number of each class of Contractor's Personnel and of each type of Contractor's Equipment on the Site. Details shall be submitted each calendar month, in a form approved by the Engineer, until the Contractor has completed all work which is known to be outstanding at the completion date stated in the Taking-Over Certificate for the Works.

611 Disorderly Conduct

The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst the Contractor's Personnel, and to preserve peace and protection of persons and property on and near the Site.

612 Foreign Personnel

- 6121 The Contractor shall not employ foreign personnel unless the contractor demonstrates that there are no Kenyans with the required skills.
- 6122 The Contractor shall be responsible for the return of any foreign personnel to the place where they were recruited or to their domicile. In the event of the death in Kenya of any of these personnel or members of their families, the Contractor shall similarly be responsible for making the appropriate arrangements for their return or burial.

613 Supply of Water

The Contractor shall, having regard to local conditions, provide on the Site an adequate supply of drinking and other water for the use of the Contractor's Personnel.

614 Measures against Insect and Pest Nuisance

The Contractor shall at all times take the necessary precautions to protect the Contractor's Personnel employed on the Site from insect and pest nuisance, and to reduce the danger to their health. The Contractor shall comply with all the regulations of the local health authorities, including use of appropriate insecticide.

615 Alcoholic Liquor or Drugs

The Contractor shall not, otherwise than in accordance with the Laws of Kenya, onsite, import, sell, give, barter or otherwise dispose of any alcoholic liquor or drugs, or permit or allow importation, sale, gift, barter or disposal thereof by Contractor's Personnel.

616 Prohibition of Forced or Compulsory Labour

The Contractor shall not employ forced labor, which consists of any work or service, not voluntarily performed, that is exacted from an individual under threat of force or penalty, and includes any kind of involuntary or compulsory labor, such as indentured labor, bonded labor or similar labor-contracting arrangements.

617 Prohibition of Harmful Child Labor

The Contractor shall not employ children in a manner that is economically exploitative, or is likely to be hazardous, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development. Where the relevant labour laws of Kenya have provisions for employment of minors, the Contractor shall follow those laws applicable to the Contractor. Children below the age of 18 years shall not be employed in dangerous work.

618 Employment Records of Workers

The Contractor shall keep complete and accurate records of the employment of labour at the Site. The records shall include the names, ages, genders, hours worked and wages paid to all workers. These records shall be summarized on a monthly basis and submitted to the Engineer. These records shall be included in the details to be submitted by the Contractor under Sub-Clause 6.10 [Records of Contractor's Personnel and Equipment].

619 Workers' Organizations

The Contractor shall comply with the relevant labor laws that recognize workers' rights to form and to join workers' organizations of their choosing without interference.

620 Non-Discrimination and Equal Opportunity

The Contractor shall base the labour employment on the principle of equal opportunity and fair treatment and shall not discriminate with respect to aspects of the employment relationship, including recruitment and hiring, compensation (including wages and benefits), working conditions and terms of employment, access to training, promotion, termination of employment, retirement, and discipline.

7. PLANT, MATERIALS AND WORKMANSHIP

71 Manner of Execution

The Contractor shall carry out the manufacture/assemble of plant, the production and manufacture of Materials, and all other execution of the Works:

- a) In the manner (if any) specified in the Contract,
- b) in a proper workman like and careful manner, in accordance with recognized good practice, and
- c) with properly equipped facilities and non-hazardous Materials, except as otherwise specified in the Contract.

72 Samples

The Contractor shall submit the following samples of Materials, and relevant information, to the Architect for consent prior to using the Material sin or for the Works:

- a) manufacturer's standard samples of Materials and samples specified in the Contract, all at the Contractor's cost, and
- b) additional samples instructed by the Architect as a Variation.

Each sample shall be labeled as to origin and intended use in the Works.

73 Inspection

731 The Procuring Entity's Personnel shall at all reasonable times:

- a) Have full access to all parts of the Site and to all places from which natural Materials are being obtained, and
- b) during production, manufacture and construction (at the Site and elsewhere), be entitled to examine, inspect, measure and test the materials and workmanship, and to check the progress of manufacture of Plant and production and manufacture of Materials.

732 The Contractor shall give the Procuring Entity's Personnel full opportunity to carry out these activities, including providing access, facilities, permissions and safety equipment. No such activity shall relieve the Contractor from any obligation or responsibility.

733 The Contractor shall give notice to the Architect whenever any work is ready and before it is covered up, put out of sight, or packaged for storage or transport. The Architect shall then either carry out the examination, inspection, measurement or testing without unreasonable delay, or promptly give notice to the Contractor that the Architect does not require to do so. If the Contractor fails to give the notice, he shall, if and when required by the Engineer, uncover the work and there after reinstate and make good, all at the Contractor's cost.

74 Testing

741 This Sub-Clause shall apply to all tests specified in the Contract.

742 Except as otherwise specified in the Contract, the Contractor shall provide all apparatus, assistance, documents and other information, electricity, equipment, fuel, consumables, instruments, labor, materials, and suitably qualified and experienced staff, as are necessary to carry out the specified tests efficiently. The Contractor shall agree, with the Engineer, the time and place for the specified testing of any Plant, Materials and other parts of the Works.

743 The Architect may, under Clause 13 [Variations and Adjustments], vary the location or details of specified tests, or instruct the Contractor to carry out additional tests. If these varied or additional tests show that the tested Plant, Materials or workmanship is not in accordance with the Contract, the cost of carrying out this Variation shall be borne by the Contractor, notwithstanding other provisions of the Contract.

744 The Architect shall give the Contractor not less than 24 hours' notice of the Architect intention to attend the tests. If the Architect does not attend at the time and place agreed, the Contractor may proceed with the tests, unless otherwise instructed by the Engineer, and the tests shall then be deemed to have been made in the Architect presence.

745 If the Contractor suffers delay and/ or incurs Cost from complying with these instructions or as a result of a delay for which the Procuring Entity is responsible, the Contractor shall give notice to the Architect and

shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- b) payment of any such Cost-plus profit, which shall be included in the Contract Price.

746 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

747 The Contractor shall promptly forward to the Architect duly certified reports of the tests. When the specified tests have been passed, the Architect shall endorse the Contractor's test certificate, or issue a certificate to him, to that effect. If the Architect has not attended the tests, he shall be deemed to have accepted the readings as accurate.

75 Rejection

751 If, as a result of an examination, inspection, measurement or testing, any Plant, Materials or workmanship is found to be defective or otherwise not in accordance with the Contract, the Architect may reject the Plant, Materials or workmanship by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the defect and ensure that the rejected item complies with the Contract.

752 If the Architect requires this Plant, Materials or workmanship to be retested, the tests shall be repeated under the same terms and conditions. If the rejection and retesting cause the Procuring Entity to incur additional costs, the Contractor shall subject to Sub-Clause 2.5 [Procuring Entity's Claims] pay these costs to the Procuring Entity.

76 Remedial Work

761 Notwithstanding any previous test or certification, the Architect may instruct the Contractor to:

- a) Remove from the Site and replace any Plant or Materials which is not in accordance with the Contract,
- b) remove and re-execute any other work which is not in accordance with the Contract, and
- c) execute any work which is urgently required for the safety of the Works, whether because of an accident, unforeseen able event or otherwise.

762 The Contractor shall comply with the instruction within a reasonable time, which shall be the time (if any) specified in the instruction, or immediately if urgency is specified under sub-paragraph (c).

763 If the Contractor fails to comply with the instruction, the Procuring Entity shall be entitled to employ and pay other persons to carry out the work. Except to the extent that the Contractor would have been entitled to payment for the work, the Contractor shall subject to Sub-Clause 2.5 [Procuring Entity's Claims] pay to the Procuring Entity all costs arising from this failure.

764 If the contractor repeatedly delivers defective work, the Procuring Entity may consider termination in accordance with Clause 15.

77 Ownership of Plant and Materials

Except as otherwise provided in the Contract, each item of Plant and Materials shall become the property of the Procuring Entity at whichever is the earlier of the following times, free from liens and other encumbrances:

- a) When it is incorporated in the Works;
- b) when the Contractor is paid the corresponding value of the Plant and Materials under Sub-Clause 8.10 [Payment for Plant and Materials in Event of Suspension].

78 Royalties

Unless otherwise stated in the Specification, the Contractor shall pay all royalties, rents and other payments for:

- a) Natural materials obtained from outside the Site, and
- b) The disposal of material from demolitions and excavations and of other surplus material (whether natural or man-made), except to the extent that disposal are as within the Site are specified in the Contract.

8 COMMENCEMENT, DELAYS AND SUSPENSION

81 Commencement of Works

81.1 Except as otherwise specified in the Special Conditions of Contract, the Commencement Date shall be the date at which the following precedent conditions have all been fulfilled and the Architect notification recording the agreement of both Parties on such fulfilment and instructing to commence the Work is received by the Contractor:

- a) Signature of the Contract Agreement by both Parties, and if required, approval of the Contract by relevant authorities of Kenya;
- b) except if otherwise specified in the Special Conditions of Contract, effective access to and possession of the Site given to the Contractor together with such permission(s) under (a) of Sub-Clause 1.13 [Compliance with Laws] as required for the commencement of the Works.
- c) Receipt by the Contractor of the Advance Payment under Sub-Clause 14.2 [Advance Payment] provided that the corresponding bank guarantee has been delivered by the Contractor.

81.2 If the said Architect instruction is not received by the Contractor within 180 days from his receipt of the Letter of Acceptance, the Contractor shall be entitled to terminate the Contract under Sub-Clause 16.2 [Termination by Contractor].

81.3 The Contractor shall commence the execution of the Works as soon as is reasonably practicable after the Commencement Date and shall then proceed with the Works with due expedition and without delay.

82 Time for Completion

The Contractor shall complete the whole of the Works, and each Section (if any), within the Time for Completion for the Works or Section (as the case may be), including:

- a) Achieving the passing of the Tests on Completion, and
- b) completing all work which is stated in the Contract as being required for the Works or Section to be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [Taking Over of the Works and Sections].

83 Programme

83.1 The Contractor shall submit a detailed time programme to the Architect within 14 days after receiving the notice under Sub-Clause 8.1 [Commencement of Works]. The Contractor shall also submit a revised programme whenever the previous programme is inconsistent with actual progress or with the Contractor's obligations. Each programme shall include:

- a) The order in which the Contractor intends to carry out the Works, including the anticipated timing of each stage of design (if any), Contractor's Documents, procurement, manufacture of Plant, delivery to Site, construction, erection and testing,
- b) each of these stages for work by each nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]),
- c) the sequence and timing of inspections and tests specified in the Contract, and
- d) a supporting report which includes:
 - i) a general description of the methods which the Contractor intends to adopt, and of the major stages, in the execution of the Works, and
 - ii) details showing the Contractor's reasonable estimate of the number of each class of Contractor's Personnel and of each type of Contractor's Equipment, required on the Site for each major stage.

83.2 Unless the Engineer, within 14 days after receiving a programme, gives notice to the Contractor stating the extent to which it does not comply with the Contract, the Contractor shall proceed in accordance with the programme, subject to his other obligations under the Contract. The Procuring Entity's Personnel shall be entitled to rely upon the programme when planning their activities.

83.3 The Contractor shall promptly give notice to the Architect of specific probable future events or circumstances which may adversely affect the work, increase the Contract Price or delay the execution of the Works.

834 If, at anytime, the Architect gives notice to the Contractor that a programme fails (to the extent stated) to comply with the Contractor to be consistent with actual progress and the Contractor's stated intentions, the Contractor shall submit a revised programme to the Architect in accordance with this Sub-Clause.

84 Extension of Time for Completion

841 The Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to an extension of the Time for Completion if and to the extent that completion for the purposes of Sub-Clause 10.1 [Taking Over of the Works and Sections] is or will be delayed by any of the following causes:

- a) a Variation (unless an adjustment to the Time for Completion has been agreed under Sub-Clause 13.3 [Variation Procedure]) or other substantial change in the quantity of an item of work included in the Contract,
- b) a cause of delay giving an entitlement to extension of time under a Sub-Clause of these Conditions,
- c) exceptionally adverse climatic conditions,
- d) Unforeseeable shortages in the availability of personnel or Goods caused by epidemic or governmental actions, or
- e) any delay, impediment or prevention caused by or attributable to the Procuring Entity, the Procuring Entity's Personnel, or the Procuring Entity's other contractors.

842 If the Contractor considers itself to be entitled to an extension of the Time for Completion, the Contractor shall give notice to the Architect in accordance with Sub-Clause 20.1 [Contractor's Claims]. When determining each extension of time under Sub-Clause 20.1, the Architect shall review previous determinations and may increase, but shall not decrease, the total extension of time.

85 Delays Caused by Authorities

If the following conditions apply, namely:

- a) The Contractor has diligently followed the procedures laid down by the relevant legally constituted public authorities in Kenya,
- b) These authorities delay or disrupt the Contractor's work, and
- c) the delay or disruption was Unforeseeable, then this delay or disruption will be considered as a cause of delay under sub-paragraph (b) of Sub-Clause 8.4 [Extension of Time for Completion].

86 Rate of Progress

861 If, at anytime:

- a) Actual progress is too slow to complete within the Time for Completion, and/or
- b) Progress has fallen (or will fall) behind the current programme under Sub-Clause 8.3 [Programme], other than as a result of a cause listed in Sub-Clause 8.4 [Extension of Time for Completion], then the Architect may instruct the Contractor to submit, under Sub-Clause 8.3 [Programme], a revised programme and supporting report describing the revised methods which the Contractor proposes to adopt in order to expedite progress and complete within the Time for Completion.

862 Unless the Architect notifies otherwise, the Contractor shall adopt these revised methods, which may require increases in the working hours and/or in the numbers of Contractor's Personnel and/or Goods, at the risk and cost of the Contractor. If these revised methods cause the Procuring Entity to incur additional costs, the Contractor shall subject to notice under Sub-Clause 2.5 [Procuring Entity's Claims] pay these costs to the Procuring Entity, in addition to delay damages (if any) under Sub-Clause 8.7 below.

863 Additional costs of revised methods including acceleration measures, instructed by the Architect to reduce delays resulting from causes listed under Sub-Clause 8.4 [Extension of Time for Completion] shall be paid by the Procuring Entity, without generating, however, any other additional payment benefit to the Contractor.

87 Delay Damages

871 If the Contractor fails to comply with Sub-Clause 8.2 [Time for Completion], the Contractor shall subject to notice under Sub-Clause 2.5 [Procuring Entity's Claims] pay delay damages to the Procuring Entity for this default. These delay damages shall be the sum stated in the **Special Conditions of Contract**, which shall be paid for everyday which shall elapse between the relevant Time for Completion and the date stated in the taking-Over Certificate. However, the total amount due under this Sub-Clause shall not exceed the maximum amount of delay damages (if any) stated in the Special Conditions of Contract.

872 These delay damages shall be the only damages due from the Contractor for such default, other than in the event of termination under Sub-Clause 15.2 [Termination by Procuring Entity] prior to completion of the Works. These damages shall not relieve the Contractor from his obligation to complete the Works, or from any other duties, obligations or responsibilities which he may have under the Contract.

88 Suspension of Work

881 The Architect may at anytime instruct the Contractor to suspend progress of part or all of the Works. During such suspension, the Contractor shall protect, store and secure such part or the Works against any deterioration, loss or damage.

882 The Architect may also notify the cause for the suspension. If and to the extent that the cause is notified and is the responsibility of the Contractor, the following Sub-Clauses 8.9, 8.10 and 8.11 shall not apply.

89 Consequences of Suspension

891 If the Contractor suffers delay and/or incurs Cost from complying with the Architect instructions under Sub-Clause 8.8 [Suspension of Work] and/or from resuming the work, the Contractor shall give notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- b) Payment of any such Cost, which shall be included in the Contract Price.

892 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

893 The Contractor shall not be entitled to an extension of time for, or to payment of the Cost incurred in, making good the consequences of the Contractor's faulty design, workmanship or materials, or of the Contractor's failure to protect, store or secure in accordance with Sub-Clause 8.8 [Suspension of Work].

810 Payment for Plant and Materials in Event of Suspension

The Contractor shall be entitled to payment of the value (as at the date of suspension) of Plant and/ or Materials which have not been delivered to Site, if:

- a) The work on Plant or delivery of Plant and/ or Materials has been suspended for more than 30 days, and
- b) the Contractor has marked the Plant and/or Materials as the Procuring Entity's property in accordance with the Architect instructions.

811 Prolonged Suspension

If the suspension under Sub-Clause 8.8 [Suspension of Work] has continued for more than 84 days, the Contractor may request the Architect permission to proceed. If the Architect does not give permission within 30 days after being requested to do so, the Contractor may, by giving notice to the Engineer, treat the suspension as an omission under Clause 13 [Variations and Adjustments] of the affected part of the Works. If the suspension affects the whole of the Works, the Contractor may give notice of termination under Sub-Clause 16.2 [Termination by Contractor].

812 Resumption of Work

After the permission or instruction to proceed is given, the Contractor and the Architect shall jointly examine the Works and the Plant and Materials affected by the suspension. The Contractor shall make good any deterioration or defect in or loss of the Works or Plant or Materials, which has occurred during the suspension after receiving from the Architect an instruction to this effect under Clause 13 [Variations and Adjustments].

9 TESTS ON COMPLETION

9.1 Contractor's Obligations

9.1.1 The Contractor shall carry out the Tests on Completion in accordance with this Clause and Sub-Clause 7.4 [Testing], after providing the documents in accordance with sub-paragraph (d) of Sub-Clause 4.1 [Contractor's General Obligations].

9.1.2 The Contractor shall give to the Architect not less than 21 days' notice of the date after which the Contractor will be ready to carry out each of the Tests on Completion. Unless otherwise agreed, Tests on Completion shall be carried out within 14 days after this date, on such day or days as the Architect shall instruct.

9.1.3 In considering the results of the Tests on Completion, the Architect shall make allowances for the effect of any use of the Works by the Procuring Entity on the performance or other characteristics of the Works. As soon as the Works, or a Section, have passed any Tests on Completion, the Contractor shall submit a certified report of the results of these Tests to the Engineer.

9.2 Delayed Tests

9.2.1 If the Tests on Completion are being unduly delayed by the Procuring Entity, Sub-Clause 7.4 [Testing] (fifth paragraph) and/ or Sub-Clause 10.3 [Interference with Tests on Completion] shall be applicable.

9.2.2 If the Tests on Completion are being unduly delayed by the Contractor, the Architect may by notice require the Contractor to carry out the Tests within 21 days after receiving the notice. The Contractor shall carry out the Tests on such day or days within that period as the Contractor may fix and of which he shall give notice to the Engineer.

9.2.3 If the Contractor fails to carry out the Tests on Completion within the period of 21 days, the Procuring Entity's Personnel may proceed with the Test at the risk and cost of the Contractor. The Tests on Completion shall then be deemed to have been carried out in the presence of the Contractor and the results of the Tests shall be accepted as accurate.

9.3 Retesting of related works

If the Works, or a Section, fail to pass the Tests on Completion, Sub-Clause 7.5 [Rejection] shall apply, and the Architect or the Contractor may require the failed Tests, and Tests on Completion on any related work,

to be repeated under the same terms and conditions.

94 Failure to Pass Tests on Completion

- 94.1 If the Works, or a Section, fail to pass the Tests on Completion repeated under Sub-Clause 9.3 [Retesting], the Architect shall be entitled to:
- a) Order further repetition of Tests on Completion under Sub-Clause 9.3; or
 - b) if the failure deprives the Procuring Entity of substantially the whole benefit of the Works or Section, reject the Works or Section (as the case may be), in which event the Procuring Entity shall have the same remedies as are provided in sub-paragraph (c) of Sub-Clause 1.4 [Failure to Remedy Defects].

10 PROCURING ENTITY'S TAKING OVER

10.1 Taking Over of the Works and Sections

- 10.1.1 Except as stated in Sub-Clause 9.4 [Failure to Pass Tests on Completion], the Works shall be taken over by the Procuring Entity when (i) the Works have been completed in accordance with the Contract, including the matters described in Sub-Clause 8.2 [Time for Completion] and except as allowed in sub-paragraph (a) below, and (ii) a Taking-Over Certificate for the Works has been issued, or is deemed to have been issued in accordance with this Sub-Clause.
- 10.1.2 The Contractor may apply by notice to the Architect for a Taking-Over Certificate not earlier than 14 days before the Works will, in the Contractor's opinion, be complete and ready for taking over. If the Works are divided into Sections, the Contractor may similarly apply for a Taking-Over Certificate for each Section.
- 10.1.3 The Architect shall, within 30 days after receiving the Contractor's application:
- a) Issue the Taking-Over Certificate to the Contractor, stating the date on which the Works or Section were completed in accordance with the Contract, except for any minor outstanding work and defects which will not substantially affect the use of the Works or Section for their intended purpose (either until or whilst this work is completed and these defects are remedied); or
 - b) reject the application, giving reasons and specifying the work required to be done by the Contractor to enable the Taking-Over Certificate to be issued. The Contractor shall then complete this work before issuing a further notice under this Sub-Clause.
- 10.1.4 If the Architect fails either to issue the Taking-Over Certificate or to reject the Contractor's application within the period of 30 days, and if the Works or Section (as the case may be) are substantially in accordance with the Contract, the Taking-Over Certificate shall be deemed to have been issued on the last day of that period.

10.2 Taking Over of Parts of the Works

- 10.2.1 The Architect may, at the sole discretion of the Procuring Entity, issue a Taking-Over Certificate for any part of the Permanent Works.
- 10.2.2 The Procuring Entity shall not use any part of the Works (other than as a temporary measure which is either specified in the Contract or agreed by both Parties) unless and until the Architect has issued a Taking-Over Certificate for this part. However, if the Procuring Entity does use any part of the Works before the Taking-Over Certificate is issued:
- a) The part which is used shall be deemed to have been taken over as from the date on which it is used,
 - b) the Contractor shall cease to be liable for the care of such part as from this date, when responsibility shall pass to the Procuring Entity, and
 - c) if requested by the Contractor, the Architect shall issue a Taking-Over Certificate for this part.
- 10.2.3 After the Architect has issued a Taking-Over Certificate for a part of the Works, the Contractor shall be given the earliest opportunity to take such steps as may be necessary to carry out any outstanding Tests on Completion. The Contractor shall carry out these Tests on Completion as soon as practicable before the expiry date of the relevant Defects Notification Period.
- 10.2.4 If the Contractor incurs Cost as a result of the Procuring Entity taking over and/or using a part of the Works, other than such use as is specified in the Contract agreed by the Contractor, the Contractor shall (i) give notice to the Architect and (ii) be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to payment of any such accrued costs, which shall be included in the Contract Price. After receiving this notice, the

Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine this accrued cost.

- 1025 If a Taking-Over Certificate has been issued for a part of the Works (other than a Section), the delay damages thereafter for completion of the remainder of the Works shall be reduced. Similarly, the delay damages for the remainder of the Section (if any) in which this part is included shall also be reduced. For any period of delay after the date stated in this Taking-Over Certificate, the proportional reduction in these delay damages shall be calculated as the proportion which the value of the part so certified bears to the value of the Works or Section (as the case may be) as a whole. The Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these proportions. The provisions of this paragraph shall only apply to the daily rate of delay damages under Sub-Clause 8.7 [Delay Damages] and shall not affect the maximum amount of these damages.

103 Interference with Tests on Completion

- 1031 If the Contractor is prevented, for more than 14 days, from carrying out the Tests on Completion by a cause for which the Procuring Entity is responsible, the Procuring Entity shall be deemed to have taken over the Works or Section (as the case may be) on the date when the Tests on Completion would otherwise have been completed.
- 1032 The Architect shall then issue a Taking-Over Certificate accordingly, and the Contractor shall carry out the Tests on Completion as soon as practicable, before the expiry date of the Defects Notification Period. The Architect shall require the Tests on Completion to be carried out by giving 14 days' notice and in accordance with the relevant provisions of the Contract.
- 1033 If the Contractor suffers delay and/or incurs Cost as a result of this delay in carrying out the Tests on Completion, the Contractor shall give notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
 - b) payment of any such accrued costs, which shall be included in the Contract Price.
- 1034 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

104 Surfaces Requiring Reinstatement

Except as otherwise stated in a Taking-Over Certificate, a certificate for a Section or part of the Works shall not be deemed to certify completion of any ground or other surfaces requiring reinstatement.

11 DEFECTS LIABILITY

11.1 Completion of Outstanding Work and Remedying Defects

- 11.1 In order that the Works and Contractor's Documents, and each Section, shall be in the condition required by the Contract (fair wear and tear excepted) by the expiry date of the relevant Defects Notification Period or as soon as practicable thereafter, the Contractor shall:
- a) complete any work which is outstanding on the date stated in a Taking-Over Certificate, within such reasonable time as is instructed by the Engineer, and
 - b) execute all work required to remedy defects or damage, as may be notified by (or on behalf of) the Procuring Entity on or before the expiry date of the Defects Notification Period for the Works or Section (as the case may be).

- 11.12 If a defect appears or damage occurs, the Contractor shall be notified accordingly by the Engineer.

11.2 Cost of Remedying Defects

- 11.21 All work referred to in sub-paragraph (b) of Sub-Clause 11.1 [Completion of Outstanding Work and Remedying Defects] shall be executed at the risk and cost of the Contractor, if and to the extent that the work is attributable to:
- a) Any design for which the Contractor is responsible,

- b) Plant, Materials or workmanship not being in accordance with the Contract, or
- c) Failure by the Contractor to comply with any other obligation.

1122 If and to the extent that such work is attributable to any other cause, the Contractor shall be notified promptly by (or on behalf of) the Procuring Entity, and Sub-Clause 13.3 [Variation Procedure] shall apply.

113 Extension of Defects Notification Period

1131 The Procuring Entity shall be entitled subject to Sub-Clause 2.5 [Procuring Entity's Claims] to an extension of the Defects Notification Period for the Works or a Section if and to the extent that the Works, Section or a major item of Plant (as the case may be, and after taking over) cannot be used for the purposes for which they are intended by reason of a defect or by reason of damage attributable to the Contractor. However, a Defects Notification Period shall not be extended by more than two years.

1132 If delivery and/ or erection of Plant and/ or Materials was suspended under Sub-Clause 8.8 [Suspension of Work] or Sub-Clause 16.1 [Contractor's Entitlement to Suspend Work], the Contractor's obligations under this Clause shall not apply to any defects or damage occurring more than two years after the Defects Notification Period for the Plant and/ or Materials would otherwise have expired.

114 Failure to Remedy Defects

1141 If the Contractor fails to remedy any defect or damage within a reasonable time, a date may be fixed by the Engineer, on or by which the defect or damage is to be remedied. The Contractor shall be given reasonable notice of this date.

1142 If the Contractor fails to remedy the defect or damage by this notified date and this remedial work was to be executed at the cost of the Contractor under Sub-Clause 11.2 [Cost of Remedying Defects], the Procuring Entity may (at his option):

- (a) Carry out the work itself or by others, in a reasonable manner and at the Contractor's cost, but the Contractor shall have no responsibility for this work; and the Contractor shall subject to Sub-Clause 2.5 [Procuring Entity's Claims] pay to the Procuring Entity the costs reasonably incurred by the Procuring Entity in remedying the defect or damage;
- (b) Require the Architect to agree or determine a reasonable reduction in the Contract Price in accordance with Sub-Clause 3.5 [Determinations]; or
- (c) if the defect or damage deprives the Procuring Entity of substantially the whole benefit of the Works or any major part of the Works, terminate the Contract as a whole, or in respect of such major part which cannot be put to the intended use. Without prejudice to any other rights, under the Contract otherwise, the Procuring Entity shall then be entitled to recover all sums paid for the Works or for such part (as the case may be), plus financing costs and the cost of dismantling the same, clearing the Site and returning Plant and Materials to the Contractor.

115 Removal of Defective Work

If the defector damage cannot be remedied expeditiously on the Site and the Procuring Entity gives consent, the Contractor may remove from the Site for the purposes of repair such items of Plant as are defective or damaged. This consent may require the Contractor to increase the amount of the Performance Security by the full replacement cost of these items, or to provide other appropriate security.

116 Further Tests

1161 If the work of remedying of any defector damage may affect the performance of the Works, the Architect may require the repetition of any of the tests described in the Contract. The requirement shall be made by notice within 14 days after the defect or damage is remedied.

1162 These tests shall be carried out in accordance with the terms applicable to the previous tests, except that they shall be carried out at the risk and cost of the Party liable, under Sub-Clause 11.2 [Cost of Remedying Defects], for the cost of the remedial work.

117 Right of Access

Until the Completion Certificate has been issued, the Contractor shall have such right of access to the Works as is reasonably required in order to comply with this Clause, except as may be inconsistent with the

Procuring Entity's reasonable security restrictions.

118 Contractor to Search

The Contractor shall, if required by the Engineer, search for the cause of any defect on parts of the works that have already accepted, under the direction of the Engineer. Unless the defect is to be remedied at the cost of the Contractor under Sub-Clause 11.2 [Cost of Remedying Defects], the Cost of the search plus profit shall be agreed or determined by the Architect in accordance with Sub-Clause 3.5 [Determinations] and shall be included in the Contract Price.

119 Completion Certificate

119.1 Performance of the Contractor's obligations shall not be considered to have been completed until the Architect has issued the Completion Certificate to the Contractor, stating the date on which the Contractor completed his obligations under the Contract.

119.2 The Architect shall issue the Completion Certificate within 30 days after the latest of the expiry dates of the Defects Liability Period, or as soon thereafter as the Contractor has supplied all the Contractor's Documents and completed and tested all the Works, including remedying any defects. A copy of the Completion Certificate shall be issued to the Procuring Entity.

119.3 Only the Completion Certificate shall be deemed to constitute acceptance of the Works.

11.10 Unfulfilled Obligations

After the Completion Certificate has been issued, each Party shall remain liable for the fulfilment of any obligation which remains unperformed at that time. For the purposes of determining the nature and extent of unperformed obligations, the Contract shall be deemed to remain in force.

11.11 Clearance of Site

11.11.1 Upon receiving the Completion Certificate, the Contractor shall remove any remaining Contractor's Equipment, surplus material, wreckage, rubbish and Temporary Works from the Site.

11.11.2 If all these items have not been removed within 30 days after receipt by the Contractor of the Completion Certificate, the Procuring Entity may sell or otherwise dispose of any remaining items. The Procuring Entity shall be entitled to be paid the costs incurred in connection with, or attributable to, such sale or disposal and restoring the Site.

11.11.3 Any balance of the moneys from the sale shall be paid to the Contractor. If these moneys are less than the Procuring Entity's costs, the Contractor shall pay the outstanding balance to the Procuring Entity.

12 MEASUREMENT AND DEVALUATION

12.1 Works to be Measured

12.1.1 The Works shall be measured, and valued for payment, in accordance with this Clause. The Contractor shall show in each application under Sub-Clauses 14.3 [Application for Interim Payment Certificates], 14.10 [Statement on Completion] and 14.11 [Application for Final Payment Certificate] the quantities and other particulars detailing the amounts which he considers to be entitled under the Contract.

12.1.2 Whenever the Architect requires any part of the Works to be measured, reasonable notice shall be given to the Contractor's Representative, who shall:

- a) promptly either attend or send another qualified representative to assist the Architect in making the measurement, and
- b) supply any particulars requested by the Engineer.

12.1.3 If the Contractor fails to attend or send a representative, the measurement made by the Architect shall be accepted as accurate.

12.1.4 Except as otherwise stated in the Contract, wherever any Permanent Works are to be measured from records, these shall be prepared by the Engineer. The Contractor shall, as and when requested, attend to

examine and agree the records with the Engineer, and shall sign the same when agreed. If the Contractor does not attend, the records shall be accepted as accurate.

- 1215 If the Contractor examines and disagrees the records, and/ or does not sign them as agreed, then the Contractor shall give notice to the Architect of the respects in which the records are asserted to be inaccurate. After receiving this notice, the Architect shall review the records and either confirm or vary them and certify the payment of the undisputed part. If the Contractor does not so give notice to the Architect within 14 days after being requested to examine the records, they shall be accepted as accurate.

122 Method of Measurement

Except as otherwise stated in the Contract:

- a) Measurement shall be made of the net actual quantity of each item of the Permanent Works, and
- b) the method of measurement shall be in accordance with the Bill of Quantities or other applicable Schedules.

123 Evaluation

- 123.1 Except as otherwise stated in the Contract, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the value of work done by evaluating each item of work, applying the measurement agreed or determined in accordance with the above Sub-Clauses 12.1 and 12.2 and the appropriate rate or price for the item.

- 123.2 For each item of work, the appropriate rate or price for the item shall be the rate or price specified for such item in the Contractor, if there is no such item, specified for similar work.

- 123.3 Any item of work included in the Bill of Quantities for which no rate or price was specified shall be considered as included in other rates and prices in the Bill of Quantities and will not be paid for separately.

- 123.4 However, for a new item of work, a new rate or price shall be appropriate for such item of work if:

- a) The work is instructed under Clause 13 [Variations and Adjustments],
- b) no rate or price is specified in the Contract for this item, and
- c) no specified rate or price is appropriate because the item of work is not of similar character, or is not executed under similar conditions, as any item in the Contract.

- 123.5 Each new rate or price shall be derived from any relevant rates or prices in the Contract. If no rates or prices are relevant for the new item of work, it shall be derived from the reasonable Cost of executing such work, prevailing market rates, together with profit, taking account of any other relevant matters.

- 123.6 Until such time as an appropriate rate or price is agreed or determined, the Architect shall determine a provisional rate or price for the purposes of Interim Payment Certificates as soon as the concerned work commences.

- 123.7 Where the contract price is different from the corrected tender price, in order to ensure the contractor is not paid less or more relative to the contract price (*which would be the tender price*), payment valuation certificates and variation orders on omissions and additions valued based on rates in the Bill of Quantities or schedule of rates in the Tender, will be adjusted by a plus or minus percentage. The percentage already worked out during tender evaluation is worked out as follows: $(\text{corrected tender price} - \text{tender price}) / \text{tender price} \times 100$.

124 Omissions

Whenever the omission of any work forms part (or all) of a Variation, the value of which has not been agreed, if:

- a) The Contractor will incur (or has incurred) cost which, if the work had not been omitted, would have been deemed to be covered by a sum forming part of the Accepted Contract Amount;
- b) The omission of the work will result (or has resulted) in this sum not forming part of the Contract Price; and
- c) this cost is not deemed to be included in the evaluation of any substituted work; then the Contractor shall give notice to the Architect accordingly, with supporting particulars. Upon receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine this cost, which shall be included in the Contract Price.

13 VARIATIONS AND ADJUSTMENTS

13.1 Right to Vary

- 13.1.1 Variations may be initiated by the Architect at any time prior to issuing the Taking-Over Certificate for the Works, either by an instruction or by a request for the Contractor to submit a proposal. No Variation instructed by the Architect under this Clause shall in any way vitiate or invalidate the Contract.
- 13.1.2 The Contractor shall execute and be bound by each Variation, unless the Contractor promptly gives notice to the Architect stating (with supporting particulars) that (i) the Contractor cannot readily obtain the Goods required for the Variation, or (ii) such Variation triggers a substantial change in the sequence or progress of the Works. Upon receiving this notice, the Architect shall cancel, confirm or vary the instruction.
- 13.1.3 Each Variation may include:
- a) changes to the quantities of any item of work included in the Contract (however, such changes do not necessarily constitute a Variation),
 - b) changes to the quality and other characteristics of any item of work,
 - c) changes to the levels, positions and/ or dimensions of any part of the Works,
 - d) omission of any work unless it is to be carried out by others,
 - e) any additional work, Plant, Materials or services necessary for the Permanent Works, including any associated Tests on Completion, boreholes and other testing and exploratory work, or
 - f) changes to the sequence or timing of the execution of the Works.
- 13.1.4 The Contractor shall not make any alteration and/or modification of the Permanent Works, unless and until the Architect instructs after obtaining approval of the Procuring Entity.

13.2 Variation Order Procedure

- 13.2.1 Prior to any Variation Order under Sub-Clause 13.1.4 the Architect shall notify the Contractor of the nature and form of such variation. As soon as possible after having received such notice, the Contractor shall submit to the Engineer:
- a) A description of work, if any, to be performed and a programme for its execution, and
 - b) the Contractor's proposals for any necessary modifications to the Programme according to Sub-Clause 8.3 or to any of the Contractor's obligations under the Contract, and
 - c) the Contractor's proposals for adjustment to the Contract Price.

Following the receipt of the Contractor's submission the Architect shall, after due consultation with the Employer and the Contractor, decide as soon as possible whether or not the variation shall be carried out. If the Architect decides that the variation shall be carried out, he shall issue a Variation Order clearly identified as such in accordance with the Contractor's submission or as modified by agreement.

If the Architect and the Contractor are unable to agree the adjustment of the Contract Price, the provisions of Sub-Clause 13.2.2 shall apply.

13.2.2 Disagreement on Adjustment of the Contract Price

If the Contractor and the Architecture unable to agree on the adjustment of the Contract Price, the adjustment shall be determined in accordance with the rates specified in the Bills of Quantities or Schedule of Daywork Prices. If the rates contained in the Bills of Quantities or Dayworks Prices are not directly applicable to the specific work in question, suitable rates shall be established by the Architect reflecting the level of pricing in the Dayworks Prices. Where rates are not contained in the said Prices, the amount shall be such as is in all the circumstances reasonable, reflecting a market price. Due account shall be taken of any over-or under-recovery of overheads by the Contractor in consequence of the variation. The Contractor shall also be entitled to be paid:

- a) The cost of any partial execution of the Works rendered useless by any such variation,
- b) The cost of making necessary alterations to Plant already manufactured or in the course of manufacture or of any work done that has to be altered in consequence of such a variation,
- c) any additional costs incurred by the Contractor by the disruption of the progress of the Works as detailed in the Programme, and
- d) the net effect of the Contractor's finance costs, including interest, caused by the variation.

The Architect shall on this basis determine the rates or prices to enable on-account payment to be included

in certificates of payment.

1323 Contractor to Proceed

On receipt of a Variation Order, the Contractor shall forth with proceed to carry out the variation and be bound to these Conditions in so doing as if such variation was stated in the Contract. The work shall not be delayed pending the granting of an extension of the Time for Completion or an adjustment to the Contract Price under Sub-Clause 31.3.

133 Value Engineering

133.1 The Contractor may, at anytime, submit to the Architect written proposal which (in the Contractor's opinion) will, if adopted, (i) accelerate completion, (ii) reduce the cost to the Procuring Entity of executing, maintaining or operating the Works, (iii) improve the efficiency or value to the Procuring Entity of the completed Works, or (iv) otherwise be of benefit to the Procuring Entity.

133.2 The proposal shall be prepared at the cost of the Contractor and shall include the items listed in Sub-Clause 13.3 [Variation Procedure].

1323 If a proposal, which is approved by the Engineer, includes a change in the design of part of the Permanent Works, then unless otherwise agreed by both Parties:

- a) The Contractor shall design this part,
- b) sub-paragraphs (a) to (d) of Sub-Clause 4.1 [Contractor's General Obligations] shall apply, and
- c) if this change results in a reduction in the contract value of this part, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine a fee, which shall be included in the Contract Price. This fee shall be half (50%) of the difference between the following amounts:
 - i) such reduction in contract value, resulting from the change, excluding adjustments under Sub-Clause 13.8 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost], and
 - ii) the reduction (if any) in the value to the Procuring Entity of the varied works, taking account of any improvement in quality, anticipated life or operational efficiencies.

13.3.4 However, if the amount established in item 13.2.3 (c) (i) is less than amount established in item 13.2.3 (c) (ii), there shall not be a fee. However, if the if the amount established in item 13.2.3 (c) (i) is more than amount established in item 13.2.3 (c) (ii), it shall result in a price variation to the Procuring Entity.

134 Variation Procedure for Value Engineering proposal

134.1 If the Architect requests a proposal, prior to instructing a Variation, the Contractor shall respond in writing as soon as practicable, either by giving reasons why he cannot comply (if this is the case) or by submitting:

- a) A description of the proposed work to be performed and a programme for its execution,
- b) the Contractor's proposal for any necessary modifications to the programme according to Sub-Clause 8.3 [Programme] and to the Time for Completion, and
- c) the Contractor's proposal for evaluation of the Variation.

134.2 The Architect shall, as soon as practicable after receiving such proposal (under Sub-Clause 13.2 [Value Project Engineering] or otherwise), respond with approval, disapproval or comments. The Contractor shall not delay any work whilst awaiting a response.

134.3 Each instruction to execute a Variation, with any requirements for the recording of Costs, shall be issued by the Architect to the Contractor, who shall acknowledge receipt.

134.4 Each Variation shall be evaluated in accordance with Clause 12 [Measurement and Evaluation], unless the Architect instructs or approves otherwise in accordance with this Clause.

135 Payment in Applicable Currencies

If the Contract provides for payment of the Contract Price in more than one currency, then whenever an adjustment is agreed, approved or determined as stated above, the amount payable in each of the applicable currencies shall be specified. For this purpose, reference shall be made to the actual or expected currency

proportions of the Cost of the varied work, and to the proportions of various currencies specified for payment of the Contract Price.

136 Provisional Sums

136.1 Each Provisional Sum shall only be used, in whole or in part, in accordance with the Architect instructions, and the Contract Price shall be adjusted accordingly. The total sum paid to the Contractor shall include only such amounts, for the work, supplies or services to which the Provisional Sum relates, as the Architect shall have instructed. For each Provisional Sum, the Architect May instruct:

- a) Work to be executed (including Plant, Materials or services to be supplied) by the Contractor and valued under Sub-Clause 13.3 [Variation Procedure]; and/or
- b) Plant, Materials or services to be purchased by the Contractor, from a nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]) or otherwise; and for which there shall be included in the Contract Price:
 - i) The actual amounts paid (or due to be paid) by the Contractor, and
 - ii) a sum for overhead charges and profit, calculated as a percentage of these actual amounts by applying the relevant percentage rate (if any) stated in the appropriate Schedule. If there is no such rate, the percentage rate stated in **the Special Conditions of Contract** shall be applied.

136.2 The Contractor shall, when required by the Engineer, produce quotations, invoices, vouchers and accounts or receipts in substantiation.

137 Dayworks

137.1 For work of a minor or incidental nature, the Architect may instruct that a Variation shall be executed on a daywork basis. The work shall then be valued in accordance with the Daywork Schedule included in the Contract, and the following procedure shall apply. If a Daywork Schedule is not included in the Contract, this Sub-Clause shall not apply.

137.2 Before ordering Goods for the work, the Contractor shall submit quotations to the Engineer. When applying for payment, the Contractor shall submit invoices, vouchers and accounts or receipts for any Goods.

137.3 Except for any items for which the Daywork Schedule specifies that payment is not due, the Contractor shall deliver reach day to the Architect accurate statements induplicate which shall include the following details of the resources used in executing the previous day's work:

- a) The names, occupations and time of Contractor's Personnel,
- b) the identification, type and time of Contractor's Equipment and Temporary Works, and
- c) the quantities and types of Plant and Materials used.

137.4 One copy of each statement will, if correct, or when agreed, be signed by the Architect and returned to the Contractor. The Contractor shall then submit priced statements of these resources to the Engineer, prior to their inclusion in the next Statement under Sub-Clause 14.3 [Application for Interim Payment Certificates].

138 Adjustments for Changes in Legislation

138.1 The Contract Price shall be adjusted to take account of any increase or decrease in Cost resulting from a change in the Laws of Kenya (including the introduction of new Laws and the repeal or modification of existing Laws) or in the judicial or official governmental interpretation of such Laws, made after the Base Date, which affect the Contractor in the performance of obligations under the Contract.

138.2 If the Contractor suffers (or will suffer) delay and/or incurs (or will incur) additional Cost as a result of these changes in the Laws or in such interpretations, made after the Base Date, the Contractor shall give notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
- b) payment of any such Cost, which shall be included in the Contract Price.

138.3 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

13.8.4 Notwithstanding the foregoing, the Contractor shall not be entitled to an extension of time if the relevant delay has already been taken into account in the determination of a previous extension of time and such Cost shall not be separately paid if the same shall already have been taken into account in the indexing of any inputs to the table of adjustment data in accordance with the provisions of Sub-Clause 13.8 [Adjustments for Changes in Cost].

13.9 Adjustments for Changes in Cost

13.9.1 In this Sub-Clause, “table of adjustment data” means the completed table of adjustment data for local and foreign currencies included in the Schedules. If there is no such table of adjustment data, this Sub-Clause shall not apply.

13.9.2 If this Sub-Clause applies, the amounts payable to the Contractor shall be adjusted for rises or falls in the cost of labor, Goods and other inputs to the Works, by the addition or deduction of the amounts determined by the formulae prescribed in this Sub-Clause. To the extent that full compensation for any rise or fall in Costs is not covered by the provisions of this or other Clauses, the Accepted Contract Amount shall be deemed to have included a mounts to cover the contingency of other rises and falls in costs.

13.9.3 The adjustment to be applied to the amount otherwise payable to the Contractor, as valued in accordance with the appropriate Schedule and certified in Payment Certificates, shall be determined from formulae for each of the currencies in which the Contract Price is payable. No adjustment is to be applied to work valued on the basis of Cost or current prices. The formulae shall be of the following general type:

Price Adjustment Formula

Prices shall be adjusted for fluctuations in the cost of inputs only if **provided for in the SCC**. If so provided, the amounts certified in each payment certificate, before deducting for Advance Payment, shall be adjusted by applying the respective price adjustment factor to the payment amounts due in each currency. A separate formula of the type specified below applies:

$$P = A + B \frac{I_m}{I_o}$$

where:

P is the adjustment factor for the portion of the Contract Price payable.

A and **B** a recoefficients **specified in the SCC**, representing then on adjustable and adjustable portions, respectively, of the Contract Price payable and

I m is the index prevailing at the end of the month being invoiced and **I oc** is the index prevailing 30 days before Bid opening for inputs payable.

NOTE: The sum of the two coefficients A and B should be 1 (one) in the formula for each currency. Normally, both coefficients shall be the same in the formulae for all currencies, since coefficient A, for the non adjustable portion of the payments, is a very approximate figure (usually 0.15) to take account of fixed cost elements or other nonadjustable components. The sum of the adjustments for each currency are added to the Contract Price.

13.9.4 The cost indices or reference prices stated in the table of adjustment data shall be used. If their source is in doubt, it shall be determined by the Engineer. Forth is purpose, reference shall be made to the values of the indices at stated dates (quoted in the fourth and fifth columns respectively of the table) for the purposes of clarification of the source; although these dates (and thus these values) may not correspond to the base cost indices.

13.9.5 In cases where the “currency of index” is not the relevant currency of payment, each index shall be converted into the relevant currency of payment at the selling rate, established by the Central Bank of Kenya, of this relevant currency on the above date for which the index is required to be applicable.

13.9.6 Until such time as each current cost index is available, the Architect shall determine a provisional index for the issue of Interim Payment Certificates. When a current cost index is available, the adjustment shall be recalculated accordingly.

- 139.7 If the Contractor fails to complete the Works within the Time for Completion, adjustment of prices there after shall be made using either (i) each index or price applicable on the date 49 days prior to the expiry of the Time for Completion of the Works, or (ii) the current index or price, whichever is more favorable to the Procuring Entity.
- 139.8 The weightings (coefficients) for each of the factors of cost stated in the table(s) of adjustment data shall only be adjusted if they have been rendered unreasonable, unbalanced or in applicable, as a result of Variations.

14 CONTRACT PRICE AND PAYMENT

141 The Contract Price

- 141.1 Unless otherwise stated in the Special Conditions:
- a) The value of the payment certificate shall be agreed or determined under Sub-Clause 12.3 [Evaluation] and be subject to adjustments in accordance with the Contract;
 - b) the Contractor shall pay all taxes, duties and fees required to be paid by him under the Contract, and the Contract Price shall not be adjusted for any of these costs except as stated in Sub-Clause 13.7 [Adjustments for Changes in Legislation];
 - c) any quantities which may be set out in the Bill of Quantities or other Schedule are estimated quantities and are not to be taken as the actual and correct quantities:
 - i) of the Works which the Contractor is required to execute, or
 - ii) for the purposes of Clause 12 [Measurement and Evaluation]; and
 - d) the Contractor shall submit to the Engineer, within 30 days after the Commencement Date, a proposed breakdown of each lump sum price in the Schedules. The Architect may take account of the break down when preparing Payment Certificates but shall not be bound by it.
- 141.2 Notwithstanding the provisions of subparagraph (b), Contractor's Equipment, including essential spare parts there for, imported by the Contractor for the sole purpose of executing the Contract shall not be exempt from the payment of import duties and taxes upon importation.

142 Advance Payment

- 142.1 The Procuring Entity shall make an advance payment, as an interest-free loan for mobilization and cashflow support, when the Contractor submits a guarantee in accordance with this Clause. The total advance payment, the number and timing of instalments (if more than one), and the applicable currencies and proportions, shall be as stated in the **Special Conditions of Contract**.
- 142.2 Unless and until the Procuring Entity receives this guarantee, or if the total advance payment is not stated in the Special Conditions of Contract, this Sub-Clause shall not apply.
- 142.3 The Architect shall deliver to the Procuring Entity and to the Contractor an Interim Payment Certificate for the advance payment or its first instalment after receiving a Statement (under Sub-Clause 14.3 [Application for Interim Payment Certificates]) and after the Procuring Entity receives (i) the Performance Security in accordance with Sub-Clause 4.2 [Performance Security] and (ii) a guarantee in amounts and currencies equal to the advance payment. This guarantee shall be issued by a reputable bank or financial institutions elected by the Contractor and shall be in the form annexed to the Special Conditions or in another form approved by the Procuring Entity.
- 142.4 The Contractor shall ensure that the guarantee is valid and enforceable until the advance payment has been repaid, but its amount shall be progressively reduced by the amount repaid by the Contractor as indicated in the Payment Certificates. If the terms of the guarantee specify its expiry date, and the advance payment has not been repaid by the date 30 days prior to the expiry date, the Contractor shall extend the validity of the guarantee until the advance payment has been repaid.
- 142.5 Unless stated otherwise in **the Special Conditions of Contract**, the advance payment shall be repaid through percentage deductions from the interim payments determined by the Architect in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates], as follows:

- a) Deductions shall commence in the next interim Payment Certificate following that in which the total of all certified interim payments (excluding the advance payment and deductions and repayments of retention) exceeds 30 percent (30%) of the Accepted Contract Amount less Provisional Sums; and
- b) deductions shall be made at the amortization rate stated in the **Special Conditions of Contract** of the amount of each Interim Payment Certificate (excluding the advance payment and deductions for its repayments as well as deductions for retention money) in the currencies and proportions of the advance payment until such time as the advance payment has been repaid; provided that the advance payment shall be completely repaid prior to the time when 90 percent (90%) of the Accepted Contract Amount less Provisional Sums has been certified for payment.

1426 If the advance payment has not been repaid prior to the issue of the Taking-Over Certificate for the Works or prior to termination under Clause 15 [Termination by Procuring Entity], Clause 16 [Suspension and Termination by Contractor] or Clause 19 [Force Majeure] (as the case may be), the whole of the balance then outstanding shall immediately become due and in case of termination under Clause 15 [Termination by Procuring Entity], except for Sub-Clause 14.2.7 [Procuring Entity's Entitlement to Termination for Convenience], payable by the Contractor to the Procuring Entity.

143 Application for Interim Payment Certificates

143.1 The Contractor shall submit a Statement (in number of copies indicated in the **Special Conditions of Contract**) to the Architect after the end of each month, in a form approved by the Engineer, showing in detail the amounts to which the Contractor considers itself to be entitled, together with supporting documents which shall include the report on the progress during this month in accordance with Sub-Clause 4.21 [Progress Reports].

143.2 The Statement shall include the following items, as applicable, which shall be expressed in the various currencies in which the Contract Price is payable, in the sequence listed:

- a) the estimated contract value of the Works executed and the Contractor's Documents produced up to the end of the month (including Variations but excluding items described in sub-paragraphs (b) to (g) below);
- b) any amounts to be added and deducted for changes in legislation and changes in cost, in accordance with Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost];
- c) any amount to be deducted for retention, calculated by applying the percentage of retention stated in **the Special Conditions of Contract** to the total of the above amounts, until the amount so retained by the Procuring Entity reaches the limit of Retention Money (if any) stated in **the Special Conditions of Contract**;
- d) any amounts to be added for the advance payment and (if more than one instalment) and to be deducted for its repayments in accordance with Sub-Clause 14.2 [Advance Payment];
- e) any amounts to be added and deducted for Plant and Materials in accordance with Sub-Clause 14.5 [Plant and Materials intended for the Works];
- f) any other additions or deductions which may have become due under the Contractor otherwise, including those under Clause 20 [Claims, Disputes and Arbitration]; and
- g) the deduction of amounts certified in all previous Payment Certificates.

144 Schedule of Payments

144.1 If the Contract includes a schedule of payments specifying the instalments in which the Contract Price will be paid, then unless otherwise stated in this schedule:

- a) The instalments quoted in this schedule of payments shall be the estimated contract values for the purposes of sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates];
- b) Sub-Clause 14.5 [Plant and Materials intended for the Works] shall not apply; and
- c) If these instalments are not defined by reference to the actual progress achieved in executing the Works, and if actual progress is found to be less or more than that on which this schedule of payments was based, then the Architect may proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine revised instalments, which shall take account of the extent to which progress is less or more than that on which the instalments were previously based.

1442 If the Contract does not include a schedule of payments, the Contractor shall submit non-binding estimates of the payments which he expects to become due during each quarterly period. The first estimate shall be submitted within 42 days after the Commencement Date. Revised estimates shall be submitted at quarterly intervals, until the Taking-Over Certificate has been issued for the Works.

145 Plant and Materials intended for the Works

145.1 If this Sub-Clause applies, Interim Payment Certificates shall include, under sub-paragraph (e) of Sub-Clause 14.3, (i) an amount for Plant and Materials which have been sent to the Site for incorporation in the Permanent Works, and (ii) a reduction when the contract value of such Plant and Materials is included as part of the Permanent Works under sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates].

1452 If the lists referred to in sub-paragraphs (b)(i) or (c)(i) below are not included in the Schedules, this Sub-Clause shall not apply.

1453 The Architect shall determine and certify each addition if the following conditions are satisfied:

- a) The Contractor has:
 - i) kept satisfactory records (including the orders, receipts, Costs and use of Plant and Materials) which are available for inspection, and
 - (ii) submitted statement of the Cost of acquiring and delivering the Plant and Materials to the Site, supported by satisfactory evidence;and either:
- b) the relevant Plant and Materials:
 - i) are those listed in the Schedules for payment when shipped,
 - ii) have been shipped to Kenya, enroute to the Site, in accordance with the Contract; and
 - iii) are described in a clean shipped bill of lading or other evidence of shipment, which has been submitted to the Architect together with evidence of payment of freight and insurance, any other documents reasonably required, and a bank guarantee in a form and issued by an entity approved by the Procuring Entity in amounts and currencies equal to the amount due under this Sub-Clause: this guarantee may be in a similar form to the form referred to in Sub-Clause 14.2 [Advance Payment] and shall be valid until the Plant and Materials are properly stored on Site and protected against loss, damage or deterioration; or
- c) the relevant Plant and Materials:
 - i) are those listed in the Schedules for payment when delivered to the Site, and
 - ii) have been delivered to and are properly stored on the Site, are protected against loss, damage or deterioration and appear to be in accordance with the Contract.

1454 The additional amount to be certified shall be the equivalent of eighty percent (80%) of the Architect determination of the cost of the Plant and Materials (including delivery to Site), taking account of the documents mentioned in this Sub-Clause and of the contract value of the Plant and Materials.

1455 The currencies for this additional amount shall be the same as those in which payment will become due when the contract value is included under sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates]. At that time, the Payment Certificate shall include the applicable reduction which shall be equivalent to, and in the same currencies and proportions as, this additional amount for the relevant Plant and Materials.

146 Issue of Interim Payment Certificates

146.1 No amount will be certified or paid until the Procuring Entity has received and approved the Performance Security. Thereafter, the Architect shall, within 30 days after receiving a Statement and supporting documents, deliver to the Procuring Entity and to the Contractor an Interim Payment Certificate which shall state the amount which the Architect fairly determines to be due, with all supporting particulars for any reduction or withholding made by the Architect on the Statement if any.

146.2 However, prior to issuing the Taking-Over Certificate for the Works, the Architect shall not be bound to issue an Interim Payment Certificate in an amount which would (after retention and other deductions) be

less than the minimum amount of Interim Payment Certificates (if any) stated **in the Special Conditions of Contract**. In this event, the Architect shall give notice to the Contractor accordingly.

- 1463 An Interim Payment Certificate shall not be withheld for any other reason, although:
- a) if anything supplied or work done by the Contractor is not in accordance with the Contract, the cost of rectification or replacement may be withheld until rectification or replacement has been completed; and/or
 - b) if the Contractor was or is failing to perform any work or obligation in accordance with the Contract, and had been so notified by the Engineer, the value of this work or obligation may be withheld until the work or obligation has been performed.

4.6.4 The Architect may in any Payment Certificate make any correction or modification that should properly be made to any previous Payment Certificate. A Payment Certificate shall not be deemed to indicate the Architect acceptance, approval, consent or satisfaction.

147 Payment

- 147.1 The Procuring Entity shall pay to the Contractor:
- a) The advance payment shall be paid within 60 days after signing of the contract by both parties or within 60 days after receiving the documents in accordance with Sub-Clause 4.2 [Performance Security] and Sub- Clause 14.2 [Advance Payment], whichever is later;
 - b) The amount certified in each Interim Payment Certificate within 60 days after the Architect Issues Interim Payment Certificate; and
 - c) the amount certified in the Final Payment Certificate within 60 days after the Procuring Entity Issues Interim Payment Certificate; or after determination of any disputed amount shown in the Final Statement in accordance with Sub-Clause 16.2 [Termination by Contractor].

147.2 Payment of the amount due in each currency shall be made into the bank account, nominated by the Contractor, in the payment country (forth is currency) specified in the Contract.

148 Delayed Payment

148.1 If the Contractor does not receive payment in accordance with Sub-Clause 14.7 [Payment], the Contractor shall be entitled to receive financing charges (simple interest) monthly on the amount unpaid during the period of delay. This period shall be deemed to commence on the date for payment specified in Sub-Clause 14.7 [Payment], irrespective (in the case of its sub-paragraph (b) of the date on which any Interim Payment Certificate is issued.

148.2 These financing charges shall be calculated at the annual rate of three percentage points above the mean rate of the Central Bank in Kenya of the currency of payment, or if not available, the inter-bank offered rate, and shall be paid in such currency.

148.3 The Contractor shall be entitled to this payment without formal notice and certification, and without prejudice to any other right or remedy.

149 Payment of Retention Money

149.1 When the Taking-Over Certificate has been issued for the Works, the first half of the Retention Money shall be certified by the Architect for payment to the Contractor. If a Taking-Over Certificate is issued for a Section or part of the Works, a proportion of the Retention Money shall be certified and paid. This proportion shall behalf (50%) of the proportion calculated by dividing the estimated contract value of the Section or part, by the estimated final Contract Price.

149.2 Promptly after the latest of the expiry dates of the Defects Liability Periods, the outstanding balance of the Retention Money shall be certified by the Architect for payment to the Contractor. If a Taking-Over Certificate was issued for a Section, a proportion of the second half of the Retention Money shall be certified and paid promptly after the expiry date of the Defects Notification Period for the Section. This proportion shall behalf (50%) of the proportion calculated by dividing the estimated contract value of the Section by

the estimated final Contract Price.

- 1493 However, if any work remains to be executed under Clause 11 [Defects Liability], the Architects shall be entitled to withhold certification of the estimated cost of this work until it has been executed.
- 1494 When calculating these proportions, no account shall be taken of any adjustments under Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost].
- 1495 Unless otherwise stated in the Special Conditions, when the Taking-Over Certificate has been issued for the Works and the first half of the Retention Money has been certified for payment by the Engineer, the Contractor shall be entitled to substitute a Retention Money Security guarantee, in the form annexed to the Special Conditions or in another form approved by the Procuring Entity and issued by a reputable bank or financial institution selected by the Contractor, for the second half of the Retention Money.
- 1496 The Procuring Entity shall return the Retention Money Security guarantee to the Contractor within 14 days after receiving a copy of the Completion Certificate.

14.10 Statement at Completion

- 14.10.1 Within 84 days after receiving the Taking-Over Certificate for the Works, the Contractor shall submit to the Architect three copies of a Statement at completion with supporting documents, in accordance with Sub-Clause 14.3 [Application for Interim Payment Certificates], showing:
- a) the value of all work done in accordance with the Contract up to the date stated in the Taking-Over Certificate for the Works,
 - b) any further sums which the Contractor considers to be due, and
 - c) an estimate of any other amounts which the Contractor considers will become due to him under the Contract. Estimated amounts shall be shown separately in this Statement at completion.
- 14.10.2 The Architect shall then certify in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates].

14.11 Application for Final Payment Certificate

- 14.11.1 Within 60 days after receiving the Completion Certificate, the Contractor shall submit, to the Engineer, six copies of a draft final statement with supporting documents showing in detail in a form approved by the Engineer:
- a) The value of all work done in accordance with the Contract, and
 - b) Any further sums which the Contractor considers to be due to him under the Contract otherwise.
- 14.11.2 If the Architect disagrees with or cannot verify any part of the draft final statement, the Contractor shall submit such further information as the Architect may reasonably require within 30 days from receipt of said draft and shall make such changes in the draft as may be agreed between them. The Contractor shall then prepare and submit to the Architect the final statement as agreed. This agreed statement is referred to in these Conditions as the "Final Statement".
- 14.11.3 However, if, following discussions between the Architect and the Contractor and any changes to the draft final statement which are agreed, it becomes evident that a dispute exists, the Architect shall deliver to the Procuring Entity (with a copy to the Contractor) an Interim Payment Certificate for the agreed parts of the draft final statement. Thereafter, if the dispute is finally resolved under Sub-Clause 20.4 [Obtaining Dispute Board's Decision] or Sub-Clause 20.5 [Amicable Settlement], the Contractor shall then prepare and submit to the Procuring Entity (with a copy to the Engineer) a Final Statement.

14.12 Discharge

When submitting the Final Statement, the Contractor shall submit a discharge which confirms that the total of the Final Statement represents full and final settlement of all moneys due to the Contractor under or in connection with the Contract. This discharge may state that it becomes effective when the Contractor has received the Performance Security and the outstanding balance of this total, in which event the discharge shall be effective on such date.

14.13 Issue of Final Payment Certificate

- 14.13.1 Within 30 days after receiving the Final Statement and discharge in accordance with Sub-Clause 14.11 [Application for Final Payment Certificate] and Sub-Clause 14.12 [Discharge], the Architect shall deliver, to the Procuring Entity and to the Contractor, the Final Payment Certificate which shall state:
- a) The amount which he fairly determines is finally due, and
 - b) After giving credit to the Procuring Entity for all amounts previously paid by the Procuring Entity and for all sums to which the Procuring Entity is entitled, the balance (if any) due from the Procuring Entity to the Contractor or from the Contractor to the Procuring Entity, as the case may be.
- 14.13.2 If the Contractor has not applied for a Final Payment Certificate in accordance with Sub-Clause 14.11 [Application for Final Payment Certificate] and Sub-Clause 14.12 [Discharge], the Architect shall request the Contractor to do so. If the Contractor fails to submit an application within a period of 30 days, the Architect shall issue the Final Payment Certificate for such amount as he fairly determines to be due.

14.14 Cessation of Procuring Entity's Liability

- 14.14.1 The Procuring Entity shall not be liable to the Contractor for any matter or thing under or in connection with the Contract or execution of the Works, except to the extent that the Contractor shall have included an amount expressly for it:
- a) in the Final Statement and also,
 - b) (except for matters or things arising after the issue of the Taking-Over Certificate for the Works) in the Statement at completion described in Sub-Clause 14.10 [Statement at Completion].
- 14.14.2 However, this Sub-Clause shall not limit the Procuring Entity's liability under his in demnification obligations, or the Procuring Entity's liability in any case of fraud, deliberate default or reckless misconduct by the Procuring Entity.

14.15 Currencies of Payment

The Contract Price shall be paid in the currency or currencies named in the Schedule of Payment Currencies. If more than one currency is so named, payments shall be made as follows:

- a) If the Accepted Contract Amount was expressed in Local Currency only:
 - i) the proportions or amounts of the Local and Foreign Currencies, and the fixed rates of exchange to be used for calculating the payments, shall be as stated in the Schedule of Payment Currencies, except as otherwise agreed by both Parties;
 - ii) payments and deductions under Sub-Clause 13.5 [Provisional Sums] and Sub-Clause 13.7 [Adjustments for Changes in Legislation] shall be made in the applicable currencies and proportions; and
 - iii) other payments and deductions under sub-paragraphs (a) to (d) of Sub-Clause 14.3 [Application for Interim Payment Certificates] shall be made in the currencies and proportions specified in sub-paragraph (a) (i) above;
- b) payment of the damages specified in the Special Conditions of Contract, shall be made in the currencies and proportions specified in the Schedule of Payment Currencies;
- c) other payments to the Procuring Entity by the Contractor shall be made in the currency in which the sum was expended by the Procuring Entity, or in such currency as may be agreed by both Parties;
- d) if any amount payable by the Contractor to the Procuring Entity in a particular currency exceeds the sum payable by the Procuring Entity to the Contractor in that currency, the Procuring Entity may recover the balance of this amount from the sums otherwise payable to the Contractor in other currencies; and
- e) if no rates of exchange are stated in the Schedule of Payment Currencies, they shall be those prevailing on the Base Date and determined by the Central Bank of Kenya.

15 TERMINATION BY PROCURING ENTITY

15.1 Notice to correct any defects or failures

If the Contractor fails to carry out any obligation under the Contract, the Architect may by notice require the Contractor to make good the failure and to remedy it within 30 days.

152 Termination by Procuring Entity

- 1521 The Procuring Entity shall be entitled to terminate the Contract if the Contractor breaches the contract based on following circumstances which shall include but not limited to:
- a) fails to comply with Sub-Clause 4.2 [Performance Security] or with a notice under Sub-Clause 15.1 [Notice to Correct],
 - b) abandons the Works or otherwise plainly demonstrates the intention not to continue performance of his obligations under the Contract,
 - c) without reasonable excuse fails:
 - i) to proceed with the Works in accordance with Clause 8 [Commencement, Delays and Suspension], or
 - ii) to comply with a notice issued under Sub-Clause 7.5 [Rejection] or Sub-Clause 7.6 [Remedial Work], within 30 days after receiving it,
 - d) subcontracts the major part or whole of the Works or assigns the Contract without the consent of the Procuring Entity,
 - e) becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events, or
 - f) gives or offers to give (directly or indirectly) to any person any bribe, gift, gratuity, commission or other thing of value, as an induce mentor reward:
 - i) for doing or for bearing to do any action in relation to the Contract, or
 - ii) for showing or for bearing to show favor or disfavor to any person in relation to the Contract, or
 - iii) if any of the Contractor's Personnel, agents or Subcontractors gives or offers to give (directly or indirectly) to any person any such induce mentor reward as is described in this sub-paragraph (f). However, lawful inducements and rewards to Contractor's Personnel shall not entitle termination, or
 - g) If the contract or repeatedly fails to remedy delivers defective work,
 - h) based on reasonable evidence, has engaged in Fraud and Corruption as defined in paragraph 2.2 of the Appendix B to these General Conditions, in competing for or in executing the Contract.
- 1522 In any of these events or circumstances, the Procuring Entity may, upon giving 14 days' notice to the Contractor, terminate the Contract and expel the Contractor from the Site. However, in the case of sub-paragraph (e) or (f) or (g) or (h), the Procuring Entity may by notice terminate the Contract immediately.
- 1523 The Procuring Entity's election to terminate the Contract shall not prejudice any other rights of the Procuring Entity, under the Contractor otherwise.
- 1524 The Contractor shall then leave the Site and deliver any required Goods, all Contractor's Documents, and other design documents made by or for him, to the Engineer. However, the Contractor shall use his best efforts to comply immediately with any reasonable instructions included in the notice (i) for the assignment of any subcontract, and (ii) for the protection of life or property or for the safety of the Works.
- 1525 After termination, the Procuring Entity may complete the Works and/ or arrange for any other entities to do so. The Procuring Entity and these entities may then use any Goods, Contractor's Documents and other design documents made by or on behalf of the Contractor.
- 1526 The Procuring Entity shall then give notice that the Contractor's Equipment and Temporary Works will be released to the Contractor at or near the Site. The Contractor shall promptly arrange their removal, at the risk and cost of the Contractor. However, if by this time the Contractor has failed to make a payment due to the Procuring Entity, these items may be sold by the Procuring Entity in order to recover this payment. Any balance of the proceeds shall then be paid to the Contractor.

153 Valuation at Date of Termination

As soon as practicable after a notice of termination under Sub-Clause 15.2 [Termination by Procuring Entity] has taken effect, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine the value of the Works, Goods and Contractor's Documents, and any other sums due

to the Contractor for work executed in accordance with the Contract.

154 Payment after Termination

After a notice of termination under Sub-Clause 15.2 [Termination by Procuring Entity] has taken effect, the Procuring Entity may:

- a) Proceed in accordance with Sub-Clause 2.5 [Procuring Entity's Claims],
- b) withhold further payments to the Contractor until the costs of execution, completion and remedying of any defects, damages for delay in completion (if any), and all other costs incurred by the Procuring Entity, have been established, and/ or
- c) recover from the Contractor any losses and damages incurred by the Procuring Entity and any extra costs of completing the Works, after allowing for any sum due to the Contractor under Sub-Clause 15.3 [Valuation at Date of Termination]. After recovering any such losses, damages and extra costs, the Procuring Entity shall pay any balance to the Contractor.

155 Procuring Entity's Entitlement to Termination for Convenience

The Procuring Entity shall be entitled to terminate the Contract, at any time at the Procuring Entity's convenience, by giving notice of such termination to the Contractor. The termination shall take effect 30 days after the later of the dates on which the Contractor receives this notice or the Procuring Entity returns the Performance Security. The Procuring Entity shall not terminate the Contract under this Sub-Clause in order to execute the Works itself or to arrange for the Works to be executed by another contractor or to avoid a termination of the Contract by the Contractor under Clause 16.2 [Termination by Contractor]. After this termination, the Contractor shall proceed in accordance with Sub-Clause 16.3 [Cessation of Work and Removal of Contractor's Equipment] and shall be paid in accordance with Sub-Clause 16.4 [Payment on Termination].

156 Fraud and Corruption

The Contractor shall ensure compliance with the Kenya Government's Anti-Corruption Laws and its prevailing sanctions.

157 Corrupt gifts and payments of commission

15.7.1 The Contractor shall not;

- a) Offer or give or agree to give to any person in the service of the Procuring Entity any gift or consideration of any kind as an inducement or reward for doing or for bearing to door for having done or for borne to do any act in relation to the obtaining or execution of this or any other Contract for the Procuring Entity or for showing or for bearing to show favor or disfavor to any person in relation to this or any other contract for the Procuring Entity.
- b) Enter into this or any other contract with the Procuring Entity in connection with which commission has been paid or agreed to be paid by him 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 there of have been disclosed in writing to the Procuring Entity.

15.7.2 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) shall be an offence under the provisions of the Public Procurement and Asset Disposal Act (2015) and the Anti-Corruption and Economic Crimes Act (2003) of the Laws of Kenya.

16 SUSPENSION AND TERMINATION BY CONTRACTOR

16.1 Contractor's Entitlement to Suspend Work

16.1.1 If the Architect fails to certify in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates] or Sub-Clause 14.7 [Payment], or not receiving instructions that would enable the contractor to proceed with the works in accordance with the program, the Contractor may, after giving not less than 30 days' notice to the Procuring Entity, suspend work (or reduce the rate of work) unless and until the Contractor has received the Payment Certificate, reasonable evidence or payment, as the case may be and as described

in the notice.

- 16.12 The Contractor's action shall not prejudice his entitlements to financing charges under Sub-Clause 14.8 [Delayed Payment] and to termination under Sub-Clause 16.2 [Termination by Contractor].
- 16.13 If the Contractor subsequently receives such Payment Certificate, evidence or payment (as described in the relevant Sub-Clause and in the above notice) before giving a notice of termination, the Contractor shall resume normal working as soon as is reasonably practicable.
- 16.14 If the Contractor suffers delay and/or incurs Cost as a result of suspending work (or reducing the rate of work) in accordance with this Sub-Clause, the Contractor shall give notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
 - b) payment of any such Cost-plus profit, which shall be included in the Contract Price.
- 16.2** After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

16.3 Termination by Contractor

- 16.3.1 The Contractor shall be entitled to terminate the Contract if:
- a) the Architect fails, within 60 days after receiving a Statement and supporting documents, to issue the relevant Payment Certificate,
 - b) the Contractor does not receive the amount due under an Interim Payment Certificate within 90 days after the expiry of the time stated in Sub-Clause 14.7 [Payment] within which payment is to be made (except for deductions in accordance with Sub-Clause 2.5 [Procuring Entity's Claims]),
 - c) the Procuring Entity substantially fails to perform his obligations under the Contract in such manner as to materially and adversely affect the economic balance of the Contract and/or the ability of the Contractor to perform the Contract,
 - d) a prolonged suspension affects the whole of the Works as described in Sub-Clause 8.11 [Prolonged Suspension], or
 - e) the Procuring Entity becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events.
 - f) the Contractor does not receive the Architect instruction recording the agreement of both Parties on the fulfilment of the conditions for the Commencement of Works under Sub-Clause 8.1 [Commencement of Works].
- 16.3.2 In any of these events or circumstances, the Contractor may, upon giving 14 days' notice to the Procuring Entity, terminate the Contract. However, in the case of sub-paragraph (f) or (g), the Contractor may by notice terminate the Contract immediately.
- 16.3.3 The Contractor's election to terminate the Contract shall not prejudice any other rights of the Contractor, under the Contract otherwise.

16.4 Cessation of Work and Removal of Contractor's Equipment

After a notice of termination under Sub-Clause 15.5 [Procuring Entity's Entitlement to Termination for Convenience], Sub-Clause 16.2 [Termination by Contractor] or Sub-Clause 19.6 [Optional Termination, Payment and Release] has taken effect, the Contractor shall promptly:

- a) cease all further work, except for such work as may have been instructed by the Architect for the protection of life or property or for the safety of the Works,
- b) hand over Contractor's Documents, Plant, Materials and other work, for which the Contractor has received payment, and
- c) remove all other Goods from the Site, except as necessary for safety, and leave the Site.

16.5 Payment on Termination

After a notice of termination under Sub-Clause 16.2 [Termination by Contractor] has taken effect, the

Procuring Entity shall promptly:

- a) Return the Performance Security to the Contractor,
- b) pay the Contractor in accordance with Sub-Clause 19.6 [Optional Termination, Payment and Release], and
- c) pay to the Contractor the amount of any loss or damage sustained by the Contractor as a result of this termination.

17. RISK AND RESPONSIBILITY

17.1 Indemnities

17.1.1 The Contractor shall indemnify and hold harmless the Procuring Entity, the Procuring Entity's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of:

- a) Bodily injury, sickness, disease or death, of any person what so ever arising out of or in the course of or by reason of the Contractor's design (if any), the execution and completion of the Works and the remedying of any defects, unless attributable to any negligence, willful actor breach of the Contract by the Procuring Entity, the Procuring Entity's Personnel, or any of their respective agents, and
- b) damage to or loss of any property, real or personal (other than the Works), to the extent that such damage or loss arises out of or in the course of or by reason of the Contractor's design (if any), the execution and completion of the Works and the remedying of any defects, unless and to the extent that any such damage or loss is attributable to any negligence, willful act or breach of the Contract by the Procuring Entity, the Procuring Entity's Personnel, their respective agents, or anyone directly or indirectly employed by any of them.

17.1.2 The Procuring Entity shall indemnify and hold harmless the Contractor, the Contractor's Personnel, and their respective agents, against and from all claims, damages, losses and expenses (including legal fees and expenses) in respect of (1) bodily injury, sickness, disease or death, which is attributable to any negligence, willful act or breach of the Contract by the Procuring Entity, the Procuring Entity's Personnel, or any of their respective agents, and (2) the matters for which liability may be excluded from insurance cover, as described in sub-paragraphs (d)(i), (ii) and (iii) of Sub-Clause 18.3 [Insurance Against Injury to Persons and Damage to Property], unless and to the extent that any such damage or loss is attributable to any negligence, willful actor breach of the Contract by the contractor, the contractor's Personnel, their respective agents, or anyone directly or indirectly employed by any of them.

17.2 Contractor's Care of the Works

17.2.1 The Contractor shall take full responsibility for the care of the Works and Goods from the Commencement Date until the Taking-Over Certificate is issued (or is deemed to be issued under Sub-Clause 10.1 [Taking Over of the Works and Sections]) for the Works, when responsibility for the care of the Works shall pass to the Procuring Entity. If a Taking-Over Certificate is issued (or is so deemed to be issued) for any Section or part of the Works, responsibility for the care of the Section or part shall then pass to the Procuring Entity.

17.2.2 After responsibility has accordingly passed to the Procuring Entity, the Contractor shall take responsibility for the care of any work which is outstanding on the date stated in a Taking-Over Certificate, until this outstanding work has been completed.

17.2.3 If any loss or damage happens to the Works, Goods or Contractor's Documents during the period when the Contractor is responsible for their care, from any cause not listed in Sub-Clause 17.3 [Procuring Entity's Risks], the Contractor shall rectify the loss or damage at the Contractor's risk and cost, so that the Works, Goods and Contractor's Documents conform with the Contract.

17.2.4 The Contractor shall be liable for any loss or damage caused by any actions performed by the Contractor after a Taking-Over Certificate has been issued. The Contractor shall also be liable for any loss or damage which occurs after a Taking-Over Certificate has been issued and which arose from a previous event for which the Contractor was liable.

17.3 Procuring Entity's Risks

The risks referred to in Sub-Clause 17.4 [Consequences of Procuring Entity's Risks] below, in so far as they directly affect the execution of the Works in Kenya, are:

- a) War hostilities (whether war be declared or not),
- b) rebellion, riot, commotion or disorder, terrorism, sabotage by persons other than the Contractor's Personnel,
- c) explosive materials, ionizing radiation or contamination by radio-activity, except as may be attributable to the Contractor's use of such explosives, radiation or radio-activity,
- d) pressure waves caused by aircraft or other aerial devices traveling at sonic or supersonic speeds,
- e) use or occupation by the Procuring Entity of any part of the Permanent Works, except as may be specified in the Contract,
- f) design of any part of the Works by the Procuring Entity's Personnel or by others for whom the Procuring Entity is responsible, and
- g) any operation of the forces of nature which is Unforeseeable or against which an experienced contractor could not reasonably have been expected to have taken adequate preventive precautions.

174 Consequences of Procuring Entity's Risks

- 174.1 If and to the extent that any of the risks listed in Sub-Clause 17.3 above results in loss or damage to the Works, Goods or Contractor's Documents, the Contractor shall promptly give notice to the Architect and shall rectify this loss or damage to the extent required by the Engineer.
- 174.2 If the Contractor suffers delay and/ or incurs Cost from rectifying this loss or damage, the Contractor shall give a further notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
- (a) An extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
 - (b) Payment of any such Cost, which shall be included in the Contract Price. In the case of sub-paragraphs (c) and (g) of Sub-Clause 17.3 [Procuring Entity's Risks], Accrued Costs shall be payable.
- 174.3 After receiving this further notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

175 Intellectual and Industrial Property Rights

- 175.1 In this Sub-Clause, "infringement" shall refer to an infringement (or alleged infringement) of any patent, registered design, copyright, trade mark, trade name, trade secret or other intellectual or industrial property right relating to the Works; and "claim" shall refer to a claim (or proceedings pursuing a claim) alleging an infringement.
- 175.2 Whenever a Party does not give notice to the other Party of any claim within 30 days of receiving the claim, the first Party shall be deemed to have waived any right to indemnity under this Sub-Clause.
- 175.3 The Procuring Entity shall indemnify and hold the Contractor harmless against and from any claim alleging an infringement which is or was:
- a) An unavoidable result of the Contractor's compliance with the Contract, or
 - b) A result of any Works being used by the Procuring Entity:
 - i) for a purpose other than that indicated by, or reasonably to be inferred from, the Contract, or
 - ii) in conjunction with anything not supplied by the Contractor, unless such use was disclosed to the Contractor prior to the Base Date or is stated in the Contract.
- 175.4 The Contractor shall indemnify and hold the Procuring Entity harmless against and from any other claim which arises out of or in relation to (i) the manufacture, use, sale or import of any Goods, or (ii) any design for which the Contractor is responsible.
- 175.5 If a Party is entitled to be indemnified under this Sub-Clause, the indemnifying Party may (at its cost) conduct negotiations for the settlement of the claim, and any litigation or arbitration which may arise from it. The other Party shall, at the request and cost of the indemnifying Party, assist in contesting the claim. This other Party (and its Personnel) shall not make any admission which might be prejudicial to the indemnifying Party, unless the indemnifying Party failed to take over the conduct of any negotiations, litigation or arbitration upon being requested to do so by such other Party.

1756 For operation and maintenance of any plant or equipment installed, the contractor shall grant a non-exclusive and non-transferable license to the Procuring Entity under the patent, utility models, or other intellectual rights owned by the contractor or a third party from whom the contract or has received the rights to grant sub-licenses and shall also grant to the Procuring Entity a non-exclusive and non-transferable rights (without the rights to sub-license) to use the know-how and other technical information disclosed to the contract or under the contract. Nothing contained here-in shall be construed as transferring ownership of any patent, utility model, trademark, design, copy right, know-how or other intellectual rights from the contractor or any other third party to the Procuring Entity.

176 Limitation of Liability

1761 Neither Party shall be liable to the other Party for loss of use of any Works, loss of profit, loss of any contractor for any in director consequential loss or damage which may be suffered by the other Party in connection with the Contract, other than as specifically provided in Sub-Clause 8.7 [Delay Damages]; Sub-Clause 11.2 [Cost of Remedying Defects]; Sub-Clause 15.4 [Payment after Termination]; Sub-Clause 16.4 [Payment on Termination]; Sub-Clause 17.1 [Indemnities]; Sub-Clause 17.4(b) [Consequences of Procuring Entity's Risks] and Sub-Clause 17.5 [Intellectual and Industrial Property Rights].

1762 The total liability of the Contractor to the Procuring Entity, under or in connection with the Contract other than under Sub-Clause 4.19 [Electricity, Water and Gas], Sub-Clause 4.20 [Procuring Entity's Equipment and Free-Issue Materials], Sub-Clause 17.1 [Indemnities] and Sub-Clause 17.5 [Intellectual and Industrial Property Rights], shall not exceed the sum resulting from the application of a multiplier (less or greater than one) to the Accepted Contract Amount, as stated in **the Special Conditions of Contract**, or (if such multiplier or other sum is not so stated) the Accepted Contract Amount.

1763 This Sub-Clause shall not limit liability in any case of fraud, deliberate default or reckless misconduct by the defaulting Party.

177 Use of Procuring Entity's Accommodation/Facilities

177.1 The Contractor shall take full responsibility for the care of the Procuring Entity provided accommodation and facilities, if any, as detailed in the Specification, from the respective dates of hand-over to the Contractor until cessation of occupation (where hand-over or cessation of occupation may take place after the date stated in the Taking-Over Certificate for the Works).

177.2 If any loss or damage happens to any of the above items while the Contractor is responsible for their care arising from any cause whatsoever other than those for which the Procuring Entity is liable, the Contractor shall, at his own cost, rectify the loss or damage to the satisfaction of the Engineer.

18 INSURANCE

18.1 General Requirements for Insurances

18.1.1 In this Clause, "insuring Party" means, for each type of insurance, the Party responsible for effecting and maintaining the insurance specified in the relevant Sub-Clause.

18.1.2 Wherever the Contractor is the insuring Party, each insurance shall be effected with insurers and in terms approved by the Procuring Entity. These terms shall be consistent with any terms agreed by both Parties before the date of the Letter of Acceptance. This agreement of terms shall take precedence over the provisions of this Clause.

18.1.3 Wherever the Procuring Entity is the insuring Party, each insurance shall be effected with insurers and in terms acceptable to the Contractor. These terms shall be consistent with any terms agreed by both Parties before the date of the Letter of Acceptance. This agreement of terms shall take precedence over the provisions of this Clause.

18.1.4 If a policy is required to indemnify joint insured, the cover shall apply separately to each insured as though a separate policy had been issued for each of the joint insured. If a policy indemnifies additional joint insured, namely in addition to the insured specified in this Clause, (i) the Contractor shall act under the policy on behalf of these additional joint insured except that the Procuring Entity shall act for Procuring Entity's Personnel, (ii) additional joint insured shall not be entitled to receive payments directly from the insurer or to have any other direct dealings with the insurer, and (iii) the insuring Party shall require all additional joint insured to comply with the conditions stipulated in the policy.

- 18.15 Each policy insuring against loss or damage shall provide for payments to be made in the currencies required to rectify the loss or damage. Payments received from insurers shall be used for the rectification of the loss or damage.
- 18.16 The relevant insuring Party shall, within the respective periods stated in **the Special Conditions of Contract** (calculated from the Commencement Date), submit to the other Party:
- a) Evidence that the insurances described in this Clause have been affected, and
 - b) copies of the policies for the insurances described in Sub-Clause 18.2 [Insurance for Works and Contractor's Equipment] and Sub-Clause 18.3 [Insurance against Injury to Persons and Damage to Property].
- 18.17 When each premium is paid, the insuring Party shall submit evidence of payment to the other Party. Whenever evidence or policies are submitted, the insuring Party shall also give notice to the Engineer.
- 18.18 Each Party shall comply with the conditions stipulated in each of the insurance policies. The insuring Party shall keep the insurers informed of any relevant changes to the execution of the Works and ensure that insurance is maintained in accordance with this Clause.
- 18.19 Neither Party shall make any material alteration to the terms of any insurance without the prior approval of the other Party. If an insurer makes (or at attempts to make) any alteration, the Party first notified by the insurer shall promptly give notice to the other Party.
- 18.1.10 If the insuring Party fails to effect and keep in force any of the insurances it is required to effect and maintain under the Contractor fails to provide satisfactory evidence and copies of policies in accordance with this Sub- Clause, the other Party may (at its option and without prejudice to any other right or remedy) effect insurance for the relevant coverage and pay the premiums due. The insuring Party shall pay the amount of these premiums to the other Party, and the Contract Price shall be adjusted accordingly.
- 18.1.11 Nothing in this Clause limits the obligations, liabilities or responsibilities of the Contractor or the Procuring Entity, under the other terms of the Contract otherwise. Any amounts not insured or not recovered from the insurers shall be borne by the Contractor and/or the Procuring Entity.
- 18.1.12 Procuring Entity in accordance with these obligations, liabilities or responsibilities. However, if the insuring Party fails to effect and keep in force an insurance which is available and which it is required to effect and maintain under the Contract, and the other Party neither approves the omission nor effects insurance for the coverage relevant to this default, any moneys which should have been recoverable under this insurance shall be paid by the insuring Party.
- 18.1.13 Payments by one Party to the other Party shall be subject to Sub-Clause 2.5 [Procuring Entity's Claims] or Sub- Clause 20.1 [Contractor's Claims], as applicable.
- 18.1.14 The Contractor shall be entitled to place all insurance relating to the Contract (including, but not limited to the insurance referred to Clause 18) with insurers from any eligible source country.

18.2 Insurance for Works and Contractor's Equipment

- 18.21 The insuring Party shall insure the Works, Plant, Material and Contractor's Documents for not less than the full reinstatement cost including the costs of demolition, removal of debris and professional fees and profit. This insurance shall be effective from the date by which the evidence is to be submitted under subparagraph (a) of Sub-Clause 18.1 [General Requirements for Insurances], until the date of issue of the Taking-Over Certificate for the Works.
- 18.22 The insuring Party shall maintain this insurance to provide cover until the date of issue of the Performance Certificate, for loss or damage for which the Contractor is liable arising from a cause occurring prior to the issue of the Taking-Over Certificate, and for loss or damage caused by the Contractor in the course of any other operations (including those under Clause 11 [Defects Liability]).
- 18.23 The insuring Party shall insure the Contractor's Equipment for not less than the full replacement value, including delivery to Site. For each item of Contractor's Equipment, the insurance shall be effective while it is being transported to the Site and until it is no longer required as Contractor's Equipment.

- 1824 Unless otherwise stated in the Special Conditions, insurances under this Sub-Clause:
- a) Shall be effected and maintained by the Contractor as insuring Party,
 - b) shall be in the joint names of the Parties, who shall be jointly entitled to receive payments from the insurers, payments being held or allocated to the Party actually bearing the costs of rectifying the loss or damage,
 - c) shall cover all loss and damage from any cause not listed in Sub-Clause 17.3 [Procuring Entity's Risks],
 - d) shall also cover, to the extent specifically required in the tendering documents of the Contract, loss or damage to a part of the Works which is attributable to the use or occupation by the Procuring Entity of another part of the Works, and loss or damage from the risks listed in sub-paragraphs (c), (g) and (h) of Sub-Clause 17.3 [Procuring Entity's Risks], excluding (in each case) risks which are not insurable at commercially reasonable terms, with deductibles per occurrence of not more than the amount stated **in the Special Conditions** of Contract (if an amount is not so stated, this sub-paragraph (d) shall not apply), and
 - e) may however exclude loss of, damage to, and reinstatement of:
 - i) a part of the Works which is in a defective condition due to a defect in its design, materials or workmanship (but cover shall include any other parts which are lost or damaged as a direct result of this defective condition and not as described in sub-paragraph (ii) below),
 - ii) a part of the Works which is lost or damaged in order to reinstate any other part of the Works if this other part is in a defective condition due to a defect in its design, materials or workmanship,
 - iii) a part of the Works which has been taken over by the Procuring Entity, except to the extent that the Contractor is liable for the loss or damage, and
 - iv) Goods while they are not in Kenya, subject to Sub-Clause 14.5 [Plant and Materials intended for the Works].

1825 If, more than one year after the Base Date, the cover described in sub-paragraph (d) above ceases to be available at commercially reasonable terms, the Contractor shall (as insuring Party) give notice to the Procuring Entity, with supporting particulars. The Procuring Entity shall then (i) be entitled subject to Sub-Clause 2.5 [Procuring Entity's Claims] to payment of an amount equivalent to such commercially reasonable terms as the Contractor should have expected to have paid for such cover, and (ii) be deemed, unless he obtains the cover at commercially reasonable terms, to have approved the omission under Sub-Clause 18.1 [General Requirements for Insurances].

183 Insurance against Injury to Persons and Damage to Property

183.1 The insuring Party shall insure against each Party's liability for any loss, damage, death or bodily injury which may occur to any physical property (except things insured under Sub-Clause 18.2 [Insurance for Works and Contractor's Equipment]) or to any person (except persons insured under Sub-Clause 18.4 [Insurance for Contractor's Personnel]), which may arise out of the Contractor's performance of the Contract and occurring before the issue of the Performance Certificate.

183.2 This insurance shall be for a limit per occurrence of not less than the amount stated in **the Special Conditions of Contract**, with no limit on the number of occurrences. If an amount is not stated in the **Special Conditions of Contract**, this Sub-Clause shall not apply.

183.3 Unless otherwise stated in the Special Conditions, the insurances specified in this Sub-Clause:

- a) Shall be effected and maintained by the Contractor as insuring Party,
- b) shall be in the joint names of the Parties,
- c) shall be extended to cover liability for all loss and damage to the Procuring Entity's property (except things insured under Sub-Clause 18.2) arising out of the Contractor's performance of the Contract, and
- d) may however exclude liability to the extent that it arises from:
 - i) the Procuring Entity's right to have the Permanent Works executed on, over, under, in or
 - ii) through any land, and to occupy this land for the Permanent Works,
 - iii) damage which is an unavoidable result of the Contractor's obligations to execute the
 - iv) Works and remedy any defects, and
 - v) a cause listed in Sub-Clause 17.3 [Procuring Entity's Risks], except to the extent that cover is available at commercially reasonable terms.

184 Insurance for Contractor's Personnel

- 1841 The Contractor shall effect and maintain insurance against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel.
- 1842 The insurance shall cover the Procuring Entity and the Architect against liability for claims, damages, losses and expenses (including legal fees and expenses) arising from injury, sickness, disease or death of any person employed by the Contractor or any other of the Contractor's Personnel, except that this insurance may exclude losses and claims to the extent that they arise from any act or neglect of the Procuring Entity or of the Procuring Entity's Personnel.
- 1843 The insurance shall be maintained in full force and effect during the whole time that these personnel are assisting in the execution of the Works. For a Subcontractor's employees, the insurance may be effected by the Subcontractor, but the Contractor shall be responsible for compliance with this Clause.

19. FORCE MAJEURE

19.1 Definition of Force Majeure

19.1.1 In this Clause, "Force Majeure" means an exceptional event or circumstance:

- a) Which is beyond a Party's control,
- b) Which such Party could not reasonably have provided against before entering into the Contract,
- c) which, having arisen, such Party could not reasonably have avoided or overcome, and
- d) which is not substantially attributable to the other Party.

19.1.2 Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied:

- a) war, hostilities (whether war be declared or not), invasion, act of foreign enemies,
- b) rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war,
- c) riot, commotion, disorder, strike or lockout by persons other than the Contractor's Personnel,
- d) munitions of war, explosive materials, ionizing radiation or contamination by radio-activity, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radio-activity, and
- e) natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.

19.2 Notice of Force Majeure

19.2.1 If a Party is or will be prevented from performing its substantial obligations under the Contract by Force Majeure, then it shall give notice to the other Party of the event or circumstances constituting the Force Majeure and shall specify the obligations, the performance of which is or will be prevented. The notice shall be given within 14 days after the Party became aware, or should have become aware, of the relevant event or circumstance constituting Force Majeure.

19.2.2 The Party shall, having given notice, be excused performance of its obligations for so long as such Force Majeure prevents it from performing them.

19.2.3 Notwithstanding any other provision of this Clause, Force Majeure shall not apply to obligations of either Party to make payments to the other Party under the Contract.

19.3 Duty to Minimize Delay

Each Party shall at all times use all reasonable endeavors to minimize any delay in the performance of the Contract as a result of Force Majeure. A Party shall give notice to the other Party when it ceases to be affected by the Force Majeure.

19.4 Consequences of Force Majeure

19.4.1 If the Contractor is prevented from performing his substantial obligations under the Contract by Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], and suffers delay and/ or incurs Cost by reason of such Force Majeure, the Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:

- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and

- b) if the event or circumstance is of the kind described in sub-paragraphs (i) to (iv) of Sub-Clause 19.1 [Definition of Force Majeure] and, in sub-paragraphs (ii) to (iv), occurs in Kenya, payment of any such Cost, including the costs of rectifying or replacing the Works and/or Goods damaged or destroyed by Force Majeure, to the extent they are not indemnified through the insurance policy referred to in Sub- Clause 18.2 [Insurance for Works and Contractor's Equipment].

1942 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

195 Force Majeure Affecting Subcontractor

If any Subcontractor is entitled under any contract or agreement relating to the Works to relief from force majeure on terms additional to or broader than those specified in this Clause, such additional or broader force majeure events or circumstances shall not excuse the Contractor's non-performance or entitle him to relief under this Clause.

196 Optional Termination, Payment and Release

1961 If the execution of substantially all the Works in progress is prevented for a continuous period of 84 days by reason of Force Majeure of which notice has been given under Sub-Clause 19.2 [Notice of Force Majeure], or for multiple periods which total more than 140 days due to the same notified Force Majeure, then either Party may give to the other Party a notice of termination of the Contract. In this event, the termination shall take effect 7 days after the notice is given, and the Contractor shall proceed in accordance with Sub-Clause 16.3 [Cessation of Work and Removal of Contractor's Equipment].

1962 Upon such termination, the Architect shall determine the value of the work done and issue a Payment Certificate which shall include:

- a) the amounts payable for any work carried out for which a price is stated in the Contract;
- b) the Cost of Plant and Materials ordered for the Works which have been delivered to the Contractor, or of which the Contractor is liable to accept delivery: this Plant and Materials shall become the property of (and be at the risk of) the Procuring Entity when paid for by the Procuring Entity, and the Contractor shall place the same at the Procuring Entity's disposal;
- c) other Cost or liabilities which in the circumstances were reasonably and necessarily incurred by the Contractor in the expectation of completing the Works;
- d) the Cost of removal of Temporary Works and Contractor's Equipment from the Site and the return of these items to the Contractor's works in his country (or to any other destination at no greater cost); and
- e) the Cost of repatriation of the Contractor's staff and lab or employed wholly in connection with the Works at the date of termination.

197 Release from Performance

Notwithstanding any other provision of this Clause, if any event or circumstance outside the control of the Parties (including, but not limited to, Force Majeure) arises which makes it impossible or unlawful for either or both Parties to fulfil its or their contractual obligations or which, under the law governing the Contract, entitles the Parties to be released from further performance of the Contract, then upon notice by either Party to the other Party of such event or circumstance:

- a) The Parties shall be discharged from further performance, without prejudice to the rights of either Party in respect of any previous breach of the Contract, and
- b) The sum payable by the Procuring Entity to the Contractor shall be the same as would have been payable under Sub-Clause 19.6 [Optional Termination, Payment and Release] if the Contract had been terminated under Sub-Clause 19.6.

20 SETTLEMENT OF CLAIMS AND DISPUTES

20.1 Contractor's Claims

- 20.1.1 If the Contractor considers itself to be entitled to any extension of the Time for Completion and/or any additional payment, under any Clause of these Conditions or otherwise in connection with the Contract, the Contractor shall give Notice to the Engineer, describing the event or circumstance giving rise to the claim. The notice shall be given as soon as practicable, and not later than 30 days after the Contractor became aware, or should have become aware, of the event or circumstance.
- 20.1.2 If the Contractor fails to give notice of a claim within such period of 30 days, the Time for Completion shall not be extended, the Contractor shall not be entitled to additional payment, and the Procuring Entity shall be discharged from all liability in connection with the claim. Otherwise, the following provisions of this Sub-Clause shall apply.
- 20.1.3 The Contractor shall also submit any other notices which are required by the Contract, and supporting particulars for the claim, all as relevant to such event or circumstance.
- 20.1.4 The Contractor shall keep such contemporary records as may be necessary to substantiate any claim, either on the Site or at another location acceptable to the Engineer. Without admitting the Procuring Entity's liability, the Architect may, after receiving any notice under this Sub-Clause, monitor the record-keeping and/ or instruct the Contractor to keep further contemporary records. The Contractor shall permit the Architect to inspect all these records and shall (if instructed) submit copies to the Engineer.
- 20.1.5 Within 42 days after the Contractor became aware (or should have become aware) of the event or circumstance giving rise to the claim, or within such other period as may be proposed by the Contractor and approved by the Engineer, the Contractor shall send to the Architect fully detailed claim which includes full supporting particulars of the basis of the claim and of the extension of time and/ or additional payment claimed. If the event or circumstance giving rise to the claim has a continuing effect:
- a) This fully detailed claim shall be considered as interim;
 - b) The Contractor shall send further interim claims at monthly intervals, giving the accumulated delay and/ or amount claimed, and such further particulars as the Architect may reasonably require; and
 - c) The Contractor shall send a final claim within 30 days after the end of the effects resulting from the event or circumstance, or within such other period as may be proposed by the Contractor and approved by the Engineer.
- 20.1.6 Within 42 days after receiving a Notice of a claim or any further particulars supporting a previous claim, or within such other period as may be proposed by the Architect and approved by the Contractor, the Architect shall respond with approval, or with disapproval and detailed comments. He may also request any necessary further particulars but shall nevertheless give his response on the principles of the claim within the above defined time period.
- 20.1.7 Within the above defined period of 42 days, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) the extension (if any) of the Time for Completion (before or after its expiry) in accordance with Sub-Clause 8.4 [Extension of Time for Completion], and/or (ii) the additional payment (if any) to which the Contractor is entitled under the Contract.
- 20.1.8 Each Payment Certificate shall include such additional payment for any claim as has been reasonably substantiated as due under the relevant provision of the Contract. Unless and until the particulars supplied are sufficient to substantiate the whole of the claim, the Contractor shall only be entitled to payment for such part of the claim as he has been able to substantiate.
- 20.1.9 If the Architect does not respond within the time frame defined in this Clause, either Party may consider that the claim is rejected by the Architect and any of the Parties may refer the dispute for amicable settlement in accordance with Clause 20.3.
- 20.1.10 The requirements of this Sub-Clause are in addition to those of any other Sub-Clause which may apply to a claim. If the Contractor fails to comply with this or another Sub-Clause in relation to any claim, any extension of time and/ or additional payment shall take account of the extent (if any) to which the failure has prevented or prejudiced proper investigation of the claim, unless the claim is excluded under the second

paragraph of this Sub-Clause 20.3.

202 Procuring Entity's Claims

- 2021 If the Procuring Entity considers itself to be entitled to any payment under any Clause of these Conditions or otherwise in connection with the Contract, and/or to any extension of the Defects Notification Period, the Procuring Entity or the Architect shall give notice and particulars to the Contractor. However, notice is not required for payments due under Sub-Clause 4.19 [Electricity, Water and Gas], under Sub-Clause 4.20 [Procuring Entity's Equipment and Free-Issue Materials], or for other services requested by the Contractor.
- 2022 The notice shall be given as soon as practicable and no longer than 30 days after the Procuring Entity became aware, or should have become aware, of the event or circumstances giving rise to the claim. A notice relating to any extension of the Defects Notification Period shall be given before the expiry of such period.
- 2023 The particulars shall specify the Clause or other basis of the claim and shall include substantiation of the amount and/or extension to which the Procuring Entity considers itself to be entitled in connection with the Contract. The Architect shall then proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) the amount (if any) which the Procuring Entity is entitled to be paid by the Contractor, and/or (ii) the extension (if any) of the Defects Notification Period in accordance with Sub-Clause 11.3 [Extension of Defects Notification Period].
- 2024 This amount may be included as a deduction in the Contract Price and Payment Certificates. The Procuring Entity shall only be entitled to set off against or make any deduction from an amount certified in a Payment Certificate, or to otherwise claim against the Contractor, in accordance with this Sub-Clause.

203 Amicable Settlement

Where a notice of a claim has been given, both Parties shall attempt to settle the dispute amicably before the commencement of arbitration. However, unless both Parties agree otherwise, the Party giving a notice of a claim in accordance with Sub-Clause 20.1 above should move to commence arbitration after 60 days from the day on which a notice of a claim was given, even if no attempt at an amicable settlement has been made.

204 Matters that may be referred to arbitration

Notwithstanding anything stated herein the following matters may be referred to arbitration before the practical completion of the Works or abandonment of the Works or termination of the Contract by either party:

- a) Whether or not the issue of an instruction by the Architect is empowered by these Conditions.
- b) Whether or not a certificate has been improperly withheld or is not in accordance with these Conditions.
- c) Any dispute arising in respect risks arising from matters referred to in Clause 17.3 and Clause 19.
- e) All other matters shall only be referred to arbitration after the completion or alleged completion of the Works or termination or alleged termination of the Contract, unless the Procuring Entity and the Contractor agree otherwise in writing.

205 Arbitration

- 205.1 Any claim or dispute between the Parties arising out of or in connection with the Contract not settled amicably in accordance with Sub-Clause 20.3 shall be finally settled by arbitration.
- 205.2 No arbitration proceedings shall be commenced on any claim or dispute where notice of a claim or dispute has not been given by the applying party within ninety days of the occurrence or discovery of the matter or issue giving rise to the dispute.
- 205.3 Notwithstanding the issue of a notice as stated above, the arbitration of such a claim or dispute shall not commence unless an attempt has in the first instance been made by the parties to settle such claim or dispute amicably with or without the assistance of third parties. Proof of such attempt shall be required.
- 205.4 The Arbitrator shall, without prejudice to the generality of his powers, have powers to direct such

measurements, computations, tests or valuations as may in his opinion be desirable in order to determine the rights of the parties and assess and award any sums which ought to have been the subject of or included in any certificate.

2055 The Arbitrator shall, without prejudice to the generality of his powers, have powers to open up, review and revise any certificate, opinion, decision, requirement or notice and to determine all matters in dispute which shall be submitted to him in the same manner as if no such certificate, opinion, decision require mentor notice had been given.

2056 The arbitrators shall have full power to open up, review and revise any certificate, determination, instruction, opinion or valuation of the Engineer, relevant to the dispute. Nothing shall disqualify representatives of the Parties and the Architect from being called as a witness and giving evidence before the arbitrators on any matter whatsoever relevant to the dispute.

2057 Neither Party shall be limited in the proceedings before the arbitrators to the evidence, or to the reasons for dissatisfaction given in its Notice of Dissatisfaction.

2057 Arbitration may be commenced prior to or after completion of the Works. The obligations of the Parties, and the Architect shall not be altered by reason of any arbitration being conducted during the progress of the Works.

2058 The terms of the remuneration of each or all the members of Arbitration shall be mutually agreed upon by the Parties when agreeing the terms of appointment. Each Party shall be responsible for paying one-half of this remuneration.

206 Arbitration with National Contractors

206.1 If the Contract is with national contractors, arbitration proceedings will be conducted in accordance with the Arbitration Laws of Kenya. In case of any claim or dispute, such claim or dispute shall be notified in writing by either party to the other with a request to submit it to arbitration and to concur in the appointment of an Arbitrator within thirty days of the notice. The dispute shall be referred to the arbitration and final decision of a person to be agreed between the parties. Failing agreement to concur in the appointment of an Arbitrator, the Arbitrator shall be appointed, on the request of the applying party, by the Chairman or Vice Chairman of any of the following professional institutions;

- i) Architectural Association of Kenya
- ii) Institute of Quantity Surveyors of Kenya
- iii) Association of Consulting Engineers of Kenya
- iv) Chartered Institute of Arbitrators (Kenya Branch)
- v) Institution of Engineers of Kenya

2062 The institution written to first by the aggrieved party shall take precedence over all other institutions.

207 Arbitration with Foreign Contractors

207.1 Arbitration with foreign contractors shall be conducted in accordance with the arbitration rules of the United Nations Commission on International Trade Law (UNCITRAL); or with proceedings administered by the International Chamber of Commerce (ICC) and conducted under the ICC Rules of Arbitration; by one or more arbitrators appointed in accordance with said arbitration rules.

207.2 The place of arbitration shall be a location specified in the SCC; and the arbitration shall be conducted in the language for communications defined in Sub-Clause 1.4 [Law and Language].

208 Alternative Arbitration Proceedings

Alternatively, the Parties may refer the matter to the Nairobi Centre for International Arbitration (NCIA) which offers a neutral venue for the conduct of national and international arbitration with commitment to providing institutional support to the arbitral process.

209 Failure to Comply with Arbitrator's Decision

209.1 The award of such Arbitrator shall be final and binding up on the parties.

2092 In the event that a Party fails to comply with a final and binding Arbitrator's decision, then the other Party may, without prejudice to any other rights it may have, refer the matter to a competent court of law.

2010 Contract operations to continue

Notwithstanding any reference to arbitration herein,

1.1.1 the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and

1.1.2 the Procuring Entity shall pay the Contractor any monies due the Contractor.

Section IX - Special Conditions of Contract

The following Special Conditions shall supplement the GCC. Whenever there is a conflict, the provisions here in shall prevail over those in the GCC.

Conditions	Sub-Clause	Data
Part A - Contract Data		
Procuring Entity's name and address	Heading	SOUTH EASTERN KENYA UNIVERSITY P.O. Box 170 – 90200, Kitui
Name and Reference No. of the Contract	Heading and 1.1	Name: PROPOSED CONSTRUCTION OF HUMANITIES AND SOCIAL SCIENCES LECTURE HALLS AT SEKU –MAIN CAMPUS Contract No: SEKU/ONT/RFP/008b/2023/2024
Engineers Name and address	Heading and 3.1.1	Messrs. Skylon Designs Ltd. of P.O. Box 26011-00100, NAIROBI
Contractor's Representative's name	4.3.1	<i>[insert the name of the Contractor's Representative agreed by the Procuring Entity prior to Contract signature]</i>
Key Personnel names	16.9.1	<i>[insert the name of each Key Personnel agreed by the Procuring Entity prior to Contract signature]</i>
Time for Completion	1.1.	Six (6) Months
Defects Notification Period	1.1	Six (6) Months
Sections	1.1	Not Applicable
Electronic transmission systems	1.3	N/A
Time for the Parties entering into a Contract Agreement	1.6	Within 30 days
Commencement Date	8.1.1	Date of Signing of the Contract
Time for access to the Site	2.1.1	No later than the Commencement Date, and not later than 14 (fourteen) days after Commencement Date
Architect Duties and Authority	3.1.6 (b) (ii)	Variations resulting in an increase of the Accepted Contract Amount shall require approval of the Procuring Entity.
Performance Security	4.2.1	The performance security will be in the form of a performance bond in the amount(s) of 10% (Ten percent) of the Accepted Contract Amount and in the same currency(ies) of the Accepted Contract Amount.
Normal working hours	6.5	0800-1700 hrs.
Delay damages for the Works	8.7 & 14.15(b)	0.025% of the Contract Price per day.
Maximum amount of delay damages	8.7.1	10% of the final Contract Price.
Provisional Sums	13.6. (b)(ii)	Applicable
Adjustments for Changes in Cost	13.9	Not Applicable

Conditions	Sub-Clause	Data
Repayment amortization rate of advance payment	14.2.5 (b)	The following formular shall apply $R = \frac{A(XII-XI)}{90\%-30\%}$ Where R= Amount to be reimbursed A= Amount of Advance Payment Granted XII= Amount of Proposed cumulative payments as apercentage of the original contract amount. Should be >30% but not >90% XI= Amount of previous cumulative payments as a percentage of the original contract amount. Shouldbe <90% but not <30%
Percentage of Retention	14.3.2 (c)	<u>10</u> %
Limit of Retention Money	14.3.2 (c)	5 % of the Accepted Contract Amount
Plant and Materials	14.5.3(b)(i)	If Sub-Clause 14.5 applies: Not Applicable
	14.5.3(c)(i)	Not Applicable
Minimum Amount of Interim Payment Certificates	14.6.2	Not Applicable
Publishing source of commercial interest rates for financial charges in case of delayed payment	14.8	Central Bank of Kenya (CBK) Rates
Maximum total liability of the Contractor to the Procuring Entity	17.6.2	Full value of the Accepted Contract Amount,
Periods for submission of insurance: a. evidence of insurance. b. relevant policies	18.1.6	14 days
		14 days
Maximum amount of deductibles for insurance of the Procuring Entity's risks	18.2.4 (d)	- The minimum cover for insurance of the Works and of Plant and Materials in respect of the Contractor's faulty work is; Contractor's All Risk Policy - The minimum cover for loss or damage to Equipment is Full Value of the Equipment. - The minimum for insurance of other property is Full Value of the Property. - The minimum cover for personal injury or death insurance; As per the laws applicable in Kenya -
Minimum amount of third-party insurance	18.3.2	As per the laws applicable in Kenya
The place of arbitration	20.7.2	Nairobi - Kenya

SECTION X - CONTRACT FORMS

FORM No. 1 - NOTIFICATION OF INTENTION TO AWARD

FORM NO. 2 – REQUEST FOR REVIEW

FORM No. 3-LETTER OF AWARD

FORM No. 4 - CONTRACT AGREEMENT

FORM No. 5 - PERFORMANCE SECURITY [Option 1 - Unconditional Demand Bank Guarantee]

FORM No. 6- PERFORMANCE SECURITY [Option 2– Performance Bond]

FORM No. 7 - ADVANCE PAYMENT SECURITY

FORM No. 8 - RETENTION MONEY SECURITY

FORM No 1: NOTIFICATION OF INTENTION TO AWARD OF CONTRACT

This Notification of Award shall be sent to each Tenderer that submitted a Tender and was not successful. 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 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) 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 by submitting a Procurement-related Complaint in relation to the decision to award the contracts.

a) The successful tenderers

i) Name of successful Tender _____

ii) Address of the successful Tender _____

iii) Contract price of the successful Tender Kenya Shillings _____

(in words

)

b) The reasons for your tender being unsuccessful are as follows:

c) 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.

SNo	Name of Tender	Tender Price as read out	Tender's evaluated 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 dead line 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 (5) 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]
 - iii) Agency: [insert name of Procuring Entity]
 - iv) 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 www.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: _____

FORM NO. 2- REQUEST FOR REVIEW

FORM FOR REVIEW (r.203(1))

PUBLIC PROCUREMENT ADMINISTRATIVE REVIEW BOARD

APPLICATION NO.....OF.....20.....

BETWEEN

..... **APPLICANT**

AND

..... **RESPONDENT (Procuring Entity)**

Request for review of the decision of the..... (Name of the Procuring Entity ofdated the...day of20.....in the matter of Tender No.....of20..... for.....(Tender description).

REQUEST FOR REVIEW

I/We.....,the above named Applicant(s), of address: Physical address P. O. Box No..... Tel. No.....Email....., hereby request the Public Procurement Administrative Review Board to review the whole/part of the above mentioned decision on the following grounds , namely:

- 1.
- 2.

By this memorandum, the Applicant requests the Board for an order/orders that:

- 1.
- 2.

SIGNED(Applicant) Dated on.....day of/...20.....

FOR OFFICIAL USE ONLY Lodged with the Secretary Public Procurement Administrative Review Board on.....day of20.....

SIGNED

Board Secretary

FORM NO 3: LETTER OF AWARD

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 here by accepted by..... *(name of Procuring Entity)*.

You are requested to furnish the Performance Security within 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 4: 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 there in,

The Procuring Entity and the Contractor agree as follows:

- 1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.
- 2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents.
 - a) The Notification of Award
 - b) the Form of Tender
 - c) the addenda Nos _____ (if any)
 - d) the Special Conditions of Contract
 - e) the General Conditions of Contract;
 - f) the Specifications
 - g) the Drawings; and
 - h) the completed Schedules and any other documents forming part of the contract.
- 3. In consideration of the payments to be made by the Procuring Entity to the Contractor as specified in this Agreement, the Contractor here by 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 here by covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects there in, 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.

INWITNESS where of the parties here to 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)

Signed and sealed by _____ (for the Contractor).

FORM NO. 5 - 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, here by irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (in words),¹ such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand it self or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.
4. This guarantee shall expire, no later than the.....Day of.....,2.....², and any demand for payment under it must be received by us at 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.*

¹The 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.

²Insert 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. 6- 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 there to, which to the extent here in provided for, are by reference made part here of and are here in after 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 there under, the Surety may promptly remedy the default, or shall promptly:
 - a) Complete the Contract in accordance with its terms and conditions; or
 - b) 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
 - c) Pay the Procuring Entity the amount required by Procuring Entity to complete the Contract in accordance with its terms and conditions upto 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 here in or the heirs, executors, administrators, successors, and assigns of the Procuring Entity.
6. In testimony whereof, the Contractor has here unto set his hand and affixed his seal, and the Surety has caused

these presents to be sealed with his corporate seal duly at tested 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. 7 - ADVANCE PAYMENT SECURITY

[Demand Bank Guarantee]

[Guarantor letterhead]

Beneficiary: _____ *[Insert name and Address of*

ProcuringEntity] 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, here by irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (in words _____) ¹ upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating 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 _____, ² _____, whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.
6. The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed *[six months] [one year]*, in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee.

[Name of Authorized Official, signature(s) and seals/stamps]

Note: *All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.*

¹The 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.

²Insert 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. 8 – 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 upto the limit set forth in the Contract ("the Retention Money"), and that when the Taking-Over Certificate has been issued under the Contract and the first half of the Retention Money has been certified for payment, and payment of *[insert the second half of the Retention Money]* is to be made against a Retention Money guarantee.
3. At the request of the Contractor, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]* _____ *([insert amount in words]* _____ *)*¹ upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or showgrounds for your demand or the sum specified there in.
4. A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the second half of the Retention Money as referred to above has been credited to the Contractor on its account number _____ at _____ *[insert name and address of Applicant's bank]*.
5. This guarantee shall expire no later than the.....Day of.....2.....², and any demand for payment under it must be received by us at the office indicated above on or before that date.
6. The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed *[six months]* *[one year]*, in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee.

[Name of Authorized Official, signature(s) and seals/stamps]

Note: *All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.*

¹The Guarantor shall insert an amount representing the amount of the second half of the Retention Money.
²Insert 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.

FORM NO. 9 BENEFICIAL OWNERSHIP DISCLOSURE FORM
(Amended and issued pursuant to PPRA CIRCULAR No. 02/2022)

INSTRUCTIONS TO TENDERERS: DELETE THIS BOX ONCE YOU HAVE COMPLETED THE FORM

This Beneficial Ownership Disclosure Form (“Form”) is to be completed by the successful tenderer pursuant to Regulation 13 (2A) and 13 (6) of the Companies (Beneficial Ownership Information) Regulations, 2020. In case of joint venture, the tenderer must submit a separate Form for each member. The beneficial ownership information to be submitted in this Form shall be current as of the date of its submission.

For the purposes of this Form, a Beneficial Owner of a Tenderer is any natural person who ultimately owns or controls the legal person (tenderer) or arrangements or a natural person on whose behalf a transaction is conducted, and includes those persons who exercise ultimate effective control over a legal person (Tenderer) or arrangement.

Tender Reference No.: _____ [insert identification
no] Name of the Tender Title/Description: _____ [insert name of the
assignment] to: _____ [insert complete name of Procuring Entity]

In response to the requirement in your notification of award dated [insert date of notification of award] to furnish additional information on beneficial ownership: _____ [select one option as applicable and delete the options that are not applicable]

I) We here by provide the following beneficial ownership information.

Details of Beneficial ownership

	Details of all Beneficial Owners		% of shares a person holds in the company Directly or indirectly	% of voting rights a person holds in the company	Whether a person directly or indirectly holds a right to appoint or remove a member of the board of directors of the company or an equivalent governing body of the Tenderer (Yes / No)	Whether a person directly or indirectly exercises significant influence or control over the Company (tenderer) (Yes / No)
1.	Full Name		Directly----- ----- % of shares Indirectly---- -----% of shares	Directly.....% of voting rights Indirectly----- % of voting rights	1. Having the right to appoint a majority of the board of the directors or an equivalent governing body of the Tenderer: Yes ----No---- 2. Is this right held directly or indirectly?: Direct..... ... Indirect..... ...	1. Exercises significant influence or control over the Company body of the Company (tenderer) Yes ----No---- 2. Is this influence or control exercised directly or indirectly? Direct..... Indirect.....
	National identity card number or Passport number					
	Personal Identification Number (where applicable)					
	Nationality					
	Date of birth [dd/mm/yyyy]					
	Postal address					
	Residential address					
	Telephone number					
	Email address					
	Occupation or profession					

	Details of all Beneficial Owners		% of shares a person holds in the company Directly or indirectly	% of voting rights a person holds in the company	Whether a person directly or indirectly holds a right to appoint or remove a member of the board of directors of the company or an equivalent governing body of the Tenderer (Yes / No)	Whether a person directly or indirectly exercises significant influence or control over the Company (tenderer) (Yes / No)	
2.	Full Name		Directly----- ----- % of shares	Directly.....% of voting rights	1. Having the right to appoint a majority of the board of the directors or an equivalent governing body of the Tenderer: Yes ----No---- 2. Is this right held directly or indirectly?: Direct..... ... Indirect..... ...	1. Exercises significant influence or control over the Company body of the Company (tenderer) Yes ----No---- 2. Is this influence or control exercised directly or indirectly? Direct..... Indirect.....	
	National identity card number or Passport number			Indirectly----- -----% of shares			Indirectly.....% of voting rights
	Personal Identification Number (where applicable)						
	Nationality(ies)						
	Date of birth [dd/mm/yyyy]						
	Postal address						
	Residential address						
	Telephone number						
	Email address						
	Occupation or profession						
3.							
e.t.c							

II) Am fully aware that beneficial ownership information above shall be reported to the Public Procurement Regulatory Authority together with other details in relation to contract awards and shall be maintained in the Government Portal, published and made publicly available pursuant to Regulation 13(5) of the Companies (Beneficial Ownership Information) Regulations, 2020.(Notwithstanding this paragraph Personally Identifiable Information in line with the Data Protection Act shall not be published or made public). *Note that Personally Identifiable Information (PII) is defined as any information that can be used to distinguish one person from another and can be used to deanonymize previously anonymous data. This information includes National identity card number or Passport number, Personal Identification Number, Date of birth, Residential address, email address and Telephone number.*

III) In determining who meets the threshold of who a beneficial owner is, the Tenderer must consider a natural person who in relation to the company:

- (a) holds at least ten percent of the issued shares in the company either directly or indirectly;
- (b) exercises at least ten percent of the voting rights in the company either directly or indirectly;
- (c) holds a right, directly or indirectly, to appoint or remove a director of the company; or

(d) exercises significant influence or control, directly or indirectly, over the company.

IV) What is stated to herein above is true to the best of my knowledge, information and belief.

*Name of the Tenderer..... *[insert complete name of the Tenderer]_____*

*Name of the person duly authorized to sign the Tender on behalf of the Tenderer: ** [insert complete name of person duly authorized to sign the Tender]*

Designation of the person signing the Tender: [insert complete title of the person signing the Tender]

Signature of the person named above [insert signature of person whose name and capacity are shown above]

Date this [insert date of signing] day of..... [Insert month], [insert year]

Bidder Official Stamp

PARTICULAR INSERTIONS TO BE MADE TO THE CONDITIONS OF CONTRACT

Conditions	Data
Part A - Contract Data	
Procuring Entity's name and address	South Eastern Kenya University P.O. Box 170 - 90200, Nairobi
Name and Reference No. of the Contract	Name: PROPOSED CONSTRUCTION AND SUPERVISION OF HUMANITIES AND SOCIAL SCIENCES LECTURE HALLS- SEKU MAIN CAMPUS Ref: <i>Insert</i>
Engineers Name and address	Messrs. Skylon Designs Ltd. of P.O. Box 26011-00100, NAIROBI
Contractor's Representative's name	<i>[insert the name of the Contractor's Representative agreed by the Procuring Entity prior to Contract signature]</i>
Time for Completion	Six (6) Calendar Months
Defects Liability Period	6 Months
Electronic transmission systems	Project Manager's Email Address; skylondesigns.sd@gmail.com
Time for the Parties entering into a Contract Agreement	Within 30 days
Commencement Date	To be agreed with the employer
Time for access to the Site	No later than the Commencement Date, and not later than 14 (fourteen) days after Commencement Date
Performance Security	The performance security will be in the form of a performance bond in the amount(s) of 5% (Five percent) of the Accepted Contract Amount and in the same currency(ies) of the Accepted Contract Amount.
period of interim certificates	Monthly
period of honoring certificates	60 days from when the client received the Certificate from the Project Manager
Delay damages for the Works	0.025% of the Contract Price per day.
Maximum amount of delay damages	10% of the final Contract Price.
Provisional Sums	Applicable
Adjustments for Changes in Cost	Not Applicable
Total advance payment	10 % Percentage of the Accepted Contract Amount payable in the currencies and proportions in which the Accepted Contract Amount is payable on condition that the contractor gives a sound security (in form of approved bank guarantee) of the same (MicroFinance Banks are not accepted). And shall be paid to the Contractor no later than 30 days after application.

<p>Repayment amortization rate of advancepayment</p>	<p>The following formular shall apply</p> $R = \frac{A(XII-XI)}{90\%-30\%}$ <p>Where R= Amount to be reimbursed A= Amount of Advance Payment Granted XII= Amount of Proposed cumulative payments as a percentage of the original contract amount. Should be >30% but not >90% XI= Amount of previous cumulative payments as a percentage of the original contract amount. Should be <90% but not <30%</p>
<p>Percentage of Retention</p>	<p>_10_%</p>

Conditions	Data
Limit of Retention Money	5 % of the Accepted Contract Amount
Minimum Amount of Interim Payment Certificates	Not Applicable
Publishing source of commercial interest rates for financial charges in case of delayed payment	Central Bank of Kenya (CBK) Rates
Maximum total liability of the Contractor to the Procuring Entity	Full value of the Accepted Contract Amount,
Periods for submission of insurance: a. evidence of insurance. b. relevant policies	14 days 14 days
Minimum amount of third-party insurance	As per the laws applicable in Kenya
The place of arbitration	Nairobi - Kenya

PREAMBLES AND PRICING NOTES

PREAMBLES AND PRICING NOTES

A. GENERALLY

All work to be carried out in accordance with the Ministry of Roads, Housing & Urban Development and Public Works General Specifications for Building Works issued in 1976 or as qualified or amended below.

B. MANUFACTURERS' NAMES

Where manufacturers' names and catalogue references are given for guidance to quality and standard only, alternative manufacturer of equal quality will be accepted at the discretion of the Project Manager.

C. WALLING

All precast concrete blocks shall be manufactured by the methods and to the sizes specified in the Ministry of Roads, Housing & Urban Development and Public Works "Specification for Metric Sized Concrete Blocks for Building (1972)"

Walling of 100 mm thickness or under shall be reinforced with hoop iron every alternate course.

Prices for walling must allow for all costs in preparing, packing and sending sample blocks for testing as and when required by the Project Manager.

D. CARPENTRY

The grading rules for cypress shall be the same for podocarpus and all timber used for structural work shall be select (second grade).

All structural timber must conform to the minimum requirements for moisture content and preservative treatment and timber prices must allow for preparing, packing and sending samples for testing when required.

Prices must also include for all nails and fasteners.

E. JOINERY

Cypress for joinery shall be second grade in accordance with the latest grading rules of the Kenya Government.

Where Mahogany is specified, this refers to prime grade only. The Contractor may with the approval of the Project Manager; use either Msharagi or Mvuli in lieu of Mahogany but such approval will be given only in the case of shortages of the hardwoods specified.

Plugging shall be carried out by drilling walling or concrete with masonry drill and filling with propriety plugs of the correct sizes. Cutting with hammer and chisel will not be allowed.

Prices for joinery must include for pencil rounded arises, protection against damage, nails, screws, framing and bedding in cement mortar as required.

Sizes given for joinery items are nominal sizes and exact dimensions of doors, etc, must be ascertained on site.

A. IRONMONGERY

Ironmongery shall be specified in the Bills of Quantities or equal and approved.

Prices must include for removing and re-fixing during and after painting, labeling all keys, and for fixing to hardwood, softwood, concrete or blockwork.

Catalogue references given for ironmongery are for purposes of indicating quality and size of item(s). Should the Contractor wish to substitute the specified item(s) with others of equal manufacture, he must inform the Project Manager and obtain approval in writing.

B. STRUCTURAL STEELWORK

All structural steelwork shall comply with the Ministry of Roads, Housing & Urban Development and Public Works "Structural Steelwork Specification (1973) and shall be executed by an approved Sub-contractor.

C. PLASTERWORK AND OTHER FINISHES

All finishing shall be as described in the general specifications and in these Bills of Quantities.

Prices for paving are to include for brushing concrete clean, wetting and coating with cement and sand grout 1:1.

Rates for glazed wall tiling are to include for a 12 mm cement and sand (1:4) backing screed unless otherwise specified in these Bills of Quantities.

D. GLAZING

Where polished plate glass is specified, this refers to general glazing quality.

Prices for glazing shall include for priming of rebates before placing putty.

The Contractor will be responsible for replacing any broken or scratched glass and handing over in perfect condition.

E. PAINTING

Painting shall be applied in accordance with the manufacturers' instructions.

Prices for painting are to include for scaffolding, preparatory work, priming coats, protection of other works and for cleaning up on completion. Prices for painting on galvanized metal are to include for mordant solution as necessary.

F. TILES - CERAMIC, PORCELEIN, GRANITO ETC

No tiles shall be fitted/installed without sample approvals.

No claim shall be allowed on the grounds that the bidder priced an inferior quality

G. CURTAINS & COVERS ETC

The bidder shall be deemed to have priced the best materials

No curtains & covers shall be fitted/installed without sample approvals.

No claim shall be allowed on the grounds that the bidder priced an inferior quality

BILLCONSULT QUANTITY SURVEYORS



**PROPOSED CONSTRUCTION OF HUMANITIES & SOCIAL
SCIENCES LECTURE HALLS**

IN

KITUI COUNTY

FOR

SOUTH EASTERN KENYA UNIVERSITY

BILLS OF QUANTITIES

APRIL 2024

PART 5

PARTICULAR PRELIMINARIES

PARTICULAR PRELIMINARIES

ITEM	DESCRIPTION					
<p>A</p> <p>PRICING ITEMS FOR PRELIMINARIES</p> <p>Prices shall be inserted against items of ‘preliminaries’ in the tenderer’s priced Bill of Quantities. The Contractor is advised to read and understand all preliminaries. Preliminary items not priced shall be deemed to have been included in the rates of items in the Bill of Quantities. All prices shall be In Kenya Shillings.</p> <p>B</p> <p>DESCRIPTION OF THE WORKS</p> <p>The works to be carried out under this contract comprise construction of a Single storeyed Laboratory Block, complete with all associated specialized services installations, external and civil works.</p> <p>The building is in both Reinforced Concrete Pad and strip foundation, the structure is reinforced concrete frame, With load bearing masonry walls.</p> <p>The roof is pitched with mild steel trusses for the structure covered in GCI roofing sheets.</p> <p>The Windows are Steel casement windows infilled with clear/obscure glazing.</p> <p>Doors are generally Steel Casement externally; solid and semi-solid core timber doors Internally.</p> <p>Wall finishes are generally plaster and paint, Ceramic wall tiles in wet areas internally; Render and paint externally.</p> <p>Floors are generally finished with polished ceramic tiles in general areas and Non-slip ceramic tiles in Wet areas.</p> <p>Ceilings are plaster and paint to slab soffits and gypsum board on Aluminium channels to top floor.</p> <p>The services installations include general electrical works, security installations, plumbing and firefighting works etc</p> <p>C</p> <p>SCOPE OF THE CONTRACT WORKS</p> <p>The works comprise of;</p> <ul style="list-style-type: none"> i. The erection and completion of an Anatomy Laboratory as included in the builders works Bills of Quantities Part VI ii. The mechanical installations as provided in Part VII of the Bills of Quantities. iii. The electrical installations work as provided in Part VIII of the Bills of Quantities iv. Associated External and Civil Works. <p>D</p> <p>FLOOR AREAS</p> <p>The total approximate built-up area is as follows;-</p> <table border="0" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: right;"><u>01. Ground Floor - 292.00 SM</u></td> <td></td> </tr> <tr> <td style="text-align: right;">TOTAL</td> <td style="text-align: right;">292.00 SM</td> </tr> </table> <p>Note: The floor areas are for guidance only and are given without any warranty</p>	<u>01. Ground Floor - 292.00 SM</u>		TOTAL	292.00 SM		
<u>01. Ground Floor - 292.00 SM</u>						
TOTAL	292.00 SM					
	Carried to Collection	KSHS				

ITEM	DESCRIPTION	
<p>A</p>	<p>MEASUREMENTS In the event of discrepancy between the Bill of Quantities and the actual works, the site measurements shall generally take precedence. However, such discrepancies between any Contract documents shall immediately be reported to the Project Manager in accordance with Clause 22 of the Conditions of Contract. The discrepancies shall then be treated as a variation and be dealt with in accordance with Clause 22 of the said Conditions. The Bills of Quantities is prepared using SMM of Building Works and associated Civil Works for East Africa as published by AAK QS Chapter Second Edition June 2008.</p> <p>B</p> <p>LOCATION OF THE SITE The site is located within South Eastern Kenya University (SEKU) Main Campus in Kitui County.</p> <p>C</p> <p>CLEARING AWAY The Contractor shall remove all temporary works, rubbish, debris and surplus materials from the site as they accumulate, upon completion of the works, remove, clear away all plants, equipment, rubbish, unused materials, stains and leave in a clean tidy state to the satisfaction of the Project Manager. The whole of the works shall be delivered up clean, complete, and perfect condition in every respect to the satisfaction of the Project Manager.</p> <p>D</p> <p>CLAIMS It shall be a condition of this Contract that upon it becoming reasonably apparent to the Contractor that he has incurred losses and/or expenses due to any of the Contract Conditions, or by any other reason whatsoever, he shall present such claim or intent to claim notice to the Project Manager within the Contract period. No claim shall be entertained upon the expiry of the said Contract period.</p> <p>E</p> <p>PAYMENTS Payment will be done on monthly basis by the Project Manager on application by the Contractor. All payments shall be made by Client Department upon certification by the Project Manager. Subcontractors shall be paid through the Main Contractor. The Main Contractor must confirm that they have paid sub-contractors to be eligible for subsequent certificates.</p> <p>F</p> <p>PREVENTION OF ACCIDENTS, DAMAGE OR LOSS The Contractor is notified that the works are to be carried out on a fairly busy, high security conscious site where the Client is going on with other normal activities. He/she is therefore instructed to take reasonable care in the execution of the works so as to prevent accidents, damage or loss and disruption of normal activities being carried out by the Client. The Contractor shall allow in his rates any expenses he deems necessary by taking such care within the site.</p>	
	<p>Carried to Collection</p>	<p>KSHS.</p>

ITEM	DESCRIPTION	
A	<p>WORKING CONDITIONS The Contractor shall allow in his rates for any interference that he may encounter in the course of execution of the works. for the client may in some cases ask the contractor to pause the works until some activities within the site are completed as the institution will be operating as usual during the course of the contract.</p>	
B	<p>SIGN BOARD. Allow for providing, erecting, maintaining throughout the Contract period and clearing afterwards a sign board as designed and approved by the Project Manager.</p>	
C	<p>LABOUR CAMPS The Contractor shall NOT be allowed to house his labourers on site. Allow also for transporting workers to and from site during the Contract Period as may be necessary.</p>	
D	<p>PROJECT MANAGER'S SITE OFFICE Allow for maintaining throughout the project period temporary site office size 8x10m long comprising 50x100mm cypress timber structure, flat roof covered with 30gauge corrugated iron sheets, 32gauge corrugated iron sheet clad walls, 100mm thick RC floor well compacted and finished smooth with cement and sand (1:3) screed, timber doors, windows and all necessary office furniture (15no. arm chairs, table, calendar, visitors and site instruction books). The Contractor shall also allow for the Project Manager's use a desktop computer complete with email connecting devices as well as provision for scratch cards and payment for email or internet connectivity expenses, stationery for the duration of the contract.</p>	
E	<p>PRICING NOTES The tenderer shall include for all cost in executing the whole of the works, including transport, replacing damaged items, fixing, all to comply with the said Conditions of Contract and including VAT</p>	
F	<p>SECURITY OF THE WORKS The Contractor shall allow for providing adequate security for the works and workers during the Contract. No claim will be entertained for lack of enough security in this respect.</p>	
G	<p>URGENCY OF THE WORKS The Contractor should note that these works are very urgent and must be completed within the agreed contract period.</p>	
H	<p>PAYMENT FOR MATERIALS ON SITE All materials for incorporation in the works must be stored on site before they are considered for payment, unless specifically exempted by the Project Manager. This is to include materials of the Main Contractor, Nominated Sub-Contractors and Nominated Suppliers.</p>	
	Carried to Collection	KSHS

ITEM	DESCRIPTION	
A	<p>EXISTING SERVICES</p> <p>Prior to the commencement of any work, the Contractor is to ascertain from the relevant authority the exact position, depth and level of all existing services in the and he/she shall make whatever provisions that may be required by the authority for support, maintenance and protection of such services.</p>	
B	<p>PHASED IMPLEMENTATION AND SECTIONAL COMPLETION</p> <p>The Client based on various factors may consider sectional completion or phased implementation of the works. The Contractor will be instructed by the Project Manager to abide by such directions to suit the requirements of the Employer.</p> <p>Tenderers are also notified that no contractual claims or increase in prices will be allowed due to any Phased implementation of the works</p> <p>The last of the contract works are however to be completed within the overall Contract Completion Period.</p>	
C	<p>PERFORMANCE BOND</p> <p>A performance bond in the form of unconditional bank guarantee required is 5% of the bid price. On award of contract, no payment on account for the works executed will be made to the Contractor until he has submitted the Performance Bond to the Project Manager duly signed, sealed and stamped from an approved bank.</p>	
D	<p>VALUE ADDED TAX</p> <p>The Contractor's attention is drawn to the Legal Notice in the Finance Act part 3 Section 21(b) operative from 1st September, 1993 which requires payment of VAT on all contracts. The Contractor must therefore include V.A.T in their rates.</p>	
E	<p>FORM OF CONTRACT</p> <p>The form of Contract shall be as stipulated in the Republic of Kenya's Standard Tender Document for Procurement of Works - Building and Associated Civil Engineering Works, Published by PPRA (2022 Edition) included under this Proposal. The Conditions of Contract are also included herein (Part III General Conditions of Contract) Particulars of insertion to be made in the Special Conditions of Contract.</p>	
	Carried to Collection	KSHS

ITEM	DESCRIPTION	
	<p>COLLECTION</p> <p>Brought Forward from Page 5/1</p> <p>Brought Forward from Page 5/2</p> <p>Brought Forward from Page 5/3</p> <p>Brought Forward from Page 5/4</p>	
	<p>TOTAL FOR PART NO. 5 CARRIED TO MAIN SUMMARY</p>	<p>KSHS</p>

PARTICULAR INSERTIONS TO BE MADE TO THE CONDITIONS OF CONTRACT

Conditions	Data
Part A - Contract Data	
Procuring Entity's name and address	South Eastern Kenya University P.O. Box 170 - 90200, Nairobi
Name and Reference No. of the Contract	Name: PROPOSED CONSTRUCTION AND SUPERVISION OF HUMANITIES AND SOCIAL SCIENCES LECTURE HALLS- SEKU MAIN CAMPUS Ref: <i>Insert</i>
Engineers Name and address	Messrs. Skylon Designs Ltd. of P.O. Box 26011-00100, NAIROBI
Contractor's Representative's name	<i>[insert the name of the Contractor's Representative agreed by the Procuring Entity prior to Contract signature]</i>
Time for Completion	Six (6) Calendar Months
Defects Liability Period	6 Months
Electronic transmission systems	Project Manager's Email Address; skylondesigns.sd@gmail.com
Time for the Parties entering into a Contract Agreement	Within 30 days
Commencement Date	To be agreed with the employer
Time for access to the Site	No later than the Commencement Date, and not later than 14 (fourteen) days after Commencement Date
Performance Security	The performance security will be in the form of a performance bond in the amount(s) of 5% (Five percent) of the Accepted Contract Amount and in the same currency(ies) of the Accepted Contract Amount.
period of interim certificates	Monthly
period of honoring certificates	60 days from when the client received the Certificate from the Project Manager
Delay damages for the Works	0.025% of the Contract Price per day.
Maximum amount of delay damages	10% of the final Contract Price.
Provisional Sums	Applicable
Adjustments for Changes in Cost	Not Applicable
Total advance payment	10 % Percentage of the Accepted Contract Amount payable in the currencies and proportions in which the Accepted Contract Amount is payable on condition that the contractor gives a sound security (in form of approved bank guarantee) of the same (MicroFinance Banks are not accepted). And shall be paid to the Contractor no later than 30 days after application.

Repayment amortization rate of advancepayment	The following formular shall apply $R = \frac{A(XII-XI)}{90\%-30\%}$ Where R= Amount to be reimbursed A= Amount of Advance Payment Granted XII= Amount of Proposed cumulative payments as a percentage of the original contract amount. Should be >30% but not >90% XI= Amount of previous cumulative payments as a percentage of the original contract amount. Should be <90% but not <30%
Percentage of Retention	_10_%

Conditions	Data
Limit of Retention Money	5 % of the Accepted Contract Amount
Minimum Amount of Interim Payment Certificates	Not Applicable
Publishing source of commercial interest rates for financial charges in case of delayed payment	Central Bank of Kenya (CBK) Rates
Maximum total liability of the Contractor to the Procuring Entity	Full value of the Accepted Contract Amount,
Periods for submission of insurance: a. evidence of insurance. b. relevant policies	14 days 14 days
Minimum amount of third-party insurance	As per the laws applicable in Kenya
The place of arbitration	Nairobi - Kenya

GENERAL PRELIMINARIES

ITEM	DESCRIPTION	KSHS	CTS
GENERAL PRELIMINARIES			
<p>A</p>	<p>PRICING OF ITEMS OF PRELIMINARIES AND PREAMBLES</p> <p>Prices shall be inserted against items of preliminaries in the Contractor's priced Bills of Quantities and Specifications.</p> <p>The Contractor shall be deemed to have included in his prices or rates for various items in the Bills of Quantities of Specifications for all costs involved in complying with all the requirements for the proper execution of the whole of the works in the Contract.</p>		
	<p>B</p> <p>ABBREVIATIONS</p> <p>Throughout these bills, units of measurement and terms are abbreviated and shall be interpreted as follows</p> <p>M3 or CM Shall mean cubic metre</p> <p>M2 or SM Shall mean square metre</p> <p>M or LM Shall mean linear metre</p> <p>MM Shall mean millimeter</p> <p>KG Shall mean kilogram</p> <p>NO Shall mean numbers</p> <p>PRS Shall mean pairs</p> <p>BS Shall mean the British Specification published by the British Standard Institution , 2 Park Street, London W.1 England</p> <p>DITTO Shall mean the whole of the preceding description except as qualified in the description in which it occurs.</p> <p>(ms) Shall mean measured separately</p> <p>a.b.d Shall mean as above described.</p> <p>M.S. Shall mean mild steel</p>		
	Carried to Collection	KSHS	

ITEM	DESCRIPTION	KSHS	CTS
A	<p>EXCEPTION TO THE STANDARD METHOD OF MEASUREMENT</p> <p>Attendance; Clause B19(a) of the Standard Method of Measurement is deleted and the following Clause is substituted:-</p> <p>Attendance on nominated Sub-Contractors shall be given as an item in each case and shall be deemed to include: allowing use of standing scaffolding, mesh rooms, sanitary accommodation and welfare facilities; provision of special scaffolding where necessary, providing space for office accommodation, and for storage of plant and materials; providing light and water for the works; clearing away rubbish; unloading checking providing electric power and removing and replacing duct covers, pipe chasings and the like necessary for the execution and testing of Sub-Contractor's work and being responsible for the accuracy of the same.</p> <p>Fix Only; "Fix Only" Shall mean take delivery on site where necessary, distribute to position, hoistand fix only.</p>		
B	<p>THE EMPLOYER</p> <p>The term "Employer" and "Client" wherever used in the Contract Document shall be synonymous.</p>		
C	<p>PROJECT MANAGER</p> <p>The term "PM" wherever used in this Bills of Quantities shall be deemed to imply the ProjectManager as defined in Conditions of Contract or such person or persons as may be duly authorized to represent him on behalf of the Employer. The Project Manager shall be deemed to mean</p> <p>Messrs. Skylon Designs Limited. Of P.O. Box 26011-00100, NAIROBI, Tel. Nos. +254 726 632 459 Email: skylondesigns.sd@gmail.com</p>		
D	<p>ARCHITECT</p> <p>The term Architect shall be deemed to mean</p> <p>Messrs. Skylon Designs Limited. Of P.O. Box 26011-00100, NAIROBI, Tel. Nos. +254 726 632 459 Email: skylondesigns.sd@gmail.com .</p>		
E	<p>QUANTITY SURVEYOR</p> <p>The term "Quantity Surveyor" shall be deemed to mean the firm of Messrs Billconsult Quantity Surveyors Limited of address P.O. Box 36940-00200 Nairobi. Tel: +254 721 981 416 Email: billconsultqs@gmail.com</p>		

	Carried to Collection	KSHS		
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ITEM	DESCRIPTION	KSHS	CTS
A	<p>SERVICES ENGINEER</p> <p>The term "Mechanical Engineer/Electrical Engineer" shall be deemed to mean Messrs. Infraplus Exceptional Engineering Ltd of P.O. Box 28901-00100, NAIROBI. Email: info@infraplus.co.ke</p>		
B	<p>STRUCTURAL & CIVIL ENGINEER</p> <p>The term "Structural & Civil Engineer" shall be deemed to mean Messrs. Amplus Consulting Engineers of P.O. Box 42450 -00100, NAIROBI. Email: amplus2017@gmail.com</p>		
	Carried to Collection	KSHS	

ITEM	DESCRIPTION	KSHS	CTS
A	<p>PLANT, TOOLS AND VEHICLES</p> <p>Allow for providing all scaffolding, plants, tools and vehicles required for the works except in so far as may be stated otherwise herein and except for such items specifically and only required for use of nominated Sub-Contractors as described herein. No timber used for scaffolding, formwork, or temporary works of any kind should be afterwards in the permanent works.</p>		
B	<p>TRANSPORT</p> <p>Allow for transport of workmen, materials, etc. to and from the site at such hours and by such routes as may be permitted by competent Authorities in liaison with the PROJECT MANAGER.</p>		
C	<p>MATERIALS AND WORKMANSHIP</p> <p>All materials and workmanship used in the execution of the works shall be of the best quality and description unless otherwise stated. The Contractor shall order all materials to be obtained from overseas immediately after the contract is signed and shall also order for materials to be obtained from local sources as early as necessary to ensure that they are onsite when required for use in the works. The Bills of Quantities shall not be used for the purposes of ordering materials.</p>		
D	<p>SIGN FOR MATERIALS SUPPLIED</p> <p>The Contractor shall be required to sign receipts for all articles and materials supplied by the Project Manager at the time of taking delivery thereof, as having received them in good order and condition, and will thereafter be responsible for any such loss or damage and for replacement of such any loss with articles and/or materials which shall be supplied by the Project Manager at the current market prices including Customs Duty and VAT, all at the Contractors own cost and expenses, to the satisfaction of the PROJECT MANAGER.</p>		
E	<p>STORAGE OF MATERIALS</p> <p>The Contractor shall provide at his own risk and cost where directed on the site weather proof lock-up sheds and make good damaged or disturbed surfaces upon completion to the satisfaction of the PROJECT MANAGER. NOMINATED SUB-CONTRACTORS are to be made liable for the cost of any storage accommodation provided specifically for their use.</p>		
	Carried to Collection	KSHS	

ITEM	DESCRIPTION	KSHS	CTS
A	<p>SAMPLES</p> <p>The Contractor shall furnish at his own cost any samples of materials or workmanship including concrete test cubes required for the works that may be called for by the PROJECT MANAGER for his approval. The PROJECT MANAGER may reject any materials or workmanship in his opinion not to the approved sample. The PROJECT MANAGER shall arrange for testing of such materials as he/she may at his/her discretion deem desirable, but the testing shall be made at the expense of the Contractor and not at the expense of the PROJECT MANAGER. The Contractor shall pay for the testing in accordance with the current scale of testing charges laid down by Ministry of Public Works</p> <p>The procedure for submitting samples of materials for testing and the method of marking for identification shall be laid down by the PROJECT MANAGER. The Contractor shall allow in his tender for such samples and tests except for those in connection with nominated subcontractor's work.</p>		
B	<p>GOVERNMENT ACT REGARDING WORK PEOPLE ETC.</p> <p>Allow for complying with Government Acts, order and Regulations in connection with the employment of Labor and other matters related to the execution of the works. In particular, the Contractor's attention is drawn to the provisions of the Factory Act of 1950 and the tenderer must include for all costs arising or resulting from compliance with any Act Order or Regulation relating to insurance, pensions, and holidays for work people or so the safety and welfare of the work people. The Contractor must make himself fully acquainted with current Acts and Regulations including police regulations regarding movements, housing, security and control of labor, labor camps, passes for transport etc. It is important that the Contractor before tendering obtain information regarding all such regulations and/or restrictions which may affect the organization of the works, supply and control of labor etc: and allow accordingly in his tender. No claim shall be entertained for lack of knowledge in this respect.</p>		
C	<p>SECURITY OF WORKS, ETC.</p> <p>The Contractor shall be entirely responsible for the security of the works, materials, plant, personnel etc, both his own and subcontractor's and must provide all necessary watching, lighting and precautions necessary to ensure security against theft, loss or damage and the protection of the public.</p>		

	Carried to Collection	KSHS		
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ITEM	DESCRIPTION	KSHS	CTS
A	<p>PUBLIC AND PRIVATE ROADS</p> <p>Maintain as required throughout the execution of the works and make good any damage to Public or Private roads arising from or subsequent upon the execution of the works to the satisfaction of the local and other competent authority and the Project Manager.</p>		
B	<p>EXISTING PROPERTY</p> <p>The Contractor shall take every precaution to avoid damage to existing property including roads, cables, drains and other services and he will be held responsible for and shall make good all such damages arising from the execution of this Contract at his own expense at his own cost to the satisfaction of the Project Manager.</p>		
C	<p>VISIT THE SITE AND EXAMINE DRAWINGS</p> <p>The Contractor is advised to examine the drawings and visit the site location of which is described in the Particular Preliminaries hereof in liaison with PROJECT MANAGER. He shall be deemed to have acquainted him/ herself therewith as to its nature, position, means of access or any other matter which may affect his tender. No claim arising from his failure to comply with this advice shall be entertained.</p>		
D	<p>ACCESS TO SITE AND TEMPORARY ROADS</p> <p>Means of accessing the site shall be agreed with the PROJECT MANAGER prior to commencement of the works and the Contractor must allow for building any necessary temporary access road for the transport of materials, plant and workmen as may be required for the complete execution of the works including the provision of temporary culverts, crossings or any other means of accessing the site. Upon completing the works, the Contractor shall remove temporary access roads, temporary culverts etc; and make good, reinstate all works and surfaces disturbed to the satisfaction of the PROJECT MANAGER.</p>		
E	<p>AREA TO BE OCCUPIED BY THE CONTRACTOR</p> <p>The area of the site which may be occupied by the Contractor for site office, storage and for the purpose of erecting workshops etc; shall be defined on site by the PROJECT MANAGER.</p>		
	Carried to Collection	KSHS	

ITEM	DESCRIPTION	KSHS	CTS
A	<p>OFFICE FOR THE PROJECT MANAGER</p> <p>The Contractor shall erect and maintain where directed on site and afterwards dismantle the site office of the type noted in Particular Preliminaries, complete with furniture. He shall also provide strong metal trunk complete with strong hasp and staple fastening and two keys. He shall provide and maintain a lock-up type water or bucket closet for the sole use of the PROJECT MANAGER including connections to the drain where applicable in conformity with Public Health Authorities and shall provide services of a cleaner and payall conservancy charges and keep both office and closet in a clean and sanitary condition from commencement to completion of the works and thereafter dismantle and make good disturbed surfaces. The office and the closet shall be erected before the contractor is permitted to commence the works. The Contractor shall make available on site as and when required by the PROJECT MANAGER a modern and accurate level together with leveling staff, ranging rods and 50 metre metallic or linen tape measure.</p>		
B	<p>WATER AND ELECTRICITY SUPPLY</p> <p>The Contractor shall provide at his own risk all necessary water, electric light and power required for use in the works. The Contractor must make his own arrangement for connection to the nearest suitable water mains available and for metering the water used. He must also provide temporary water tank and meters as required at his own cost and clear away when no longer required and make good on completion to the entire satisfaction of the PROJECT MANAGER. The Contractor shall pay all charges in connection herewith. No guarantee is given or implied that sufficient water will be available from mains and the Contractor must make his own arrangement for augmenting this supply at his own cost.</p>		
C	<p>SANITATION</p> <p>The sanitation of the works shall be arranged and maintained by the Contractor to the satisfaction of the PROJECT MANAGER.</p>		
	Carried to Collection	KSHS	

ITEM	DESCRIPTION	KSHS	CTS
A	<p>PRIME COST OR PC SUMS</p> <p>The term "Prime Cost or PC Sum" whenever used in these Bills of Quantities shall be expended upon the authority of the Project Manager.</p>		
B	<p>PROGRESS CHART</p> <p>The Contractor shall provide within two weeks of Possession of Site and in Agreement with the PROJECT MANAGER a Progress Chart for the whole of the works including the works of Nominated Subcontractors; one copy to be handed to the PROJECT MANAGER and a further copy to be retained on site. Progress to be recorded and chart to be amended as necessary as the work proceeds.</p>		
C	<p>ADJUSTMENT OF PC SUMS</p> <p>In the final account, all P.C Sums shall be deducted and the amount properly expended upon the PROJECT MANAGER'S order in respect of each of them added to the Contract Sum. The Contractor shall produce to the PROJECT MANAGER such quotations, invoices or bills, properly receipted as may be necessary to show the actual details of the sums paid by the Contractor. Items of profit upon P.C Sums shall be adjusted in the final account pro- rata to the amount paid. Items of attendance (as previously described) following P.C Sums shall be adjusted to the physical extent of the work executed (not pro-rata to the amount paid) and shall apply even though the Contractors Priced Bills shows a percentage in the rate column in respect of them.</p> <p>Should the Contractor be permitted to tender and his tender be accepted of any work for which a P.C Sum is included in the Bills of Quantities, profit and attendance will be allowed as it would be if the work were executed by a Nominated Sub-contractor.</p>		
	Carried to Collection	KSHS	

ITEM	DESCRIPTION	KSHS	CTS
A	<p>ADJUSTMENT OF PROVISIONAL SUMS</p> <p>In the final account all Provisional Sums shall be deducted and the amount properly executed in respect of them upon the PROJECT MANAGER's order added to the Contract Sum. Such works shall be valued as described for Variations in Condition No.22 of the Conditions of Contract, but the value of such work or articles for the work to be supplied by a Nominated Subcontractor, the value of such work or article to be supplied by a Nominated Supplier, the value of such work or article shall be treated as a P.C Sum and profit and attendance comparable to that contained in the priced Bills of Quantities for similar items added.</p>		
B	<p>NOMINATED SUB-CONTRACTORS</p> <p>When any work is ordered by the PROJECT MANAGER to be executed by nominated Sub-contractors, the Main Contractor shall enter into a Sub-contract as described in Condition No.7 of the Conditions of Contract and shall thereafter be responsible for such sub-contractors in every respect. Unless otherwise described, the Contractor is to provide for such Sub-contractors any or all the facilities in these Preliminaries. They should price for these with the nominated Subcontract Contractor's work concerned in the P.C Sums under the description "Add for Attendance".</p>		
C	<p>DIRECT CONTRACTS</p> <p>Notwithstanding the foregoing conditions, the Employer reserves the right to place a "Direct Contract" for any goods or services required in the works which are covered by a P.C Sum in the Bills of Quantities and to pay for the same direct. In any such instances, profit relative to the P.C Sum the priced Bills of Quantities will be adjusted as described for P.C Sums and allowed.</p>		
D	<p>ATTENDANCE UPON OTHER TRADESMEN ETC.</p> <p>The Contractor shall allow for the attendance of trade upon trade and shall afford any tradesmen or any other persons employed for the execution of any work not included in this Contract every facility for carrying out the work and for use in his ordinary scaffolding. The Contractor, however, shall perform such carting away for and making good after the work of such tradesmen or persons as may be ordered by the PROJECT MANAGER and the work will be measured and paid for to the extent executed at rates provided in these bills.</p>		
	Carried to Collection	KSHS	

ITEM	DESCRIPTION	KSHS	CTS
<p>A</p>	<p>INSURANCE</p> <p>The Contractor shall insure as required and as outlined in the Appendix to the Conditions of Contract. No payment on account in respect of the works shall be made to the Contractor unless he/she has satisfied the PROJECT MANAGER either by production of an Insurance Policy certificate that the foregoing Insurance Clauses have been complied within all respects. Thereafter the PROJECT MANAGER shall from time to time ascertain that premiums are duly paid up by the Contractor who shall if called upon to do so, produce receipted premium renewals for the PROJECT MANAGER's inspection.</p>		
<p>B</p>	<p>PROVISIONAL WORK</p> <p>All work described as "Provisional" in these Bills of Quantities is subject to re-measurement in order to ascertain the actual quantity executed for which payment will be made. All "Provisional" and other work liable to adjustment under this Contract be left uncovered for a reasonable period of time to enable all measurements needed to be taken by the PROJECT MANAGER. Immediately the work is ready for measuring, the Contractor shall give notice to the PROJECT MANAGER. If the Contractor makes default in these respects he/she shall if the PROJECT MANAGER so directs uncover the work to enable all measurements to be taken afterwards reinstate at his own expense.</p>		
<p>C</p>	<p>ALTERATION TO BILLS, PRICING ETC.</p> <p>Any unauthorized alteration or qualification made to the text of the Bills of Quantities may cause the Tender to be disqualified and in any case be ignored. The Contractor shall be deemed to have made allowance in his/her prices generally to cover any items against which no price has been inserted in the Priced Bills of Quantities. All items of measured work shall be priced in detail and the Tenders containing Lump Sums to cover trades or groups of work must be broken down to show the prices of each item before they will be accepted.</p>		
<p>D</p>	<p>BLASTING OPERATIONS</p> <p>Blasting shall only be allowed with the express permission of the PROJECT MANAGER in writing. All blasting operations shall be carried out at the Contractor's sole risk and cost in accordance with any Government regulations in force for the time being and any special regulations laid down by the PROJECT MANAGER governing the use and storage of explosives.</p>		
	<p>Carried to Collection</p>	<p>KSHS</p>	

ITEM	DESCRIPTION	KSHS	CTS
A	<p>MATERIALS ARISING FROM EXCAVATIONS</p> <p>Materials of any kind obtained from excavations shall be the property of the Client. Unless the PROJECT MANAGER directs otherwise such materials shall be dealt with as provided in the Contract. Such materials shall only be used in the works, in substitution for materials which the Contractor will otherwise have had to supply with the written permission of the PROJECT MANAGER. Should such permission be given, the Contractor shall make due allowance for materials so used at a price to be agreed.</p>		
B	<p>PROTECTION OF THE WORKS</p> <p>Provide protection of the whole of the works contained in the Bills of Quantities, including casing, casing up, covering or such other means as may be necessary to avoid damage to the satisfaction of the PROJECT MANAGER and remove such protection when no longer required and make good any damage which nevertheless have been done at completion free of cost to the Government.</p>		
C	<p>REMOVAL OF RUBBISH ETC.</p> <p>Removal of rubbish and debris from the buildings and site as it accumulates and at the completion of the works and remove all plant, scaffolding and unused materials at completion.</p>		
D	<p>WORKS TO BE DELIVERED UP CLEAN</p> <p>Clean and flush all gutters, rainwater and waste pipes, manholes and drains, wash (except where such treatment might cause damage) and clean all floors, sanitary fittings, glass inside and outside and any other parts of the works and remove all marks, blemishes, stains and defects from joinery, fittings and decorated surfaces generally, polish door furniture and bright parts of metal work and leave the whole of the buildings water tight, clean, perfect and fit for occupation to the approval of the PROJECT MANAGER.</p>		
E	<p>ADHERENCE TO COVID-19 PREVENTION PROTOCOLS</p> <p>The contractor shall at his own cost put in place Covid-19 prevention Protocols and clearly elaborate them in a Covid-19 Action Plan all in compliance with Standards for Management of Construction Sites and Welfare of Workers and the Community by The National Construction Authority as clearly spelt out in the Ministry of Health Guidelines i.e. screening, hand wash points, mask wearing, social distance enforcement, controlled movement, communication principles etc.</p>		
	Carried to Collection	KSHS	

ITEM	DESCRIPTION	KSHS	CTS
A	<p>GENERAL SPECIFICATION.</p> <p>For the full description of materials and workmanship, method of execution of the works and notes for pricing, the Contractor is referred to Ministry of Public Works and Housing General Specification dated 1976 or any subsequent revision thereof, and which shall be allowed for in all respects unless it conflicts with the General Preliminaries, Trade Preambles or other items in these Bills of Quantities.</p>		
B	<p>TRAINING LEVY</p> <p>The Contractor's attention is drawn to legal notice No. 237 of October, 1971 which requires payment by Contractor of a Training levy at the rate of 1/4% of the Contract Sum on all Contracts of more than Kshs. 500,000.00 in value.</p>		
C	<p>MATERIALS ON SITE</p> <p>All materials for incorporation into the works must be stored on or adjacent to the site before payment is effected unless specifically exempted by the PROJECT MANAGER. This includes the materials of the Main Contractor, Nominated Subcontractors and Nominated Suppliers.</p>		
D	<p>HOARDING</p> <p>The Contractor shall enclose the site of the works under construction with a hoarding 2400mm high consisting of iron sheets on 100x50mm timber posts firmly secured at 1800mm centres with two 75x50mm timber rails. The Contractor is in addition required to take precautions necessary for the safe custody of the works, materials, plant, public and Employer's property on the site.</p>		
E	<p>CONTRACTOR'S SUPERINTENDENCE/ SITE AGENT</p> <p>The Contractor shall constantly keep on the works a literate English and Kiswahili speaking Agent Representative, competent and experienced in the kind of work involved who shall give his whole experience in the kind of work involved and shall give his whole time to the superintendence of the works. Such Agent or Representative shall receive on behalf of the Contractor all directions and instructions from the PROJECT MANAGER and such directions shall be deemed to have been given to the Contractor in accordance with the Conditions of Contract.</p>		
F	<p>PROTECTIVE CLOTHING</p> <p>The contractor shall provide all protective or any other special clothing or equipment for their employees that may be necessary. These shall include inter-alia, safety helmets, gloves, goggles, earmuffs, gumboots, steel toed boots, overalls etc. according to the type of work.</p> <p>The contractor shall ensure that all safety and protective gear are worn by staff on site at all times.</p>		
	Carried to Collection	KSHS	

ITEM	DESCRIPTION	
	<p>COLLECTION</p> <p>Brought Forward from Page 6/1</p> <p>Brought Forward from Page 6/2</p> <p>Brought Forward from Page 6/3</p> <p>Brought Forward from Page 6/4</p> <p>Brought Forward from Page 6/5</p> <p>Brought Forward from Page 6/6</p> <p>Brought Forward from Page 6/7</p> <p>Brought Forward from Page 6/8</p> <p>Brought Forward from Page 6/9</p> <p>Brought Forward from Page 6/10</p> <p>Brought Forward from Page 6/11</p> <p>Brought Forward from Page 6/12</p>	
	<p>TOTAL FOR PART NO. 6 CARRIED TO MAIN SUMMARY</p>	<p>KSHS</p>

BILL NO. 07

BUILDERS WORK

Item	Description	Unit	Quantity	Rate	Amount
	ANATOMY LAB				
	SUBSTRUCTURE (ALL PROVISIONAL)				
	Site Preparation				
A	Clear site of all grass shrubs, and small trees (Girth not exceeding 300mm): burn on site	Sm	472		
B	Excavate oversite;average 200mm deep to remove vegetable soil,load wheel and deposit where directed and later spread and level on site where directed	Sm	341		
	Excavation and Earthwork				
C	Excavate trenches for foundation strip footings commencing at reduced level, not exceeding 1.50 metres deep	Cm	328		
D	Excavate pits for bases commencing at reduced level, not exceeding 1.50 metres deep	Cm	97		
E	Return, fill and ram selected excavated materials around foundations	Cm	192		
F	Load and cart away surplus excavated materials from site	Cm	218		
	<u>Hardcore or the Like</u>				
G	300mm thick approved hardcore fill well packed and compacted in layers not exceeding 150mm thick	Sm	341		
H	50mm thick quarry dust blinding on surfaces of hardcore	Sm	341		
	Soil sterilization				
	<u>Dragnet FT' anti-termite chemical treatment; applied by Insecta Limited or approved equivalent professional pest control specialist: applied strictly in accordance with the manufacturer's instructions: 10 year guarantee: to</u>				
I	Surfaces of filling	Sm	341		
Total carried forward:Kshs					

Item	Description	Unit	Quantity	Rate	Amount
	Total brought forward:Kshs				
	Concrete work				
	<u>Plain in-situ concrete using ordinary portland cement in:</u>				
A	50mm thick blinding under strip foundation	Sm	274		
B	Ditto; Column bases	Sm	82		
	<u>Reinforced vibrated in-situ concrete; class 25/20 (1:1.5:3 mix) using ordinary portland cement in:</u>				
C	Strip foundation	Cm	56		
D	Column bases	Cm	30		
E	Foudation columns	Cm	8		
F	150mm thick ground floor bed	Sm	319		
G	Ditto; ramp	Sm	22		
	Reinforcement				
	<u>Deformed high yield ribbed bars reinforcement to BS 4449:1997 with yield strength of 460N/mm² : cut, bend and fix as directed : tenderers to allow in their unit rate, cost for cutting, bending, hoisting and fixing including all necessary trying wires, distance blocks, templates and spacer stools</u>				
H	Assorted bars: irrespective of type, size or location	Kg	12,515		
	<u>Fabric; reference A142 mesh; 200 x 200 mm; weighing 2.22 kg per square metre; B.S. 4483; including 400 mm laps, bends, tying wire and spacer blocks; in</u>				
I	In surface bed and ramps	Sm	341		
	Formwork				
	<u>Wrot formwork to:</u>				
J	Vertical sides of strip foundation	Sm	182		
K	Ditto; Column bases	Sm	96		
L	Ditto; foundation columns	Sm	94		
M	Ditto; Curved	Sm	6		
N	Edges of slab ; over 75mm but not exceeding 150mm wide	Lm	92		
	Total carried forward:Kshs				

Item	Description	Unit	Quantity	Rate	Amount
	Total brought forward:Kshs				
	Water Proofing				
	<u>Polythene sheeting; 1000 gauge; 150 mm laps; laid:</u>				
A	Under surface beds	Sm	341		
	Masonry				
	<u>Load bearing natural stone walling: bedded and jointed in cement and sand (1:4) mortar; reinforced with 25x20 gauge hoop iron in every alternate course</u>				
B	200mm thick foundation walls	Sm	682		
	<i>Plinth finishes</i>				
	Plasterwork				
	<u>Cement and sand (1:4) as described; to:</u>				
C	20mm thick to plinths	Sm	46		
	Painting and decoration				
	<u>Prepare and apply two coats approved bituminous paint applied in strict accordance with the manufacturer's specifications, to:</u>				
D	Rendered concrete or masonry surfaces, externally	Sm	46		
	Precast concrete				
E	Supply and lay 600 x 600 x 50mm precast concrete paving slabs as supplied by "Kenya Builders" or other equal and approved laid on 100mm thick bed of sand and pointed at the joints with cement/sand (1:3) mortar	Sm	56		
Total carried to Bill Summary:Kshs					

Item	Description	Unit	Quantity	Rate	Amount
	FRAME				
	Concrete work				
	<u>Reinforced vibrated in-situ concrete; class 25/20 (1:1.5:3 mix) using ordinary portland cement in:</u>				
A	Beams	Cm	42		
B	Columns	Cm	18		
C	150mm thick horizontal suspended slab with approved waterproofing admixture	Sm	78		
	Reinforcement				
	<u>Deformed high yield ribbed bars reinforcement to BS 4449:1997 with yield strength of 460N/mm² : cut, bend and fix as directed : tenderers to allow in their unit rate, cost for cutting, bending, hoisting and fixing including all necessary trying wires, distance blocks, templates and spacer stools</u>				
D	Assorted bars: irrespective of type, size or location	Kg	11,234		
	Formwork				
	<u>Wrot formwork to:</u>				
E	Sides and soffits of beams	Sm	500		
F	Vertical sides of columns	Sm	226		
G	Ditto; Curved	Sm	14		
H	Soffits of suspended slabs	Sm	78		
I	Edges of slab ; over 75mm but not exceeding 150mm wide	Lm	36		
Total carried to Bill Summary:Kshs					

Item	Description	Unit	Quantity	Rate	Amount
	WALLS AND PARTITIONS				
	Masonry				
	<u>Approved local machine dressed natural stone walling; bedded and jointed in cement and sand (1:4) mortar, reinforced with 25 x 20 gauge hoop iron at every alternate course as described</u>				
A	200mm thick walls;Externally	Sm	511		
B	200mm thick walls;Internally	Sm	52		
C	150mm thick walls; Internally	Sm	392		
D	100mm thick walls; Internally	Sm	63		
	Damp Proof Courses				
	<u>B.S 743; type A; bitumen hessian base; 150 mm laps; under walls; including levelling bed with cement mortar (1:4)</u>				
E	200mm wide	Lm	112		
F	150mm wide	Lm	71		
G	100mm wide	Lm	12		
	Concrete work				
	<u>Precast concrete lintel class 20/20 (12mm aggregate) including formwork and 4no. 10mm diameter reinforcement bars with 8mm stirrups at 200mm centres ;concrete finished fair on all exposed surfaces;hoisting,placing in position;bedding,jointing and pointing in cement and sand (1:3) mortar</u>				
H	200 x 200mm lintel	Lm	75		
	Precast Concrete				
	<u>Precast concrete units : class 25/20 mm : vibrated : reinforced as necessary for handling : fair face finished on all exposed faces : bedded and pointed in cement mortar (1:3)</u>				
I	250 x 50mm coping : weathered and throated	Lm	18		
Total carried to Bill Summary:Kshs					

Item	Description	Unit	Quantity	Rate	Amount
	ROOF				
	Structural Steel Work				
	<u>All Steel shall be to grade 43. and BS. 4360 and 5950;bolts shall be of designation 4.6 to BS. 4190 (Bolts through RHS and SHS sections to be provided with galvanised steel sleeves;all welds shall be 6mm fillet welds ground smooth;welding to comply with B.S 5950;shop drawings shall be submitted to the engineer for approval prior to fabrication;all steel work fabricated shall be inspected and approved by the Engineer before delivery to site;all steel work shall be cleaned by power wire brushing and painted with one coat red oxide shall be touched up and when appropriate be applied with three coats of paint applied with spray gun to Architect's approval ;All steel work shall be deemed to include all welds connections for complete fabrications and to be included in pricing</u>				
A	100 x 50 x 3mm thick (6.78kg/lm) Rectangular Hollow Section external truss members	Kg	4,014		
B	Ditto; rafters	Kg	408		
C	50 x 50 x 2mm thick (3.01kg/lm) Square Hollow Section internal truss members	Kg	2,326		
D	150 x 50 x 20 x 2.5mm thick (5.30kg/lm) Zed purlins	Kg	3,266		
E	10mm mild steel round bar anti sag rods	Kg	72		
	<u>Steel fascia</u>				
F	250mm x 1.5mm wide mild steel fascia welded to rafters	Sm	22		
	Sundries				
G	Allow for all gussets plates, cleats, bolts, nuts, screws, cutting and grinding smooth and welding, etc	Kg	1,009		
	Painting and Decorating				
	<u>Prepare and apply one primer coat and two finishing coats Kansai Plascon "VELVAGLO" or approved equivalent waterbased enamel paint, to metalwork:</u>				
H	General surfaces of structural steel work	Kg	10,086		
I	Surfaces of fascia	Sm	22		
Total carried forward:Kshs					

Item	Description	Unit	Quantity	Rate	Amount
	Total brought forward:Kshs				
	Roof Coverings				
	<u>0.32mm (28 Gauge) thick IT5 box profile roofing sheets of approved colour as supplied by "Mabati Rolling Mills" or other approved equivalent nailed on timber purlins (m.s);in strict accordance with manufacturer's instructions</u>				
A	IT5 roofing sheets including all necessary accessories;laid to slopes not exceeding 30 degrees from horizontal	Sm	790		
B	Extra over for 10mm thick sisalation underlay:Super polynum	Sm	790		
	Rain Water Drainage				
	<u>The following in 16 Gauge purpose made galvanized iron plain sheet rain water goods with soldered joints as described</u>				
C	300 x 300mm pre painted box gutters fixed with and including 30 x 2mm gutter strips at 600mm centres	Lm	77		
D	200mm diameter downpipe fixed to vertical surfaces with and including mild steel straps at 600mm centres	Lm	15		
Total carried to Bill Summary:Kshs					

Item	Description	Unit	Quantity	Rate	Amount
	JOINERY FITTINGS (ALL PROVISIONAL)				
	Low Level Cabinetry				
	<u>Cypress in plinth support;</u>				
A	Size 90 x 20 mm placed on floor to support cabinets	Lm	86		
	Plinths				
B	100 mm Thick Mass concrete 1:3:6 in plinths	m2	12		
C	Sawn formwork to edges of plinths 75 - 150mm high	m	20		
D	25 mm thick cement and sand screed to plinths; trowelled smooth	m2	12		
	<u>Supply, assemble and fix the following low level Laboratory worktop unit on 100mm thick concrete plinth (plinths m.s) in 18mm thick mdf partitions, sides and shelf , 18mm thick block board top finished in 8mm thick granito tiles, 18mm thick cherry veneered MDF drawer fronts and doors including all necessary approved ironmongery 'as per Architects specification;</u>				
E	Overall size 10100 mm long x 600mm deep x 900mm high	Nr	2		
Total carried to Bill Summary:Kshs					

Item	Description	Unit	Quantity	Rate	Amount
	WINDOWS				
	Concrete work				
	<u>Precast concrete: Class 20/20: including all formwork, hoisting into position and bedding and pointing in cement mortar (1:4)</u>				
A	200 x 100mm (overall) weathered and throated window cill, fair faced on all exposed surfaces	Lm	45		
	Metal work				
	<u>Supply and fix the following purpose made steel casement windows with permanent ventilation along the full length;finished with one coat red oxide primer,complete with 75mm long heavy duty hinges,300mm long heavy duty window stays ,brass fasteners;including cutting,fixing lugs to walling and bedding all round frame in cement and sand mortar (1:3)</u>				
B	Window size 1800 x 1200mm high	Nr	3		
C	Window size 2800 x 1800mm high	Nr	5		
D	Window size 2400 x 1200mm high	Nr	3		
E	Window size 750 x 1200mm high	Nr	5		
F	Window size 800 x 1800mm high	Nr	3		
G	Window size 2800 x 1200mm high	Nr	1		
H	Window size 2400 x 1800mm high	Nr	1		
Total carried forward:Kshs					

Item	Description	Unit	Quantity	Rate	Amount
	Total brought forward:Kshs				
	<u>Glazing</u>				
	<u>4mm thick sheet glass with metal putty in panes 0.1-0.5sm</u>				
A	Clear glazing	Sm	53		
B	Obscure glazing	Sm	5		
	Painting and Decorating				
	<u>Prepare and apply three coats approved gloss oil paint to metalwork:</u>				
C	Surfaces of windows	Sm	116		
	Window Blinds				
	<u>Supply and fix purpose made sun-screen vertical blinds with chain adjustment mechanism all to the approval of the Architect</u>				
D	Window blinds in varying lengths (<i>Technicians office</i>)	Sm	5		
Total carried to Bill Summary:Kshs					

Item	Description	Unit	Quantity	Rate	Amount
	DOORS				
	Metal work				
	<u>Fabricate, deliver and install the following purpose made mild steel casement doors (to Arch. details) including all requisite cutting, bending, welding, grinding, glazing and one coat red oxide primer before fixing as described in:-</u>				
A	Double leaf door overall size 1200 x 3000mm high including all necessary glazing and iron mongery	Nr	2		
B	Ditto; but louvered	Nr	1		
C	Single leaf door overall size 1000 x 3000mm high including all necessary glazing and iron mongery	Nr	2		
	Joinery				
	<u>Approved treated wrot mahogany(prime grade)</u>				
D	150 x 50mm rebated frame, plugged	Lm	109		
E	Ditto; Transome	Lm	18		
F	75 x 25 mm moulded architrave: ditto	Lm	109		
G	25 x 25mm quadrant: ditto	Lm	109		
H	20 x 15mm glazing beading	Lm	47		
	<u>45mm thick standard solid core flush door faced on both sides with 6mm thick high quality embossed mahogany veneered plywood, lipped all round in hardwood; As per the Architect's details:</u>				
I	Door size 900 x 2100mm high	Nr	11		
J	Door size 1200 x 2100mm high	Nr	2		
J	Door size 1500 x 2100mm high	Nr	1		
	<u>45mm thick standard semi solid core flush door faced on both sides with 6mm thick high quality embossed mahogany veneered plywood, lipped all round in hardwood; As per the Architect's details:</u>				
K	Door size 800 x 2100mm high	Nr	4		
L	Door size 1000 x 2100mm high	Nr	1		
	Glazing				
M	4mm clear sheet glass fixed to approval held to position in hardwood beading to fanlights	Sm	6		
Total carried forward:Kshs					

Item	Description	Unit	Quantity	Rate	Amount
	Total brought forward:Kshs				
	Ironmongery				
	<u>Supply and fix the following ironmongery as per "Union" or equal and approved manufacturer complete with hand levers and fixing with matching screws:</u>				
A	Three lever mortise lock and handle	Nr	14		
B	Two lever bathroom mortise lock and handle	Nr	5		
C	100 x 75mm Aluminium butt hinges	Prs	27		
D	Ditto;Double action	Prs	9		
E	38mm rubber door stop	Nr	24		
	Painting and Decorating				
	<u>Prepare and apply one coat approved aluminium primer on woodwork before fixing:</u>				
F	Surfaces over 100 but not exceeding 200mm girth	Lm	109		
G	Surfaces not exceeding 100mm girth	Lm	218		
	<u>Prepare and apply one primer coat and two coats Kansai Plascon "PLASCOSAFE" or approved equivalent waterbased polyurethane clear varnish, to timber</u>				
H	General surfaces	Sm	86		
I	Surfaces over 100 but not exceeding 200mm girth	Lm	127		
J	Surfaces not exceeding 100mm girth	Lm	218		
	<u>Prepare and apply three coats approved gloss oil paint to metalwork:</u>				
K	Surfaces of doors	Sm	30		
Total carried to Bill Summary:Kshs					

Item	Description	Unit	Quantity	Rate	Amount
	WALL FINISHES				
	<i>External Wall Finishes</i>				
	Plasterwork				
	<u>Cement and sand (1:4) render:</u>				
A	20mm thick to masonry or concrete surfaces with wood float finish	Sm	252		
	Painting and Decorating				
	<u>Prepare and apply one undercoat; two finishing coats of premium external quality paint to crown paints or equal and approved; on rendering (m.s.); to</u>				
B	Rendered concrete or masonry surfaces, externally	Sm	252		
	Key pointing				
	<u>Hack out joints and apply 12 x 12mm cement and sand (1:3) mortar horizontal recessed pointing</u>				
C	Masonry surfaces	Sm	146		
	Mouldings				
D	Doric column mouldings (Radius 175mm and height of 3.60m) as "Tuxstyle" or other equal and approved on concrete surfaces; finished in approved exterior quality textured paint	Nr	3		
	<i>Internal Wall Finishes</i>				
	Plaster or Backing				
	<u>12mm thick first coat cement and sand (1:4) plaster; 3mm thick second coat of cement and lime putty (1:5); steel trowel finish;</u>				
E	15mm thick to concrete or masonry surfaces	Sm	817		
	<u>Cement and sand (1:4) screed in:</u>				
F	15mm thick backing prepared to receive ceramic tiles (m.s)	Sm	167		
Total carried forward:Kshs					

Item	Description	Unit	Quantity	Rate	Amount
	Total brought forward:Kshs				
	Tiles; Slab or Block Finishes				
	<u>Supply and fix wall tiles as "Levante white" or other equal and approved wall tiles fixed with approved quality tile adhesive in accordance with manufacturers instructions ;bedded on screeds ;jointed,pointed and grouted in matching color cement mortar including all spacers and expansion joints;all in accordance with Architect's detail drawings and approval</u>				
A	300 x 600mm glazed ceramic wall tiles	Sm	167		
	Painting and Decorating				
	<u>Prepare walls, skim and apply three coats first quality silk vinyl paint to:</u>				
B	Plastered concrete or masonry surfaces	Sm	817		
Total carried to Bill Summary:Kshs					

Item	Description	Unit	Quantity	Rate	Amount
FLOOR FINISHES					
Beds or Backing					
<u>Cement and sand (1:4) backing</u>					
A	32mm thick to floors : wood float finish : to receive ceramic tiles (m.s)	Sm	79		
B	30mm thick to floors : wood float finish : to receive porcelain tiles (m.s)	Sm	58		
C	38mm thick to floors : wood float finish : to receive epoxy flooring (m.s)	Sm	149		
<u>Supply and fix approved ceramic floor tiles;to regular pattern;bedding and jointing in cement mortar (1:4) grouting joints with proprietary grouting laid on cement sand bed (m.s),3mm silicon joints at 3600mm through depth of tile,aluminium edge trim as per "Genesis" incorporating all spacers and expansion joints:all in accordance with Architect's detail drawings and approval</u>					
D	Ceramic floor tiles	Sm	79		
E	100mm skirting tile with bullnose top and square at junction with floor paving	Lm	65		
<u>Supply and fix approved porcelain floor tiles;to regular pattern;bedding and jointing in cement mortar (1:4) grouting joints with proprietary grouting laid on cement sand bed (m.s),3mm silicon joints at 3600mm through depth of tile,aluminium edge trim as per "Genesis" incorporating all spacers and expansion joints:all in accordance with Architect's detail drawings and approval</u>					
F	Porcelain floor tiles	Sm	58		
G	100mm high skirting	Lm	32		
<u>Supply and apply self leveling epoxy floor system including grinding surface to remove surface laitance and expose defects,repairing defects and cracks,fill control joints with shrinkage mortar ;apply moisture barrier and captive blasting and wash with approved acid;apply primer as "X-prime MT 100" and finishing coat as "X-Tech Epoxy floor SL2" all applied in accordance with manufacturer's printed instructions</u>					
H	3mm thick flooring	Sm	149		
Total carried to Bill Summary:Kshs					

Item	Description	Unit	Quantity	Rate	Amount
	CEILING FINISHES				
	Plain Sheet Finishings				
	<u>600 x 600 x 15mm fine pressed mineral fibre tiles on and including concealed 'T' frame grid system' ; tegular edges and shallow gap trims;allow for cutting and trimming to light fittings</u>				
A	Horizontal suspended ceilings	Sm	286		
	Plaster or Backing				
	<u>12mm thick first coat cement and sand (1:4) plaster; 3mm thick second coat of cement and lime putty (1:5); steel trowel finish;</u>				
B	15mm thick to soffits of suspended slabs	Sm	39		
	Painting and Decorating				
	<u>Prepare and apply one primer coat and two finishing coats Kansai plascon or other equal and approved equivalent top quality paint</u>				
C	Plastered soffits	Sm	39		
Total carried to Bill Summary:Kshs					

ANATOMY LAB

Item	Description	Unit	Quantity	Rate	Amount
	ANATOMY LAB BUILDERS WORK SUMMARY				
	SUBSTRUCTURE (ALL PROVISIONAL)			Page 3	
	FRAME			Page 4	
	WALLS AND PARTITIONS			Page 5	
	ROOF			Page 7	
	JOINERY			Page 8	
	WINDOWS			Page 10	
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	WALL FINISHES			Page 14	
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	CEILING FINISHES			Page 16	
Total carried to Section Summary:Kshs					

BILL NO. 08

ELECTRICAL SERVICES INSTALLATION

PART A

GENERAL SPECIFICATION FOR ELECTRICAL WORKS

A. GENERAL CLAUSES

2.01 Regulations

This specification covers the requirements of lighting and power installation in Kenya. All apparatus and material supplied and all work carried out shall comply with the Kenya Government Electrical Specifications, GES.1 and GES.2 and local Statutory Regulations. Installations should also be generally in accordance with the requirements of the 16th Edition of the "Regulations of the Electrical Equipment for Buildings" issued by the institution of Electrical Engineers, Which should be used as a "Code of practice" except where they conflict with Kenya Government Legislation regarding electrical installations.

2.02 Standards

Except where otherwise indicated in this Specification the Contract Works and all manufactured items shall comply with the relevant Specification of the British Standards Installation. Such Specification are here in after referred to as "BS". In each case, the latest edition of such Specification shall apply.

Should it be desired to offer equipment covered by other National or International Standards, the approval of the Engineer must be obtained, in Writing, before completion of the tender.

2.03 Records Drawings

The contractor shall mark accurately on one set of drawings the conduit laid during the progress of the work. This information must be made available on site for inspection by the Engineer.

At the completion of the Contract, the Contractor shall supply the engineer with one set of transparent originals, and two complete sets of prints showing the complete installation.

The drawing shall include the location of all apparatus conduits and cable routes and a schematic diagram of the main distribution indicating the phasing of the system.

2.04 Contract Drawings

These drawing form part of this specification and are to be read in conjunction with this specification to enable the contractor to prepare a tender. Where there are any omissions in the bills of quantities, contract drawings supersede the bills of quantities.

These drawings are not intended to be used as working drawings unless they are released for that purpose.

2.05 Working Drawings

The contractor shall prepare the working drawings as may be necessary. These shall be submitted to be Engineer for approval before the execution of the works.

Working drawings, to be prepared by the contractor, shall be detailed as below but not restricted only to these:-

1. General arrangement of drawings showing plants, M.V. Switchgear, distribution boards, consumer units, fittings, switches, switched sockets outlets etc.

2. Layout drawings of concealed and surface conduits, ducts, trucking etc.

3. Any other drawings that are not called for in the Specification.

Two copies of all working drawings shall be submitted to the Engineer for approval.

Thereafter, the contractor shall submit copies of approved working drawings for distribution to the parties concerned. The contractor shall not be relieved of any of this obligations under the contract or from correction any errors on site or elsewhere found subsequently in the approved working drawings by the Engineer.

2.06 **Labels**

All switchgear, switch fuses, distribution boards, etc., shall be clearly labeled with black on white background engraved labels to indicate the name, purpose and position of the gear. All circuits in distribution boards shall be clearly identified in respect of the number and location of the M.C.B. The charts shall be securely fixed inside the covers of the distribution boards.

2.07 **Galvanizing**

Galvanizing shall be applied by the hot process and shall consist of a smooth clean zinc coating free from defects and be uniform in thickness.

The thickness shall be not less than 610gms of zinc per square meter of surface and tested in accordance with the requirements of B.S 729 where applicable. Sheradiling or other alternative processes shall not be used without approval in writing of the Engineer.

The preparation for galvanizing itself shall not adversely affect the mechanical properties of the coated material. Surfaces which are normally in contact with oil shall not be galvanized or cadmium plated.

All out-door structures, access ladders, platforms, equipment cubicles shall be galvanized.

2.08 **Cleaning and painting**

Having due regard to the destination and climate conditions under which the plant is to operate, extreme care shall be exercised in the manufacture of the equipment to prevent the formation of any corrosion. All equipment shall be cleaned of all dust, oil, grease, dirt, scale and rust by power tool operated metal brush or preferably by shot or grit blasting and then ground smooth where necessary. Unless otherwise approved, they shall then immediately have applied to them two coats of approved primer paint. After inspection any rough surface shall be filled in and smoothed over and further painting in the factory shall be as follows:-

(a) All interior of cubicles, kiosks, boxes etc., containing wiring or other apparatus and internal components of the plant which are dispatched to site in an assembled conditions, shall be finish painted with at least two coats of white enamel. The final oat shall be of white anti-condensation finish, where so specified.

(b) The external surface of the panels shall be finished in gray stove enamel to B.S. shade 631 or other shade as may be approved by the Engineer.

(c) All interior surface of tanks and other oil filled chambers and external surface of piping therein shall be painted finally with an oil resisting coating to the approved by the Engineer.

(d) All wall and floor mounted junction boxes, loose starters, etc., throughout the works shall be finished in grey stove enamel or painted finally with to B.S. 381C shade 631 or other shade as may be approved by the Engineer.

After all erection has been made completed at site, the contractor shall make good all defects in painting and galvanizing which have arisen during transport, storage and erection on site and shall apply undercoat and one finished coat of gloss paint to B.S. 311C shade as may be approved by the Engineer to the external surface of all equipment.

Where galvanized metal work has been damaged it shall either be repaired by cold galvanizing at site or alternatively at the discretion of the Engineer, be returned to the manufacturer for re-galvanizing by the hot process.

2.09 **Lighting and Distribution Boards**

General lighting and power distribution boards shall comply with the B.S. 3817, 5861 and B.S. 214 and shall be of the metal clad pattern, flush mounted, except where otherwise specified on the drawings.

2.10 **Construction**

Enclosures shall be substantially constructed from 16S.W.G. minimum thickness sheet steel having hinged front cover, and shall be vermin and insect proof. Each unit shall house M.C.B.'s and shall be supplied complete with bus-bars, earthing terminal, neutral bar, circuit chart, and blanking plate for any spare ways. The incoming isolator switch shall be integral with the distribution board in consumer Units only.

2.11. **Miniature Circuit Breakers**

All distribution boards shall be supplied with M.C.B.'s manufactured to B.S. 3871 and of a rating as specified on the drawings. The circuit breakers shall incorporate both thermal overload and magnet short circuit tripping, with a trip-free mechanism.

Three phase circuits shall be controlled by integrally manufactured three pole circuit breakers, with one common operating lever. An intertripping mechanism shall ensure isolation of all three poles in the event of an overload or short circuit on any one phase.

2.12 **Earth leakage Circuit Breakers**

If specified or indicated on the Contract drawings the use of E.L.C.B. for isolation of incoming supply in the distribution board shall be of an approved type for flush mounting. The general requirements of the E.L.C.B. are as follows:-

(a) It shall have high sensitivity i.e. it shall operate in 30 milliseconds for a leakage current of 30 milliampere.

(b) Its operation shall not rely on the mains supply for tripping under fault conditions. For example, in the event of a leakage from the live to earth conductor occurring at the same time as break in the neutral supply wire, the breaker shall trip.

2.13. **Labeling**

A circuit chart in each board shall show the name, location and current loading of each circuit connected. Each board shall be fitted with an engraved identification label in black on white, such as "Distribution Board D.I.", etc, and all three phase distribution boards shall be labeled in white on red, "DANGER 415 VOLTS".

B. NON-METALLIC CONDUIT

2.14. Standards and Installation

All non-metallic conduits shall be class 'A' heavy gauge, high impact, PVC complying with BS 4606 part 2 type All. The minimum size to be used on the Contract is 20mm external diameter. The required sizes are shown on the Contract drawings. All conduit installation shall be concealed in the walls and floors or in structural slabs.

2.15. Joints

Conduit will be joined and terminated utilizing the appropriate rigid PVC compounds as detailed below, or standard conduit entry electrical equipment. Jointing will conform to one of the following techniques:-

No. 1 - Permanent Adhesives - The solvent cement supplied by the conduit manufacturers will be used to produce a rigid sealed connection.

No. 2 - Flexible Adhesive - A non-hardening adhesive supplied by the conduit manufacturers will be used to produce a flexible sealed joint where allowance is necessary for longitudinal movement (e.g. expansion couplers).

2.16. Bends

Bends and sets in the conduit will be made in accordance with the manufacturer's instructions. The radius of the bend shall not be less than 2.5 times the outside diameter of the conduit or such greater radius which will facilitate easy drawing in of cables.

2.17. Expansion

Adequate allowance shall be made for longitudinal expansion and contraction of the conduit under normal working temperature variations as follows:-

(a) Expansion couplers should be used in straight runs exceeding 6 meters with a loose or flexible type joint

(N0.2 above) at the long spout end of the coupler.

(b) Saddles as supplied by the manufacturers shall include a sliding support tolerance for longitudinal expansion.

Special consideration may need to be given to the fixing of accessories where this may prevent natural conduit movements. Over size or slotted fixing holes may be necessary or the introduction of expansion couplers.

2.18. Support

Conduits should be supported by saddles, at not more than 900mm intervals. Where working temperatures tend to be high this should be reduced to 600mm.

2.19. Conduit Boxes and Fittings

(a) All conduit boxes shall be circular or square pattern of Rigid PVC suitable for plain connections conforming to sheet 62 B.S. 4607 part 2. Boxes for supporting a fitting or accessory

shall be fitted with a PVC lid held in position by means of two 2BA round headed screws Boxes shall have metallic screwed inserts.

- (b) Circular or square boxes shall be provided at all outlet points, unless otherwise specified and lighting fitting, ceiling switches and other accessories will be screwed to the internal lugs of the boxes. Care must be taken when considering the use of totally enclosed fitting with PVC circular boxes where the temperature within the box is likely to rise above 60 C [140 F]. Special steel insert clips should be used in conjunction with circular boxes where heavy pendants are used.
- (c) Looping in boxes of circular P.V.C. pattern to sheet 63B.S. 4607 part 2 may be used in such work as dictated by the structure of the buildings. Conduit entry shall be made by means of P.V.C. bushes.
- (d) Adaptable boxes shall be of molded or fabricated PVC of square or oblong shape complete with P.V.C. Lids secured by 2 BA or steel plates round-headed screws. All adaptable boxes and lids of the same size shall be interchangeable. No adaptable box smaller than 75mm x 50mm or larger than 300mm x 300mm shall be employed. Boxes shall be of adequate depth in relation to the size of conduit entering them.
- (e) Conduits shall be terminated at adaptable boxes, fuse-board switches, sockets outlets or other equipment not possessing push-in or threaded spouts, by means of appropriate size female adapter and PVC hexagonal headed Bare Bush. All cemented joints to be made to a depth of not less than the diameter of the conduit being used.

2.20 **Earth Continuity**

Earth continuity shall be provided by a separate insulated conductor drawn into the plastic conduit and rated in accordance with circuit loadings and appropriate regulations, or as mentioned, on the drawings.

Where required under the Regulations, an earth continuity conductor shall be provided for lighting fittings in which case the control switches shall be equipped with an appropriate earth terminal.

2.21. **Arrangement of Conduit Layout**

The conduit system shall be carefully planned and erected to avoid unnecessary bends or changes in direction. Conduits shall be laid in straight horizontal or vertical lines with easy sets. Where several conduits follow similar routes, they shall be laid out from a common center. Where draw-in boxes for right angled change of direction are required in multiple runs, adaptable boxes shall be used for such size as to allow conduits to enter the box without sets. Where conduits are concealed or laid on constructional floors, they shall be secured by fixing as approved by the Engineer. Where it is essential that conduits cross one another in floors, the chases shall be deepened and the conduits set to create the minimum desirable diversion.

Care shall be taken to ensure that there are no obstructions to cables within the conduits caused by the ingress of plaster, concrete, or other matter. Conduit ends must be square and cleaned of burrs.

2.22. **Conduit Draw-in Points**

Conduits for each circuit shall be completely erected before any cable is drawn in. Adequate draw-in points shall be provided. Straight runs shall have draw-in facilities at distance not exceeding 12 metres. Runs incorporating sets of bends shall have draw-in facilities at a distance not exceeding 9 metres. These distances may need to be reduced in difficult situations or with particular cable complexes.

Not more than four easy sets, or two right angle bends or sets may be installed between draw-in points. Solid elbows or tees shall not be accepted.

C. **FINAL CIRCUIT WIRING**

2.23. **Type**

All power and lighting wiring cables shall be 600/1000 volt grade, single core, P.V.C. insulated, with stranded copper conductors, manufactured in accordance with B.S. 6006. The minimum size of lighting circuits shall be 1.5 sq.mm sizes, 4.0sq.mm on power spur circuits and 2.5sq.mm on ring main circuits.

2.24. **Installation**

Cables forming circuits connected to different distribution boards shall not be drawn into the same conduit or draw-in box. The cables shall be coloured in accordance with Table B4 of the IEE Regulations. Cables used on extra low voltage circuits shall be of distinctive colours other than these colours.

No reduction of the strands forming the conductors shall be allowed at switch or other terminals, but all strands shall be effectively secured by screws, nuts and washers or other approved means.

Cables shall be joined together at the terminals of ceiling boxes and other accessories. Under no circumstances will joints be permitted in the run of the cable.

D. P.V.C. INSULATED ARMoured CABLES

2.25. Type

These shall be 600/1000 voltage grade to BS.6346 or B.S 6004 having copper wire insulated, P.V.C. sheathed, single wire armoured and P.V.C. sheathed overall. The cores of four core cables shall be distinctively coloured red, yellow, blue and black. The Contractor shall provide suitable glands and accessories for all armoured cable termination, and where cables are suspended shall provide the necessary rack, cleat or hanger supports and fixing.

Cable supports and racks shall be made by a recognised manufacturer and shall be to the approval of the Consulting Engineer.

All supports and racks shall be arranged as far as is practicable for the easy removal of any single cable in a multi-cable run, without threading cables through supports and racks. The number of types of supports and racks shall be kept to a minimum commensurate with meeting the requirements of the Contract Works.

2.26. Laying of Cables

The work of excavating and back-filling of all trenches for cables, is included in this contract and the responsibility for positioning, width and depth of trenches, and for laying and bedding of all cables and protective covers is included with the Electrical Works covered by this Specification. Cables shall be laid in trenches at the following minimum depths.

For M.V. cables in open ground	0.55m
For M.V. cables under roads and pavements	0.85

Where more than one cable is laid in a trench, cables shall be spaced as follows:

Between M.V. cables	0.1m
Between M.V. and telephone cables	0.4m
Between M.V. and L.V. cables	0.4m
Between L.V. and telephone cables	0.4m
Between L.V. cables	0.1m

In straight run trenches cable crossings shall not be permitted except where cables branch from the main run.

At every draw-in point or junction box the cable should be snaked.

Before cables are laid the bottom of the trench shall be evenly graded and cleared of all loose stones, and shall then be covered with an 80mm layer of sand or sifted soil and lightly compacted, and a further 80mm layer shall be placed on top of the cables. The approved cable protection, see Clause 2.27, shall then be laid and the excavated materials in 0.2m layers, each layer being well compacted by hand or mechanical punners before the next layer is filled.

The width of the trench shall be such that a clearance of 80mm shall be provided between outermost cable and the side of the trench. Where cables are disposed in more than one layer, the vertical spacing shall be 0.4. between centres of cables or cable groups, the depth of the trench being made suitable accordingly.

2.27. **Protective Covers**

The protective covers, of approved local manufacture to BS.2484 shall be provided over cables laid in the ground each complete with an interlocking device to prevent lateral displacement. These protective covers shall extend at least 50mm laterally beyond the outside of the outer cable in each group of cables so protected.

2.28. **Cable Position Markers**

These should be placed adjacent to all points where cables change direction, and at all intervals of not more than 30m and at other positions designated by the Architect or the Consulting Engineer.

2.29. **Sealing of Cable Entries**

Where cables enter a building in pipes, or ducts, the mouths of the pipes or ducts shall be effectively sealed by means of close fitting solid impregnated wooden plugs and mixture of compound and transformer oil, or other approved manner.

All cables passing through interior walls or floors shall be effectively sealed to the approval of the
Engineer

By means of asbestos cement after the cables have been pulled through, in order to prevent the accumulation of moisture and the ingress of debris, sand or vermin. The cost of sealing the cables shall
be

included in the rates for erection and laying.

2.30. **Protection Against Mechanical Damage**

All cables located in such positions where they are vulnerable to damage by mechanical or other
means

shall be protected by suitable lengths of steel pipe bushed to prevent damage to the cable.

2.31. **Rating Plates**

Each cable when completely erected shall have permanently attached to it at each end, and in such intermediate positions as may be considered necessary by the Engineer, metal plates upon which is engraved, or stamped, the identification number of cable together with its supplies. This information shall be recorded by the contractor so that it may appear on drawings of the completed installation.

2.32. **Cable Jointing**

The Contractor shall be wholly responsible for sealing and jointing of all cables supplies and erected under the contract. The cable boxes, loop-boxes and glands for power and L.V. cables on all items of equipment shall be provided under the contract.

Sealing and jointing shall be in accordance with the best current practices and of first class workmanship. Where cable armouring is used as earth continuity conductors the glands shall have the necessary contact surfaces or straps to provide a low resistance path under fault conditions.

The Tender shall include for all cable jointing where appropriate and also all labour, jointing material and compound, together with the use of all jointer`s tools and making of the tails to the apparatus terminals.

Generally, cable terminations on switchgear, transformers, joint boxes, outgoing, and incoming circuits on the switch-boards shall be glanded in an approved manner.

E. SOCKET OUTLETS

2.33. General

In all areas, general power outlets shall be of the 13 Amp.3 pin fused plug type complying with BS. 1363. They shall be flush pattern with white or ivory plates unless otherwise specified on the drawings. Where the circuits are supplied from a common feed, two outlets shall form a twin unit in a common box. The earthing terminal of every socket outlet shall be connected to the earth continuity conductor of the final circuit by an appropriately sized insulated copper conductor. Unless otherwise stated they shall be mounted at 300mm above finished floor level.

2.34. Plugs

One fused plug top shall be supplied for each socket outlet installed. Fuses shall be 13 Amp unless otherwise specified.

F. FUSED CONNECTION UNITS

2.35. General

All fused connection units shall be 13 Amp. with fuse and neon indicator lamp. Boxes shall be flush type with white or ivory copper plates and shall be switched type unless otherwise specified on the drawings.

2.36. Fuses

All fused connection units shall be fitted with 13 Amp. fuses, unless otherwise specified.

2.37. Labeling

The front plate of each fused connection unit shall, unless otherwise specified, be engraved with the name of the appliance connected to it.

G. LIGHTING SWITCHES

2.38. Type

Lighting switches shall be of the all insulated rocker operating plate switch type to BS. 3676 of ample rating. Switch inserts shall be white set in white or ivory cover plates.

Switches controlling points in bathrooms shall be placed outside the bathroom or consist of a ceiling switch operated by a non-conducting cord, as specified. Switches mounted outdoors shall be of a weather tight pattern.

Switches shall be one way, two ways or intermediate as specified and where a number of switches are mounted together they shall be tilted in a common box.

Ceiling switches shall be white or ivory semi recessed

pattern, and shall only be used where specified. Pull cords shall be fitted with shock absorbing springs.

H. LIGHTING FITTINGS

2.39. General

The Contractor shall supply and fit all lighting fittings of the type indicated on the drawings and in the schedules. All fittings shall be suitable for operation on a 240V, 50Hz supply. Lighting fittings rated other than 240 volts will not be accepted. All lighting fittings shall be supplied with lamps.

2.40. Fluorescent Fittings.

Fluorescent fittings shall generally be of the batten type, with control gear contained within the supporting channel. All fittings shall be supported from conduit boxes, and shall be suspended by two 20mm diameter conduits to give a clearance of 25mm between the top of the fitting and the ceiling. Where fittings are suspended by chains from the ceiling the contractor shall use white flexible cord between the box and the fittings.

The installation of the suspension chain and cord shall be approved on site by the Engineer. In the ceiling, conduit boxes, to BS. 31, shall be fitted with dome covers, to which the suspension conduits shall be joined, so that the lighting fitting hangs vertically below the conduit boxes.

Fitting shall comply with BS. 3820 or class1, indoor normal atmospheres.

All fluorescent fittings shall be fitted with radio interference suppression capacitors and power factor correction capacitors and shall be earthen.

2.41 Reflectors and Diffusers

All reflectors for fluorescent fittings shall be made of sheet metal suitably shaped and stiffened, and shall be of white enamel finish. The diffusers shall be of white enamel finish. The diffusers shall be of white opal type in extruded plastic with external reeding.

2.42. Lamps

All lighting fittings shall be supplied complete with lamps of the type and rating specified. Fluorescent tubes shall be of the "white" type, except where otherwise stated. Pearly type tungsten lamps will be fitted in open fittings.

I. FLEXIBLE CORDS

2.43. General

These shall be of 250 volt grade PVC insulated and shall comply with BS.7. Flexible cords shall not be less than 24/.20(23/.0076).

Flexible cords for pendant fittings shall be circular type, heat resistant and white in colour.

J. **EARTHING**

2.44 **Earthing Electrodes**

Earth electrodes shall be minimum 1.4 metres long by 12mm diameter hard drawn copper rod, and shall be located not less than 3 metres apart at a convenient position 6 metres away from the building. The terminal head of each electrode shall be in a concrete inspection pit, with cover. If the resistance to earth is not satisfactory with one electrode, then additional electrodes or an earth mat shall be provided as directed by the Engineer.

2.45 **Distribution System Earthing**

All distribution boards shall be earthed in accordance with the I.E.E. Regulations. All metal work associated with the regulations currently in force.

2.46 **Testing of Earthing System**

The resistance of the earth continuity system when measured between earthing point and other point in the installation, including all conduit and metal work which may provide a path or earth, shall not exceed 0.5 ohm where steel conduit forms part or the whole part of the system, or 1.0 ohm, if the earth continuity system is composed entirely of copper, copper alloy or aluminium. When the installation is complete the Contractor shall carry out tests for earth loop impedance, polarity insulation resistance, ring circuit continuity and earth electrode resistance, in the presence of, and to the satisfaction of the Engineer and the K.P.&L. The Contractor shall rectify all work not giving test results within the limits prescribed.

2.47. **P.M.E. system**

Provision shall be made for P.M.E. System at supply intake (where applicable) and on the isolators of the adjacent building. "P.M.E." means that system whereby the neutral conductor of the supply network is earthed at a prescribed number of points along its route, together with the installation earth continuity conductor, at each consumer's installation, so providing a metallic path for the flow of earth fault currents. The connections between the neutral conductor of the installation shall be made by the supply Authority at the point of intake only. The connection at the isolators will be made by the Contractor in the presence of the Engineer after completion of all tests.

2.48. **COMMISSIONING**

All installations shall be tested to the statutory requirements of the Electricity Authority, and commissioned in the presence of and to the satisfaction of the Engineer.

Four copies of tests reports shall be provided within seven days of carrying out the tests; and reports shall include full details of how each test was carried out, and a copy of all readings taken.

**SPECIFICATIONS
FOR
STRUCTURED CABLING**

INTRODUCTION

Structured Cabling is a set of standards that determine how to wire a data center, office or building for data or voice communications, using Category 6 or Category 7 cable and RJ45 sockets. These standards define how to lay the cabling in a star formation, such that all outlets terminate at a central patch panel (which is normally 19 inch rack-mounted), from where it can be determined exactly how these connections will be used. Each outlet can be 'patched' into a data network switch (normally also rack mounted alongside), or patched into a 'telecoms patch panel' which forms a bridge into a private branch exchange (PABX) telephone system, thus making the connection a voice port.

Lines patched as data ports into a network switch require simple straight-through patch cables at the other end to connect a computer, whereas voice patches to PABXs require an adaptor at the remote end to translate the RJ45 pin config into a 6-pin BT socket. Depending on the type of PABX, these may need to be 'master' or 'secondary' adaptors.

It is normal to see different colour patch cables used in the patch panel to help identify which type of connection is being carried, though the structured cabling standards do not require this, except in the demarcation wall field

The standards demand that all eight connectors in the Cat6 cable are connected, resisting the temptation to 'double-up' or use one cable for both voice and data. This is generally a good thing as it means that they fully support features such as Power over Ethernet which require the so-far unused brown cables.

GENERAL SPECIFICATIONS

1. AIM OF THE PROJECT
 - a. To implement structured cabling in compliance with TIA/EIA 568C and IEEE regulations for LANs in buildings
 - b. To supply standard active components, configure and set them up to be used on the LANs.
2. REGULATIONS GOVERNING STRUCTURED CABLING

Materials, products and installations must comply with the mandatory provisions of all applicable industrial standards viz ISO/IEC, CCK, ATM CENELEC 11801, ANSI/EIA/TIA 568C, latest IEEE regulations, KEBS, Electric Power Act and rules made there under:
3. CABLING
 - a) All cables must pass through conduits or trunking.
 - b) All cables and connectors shall be labelled.
 - c) No distortion due to kinks, sharp bends or excessive hauling tension shall be allowed.
 - d) Cables shall be run in a manner eliminating any possibility of strain on the cable itself or on the terminations.
 - e) Cables shall have no joints or splices.
 - f) Cables shall be kept at a minimum distance of 150mm from items liable to become hot or cold.
 - g) Bending radii shall be not less than eight times the overall cable diameter.
 - h) The manufacturers hauling tension shall not be exceeded.
 - i) All cable ties and fixings shall be tightened to support the cable loom without distortion of the cable sheath.
 - j) The fibre optic cable shall be multi-mode optimal speed and with graded index, and of nominal size 62.5/125 micron.
 - k) Fibre optic cable shall have a core/cladding diameter on nominal 850nm and 1300nm optical wavelength.
 - l) The optic cable shall be of appropriate core with each core terminated on both ends.
 - m) The enhanced UTP 4 pair shall be of cat 6 grade and exceed ANSI/TIA/EIA-568-C and ISO/IEC 11001 standards. Cat 6 structured cabling shall be used throughout the entire installation.
4. Metal Trunking

All metal trunking used shall be spray painted to approval and shall be fabricated from mild steel not less than 18swg (gauge) and have three compartments.
5. PATCH PANELS
 - a) Shall conform to ANSI/TIA/EIA-568C and rack mounted.
 - b) Shall be equipped with RJ45 contacts of UTP with maximum ohms sockets with capacity of 12, 24 or 48 ports.
 - c) Shall be earthed.
 - d) Fibre optic patch panels shall be configured to the number of strands terminated at each location.
 - e) Fibre Optic patching shall be done from the cabinet housing optic boxes/ panels as well as the optic electronic equipment.
 - f) Fibre Optic patch panel shall have a sliding tray.

- g) Except for patch cords used to connect NICs to the RJ45 sockets, all patch cords shall be labelled at each extremity with PVC support and intelligible marking. For other components the label shall be of stiff plastic PVC type.
6. NETWORK CONTROL EQUIPMENT
- a) Active devices used at the LAN edge shall have 12, 24 or 48 ports for connection to the horizontal cabling.
 - b) Active devices shall be rack mounted.
 - c) Active devices for horizontal cabling shall support autosensing 10/100mbps and backbase cabling at 1000mbps.
 - d) Active devices used at aggregation layer of LAN shall support IP routing.
 - e) Active devices used at the LAN edge must be stackable and shall attach to the backbone cabling at 1000mbps.
 - f) Where more than one active device is required to satisfactorily serve the floor data outlet distribution requirements they shall be stacked using interface operating at the backbone speed.
7. EQUIPMENT CABINETS
- a) The main cabinet shall be of appropriate size.
 - b) All cabinets for active devices shall conform to ANSI/TIA/EIA-568C specifications with forced cooling.
 - c) Cabinets shall have adequate room for additional components typically 3U free space.
8. NETWORK CABINETS
- a) Floor/ Block cabinets shall be metallic with front clear glass at least 22U and of good finish and conveniently accessible by technical personnel for maintenance.
 - b) Main cabinet in the network centre to be at least 42U deep rack or equivalent and easily accessible during maintenance.
 - c) Power to the cabinets shall be switched off from within the cabinets. Proper power socket cables to be supplied with the cabinets.
 - d) All cabinets to conform to ANSI/TIA/EIA-568C with forced cooling and their location shall be determined on site.
 - e) Support small factor pluggable (SFP) and industry leading density up to 240 of IEEE 8033 for 1000 Base-SX ports per system.
9. ETHERNET EDGE SWITCHES
- a) Each floor edge switch connecting to the backbone must include at least two ports of 1000 Base X Gigabit Ethernet with GBIC support, QOS,

Multiple queues with weighted round robin (WRR) scheduling and layer 3 switching and routing of IP, IPX and IP multicast traffic.
 - b) Each switch in the set up should give 10/100/MBPS to the desktop.
 - c) There should be adequate switches to cater for the total number of data points.
 - d) The switches connecting as a backbone shall have additional 1000Base X port that shall be connected as a backup and shall be configured for automatic load balancing.
10. ETHERNET CORE SWITCH
- The following are the minimum requirements for the core switch:
- a) The Backbone switch should provide minimum (10/100/1000 ports) of 24 ports of IEEE802.32 1000 Base X.
 - b) The minimum switching capacity of 150 GBPS (fabric) and 45 million packets per second.

- c) Be able to run industrial standard IP multi cast at wire speed.
 - d) Non blocking integrated layer 2/3/4 switching performance.
 - e) Multi layer IOS software services with IP routing, advanced QOS, traffic management and comprehensive security.
 - f) Shall be rack mounted in standard rack/cabinets.
 - g) Shall have a redundant power supply for each edge switch connecting to the backbone.
 - h) Shall support BGP switching.
 - i) Shall support both data and voice.
 - j) Shall support security features.
11. ETHERNET GATEWAY ROUTER
The following are the minimum requirements for the router;
- a) Ability to route both voice and data
 - b) Should provide minimum three (3 No.) 1000Base T ports
 - c) Should provide minimum of two (2 No.) ISDN ports.
 - d) Should be mounted on standard rack /cabinet
 - e) Should have dual processor (voice/data)
13. LABELING
- a) Horizontal and backbone cables shall be labelled at each end. The cable or its label shall be marked with its identifier.
 - b) A unique identifier shall be marked on each faceplate to identify it as connecting hardware.
 - c) Each port on the face plate shall be labelled with its identifier.
 - d) A unique identifier shall be marked on each piece of connecting hardware to identify it as a connecting hardware.
 - e) Each port on the connecting hardware shall be labelled with its identifier.
 - f) A unique identifier shall be marked on each **port** on the connecting faceplate to identify it as a connecting hardware.
14. DRAWING
Working drawings shall be supplied to the Consultant (Electrical Engineer) for approval showing the location of identifiers for all Horizontal cabling routes and Terminations, Backbone Routing and Terminations, Data Outlets/ Connectors and Active components etc.
15. RECORDS
All records shall be created and turned over to the Electrical Engineer at the completion of work. The format shall be computer based and both soft and hard copies shall be part of the As-built package with minimum requirements including:
- a) Cable records complete with identifiers, cable type, length, termination position at both ends, manufacturer and part number.
 - b) Connecting hardware records complete with identifier, type of hardware and position.
 - c) Connecting hardware positions complete with identifiers, type of position and cable identifier attached to it.
 - d) Any other items that are necessary for maintenance
16. IP PBX

The PBX shall be fully IP PBX model as indicated in the BoQ. Any other equivalent model will have to be approved by the project engineer

17. REPORTS

All reports shall be generated from the computer based programme used to create the records above. These reports shall include but not limited to:

- a) Cable reports
- b) Cross connect reports
- c) Connecting hardware reports

18. TESTING

General

Testing of entire cabling system as per ANSI/TIA/EIA-568C for UTP Ethernet cables shall be performed prior to system handover.

Fibre Optic Testing

Testing of fibre optic shall be as per IEEE 802.32 and ANSI/TIA/EIA-568C for 1000 Base-LX/ 1000 Base-SX

19. WARRANTY

The cabling installation shall carry a warranty of at least 15 years and the contractor shall issue the Electrical Engineer with certificate from the cable manufacturer upon completion. The cost of the certification if any shall have been included in the prices. You have to specify in both technical and financial proposals the duration the issuance of the certificate will take after completion and commissioning of the installation.

20. TRAINING

Training of system administrators shall be done upon completion of the project

21. TECHNICAL PROPOSAL

The tenderer shall provide a workable, cost effective and elaborate technical solution (proposal) to realize the installation. The proposal shall include but not limited to the following:

- a) Detailed schematic design for each floor, showing the components and their description/ identification and connectivity.
- b) Detailed network layout diagrams of the proposed solution showing interconnectivity of the building / floor layout showing switches, Routers, DTO equipment etc.
- c) Proposal for network management.
- d) Detailed work plans for the project, listing tasks, activities, datelines, persons/ teams assigned lead responsibilities for the project activities and tasks.
- e) Detailed experience and past performance of the bidder on works of similar magnitude within the last 5 years and details of current work on hand and any other contractual commitments.
- f) Qualifications and experience of key personnel proposed for administration and execution of contract, both on and off site.
- g) Detailed coloured manufacturer's Brochures detailing Technical Literature and specifications on all the active equipment they intend to supply.
- h) Technical schedule of items – Form F/2.

22. IN ADDITION THEY WILL BE REQUIRED TO GIVE:
- a) Form of Tender dully completed signed and witnesses
 - b) Tender security form
 - c) Valid Tax compliance certificate
 - d) Confidential Business Questionnaire form
 - e) Evidence of financial resources
 - f) Financial reports for the past 5 years
 - g) Price summary as indicated in the tender document

23. LEGEND

ANSI	-	American National Standards Institute
TIA	-	Telecommunications Industry Association
EIA	-	Electronic Industries Association
ISO	-	International Standards Organization
IEC	-	International Electro-technical Committee

**SPECIFICATIONS
FOR
CCTV INSTALLATIONS**

CLOSED CIRCUIT TELEVISION NETWORK

1. INTRODUCTION

Closed circuit Television network is normally used for surveillance of areas of interest by the user to record incidents that are likely to occur in those areas in real time and take action immediately or record them for play back later to help make decisions on steps to be taken.

Access control is equally important in building management. It is commonly used in office set up to monitor the employee's movements. The system can also be used in high security installations like laboratories, banks, airports etc. This system greatly reduces incidences of theft in many organizations.

2. EXTENT OF WORKS FOR SECURITY SURVEILLANCE SYSTEM

The cameras should be able to cover the distance with clear pictures. Consider whether there shall be need to support the fixed digital cameras with the Pan, Tilt and Zoom Cameras or not. Highly sensitive areas should be covered with more cameras able to take pictures of any person coming in both from the front and the rear. The resolution of the cameras should be able to give motion pictures that are clear.

Color TV Monitors. The color monitors must be of high resolution and preferably of plasma screen. The size of the monitor should be big enough to allow the operators make correct deductions both in real time operation and during playbacks.

Color Digital Video Recording multiplexer. The recording multiplexer resolution has to be equally high for the monitor to display the with a high resolution.

The Digital Surveillance system should be able to support the following

- Digital based recording system with motion detection.
- Support analogue cameras through video server's adapters
- Digital zooming into recorded images
- Multi-level password protection and logging facilities
- Integrates with access control, burglar control, burglar alarms and
- Fire alarm system and other building management systems as may be specified by the engineer.
- Image compression for remote web live and playback viewing in case of IP.
- Multi display monitors
- Automatic daily archiving to hard drive or optical drive.
- Fully adjustable digital video motion detection with
- exclusion /inclusion multi regions per camera.
- Efficient video collection, storage and retrieval.
- Advanced and instant search capability
- Digitally signed recordings, with audit trails of all operator actions and system event.
- Storage capacity of the Digital Video Recorder. At least one Terabyte DVR space to provide back up and redundancy
- Infra red illuminators in poor lighting conditions
- Able to interface with other systems on the ground

- Support various alarm and subnet options including VSAT, IP, GSM/GPRS and Radio.

3. GENERAL SPECIFICATIONS FOR THE CAMERAS

The cameras are classified into two main types

a) Static cameras –

These cameras have a fixed area of view depending on its angle of view and the focal length of the lens used. They can be used in door or outdoor depending on the Requirements. When used outdoors, the cameras are housed in a weather proof housing of IP66. Those used indoors come with different shapes of housings. The exview housings are used for cameras covering long distances like corridors and the dome housings are used for common areas like lobbies, security desks etc.

b) Pan Tilt and Zoom Cameras

These cameras are only used to support the static cameras. They are useful as they are able to pan 180 degrees, tilt over 90 degrees and zoom into an object for up to 26 times and above. They are able to cover a distance of up to 1 Kilometer.

The cameras shall be indoor type and outdoor type for 240V main supply and operating according to the CCIR standard with 480 lines, 50Hz field frequency.

The camera shall be fixed on sliding rail track on the ceiling slab or walls as directed by the Electrical Engineer with an appropriate bracket.

It shall be possible to control the lens and the pan only head remote via a remote control box at the control room.

They shall be linked to the Television Monitors and the Control Equipment through a high power video link, antennas and coaxial low loss multistrand RG 59U cable or CAT 6 E cables as appropriate and according to the project Engineers instructions.

The mounting height and position of cameras shall be such that the desired coverage shall be achieved as distinctly as possible.

The digital signal processing (DSP) camera shall be aesthetically styled. The DSP chip will enable advanced video processing and manipulation to be carried out in the camera head. The camera shall be capable of operating at all times, i.e. 24hours a day

4. MINIMUM REQUIREMENTS FOR DOME TYPE VIDEO COLOR CAMERA

Type:	Varifocal Fixed Dome.
Lens sensor:	1/3"
Signal system:	PAL Standard.
Lens focal length	4-9mm DD F 1.6-2.4
Line resolution:	480 TV Lines
Backlight Compensation	on/off switch
Maximum illumination:	1.2 Lux
Video output:	1 V peak-peak PAL compatible
Shutter speed:	Automatic, 1/60 to 1/100,000s
Tolerance:	Bright tolerant with minimum blooming and transfer smear
White balance:	Automatic.
Operational temperature	-10°C to -45°C
ATW range	3000K – 9000K
Signal to Noise ratio:	More than 50 dB
Auto Gain Control:	On 32dB, off 8Db
Aperture correction:	Horizontal and vertical

Contrast: Shall feature automatic white balance capable of adjusting for variations in scene lighting for consistent time colors from one scene to the other.

Picture quality: The picture produced shall have minimum lag and image Retention A continual adjustment feature to facilitate C or CS mount lenses will be incorporated, together with a side mount plug for direct drive Lenses and screw terminals for auto iris lenses. The camera shall be capable of being line locked with phase adjustment. Contained under a flap will be a bank of switches which will enable the selection of the following features:

Electronic iris · AGC on/off Back light compensation Gamma correction select between 0.45 and 1.0

5. MINIMUM REQUIREMENTS FOR EXTERNAL VIEW (EXVIEW) VIDEO COLOR CAMERA

Type:	Solid state color coupled charged device (CCD)
Lens sensor:	1/3" Interline image format
Line resolution:	480 TV Lines
Signal system:	PAL Standard.
Maximum illumination:	0.5 Lux
Video output:	1 V peak-peak PAL compatible
Shutter speed:	Automatic, 1/60 to 1/100,000s
Tolerance:	Bright tolerant with minimum blooming and transfer smear
Signal to Noise ratio:	More than 50 dB
Auto Gain Control:	On 32dB, off 8dB
Aperture correction:	Horizontal and vertical

Contrast: Shall feature automatic white balance capable of adjusting for variations in scene lighting for consistent time colors from one scene to the other.

Picture quality: The picture produced shall have minimum lag and image Retention

A continual adjustment feature to facilitate C or CS mount lenses will be incorporated, together with a side mount plug for direct drive Lenses and screw terminals for auto iris lenses. The camera shall be capable of being line locked with phase adjustment.

Contained under a flap will be a bank of switches which will enable the selection of the following features:

Electronic iris · AGC on/off

Back light compensation

Gamma correction select between 0.45 and 1.0

6. MINIMUM REQUIREMENTS FOR COLOR MOTORIZED PTZ CAMERA

The **high resolution Camera** shall meet or exceed the following design and performance specifications:

1. Image Sensor 1/4-inch
2. Scanning System 2:1 interlaced output
3. Effective Pixels PAL – 724 X 582
4. Horizontal Resolution PAL – >550 TVL
5. Lens F1.6 (f=3.6-82.8 mm optical, 23X optical zoom, 10X electronic zoom)
6. Programmable Zoom Speeds 2.9, 4.2, or 5.8 seconds
7. Focus Automatic with manual override
8. Sensitivity at 35 IRE PAL, color: 0.08 lux at 1/1.5 sec shutter Speed B-W: 0.013 lux at 1/1.5 sec shutter speed B-W: 0.3 lux at 1/50 sec shutter speed
9. Synchronization System Internal/AC line lock phase adjustable via remote control, V-sync
10. White Balance Automatic with manual override
11. Shutter Speed PAL – 1/1.5-1/30,000
12. Iris Control Automatic with manual override
13. Gain Control Automatic/ off
14. Video Output 1 volt peak to peak, 75 ohms
15. Video Signal-to-Noise >50 dB
16. Type of Lighting. Menu selection of indoor or outdoor lighting for optimum camera performance D4
17. Wide Dynamic Range 80X
18. Motion Detection User-definable motion detection settings for each preset scene; can activate auxiliary outputs; three sensitivity levels per zone

7. LENS

The lens shall:

Be glass optical vertical 1/3" format with direct driver operation.

Have variable focal length of between 4mm and 9 mm and aperture of

F 1.6 – 2.4

8. MOUNTING BRACKETS

The Brackets shall:

Be suitable for wall or ceiling mounting of a single camera.

Be at least 5.5" length

Have an auto lock facility.

9. CAMERA HOUSING

The camera housing shall:

Be IP66 rated with integral cable management.

Be Weatherproof and constructed from aluminium with epoxy coating.

PROPOSED CONSTRUCTION OF HUMANITIES & SOCIALSCIENCES LECTURE HALLS

BILL OF QUANTITIES FOR ELECTRICAL INSTALLATION WORKS

RATES TO INCLUDE VAT

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
	<u>PRELIMINARIES AND GENERAL CONDITIONS</u>				
A	Provide bond as stated in the published conditions of sub-contract.	Sum		-	nil
B	Provide insurance as required in the sub contract conditions.	Sum		-	nil
C	Preparation of working drawings "As installed" record drawings, 3 in number.	Sum			
D	Printing of paper copies of item C above.	Sum			
E	Preparation and submission of all operation manuals, test reports among other handover documents	Sum			
TOTAL CARRIED FORWARD TO SUMMARY PAGE 11:-					-

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
	LIGHTING AND POWER				
	Final sub-circuits complete with accessories and fittings as detailed below wired in 20mm diameter conduits clipped onto the ceiling using spacer saddles on one part and in partitioning board on the other part.				
A	Lighting points, wired in 3x1.5mm sq single core cables for one/two way switching	NO.	72		
B	Occupation sensor points, wired in 3x1.5mm sq single core cables for one/two way switching	NO.	0		
C	Special lighting power outlet, wired in 3x2.5mm sq single core cables for one/two way switching	NO.	8		
D	Sensor/Soap dispenser outlet points, wired in 3x 2.5mm sq single core cables in ring circuit enclosed and concealed in PVC conduits	NO.	12		
E	13A raw single power points, wired in 3x 2.5mm sq single core cables in ring circuit enclosed and concealed PVC conduits	NO.	18		
F	13A raw twin power points, wired in 3x 2.5mm sq single core cables in ring circuit enclosed and concealed PVC conduits	NO.	22		
G	13A raw twin power points, wired in 3x 2.5mm sq single core cables in ring circuit enclosed in trunking or on cable management under work stations	NO.	4		
H	200x50mm 2 compartment powder coated metallic trunking complete with tees, crossover, bends end cap, jacking brackets etc	LM	20		
I	4X32mm diameter PVC conduits for interlinking trunking where it has to pass in the floor. Otherwise all trunking crossing the doors should go above it	LM	20		
J	Single outlet face plate for the trunking. This should be the same colour as the trunking and coated at the same time as trunking.	NO.	6		
K	Ditto but Twin outlet phase plate for the trunking.	NO.	10		
L	Water pump outlet points, wired in 3x 4mm sq single core cables enclosed and concealed in 25mm dia. heavy gauge PVC conduits but without the outlet plate for estimated distance 35meters	NO.	1		
M	Geysers outlet points, wired in 3x 4mm sq single core cables enclosed and concealed in 25mm dia. heavy gauge PVC conduits but without the outlet plate for estimated distance 35meters	NO.	1		
N	Condenser outlet points, wired in 5x 6mm sq single core cables enclosed and concealed in 32mm dia. heavy gauge PVC conduits but without the outlet plate for estimated distance 35meters	NO.	2		
O	Extract/Supply fan outlet points,wired in 3x 4mm sq single core cables enclosed and concealed in PVC conduits	NO.	2		
TOTAL CARRIED FORWARD TO NEXT PAGE:-					-

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
	Total brought forward from previous page:-				
A	Hand drier/Instant Shower outlet points,wired in 3x 4mmsq single core cables enclosed and concealed in PVC conduits	NO.	5		
B	Security door outlet points enclosed and concealed in 20mm diameter PVC conduits, door frame or through the metal trunking whichever way is convenient	NO.	3		
C	Fire alarm outlet point with draw wire left in 25mm dia. PVC heavy gauge conduits concealed in the floor and walls from control panel located in the server room	NO.	21		
D	CCTV/Security outlet point with draw wire left in 25mm dia. PVC heavy gauge conduits concealed in the floor and walls from control panel located in the server room	NO	18		
E	Data outlet point with draw wire left in 25mm dia. PVC heavy gauge conduits concealed in the floor and walls but without the outlet plate from data cabinet located in the server room	NO	6		
	<u>STABILISED POWER POINTS</u>				
	Final sub-circuits complete with accessories and fittings as detailed below and marked in red UPS power				
F	13A clean twin power points, wired in 3x 2.5mm sq single core cables in ring circuit enclosed in trunking from DB 'B' to outlet points as indicated in the drawing	NO.	6		
G	Allow for attendance to the UPS subcontractor	item	item		
H	Allow for provision of flexible conduits for all exposed cables near UPS from trunking into the cabinet	item	item		
TOTAL CARRIED FORWARD TO NEXT PAGE:-					-

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
	Total brought forward from previous page:-				-
	<u>LIGHT FITTINGS AND ACCESSORIES</u> Lighting control accessories complete with wiring terminations and fixing materials. Provide rates for supply & fixing the following Electrical Fittings and accessories				
A	10A One gang one way as - MK	NO.	13		
B	10A One gang two way as - MK	NO.	6		
C	10A two gang two way as - MK	NO.	2		
D	10A three gang two way as - MK	NO.	1		
E	10A four gang two way as - MK	NO.	1		
F	10A intermediate switch as - MK	NO.	1		
	Lighting fittings as shown in the drawings complete with control gears and lamps of colour temperature of 4000K:-				
G	36W, 600x600mm ceiling recessed LED Panel fitting, 4000K, power factor > 0.9, long life time minimum 50000h as Philips panel light or equivalent and approved. Equivalentents to be limited to the brands of either Panasonic, Ledvance or Osram of similar or superior properties and to engineer's approval	NO.	4		
H	Ditto but with emergency kit for emergency lighting	NO.	4		
I	36W, 1200x600mm ceiling recessed LED Panel fitting, 4000K, power factor > 0.9, long life time minimum 50000h as Philips panel light or equivalent and approved. Equivalentents to be limited to the brands of either Panasonic, Ledvance or Osram of similar or superior properties and to engineer's approval	NO.	8		
J	Ditto but with emergency kit for emergency lighting	NO.	4		
K	Recess type IP44, 150mm diameter, 14W, 90lm/W recessed downlight in aluminum housing and 30000hrs as Ledvance Downlight ALU or approved equivalent (washrooms)	NO.	11		
L	Ditto but with emergency kit for emergency lighting	NO.	5		
M	IP65 160mm diameter surface mount led downlight fitting 240V, and as 30000hrs as Ledvance or approved equivalent	NO.	12		
N	Self illuminated Emergency Exit light with sign as RR or sapphire with arrows and signage for directions	NO.	5		
O	30W LED flood light fitting	NO.	11		
P	Philips 28.6W WT120C G2 LED40S/840 240V PSU L1200 IP65 Coreline water proof polycarbonate light fitting, power factor >0.9	NO.	1		
Q	Ditto but with emergency kit for emergency lighting	NO.	1		
TOTAL CARRIED FORWARD TO NEXT PAGE:-					-

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
Total brought forward from previous page:-					
Supply and install power point accessories & equipment complete with associated wiring terminations & fixing materials					
A	13amps single switched screwless power socket outlet plate in Ivory white finish and as MK.	NO	18		
B	13amps twin switched screwless power socket outlet plate in Ivory white finish and as MK.	NO	26		
C	13amps NON Standard red twin switched socket outlet plate for clean power and as MK or equivalent and approved. Complete with Top Plugs	NO	6		
D	20A DP screwless switch in Ivory white finish for hand drier/ac unit with neon indicator and as MK	NO	13		
E	13A unswitched fused spur socket with neon indicator and as MK	NO	3		
F	Photo cell kit of photo cell, socket and bracket Type Thorn Qpk or approved equivalent for switching on the security lights (inclusive of Contactor)	NO.	2		
G	Universal 360 degrees PIR Recessed or Surface mounted Lighting control available in standard or remote control. Time settings 10sec to 40min adjustable as Robus	NO.	0		
H	2 compartment floor box recessed in floor for 2NO single socket and data point Briton make as Crabtree Cat No. BRS3G	NO.	0		
TOTAL CARRIED FORWARD TO SUMMARY PAGE 11:-					

-

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
	POWER DISTRIBUTION Supply, install and commission the following: -				
A	50mm diameter HG PVC conduits for fibre optic link complete with bends, coupler. saddles etc	LM	30		
B	50mm diameter HG PVC conduits for power distribution complete with bends, coupler. saddles etc	LM	30		
C	12 way TPN Distribution Board DB 'B' incorporation 125A integral isolator, lockable cover and labelling but without MCB's and as Schneider acti 9	NO.	1		
D	8 way SPN Consumer Unit CU 'C' incorporation 100A integral isolator, lockable cover and labelling but without MCB's and as Schneider acti 9	NO.	1		
E	Single phase MCB's rating as Schneider easy 9 (10/20/32/45A)	NO	27		
F	Three phase MCB's rating as Schneider easy 9 (32/45/63A)	NO	4		
G	Blanking plates	NO	5		
H	4C, 25mm ² PVC/SWA/PVC copper cable for distribution of power from switchboard to DB 'B'	LM	30		
I	5C, 6mm ² PVC/PVC/Cu copper cable (flex) for distribution of power from Switchboard to UPS and back to CU 'C'	LM	20		
J	45A SPN isolator as KATKO or ABB or equal and approved	NO.	2		
K	32A TPN isolator as KATKO or ABB or equal and approved	NO.	2		
L	63A TPN isolator as KATKO or ABB or equal and approved	NO.	1		
M	45A SPN change over switch/Manual bypass switch	NO.	1		
N	Cable glands and shroud for terminating 4C, 25mm ² PVC/SWA/PVC cable	NO	2		
O	Allow for attendance to mechanical, access control, structured cabling, security sub contractors	item	1		
P	240/415V, 50Hz, 3 phase - 4 Pole (3P+N) AC Power surge SineTamer	NO	0		
TOTAL CARRIED FORWARD TO SUMMARY PAGE 11:-					-

SWITCHBOARD

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
A	IP54 free standing powder coated power board constructed out of 16 gauge SWG galvanised iron lockable and fitted with a glass cover and and capable of fitting, 1No three phase KPLC meter, KPLC service line cut-outs, KPLC sealable CT Chamber, and to incorporate 150A busbar, 1No 150A MCCB incomer, 1No 125A TPN MCCB, 2No 63A TPN MCCB, 3No 40A MCB 25kvar power factor correction unit. The power board is to be as Schneider Electric or equivalent and approved	NO.	1		
B	4C, 35mm2 PVC/SWA/PVC copper cable for distribution of power from switchboard to DB 'B'	LM	30		
C	Cable glands and shroud for terminating 4C, 35mm2 PVC/SWA/PVC cable	NO	2		
D	Earthing comprising of copper earth electrode of size 1500mm long x15mm diameter enclosed by a concrete manhole of size 300x300x300mm and with removable concrete cover and bonded to the meter board using 50mm2 copper conductor	NO.	1		
E	Adaptable box of size 300x300x50mm made out of 18 gauge and for CCTV reticulation. Cover to be powder coated off white	NO.	2		
F	2x100mm diameter heavy gauge PVC duct to be laid from manhole to meter board area	LM	30		
G	Trenching, sifting, tiling, and laying above duct and back filling The trench to be 600x300	LM	30		
H	Construction of 600x900 KPLC manhole complete concrete cover reinforced with y12 at 200 interval and inscribed KPLC	NO.	3		
I	Attendance and liaison with KPLC service providers for client meter allocation & connection.	No	1		
TOTAL CARRIED FORWARD TO SUMMARY PAGE 11:-					-

LIGHTENING ARRESTOR INSTALLATIONS.

ITEM NO.	DESCRIPTION	UNIT	QTY	RATES KSHS	TOTAL KSHS
A	25mm diameter air terminal spike complete with base	No.	2		
B	Copper tape	Lm	100		
C	Bonding of copper tape to steel structure	NO.	2		
D	Allow for testing of resistivity of the soil	Item	1		
E	Test clamp	No.	2		
F	Completely Earthing the entire lightening installation	No.	2		
TOTAL CARRIED FORWARD TO SUMMARY PAGE 11:-					-

FIRE ALARM INSTALLATION

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
A	<p><u>ADDRESSABLE FIRE ALARM INSTALLATION</u> Supply, install, test and commission the following</p> <p>All detectors to be as MENVIER/PROTEC model numbers indicated. All detectors to be complete with mounting base</p> <p>Fire alarm points, wired in 2 loops using 2C, 1.5mm² screened cable FP200 drawn in 25mm diameter PVC heavy gauge conduits concealed in roof space and wall from control panel through the detectors.</p>	No.	27		
B	<p>Optical smoke detectors as Protec 3000/OPHT complete with base plate as MAB800 <i>The sensors to have the following features; soft addressed, with short circuit isolator, wide range sensing and 360 degrees visibility LED</i></p> <p><i>The bases to have the following features; sensor shorting link, separate loop in and loop out terminus, stand off fixing feature, accepts side entry cables and selectable sensor locking feature</i></p>	No.	6		
C	<p>Resettable Manual call button/Break glass units <i>The call points to have the following features; Fast fit clip on front cover, high visibility status LED with heavy duty terminals as Protec3000/MCP/WP</i></p>	No.	4		
D	<p>Temperature heat sensors/detectors as Protec 3000/Temp56 complete with base plate as MAB800 <i>The sensors to have the following features; soft addressed, with short circuit isolator, wide range sensing and 360 degrees visibility LED</i></p>	No.	13		
E	<p>Fire alarm electronic sounder Beacon as Protec 3000/SSR/LED/RED <i>The sounders to have the following features; Loop powered, combined sounder beacon, high efficiency design, selectable tones controlled by the panel and adjustable volume controlled by the panel.</i></p>	No.	4		
F	<p>Addressable 1 Zone control panel complete with integral printer, graphite finish, integral battery & power supply unit 72 hr. The control panel to have full network capability</p>	No.	1		
G	<p>Allow for integration of fire alarm system to existing landlords fire alarm system via cable provided, programming and downloading. Cost to include any necessary modules</p>	Item	0		
H	<p>Testing, commissioning the entire fire alarm installation and client training</p>	Item	1		
	TOTAL CARRIED FORWARD TO SUMMARY PAGE 11:-				-

ELECTRICAL INSTALLATION WORKS - SUMMARY PAGE

ITEM NO.	DESCRIPTION	AMOUNT KSHS.
	TOTAL BROUGHT FORWARD FROM:	
1	PRELIMINARIES:- PAGE 1	-
2	LIGHTING AND POWER INSTALLATIONS :- PAGE 5	-
3	POWER DISTRIBUTION INSTALLATIONS - PAGE 6	-
4	SWITCHBOARD INSTALLATIONS - PAGE 8	-
5	LIGHTENING ARRESTOR INSTALLATIONS - PAGE 9	-
6	FIRE ALARM SYSTEM INSTALLATIONS - PAGE 10	-
	SUB-TOTAL	-
TOTAL TO BE CARRIED TO TENDER		-

Total in words:

Name of Contractor:

Address:

Telephone:.....

Pin. No. Vat Reg. No.

Signature:

Official Stamp/Date:

PROPOSED CONSTRUCTION OF HUMANITIES & SOCIALSCIENCES LECTURE HALLS

BILL OF QUANTITIES FOR STRUCTURED CABLING INSTALLATION WORKS

RATES TO INCLUDE VAT

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
	<u>PRELIMINARIES AND GENERAL CONDITIONS</u>				
A	Provide bond as stated in the published conditions of sub-contract.	Sum			
B	Provide insurance as required in the sub contract conditions.	Sum			
C	Preparation of working drawings "As installed" record drawings.- 3 copies	Sum			
D	Printing of paper copies of item C above. - 3 copies	Sum			
E	Preparation and submission of all operation manuals, test reports among other handover documents - 3 copies	Sum			
TOTAL CARRIED TO SUMMARY PAGE					

STRUCTURED CABLING

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
	<u>STRUCTURED CABLING</u> Supply, install, lay and set to work structured cabling system drawn in trunking provided elsewhere: -				
A	Category 6A 4 pair UTP cable as giganet fully wired approximately 55meters per point for data and wifi	No	6		
B	RJ 45 Category 6A UTP single outlets plate complete with flush mounting plate and module as giganet	No	4		
C	RJ 45 Category 6A UTP Dual outlets plate complete with flush mounting plate and module as giganet	No	2		
D	Category 6A 4 pair UTP 1m patch cord as giganet	No.	4		
E	Category 6A 4 pair UTP 3m patch cord as giganet	No.	8		
F	Supply and install 22U LAN cabinet complete with locking glass, 4 fans 6 power outlets (PDU) as Toten/Giganet	No.	1		
G	Category 6A 24port patch panel as giganet	No.	1		
H	2U Horizontal patch lead organiser as giganet	No.	1		
I	Allow for installation of client supplied wireless telephony services	No.	2		
J	D-LINK DES-1210-28P 24-Port Fast Ethernet PoE Network Switch	No.	1		
K	Price for liaison with service providers for data services, and voice services. The liaison to include follow up until service provider routers are installed in rack, commissioned and cable management implemented	NO	1		
L	Cable ties and any other materials necessary to complete the works (specify)	item	1		
M	Fluke test results for the entire installation	item	1		
TOTAL CARRIED TO SUMMARY PAGE					

STRUCTURED CABLING INSTALLATION WORKS - COLLECTION PAGE

ITEM NO.	DESCRIPTION	AMOUNT KSHS.
	TOTAL BROUGHT FORWARD FROM:	
1	PRELIMINARIES	-
2	STRUCTURED CABLING WORKS	-
	SUB-TOTAL	-
TOTAL TO BE CARRIED TO TENDER		-

Total in words:

Name of Contractor:

Address:

Telephone:.....

Pin. No. Vat Reg. No.

Signature:

Official Stamp/Date:

PROPOSED CONSTRUCTION OF HUMANITIES & SOCIALSCIENCES LECTURE HALLS

BILL OF QUANTITIES FOR CCTV AND ACCESS CONTROL INSTALLATION WORKS

RATES TO INCLUDE VAT

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
	<u>PRELIMINARIES AND GENERAL CONDITIONS</u>				
A	Provide bond as stated in the published conditions of sub-contract.	Sum			
B	Provide insurance as required in the sub contract conditions.	Sum			
C	Preparation of working drawings "As installed" record drawings and labelling of the whole installation	Sum			
D	Printing of paper copies of item C above.	Sum			
E	Preparation and submission of all operation manuals, test reports among other handover documents	Sum			
TOTAL CARRIED FORWARD TO SUMMARY PAGE 4					-

CCTV INSTALLATION

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
	Supply, install and set to work Panasonic IP CCTV system or equal and approved with cables drawn neatly in 25mm diameter conduits or trunking provided elsewhere.				
A	Wiring of CCTV camera from control room to IP camera location average length of Cat 6 UTP cable 55m. Cable through 25mm diameter heavy guage conduits	NO	20		
B	16 Channel Network Video Recorder (NVR) with 4 internal SATA/ e-SATA HDDs that can retain 90 days footage at full capacity, inbuilt multiplexer & ethernet ports, support H.265 compression format, playback support (both fast and slow), capable of simaltenous operation for preview, record, back-up and email, 2No. HDMI output, centralized monitoring with remote capabilities, high quality image complete with software as Hikvision. (Attach catalogue). Complete with network monitoring software	NO	1		
C	IP Camera 4 Megapixel HD IP network fixed dome camera with motion detection, and night vision as hikvision with video analytics capability (Tenderers to indicate model and attach catalogues) - at least up to 30meters coverage	NO	6		
D	IP Camera 4 Megapixel HD IP network fixed bullet camera with motion detection, and night vision as hikvision with video analytics capability (Tenderers to indicate model and attach catalogues) - at least up to 30meters coverage	NO	14		
E	Category 6A 24port patch panel as giganet	NO	1		
F	2U Horizontal patch lead organiser as giganet	NO	2		
G	Installation, Testing, Commissioning, Training, Manuals & Documentation	LOT	LOT		
H	Supply and put in place HDMI cable for CCTV monitoring from server room to workstations approximately 15meters	ITEM	1		
I	Cable management, cable dressing, labelling of the whole installations	NO	1		
J	Allow for supply and install 24 inch monitoring for CCTV screen (LG) complete with mounting brackets	NO.	1		
K	Feeder pillar	NO.	1		
L	Contingency sum				
TOTAL CARRIED FORWARD TO SUMMARY PAGE 4					-

ACCESS CONTROL SYSTEM

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
	Provide rates to supply, install, test and commission IP based Passive access control system with the following;				
	<u>Software, Door Controllers & Readers</u>				
A	IP based Finger print biometric passive reader slim elegant design fast and accurate finger print identification with at least 4MB memory, log capacity of 50,000 events capable of both RF card and finger print operation modes with TCP/IP network interface. To be usable with finger, code and card	NO	6		
B	Four door controller, PoE capable of handling 5000 local events buffering, Supports DHCP and Static IP Addresses 4-State Alarm Monitoring and can support a local database of card holders	NO	1		
C	Access Management software, SQL database, to control 12 doors & supports 1 workstations	NO	0		
D	Security Management Software	NO	ITEM		
	<u>Ancillaries</u>				
E	Enclosure with PSU and 7 amp/hr battery	NO	3		
F	Request to Exit button	NO	3		
G	Emergency Break glass switch	NO	3		
H	Override keyswitch	NO	3		
I	Door magnetic contacts(pair)	NO	4		
J	Electromagnetic locks for single shutter door (300Kg) with hall sensor	NO	3		
K	Up-load residents/staff SQL data-base to access control server, fully configure and program into access control system. Database to be provided by client	No	1		
L	Supply and configure MIFARE access cards	PCS	5		
M	Power cables & non-reusable materials & any other material needed to complete the work. Specify	LOT	LOT		
N	Installation, Testing, Commissioning, Training, Manuals & Documentation	LOT	LOT		
TOTAL CARRIED FORWARD TO SUMMARY PAGE 3					-

CCTV AND ACCESS CONTROL INSTALLATIONS SUMMARY PAGE

ITEM NO.	DESCRIPTION	AMOUNT KSHS.
	TOTAL BROUGHT FORWARD FROM: 1 PRELIMINARIES AND GENERAL CONDITIONS - PAGE 1 2 CCTV INSTALLATIONS - PAGE 2 3 ACCESS CONTROL INSTALLATIONS - PAGE 3	
TOTAL CARRIED TO TENDER		-

Total in words:

Name of Contractor:

Address:

Telephone:.....

Pin. No. Vat Reg. No.

Signature:

Official Stamp/Date:

PROPOSED CONSTRUCTION OF HUMANITIES & SOCIALSCIENCES LECTURE HALLS

PENULTIMATE VALUATION FOR 3KVA SINGLE PHASE UPS INSTALLATION WORKS

RATES TO INCLUDE VAT

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
<u>PRELIMINARIES AND GENERAL CONDITIONS</u>					
A	Provide performance bond as stated in the published conditions of sub-contract.	Sum			
B	Provide insurance as required in the sub contract conditions.	Sum			
C	Preparation 3No copies of sub-contract yellow books as KABCEC for contract signing and administration	Sum			
D	Preparation and submission of all operation manuals, test and commissioning bound as handover documents - 3 copies	Sum			
TOTAL CARRIED TO SUMMARY PAGE - C/F PAGE 3					-

ITEM NO.	DESCRIPTION	UNIT	QTY	RATE KSHS.	TOTAL KSHS.
A	<p><u>UPS INSTALLATION</u></p> <p>Supply, deliver to site, install, test and commission a 3KVA single phase in single phase out, Uninterruptible Power Supply complete with bypass switch as APC/Equal and equivalent with the provided in the specification and summarised below :-</p> <p>(Product Catalogue to be attached)</p> <p>a) Rating 3KVA b) Adequate Battery (from manufacturer or as CSB) c) Back up time at 100% load – 30min d) Input Voltage 220V – 240V e) Input power factor 0.95 f) Input frequency 45 – 65 Hz g) Output Voltage 230V +_ 1% h) Output frequency 50Hz i) IP20 j) Noise level 40-55dB k) Multi-function LCD status and control console l) Audible and visible alarms prioritized by severity m) Emergency Power Off (EPO) n) Predictive failure notification o) Automatic restart of loads after UPS shutdown</p> <p>To be environmental friendly with temperature sensor & Network card</p>	No	1		
B	45A SPN Manual bypass switch	No	1		
C	45A SPN Isolator switch	No	1		
D	5C, 6mm2 PVC/PVC/Cu copper cable (flex) for distribution of power from DB and back	LM	30		
E	Cable clips, glands and any other item required for proper operation of the UPS; (Specify)	ITEM	1		
F	Allow for transportation to site for item 'A' inclusive of all accessories and cables required	ITEM	1		
TOTAL CARRIED TO SUMMARY PAGE - C/F PAGE 3					

UPS INSTALLATION WORKS - SUMMARY PAGE

ITEM NO.	DESCRIPTION	AMOUNT KSHS.
	TOTAL BROUGHT FORWARD FROM:	
1	PRELIMINARIES - B/F PAGE 1	-
2	UPS INSTALLATION - B/F PAGE 2	-
	SUB-TOTAL	-
TOTAL TO BE CARRIED TO TENDER		-

Total in words:

Name of Contractor:

Address:

Telephone:.....

Pin. No. Vat Reg. No.

Signature:

Official Stamp/Date:

PROPOSED CONSTRUCTION OF HUMANITIES & SOCIALSCIENCES LECTURE HALLS
BILL OF QUANTITIES FOR MEPF INSTALLATION
SUMMARY PAGE

ITEM NO.	DESCRIPTION	TOTAL (VAT INCLUSIVE) KSHS.
1	ELECTRICAL INSTALLATION SUMMARY PAGE:- ELECTRICAL INSTALLATIONS	
2	CCTV & ACCESS CONTROL INSTALLATIONS	
3	STRUCTURED CABLING INSTALLATIONS	
4	UPS INSTALLATIONS	
TOTAL CARRIED FORWARD TO GRAND SUMMARY		

BILL NO. 9

MECHANICAL SERVICES INSTALLATION

PARTICULAR SPECIFICATIONS

FOR

COLD STORAGE EQUIPMENT

INSTALLATIONS

PART A: PARTICULAR SPECIFICATION FOR COLD ROOM

A.0 SCOPE OF WORK

The work to be carried out comprises the supply, delivery, installation, testing and commissioning of cold room refrigeration equipment, and control panel with auxiliary equipment and thermal insulation made of polystyrene or polyurethane 100mm panels. Panel sizes should be such to allow entry to proposed area without cutting or adjustment where possible.

0 DESIGN CONDITIONS

Mean ambient temperature 30°C DB

Storage temperature +2° + 4°C

Storage humidity (minimum) 85%

Evaporator cooling load –indicated in the bills of quantities

1 PRELIMINARIES

During project planning, specification of materials and equipment, testing equipment and installation, it shall be considered the latest versions of the applicable documentation and international standards specific to this type of systems.

This technical specification aims at the definition of technical parameters of construction and installation to be observed in systems of conservation and freezing fresh food, medicines and other products designed to meet the specific storage conditions for each case.

For the correct selection of equipment to provide and install it must be elaborated a design, as detailed as possible, by skilled technician, in which shall state at least the following data:

- a) Estimation of the Cold Load required, through an appropriate calculation method and the most reliable possible, taking into account:
 - Weather conditions of the place of implementation of the project;
 - · Required room dimensions: walls, floors, ceilings and doors;
 - · Constructive elements: dimensions and materials the walls, floors, ceilings, thermal insulation and others;
 - · Sources of heat dissipation: people, lighting equipment, electrical/electronic equipment diverse and others;
 - · Air Infiltration through the door openings;
 - · Other criteria that can influence this thermal load.
- b) Selection of the cooling equipment to be supplied and installed, according to the previously assessed thermal load and the customer requirements and expectations.
- c) Brand selection of refrigeration equipment to provide and install, taking into account the most reputable brands such as *DANFOSS*, *EMBRACO*, *ELGIN*, *RECAM*, *TECHUMSEH* and others.

2 GENERAL FEATURES

The features described below are intended to introduce the basic conditions for a perfect equipment supply. The supervision should do evaluation, adaptation to the specific and complementary equipment to ensure compliance with standards, the requirements of safety and operational efficiency of the installation and the elaborated calculations.

2.1 Units System:

All quantities should be indicated in units of measurement belonging to the Metric System. However, exceptions may be accepted for items usually manufactured according to other standards, as is the case of copper tubing, insulating sleeve, screws, nuts and others, which often are specified in English Standards.

In the event of a conflict between the Metric System and another system, the first shall prevail.

2.2 Drawings, Written Documents and Others:

All drawings and catalogs should indicate, where applicable, the materials used, dimensions, types of finishings, fixtures and other information that is considered necessary for a better understanding and demonstration of compliance with the requirements of these technical specifications.

2.3 Instructions Manual:

The instructions manual of the proposed refrigeration units should contain at least the following information:

- General Index;
- Procedures of the different modes of operation of the equipment;
- Complete Manual of the manufacturer of each device, containing installation details, operation and maintenance, as well as the quick rotation parts list for subsequent reinstatement;
- Instructions for preventive and corrective maintenance;
- If possible, it should also contain a list of agents and/or local representatives of the proposed brands.

2.4 Warranty:

The supplier shall ensure that the equipment, whether of its own manufacturing or come in full or in part from other suppliers, comply with the requirements of these specifications, free from manufacturing, raw materials or workmanship defects.

It should also be indicated the respective warranty period and its scope of application.

3 TECHNICAL SPECIFICATIONS

3.1 Insulated Panels:

The cold/ freezer storage room insulated panels have as main function, to maintain and control the internal room temperature.

Currently, the refrigeration contractors have used isothermal panel for cold, freezer rooms, freezing tunnels, in warehouse dividers and other commercial and industrial spaces.

For its ease assembly execution and mobility through a practical junction system and fittings, the isothermal panel for the cold/ freezer rooms have been the choice of large builders on covers for industrial and commercial buildings.

They can be mounted in practically any environment and they ensure an efficient thermal insulation, and today the internal temperature of the environments has been a big opponent to some users or processes.

The mobility of the insulated panels for the freezer allows the inside environment to be enlarged or reduced as needed, which is one of its great points, thus enabling an ideal investment without waste of space or material.

Insulated panels for cold/ freezer rooms can be manufactured with a thickness of up to 200 mm and length and width the most varied possible to meet the requirements of each client and each project in particular. Enabling, thereby reducing the number of joints between them for better thermal insulation, regardless of the dimensions of the room.

There are used various methods to perform the junction of the isothermal panels among themselves, and the more widespread and more effective is the system of male-female (or double male-female) and the system for embedded hook, giving the junction a very good airtightness and stiffness as required for a robust installation.

The fixing system with built-in hook means greater speed and ease assembly and disassembly compared to other systems used, since it is sufficient that the key turns 3/4 so that the fit between the panels is perfect.

3.1.1 Constitution:

Insulated panels are made up of:

- Coating – The external and internal coating of insulated panels can be of various sheeted materials, usually with 0.5 mm thickness: Lacquered steel, galvanized steel, natural or lacquered
- aluminum, stainless steel, hard plastic and other materials. The base color is white, but they can be provided in the color of preference of the Designer or Owner of the work.
- Insulation – The insulated panels used in cold/ freezer storage room are produced with rigid polyurethane foam insulation with average density of 40 kg/m³, which gives them a heat transmission coefficient (U) as indicated in the table below.

Thickness (mm)	U (kcal/h.m².oC)
50	0,042
80	0,026
100	0,021
120	0,017
150	0,014
175	0,012
200	0,010
250	0,008

- Junction system – the junction system between the insulated panels, as mentioned elsewhere in this document, will be the setting with embedded hook; in this case, the panels junction are made by turning the square key on a metal shaft.

3.1.2 Dimensions:

Length – Cold rooms insulated panels, as mentioned elsewhere in this document, may have the length that each project requires up to a maximum of 12 meters; due to manufacturing restrictions.

Width – The width of insulated panels for cold rooms is normally of 1,180 mm;

Thickness – The thickness of the insulated panels for cold/ freezer rooms can be of 60, 75, 120, 150, 180 and 200 mm according to the required temperature inside of the room.

3.1.3 Accessories:

For a good installation of insulated panels for cold rooms, manufacturers offer a range of mounting accessories, manufactured from the material and coat color, from Interior and exterior angles of equal or unequal tabs, U-shaped profiles, rods, rivets and others.

In addition, there are also sealing materials, silicone based, suitable for use in cold storage rooms and negative temperatures environment.

3.2 Cold/ Freezer Rooms Door

The cold/ freezer room door is the element responsible for the opening of its access to inside; it must, on the one hand, allow access to the inside of the room and, at the same time, give similar thermal insulation quality or higher than the insulated panels of the room.

The door is a special type of insulated panel and it is the same way, consisting of:

- Internal and external coating in lacquered steel, stainless steel, galvanized steel, aluminum or other suitable material sheet plate;
- Rigid polyurethane foam insulation, with average density of 40-43 kg/m³;
- Internal substructure built of anodized aluminium profile.

The cold/ freezer room door shall, on the other hand, present appropriate air-tightness

characteristics and therefore it must have a perimeter seal and usually made of double alveolus rubber on PVC support.

It can be of different types to meet the needs of each particular project:

- a. Hinged doors for spans up to 1,200 x 2,200 mm, in locations that require good looks and high performance and are manufactured with a small thickness to the outside and the rest to the interior; the value of these partial thickness depends on the temperature inside the concerned room:
 - i. Refrigeration (0° C) – thickness 40 mm outer and interior of 20 mm;
 - ii. Freezing (-20° C) – thickness 40 mm outer and interior of 60 mm;
 - iii. Super freezing (-40° C) – thickness 40 mm outer and interior of 100 mm.
- b. Pivot superimposed doors – for spans greater than those used in previous door type and up to 1,500 x 2,500 mm, with the locking device superimposed to the panel. The total thickness, in this case, is:
 - i. Refrigeration (0° C) – thickness of 75 mm;
 - ii. Freezing (-20° C) – thickness of 100 mm;
 - iii. Super freezing (-40° C) – 140 mm thickness.
- c. Sliding doors - This type of doors is intended for applications where there are limitations in terms of space. For this type of door the sliding rails are made of structural carbon steel with anticorrosive treatment or stainless steel. The locking devices are manufactured by injection and painted with epoxy paint and the adjustable hinges are manufactured in stainless steel and composite.

The refrigerating door to use in each case should be always very well specified, in particular, in accordance with the following characteristics:

- · Dimensions;
- · Room service: refrigeration, freezing or super freezing;
- · Coating Material;
- · Insulated panel or in masonry mounting;
- · With or without shoulders;
- · With or without threshold;
- · Opening to the left or to the right;
- · Material of inner and outer surfaces finishing.

3.3 Equipment and Accessories

3.3.1 Refrigeration Unit

The monoblock refrigeration unit type will integrate compact condenser, evaporator, compressor and control system of the unit as a whole, in a body with only a mounting base plate.

This type of units can be used in various areas of activity – hotels, restaurants, agriculture, chemical industry, medicine and conservation in other areas where it is required to use cold storage of various temperature levels, from 5 to -20°C.

The compact refrigeration units are made up of base, condenser coil, compressor, condensing fan motor, evaporator coil, evaporation fan motor, refrigeration circuit evaporator and a complete set of control, adjustment and control devices.

There is, as specified above, a wide range of refrigeration units, since the most small and simple to the more sophisticated, for special applications. The cooling unit must be sized for each case taking into account the particularities of each project.

The installation of this type of cooling unit is very simple, safe and does not require great technical expertise and, in the meantime carried out using appropriate brackets that come with the unit and expansive metal anchor bolts of suitable diameter considering the unit weight and ensuring compliance with the manufacturer's indications.

Base

The base of the condensing unit should consist of a metal frame made of galvanized steel sheet of appropriate gauge to good rigidity, protected against corrosion, with electrostatic painting on enamel paint on anticorrosive primer.

In the case of a closed unit, the panels should be removable to allow easy access to the inside of the machine. By its term the panels should receive proper treatment to be resistant to the action of time and the outside environment.

In monobloc and compact units the base must be able to accommodate all cooling system components, including all the control accessories.

The base should be covered by a cabinet which is a monoblock structure made of aluminium with smooth and shiny finish to make cleaning easier, but it may also have white epoxy paint or stainless-steel finish.

Condenser Coil

The condensing unit coil, i.e. refrigerator condenser, should be made with seamless copper tubes of adequate diameter and aluminum fins with coating preventing direct contact with copper tubes, attached to these by mechanical expansion. The coil must be tested against leakage at a pressure of 350 psi at manufacturer premises.

The condenser is the component of the refrigeration cycle responsible for transferring the heat to the outside air or water or a combination of the two, known as evaporative condenser. The gas that has high values of pressure and temperature, passing through the condenser coil cools down and liquefies, transferring sensitive and latent heat of condensation.

Compressor

The compressor is one of the main elements in a cooling system; it is the heart of it. Its function is to increase the pressure of the refrigerant and promote its circulation along the system.

The main types of compressors are: alternative, rotating, vane, screw and scroll. And, in terms of construction, the compressors can be classed as hermetic, semi-hermetic and open.

In the hermetic compressors, the compressor itself and the electric are housed in the same case, showing the inbound and outbound access only the electrical connections of the electric motor. This type of compressor operates exclusively with halogenated refrigerants and refrigerant vapor comes into contact with the motor winding, cooling it. Those compressors are generally used in domestic refrigeration and air-conditioning appliances with power up to 30kW (8.5 TR).

The semihermetic compressors are similar to previous type, but they allow the removal of the head of casing, providing complete access to valves and pistons. In open compressors, the compressor drive shaft goes through the casing, allowing its drive by an external electrical motor. They are large compressors operating mainly with ammonia.

The choice of the type of compressor to be used depends essentially on the power of the installation.

The cooling unit can be equipped with one, two or three compressors depending on its required cooling power.

Generally, the compressors used in the cooling units for cold/ freezer rooms of small sizes are hermetic rotary, reciprocating or screw type, installed on vibration insulators, depending on the manufacturing, on cooling power and other technical and commercial factors.

As mentioned above, the compressors are driven by electric motors, internally protected against overloads and suitable to withstand the voltage variation of up to 10% of the nominal value. These motors are cooled by suction refrigerant flow and can be equipped with crankcase heaters. For additional protection in the electrical components must be installed in the distribution boards devices to prevent phases reversal (in the case of three-phase units) or other according to the requirements of each project.

Condensation Moto-Fan

The condensation moto-fan units, in general, are axials with the shovels thrust forward, constructed of stamped plastic, aluminium or galvanized steel sheet, statically and dynamically balanced, directly coupled to the motor driven axle.

The evaporator moto-fan should be of low noise.

Depending on the cooling capacity of the evaporator unit, the drive electric motor may be single-phase or three-phase.

Evaporator Coil

The evaporator coil should be made with seamless copper tubes of adequate diameter and aluminum fins with coating preventing direct contact with copper tubes, attached to these by mechanical expansion. The coil must be tested against leakage at a pressure of 350 psi. The fins improve heat transfer efficiency, due to increasing the overall area of heat exchange.

Due to this the largest area, these evaporators can be more compact than plain tube without damaging heat absorption capacity.

They can have their own gas collectors/distributors to the inlet and outlet for an optimisation in refrigerating gas distribution.

On its bottom they must have condensate collector trays to collect the water resulting from the de-icing process made of the same material as the unit cabinet.

The inner tray to prevent air leaks and concentrated water flow from the defrost process to the drain, avoiding undesirable formation of ice in the tray and heating of the cold/ freezer room during defrost. It eliminates the disadvantages of water condensation on the outside during the defrosting phase.

The external tray, with rounded corners, tipper and removable for better access to the defrost

system and cleaning.

Evaporator Moto-Fan

The evaporating moto-fan units, in general, are axials with the shovels thrust forward, constructed of stamped plastic, aluminium or galvanized steel sheet, statically and dynamically balanced, directly coupled to the motor driven axle.

The evaporator moto-fan should be of low noise.

Depending on the cooling capacity of the evaporator unit, the drive electric motor may be single-phase or three-phase,

Refrigeration Circuit

The pipe to be applied in the execution of the refrigeration circuit for this type refrigeration equipment must be type malleable copper up to $\frac{3}{4}$ " diameter and hard for larger diameters.

In the first case, the curves must be performed with the aid of appropriate tools - pipe bending tools or springs - and should be avoided at all costs amendments over each length. In case of use of rigid pipe connections should be used and the connection should be properly welded and carefully inspected.

The refrigerant gas lines should be designed and implemented to carry out the following functions:

- To ensure proper liquid supply to the evaporator;
- To allow refrigerant gas flow without excessive load losses;
- To prevent accumulation of oil in low areas;
- To prevent that the oil which leaves the compressor be retained in the piping system;
- To prevent liquid from entering the compressor, both when in operation, as well as when stopped;
- To enable the circuits to remain clean and free of moisture.

Regarding its design, the refrigerant gas lines must be:

- Arranged in such way that it will not affect other components' operation, or hamper the access to other organs or control devices;
- Protected against shocks, particularly small diameter and isolated pipes;

For the design of the refrigerant piping should be aware that:

- Oil circulation must be ensured;
- Should not produce condensation in the pipes and the liquid formed in the condenser should not reverse the direction of the flow;
- In the pipes should not produce abnormal noises or vibrations;
- The dimensions of the pipes should limit the load losses to a minimum.

In the cooling circuit, in addition to the larger components – condensing, compressor and evaporating coils – there is still the need to include the filter drier, sight glass and the thermodynamic expansion valve, service valves, as well as all the operation control devices – low and high pressure switches.

Filter Drier

Filters driers are components installed in the cooling system with the function of retaining the residual moisture, acids and solid particles.

They are constructed in copper or steel tubular bodies.

Internally they have a thick screen at the entrance and a fine screen in the output and between the screens they are placed a moisture absorbing desiccant.

The filter must be installed in vertical position with the output down (when installing the liquid line drier in a vertical position, it is necessary to make sure that the entrance is on top and the output, facing down. In this way, there will always be coolant in the filter, so that the drying capacity is used in the best way possible). When this position is not possible, they can be mounted horizontally, but must never be mounted vertically with the way up.

With the emergence of several alternative refrigerants, several driers filter options have been developed to respond to the particularities of each refrigerant substance.

The drying filter consists of desiccant particles and must be chosen according to the particular application, taking into account refrigerant type, working pressures and mass flow.

Sight Glass

Is a very important component in the refrigeration systems; especially in medium to large machines, it plays an important role showing the passage of liquid fluid by high pressure liquid line, and, in some cases, moisture in the system.

The sight glass serves to indicate lack of liquid at the thermostatic expansion valve. The presence of steam bubbles in the display indicates, for example, lack of load, low under-cooling or partial dryer filter obstruction.

Typically, the display is equipped with a color indicator that changes from green to yellow when the moisture content of the refrigerant exceeds a given value and, in this case, actions should be taken to replace the dryer filter. The color display is reversible, that is, the color goes from yellow to green again when installation is free from moisture, for example, by replacing line dryer filter.

Thermostatic Expansion Valve

Thermostatic expansion valves regulate the injection of refrigerant gas (in liquid) in the evaporating units and consequently the amount of steam being drawn in by the compressor. The injection is controlled by the overheating of refrigerant.

The various thermostatic expansion valves sizes and types cover different valves designed for specific applications. The valves are supplied with threaded, welded or bimetal connections in copper/stainless steel.

In addition, the expansion device ensures the reduction of pressure of the fluid that comes out of the condenser and enters the evaporator and yet, through a sensor bulb is kept constant the overheat at the outlet of the evaporator. This is achieved by leaving spend more or less refrigerant to the evaporator.

Expansion valves can be with external equalisation (the pressure at the top of the diaphragm is

the evaporator output) and with internal equalization, that is, the pressure at the bottom of the diaphragm is the inlet pressure of the evaporator.

Refrigerant

O R404A is an azeotropic mixture of hydrofluorocarbonates – HFC – consisting of:

- R125 – Pentafluoroethane (CF₃CHF₂), 44%,
- R134a – Tetrafluoroethane (CF₃CH₂F), 4%,
- R143a – Trifluoroethane (CF₃CH₃), 52%.

It presents the following characteristics:

- R404A has a variation in temperature of less than one degree along the isobars processes.
- All components are of HFC group.
- The three components of the mixture have a low pressure reason in isentropic compressions processes.
- R143a is flammable; however, the presence of the R125 in a high percentage makes the mixture non-flammable even if leakage occurs.
- The compressors have to use type Ester synthetic oils to be miscible with the boiling refrigerant vapor in inside the evaporator.
- It is compulsory the replacement of all the fluid of cooling installation if a leak greater than 10% of the total amount of the installation occurs. In the case of an azeotropic mixture, when a leak happens the refrigerant that has more partial pressure will first come out from the refrigeration circuit. The remainder product in the system is no longer R404A and it is not possible to restore the original proportions of the components.

- Critical point:
 - Temperature = 72 °C
 - Pressure = 37,2 bar
 - Density = 0,484 kg/dm³
- Liquid phase, at 25 °C:
 - Density = 1,04 kg/dm³
 - Specific heat = 1,64 kJ/kg °C
- Gas phase, at 1,013 bar:
 - Boiling temperature = - 46 °C
 - Boiling point = - 46,4 °C
 - Specific heat = 0,88kJ/kg °C
- Saturated vapour:
 - Density = 5,41kg/m³
- ODP = 0
- GWP = 0,0555

In general, to be a good refrigerant the substance must have the following properties:

- Liquefy (condensing) under moderate pressure;
- Evaporate at pressures above atmospheric pressure;
- Have low specific volume (small volume relative to its weight);
- Have a high vaporization latent heat;
- Be chemically stable (does not change, even with repeated changes of state in the cycle);
- Do not be corrosive;
- Do not be flammable;
- Do not be toxic;

- Allow easy location of leakage;
- Do not strike the lubricating oil or cause any undesirable effect on other components of the refrigeration cycle;
- Do not strike or decaying foods, if leakage occurs.

Thermostat

Thermostat is a temperature controller device specific for the control of refrigeration rooms with defrosting by resistance or for hot gas monitoring and control the operation of the compressor and the condenser and the evaporator fans motors.

Among its functions can be included start and stop time set of different electro-mechanical components to avoid overloads in the electrical supply line.

It can be electromechanical or electronic.

It is a component whose function is to control the room temperature (internal or external) keeping it as stable as possible. He acts stopping or putting into operation automatically the compressor, fans or other electromechanical equipment.

Usually consists of a bulb, capillary tubing and electrical contacts. Its operation is based on the principle of expansion. The thermostat contains in its capillary a gas which can be Sulphuric Dioxide, Methyl Chloride, and the gas used in the system or other similar. The expansion or contraction of the gas molecules transmits movement to a bellows attached to a mobile part that acts by closing or opening the electrical contacts and, thus, connecting or disconnecting the connected equipment to be controlled.

In cooling systems, the thermostat must also control the starting and stopping of the defrosting process, by electrical resistance or reverse cycle.

Pressure Switch

There would be no mechanical cooling without a fluid (refrigerant) pressure changes along the refrigeration cycle, in a continuous process. However, the variation of pressure when exceeds certain limits may damage some refrigeration components. To prevent this from occurring pressure switches are used.

Their basic function is to protect the components of the refrigeration cycle against over pressure (pressure higher than acceptable) or sub pressure (lower than acceptable) during operation of the equipment.

The pressure switches evaluate the high side pressure (high pressure switch) and low side (low pressure switch) and in semihermetic compressors, they also evaluate the oil pressure. The variation of the pressure of the refrigerant level in the cycle does perform the electrical contacts of the pressure switch that can control fans, alarms and even the compressor or others elements of the refrigeration cycle.

Thermometer

The cold room should always have, typically, on the outside on the insulated panel above the door, a thermometer – analog or digital – for measurement and indication of the temperature inside the room.

The thermometer can still have high temperature indication sound or light alarm. The instrument has a probe with about a meter of cable, which allows the local positioning for better convenience inside of the room.

Electrical System

The electrical system of a cold/ freezer storage room carries all devices, cables and electrical equipment installed and that contribute to the smooth operation of the complete equipment set.

In general, the operation of cold/ freezer storage is all controlled from a control panel, which includes partial protection devices to the compressor motors, condenser fan, evaporator fan, defrost element and the lighting circuit for the inside of the room.

This partial electric board is powered electrically via a cable of adequate section to the total electric power of all the installed equipment.

The interior lighting of the cold/ freezer storage room should allow good visibility of the products stored and shall possess the switch drive, next to the room access door.

All the apparatus and electrical wiring installed inside the cold/ freezer storage room must be of suitable class and should be installed in the adequate technical trunking system.

Condensate Drain Pipe

The condensate drain pipe must have a diameter that will allow easy gravity drainage of the condensates that are produced in the process of defrosting the freezer room and collected in the condensate tray.

The disposal of condensate can be done directly to the outside or be referred to a network of condensate collection previously defined, bearing in mind the need for installation of traps to prevent the entry of unpleasant odours from the drainage system.

Whenever there is need for this piping across any wall it should be properly insulated to avoid the action of moisture on that infrastructure.

In cold storage with temperature below zero degrees, it is necessary to provide for the installation of a drain heater element, installed throughout the section of the drainage piping within the room to prevent re-icing of the condensate.

4. TESTING AND COMMISSIONING

Before insulation of the suction pipe the refrigeration system shall be tested for pressure and leaks using the combined pressure and leaks testing method. The refrigeration system shall be charged with **Suitable refrigerant** and entire system raised to test pressure using nitrogen or other inert gas. The test pressure shall be twice the working pressure for the system.

Leaks shall be checked using soap bubble followed by using of electronic leak detector. After system is proved leak proof, it shall be maintained under test pressure for 24 hours. If at the end of this time the gauge pressure has fallen, the complete system shall be re-tested. After the successful completion of the test, the system shall be evacuated using vacuum for 24 hours. If there is loss of vacuum the system shall be dehydrated again and left under vacuum for a further 24 hrs until the system is effectively dehydrated.

PART B:
GENERAL SPECIFICATIONS
FOR
PLUMBING AND DRAINAGE WORKS

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PART B

GENERAL SPECIFICATIONS FOR PLUMBING AND DRAINAGE WORKS

1.0 MATERIALS AND STANDARDS

2.0 General

This section specifies the general requirements for plumbing and drainage forming part of the Sub-Contract Works and shall apply except where specifically stated elsewhere in the specification or on the contract Drawings.

3 Pipework and Fittings

Pipework materials to be used are as follows: -

3.1 Cold Water Mains

Unplasticised PVC or galvanized steel medium or heavy grade, as specified on the drawings.

3.2 Black Steel Pipework

All black steel pipework up to 65mm nominal bore shall be manufactured in accordance with BS 1387 Medium Grade, with tempered place threads in accordance with BS 21. All fittings shall be malleable iron and manufactured in accordance with BS 143.

Pipe joints shall be screwed and socketed and sufficient coupling unions shall be allowed so that fittings can be disconnected without cutting the pipe. Running nipples and long screws shall not be permitted unless exceptionally approved by the Engineer

All black steel pipeworks, 80mm nominal bore up to 150mm nominal bore, shall be manufactured to comply in all respects with the specification for 65mm pipe, except that screwed and bolted flanges shall replace union and coupling for the joint of pipes to valves other items of plant.

All flanges shall comply with the requirements of BS 10 to the relevant classification contained hereinafter under section C of the Specification.

3.3 Galvanized Steel Pipework

Galvanized Steel pipework shall be manufactured to comply in all respects with the standards described for black Steel pipework in paragraph 3.2 above.

Galvanizing shall be carried out in accordance with the requirements of BS 1387 and BS 143 respectively.

3.4 Copper Tubing

All copper tubing shall be manufactured in accordance with BS 2871 from C.160 'Phosphorous De-oxidized Non-Arsenical Copper' in accordance with BS 1172.

Pipe joints shall be made with soldered capillary fittings and connections to equipment shall be with compression fittings manufactured in accordance with BS 864.

Short copper connection tubes between galvanized pipework and sanitary fitments shall not be used because of the risk of galvanic action.

If, as may occur in certain circumstances, it is not possible to make the connection in any way than the use

of copper tubing, then a brass straight connector shall be positioned between the galvanized pipe and the copper tube in order to prevent direct contact.

3.5 Cast Iron Pipework

a) Internal Services

Cast Iron pipework and fittings for use above ground in connection with internal building services, shall be manufactured with spigot and socket joints of the weight required by the local authority and shall fully comply with the requirements of BS 416.

All joints on Cast Iron spigot and socket pipes shall be made with an approved cold caulking compound and so installed as to allow for any expansion or contraction, which may take place.

All Cast Iron pipe work, branches, tees bends and other fittings shall be supplied complete with inspection covers for cleaning purposes. These inspection covers shall be included as parts of the fittings and shall comply with requirements of BS 416.

b) External Services

Cast iron pipe work, which is used in connection with buried external services, shall be manufactured, coated and tested in accordance with the requirements of BS 1211

All buried cast iron bends, elbows swept tees and other fittings, shall comply with the requirements of BS 1130.

Joining on external cast iron pipes shall be carried out in accordance with one of the methods described in BS Code of Practice 301, Clause 505C (v), to the approval of the Engineer.

3.6 Pitch fibre Pipework

Pitch Fibre Pipework and fittings for use in connection with external drainage services shall be manufactured in accordance with the requirements of BS 2760. Pipes shall be connected by means of purpose tapered joints manufactured in accordance with the requirements of the notes contained under Appendix C of BS 2760.

Until such a time as the use of pitch impregnated fibre is covered by a code of practice, the jointing, laying and cutting of these pipes shall be carried out in accordance with the requirements of the notes contained under appendix C of BS 2760.

3.7 Concrete Pipe

Where concrete pipe and fittings are used in connection with the conveyance surface water of sewage under atmospheric pressure, they shall be manufactured in accordance with the requirements of BS 556, Class 1, except where otherwise stated.

The joints of concrete pipe and fittings may be one of the following depending application and conditions: -

- 1) Flexible rebated type (storm water drainage only)
- 2) Ordinary spigot and socket type
- 3) Flexible spigot and socket type.
- 4) Ordinary related type (Storm water drainage only)

Joints (1) and (2) shall be sealed with suitable rubber gaskets manufactured in accordance with BS 2494 except where they are likely to be contained by oil products, in which case the gasket be manufactured in accordance with BS 3514.

Joints (3) and (4) shall be made with approved cement mortar mix.

3.8 Asbestos Cement Pressure Pipe

Where asbestos cement pressure pipes and fittings are used in connection with external, above ground or buried water services, they shall be manufactured in accordance with the requirement of BS 486.

The classification of these pipes fall into classes:

A, B, C and D, respectively, and the class to be used shall depend upon the pressure conditions pertaining to site. Where Cast iron detachable joints are used for connecting pipes, the material shall comply with the BS specification, then the materials used shall be of quality not less than that required by this standard.

Rubber jointing rings shall be used for sealing purposes and shall comply with requirements of BS 2494, except where they are likely to be contaminated by oil products, in which case the gasket shall be manufactured in accordance with BS 3514.

3.9 PVC (Hard) Pressure Pipes and Fittings

All PVC pipes and fittings shall be manufactured in accordance with BS 3505: 1968 or the relevant Kenya Standard.

Jointing

The method of jointing to be employed shall be that of solvent welding, using the pipe and manufacturer's approved cement. Seal ring joint shall be introduced where it is necessary to accommodate thermal expansion.

Anchoring

The bends, valves and hydrant tees etc., in the line of the water main shall be adequately anchored to resist thrust due to internal water pressure. A concrete block shall be cast under and around the pipe and between it and sides of the trench. Well-rammed material shall be used to support the pipe and either side of the concrete.

Pipe Bed

Pipes shall be uniformly laid on a 75mm thick bed, (sand or red soil) and must not be allowed to rest on the joint or on stones etc.

Backfilling

For the protection of the pipe, initial backfilling shall be carried out as soon as possible after laying. The initial backfill shall be fine grained material thoroughly compacted around the pipe and consolidated to a depth of 6" above the crown of the pipe and at no time shall heavy rocks, stones or other objects be included in the balance of the backfill that might protrude the initial backfill layer and come into contact with the pipe.

Testing

Pipelines shall be tested in sections under an internal water pressure normally one and a half times the maximum allowable working pressure of the class of pipe used. Testing shall be carried out as soon as practical after laying and when the pipeline is adequately anchored. Precautions shall be taken to eliminate all air from the test section and to fill the pipe slowly to avoid risk of damage due to surge.

3.10 MuPVC Waste Systems

All pipes and fittings shall be manufactured in accordance with BS 5255: 1968 or the relevant Kenya Standard.

Pipe shall be supplied in plain-ended lengths.

Thickness

The Minimum acceptable wall thickness of pipe and fittings shall be as follows:

size(in)	Size (mm)	Pipe and Fittings Wall Thickness (mm)
1⊕	32	1.8
1○	40	1.9
2	50	2.0

Jointing

The method of joining to be employed shall be that of solvent welding, using the pipe and manufacturer's approved cement. Seal rings joints shall be introduced where it is necessary to accommodate thermal expansion.

Anchoring

All bends, valves and hydrant tees etc, in the line of water main shall be adequately anchored to resist thrust due to internal water pressure. A concrete block shall be cast under and around the pipe and between it and sides of the trench. Well-rammed material shall be used to support the pipe and either side of the concrete.

Workmanship

The installation method of jointing shall be solvent welding; and both jointing and fixing shall comply in all respect to the manufacturer's site-work instructions. The maximum intervals between pipe supports at 200c shall be as follows: -

Nominal size (in)	Nominal size (mm)	Horizontal (mm)	Vertical (mm)
1⊕	32	500	1200
1○	40	500	1200
2	50	900	2000
3	80	900	2000
4	100	1000	2000
6	150	1000	2000

Pipes shall be fixed in straight runs and horizontal runs and shall be laid to gradients in conformity with BS 5572 of Practice for Sanitary and in any event not less than 18mm/m unless otherwise specified.

Pipes passing through wall or floor shall be sleeved to allow unrestricted movements.

The works shall be inspected and tested during installation at any stage in accordance with BS 5572. All work, which will be concealed, shall be tested before it is finally enclosed and verified by the Clerk of Works.

Pipe Bed

Pipes shall uniformly be laid on a 75mm thick bed, (Sand or red soil) and not be allowed to rest on the joint

or on stones etc.

Supports to Fittings

In underground installation care shall be taken to ensure that heavy components such as valves are fully supported so that the pipeline carries no weight.

Backfilling

For the protection of the pipe initial Backfilling shall be carried out as soon as possible after laying. The initial backfill shall be fine-grained material thoroughly compacted around the pipe and consolidated to depth of 6" above the crown of the pipe. At no time shall heavy rocks, stones or other object be included in the balance of the backfill that might protrude the initial backfill and come into contact with the pipe.

Testing

Pipelines shall be tested in section under an internal water pressure normally one and a half times the maximum allowable working pressure of the class pipe used. Testing shall be carried out as soon as practicable after laying and when the pipeline is anchored precautions shall be taken to eliminate all air from the test section and the pipe slowly to avoid risk of damage due to surge.

3.11 A.B.S. Waste System

Where indicated on the Drawings and Schedules, the Sub-contractor shall supply and fix A.B.S. waste pipes and fittings.

The pipes, traps and fittings shall be in accordance with the relevant British Standards, including BS 3943, and fixed generally in accordance with manufacturer's instructions and BS 5572: 1978.

Jointing of pipes shall be carried out by means of solvent welding, the manufacturer's instructions and BS 5572: 1978.

Jointing of pipes shall be carried out by means of solvent welding. The manufacturer's recommended method of joint preparation and fixing shall be followed.

Standard brackets, as supplied for use with this system, shall be used wherever possible. Where the building structure renders this impracticable the Sub-contractor shall provide purpose made supports, centres of which shall not exceed one metre.

Expansion joints shall be provided as indicated. Supporting brackets and pipe clips shall be fixed on each side of these joints.

3.12 PVC Soil System

The Sub-contractor shall supply and fix PVC soil pipes and fittings as indicated on the Drawings and Schedules.

Pipes and fittings shall be in accordance with relevant British Standards, including BS 4514 and fixed to the manufacturer's instructions and BS 5572.

The soil system shall incorporate synthetic rubber gaskets as provided by the manufacturer whose fixing instructions shall be strictly adhered to.

Connections to WC pans shall be effected by the use of a WC connector, gasket and cover, fixed to suit pan outlet.

Suitable supporting brackets and pipe clips shall be at maximum of meter centers

The Sub- contractor shall be responsible for the joint into the Gully Trap on Drain Trap as indicated on the drawings.

3.13 UPVC Square Rainwater System pipe and Gutter

Gutter shall be a rectilinear section 116mm or 137mm wide.

Gutters shall be supplied in plain-ended lengths

The minimum acceptable wall thickness of gutter shall be 2.20mm

Rainwater pipes shall be supplied in plain-ended lengths.

The minimum acceptable wall thickness of rainwater pipes shall be 1.80mm

Pipe support brackets must be adequate to screen expansion gaps.

The grade of UPVC used for gutter and pipe shall have a minimum softening point of 75⁰C when tested by the vicat method as described in BS 2782.

The pipe and gutter shall be colour Grey, to BS 5252, 10.A. 07, black white or rustic

3.14 uP.V.C. Rainwater Fittings

All fittings shall be injection mounted and shall be compatible with pipe and gutters and shall conform to BS 456 or the appropriate Kenya Standard.

All gutters pipe and fittings shall be Colour Grey to British Standard 5252, 12.A. 07 Or black, white or rustic.

Gutter connecting fittings shall have integrally moulded seal retaining cavities housing a rubber seal of hollow section.

The fitting shall incorporate a gutter-retaining clip.

Gutter shall be supplied in plain-ended lengths.

The minimum acceptable wall thickness of gutter shall be 2.20mm

Rain water pipes shall be circular in section, 65mm nominal diameter complying in al respects to British Standard 4576 or the relevant Kenya Standard.

Rainwater pipes shall be supplied in plain-ended lengths. The minimum acceptable wall thickness of rainwater pipes shall be 1.80mm

Pipe support brackets must be adequate to screen expansion gaps.

The grade of UPVC used for gutter and pipe shall have a minimum softening point of 75⁰ C when tested by the Vicat method as described in BS 2782.

The pipe and gutter shall be Colour Grey, to BS 5252, 10.A.07. black, white or rustic.

3.15 UPVC Underground Drainage System

(a) Pipes and fitting

The pipes and fittings shall comply in all respects to British Standard 46600 & 581 or the relevant Kenya

Standards.

Pipes shall be supplied in plain-ended lengths.

The minimum acceptable wall thickness of pipe and fittings will be as follows:

110mm pipe	3.0mm	
160mm pipe	3.9mm	
110mm junction only	3.50mm socket	3.80mm body
All other fittings	3.20mm socket	3.40mm body
160mm all fittings	4.30mm socket	4.70mm body

The method of jointing to be employed shall be by lip seal socketted fittings. Jointing to other materials shall be made in the manner specified by the manufacturer.

The grade of UPVC used for the pipes shall have a minimum softening point of 82^o C when tested by the 'Vicat' method 102D as described in British Standard 2494: 1976.

Holderbats shall be made of Mild Steel protected from corrosion by galvanizing or such coating for optimum fit. To fit pipe supports a special purpose made PVC packing piece may be used.

The base of soil and vent stack connection to the below ground drain shall be made with a bend of minimum centre lines radius of 250mm.

Minor changes of direction where permitted shall be made with a variable bend that has a constant effective length.

(b) Excavation of Trenches

The installation, method of joining shall confirm in all respects to the manufacturer's site work instruction.

Trenches shall be excavated to a sufficient depth to allow a 50mm minimum bed below the underside of the pipe. Trenches width shall be not less than the outlet diameter of the plus 300mm and not wider than necessary.

(c) Trench Invert

The base of the trench shall be such that even support is given to the pipe for it's full length. Soft spots shall be removed and replaced with compacted granular material as described below. High spots and rock shall be removed to allow full 50mm-bed depth.

(d) Pipe bed

The bed shall be composed of granular material to the specification called for below and shall cover the full trench width and length and boned to gradient.

(e) Laying and jointing

Pipes and fitting shall be laid true to gradient in straight lines and joined in accordance with manufacturer's instructions. All pegs used for alignment and other purposes must be removed after use and before side filling. All joints shall be watertight complying with CP 301, Clauses 5:3

Pipe barrels shall be in continuous contact with the trench bed when laid.

(f) Side Filling

The side filling of pipes shall be composed of hard granular material, which shall be to the requirements below.

Side fillings must be placed equally on both sides of the pipe and compacted, so as to buttress the pipes against the trench walls. Side filling shall continue up to pipe crown level as a minimum and above this level if required by the Engineer.

(g) Back Filling

The first 300mm of backfill above crown level shall be taken from selected trench spoil all passing 25mm sieve. It shall be placed in two 150mm layers each firmly tramped. Above the 300mm level mechanical fillings and compaction may be used.

Where cover is less than 450mm the pipe shall be covered with 75mm of selected material laid to support a concrete tile or slab indicating the presence of a service.

(h) Granular Material for Bed and Side Fill

The material may be composed of crushed stone, clinker, quarry scalping, ballast, gravel, shingle or all-in aggregate to British Standard 882.

All material for bed and site fill shall be hard and granular passing 20mm sieve and shall contain not more than 5 per cent fines passing 3mm sieve.

The material shall have a compaction factor of 0.3 or less.

4 Valves

a) Draw-off Taps and Stop Valves (Up to 50mm Nominal Bore)

Draw-off taps and valves up to 50mm nominal bore, unless otherwise stated or specified for attachment or connection to sanitary fitting shall be manufactured in accordance with the requirements of BS 1010.

b) Gate Valves

All gate valves 80mm nominal bore and above, other than those required for fitting to buried water mains shall be of Cast Iron construction, in accordance with the requirements of BS 3464. All gate valves required for fitting to buried water mains shall be of Cast Iron construction in accordance with the requirements of BS 1218.

All gate valves up to and including 65mm nominal bore shall be of Bronze construction in accordance with the requirements of BS 1952.

The pressure classification of all valves shall depend upon the pressure conditions pertaining to the site of works.

c) Globe Valves

All globe valves up to and including 65mm nominal bore shall be of Bronze construction in accordance with the requirements of BS 3061.

The pressure classification of all globe valves shall depend upon the pressure conditions pertaining to the site of works.

d) Check or Non-Return Valves

All check or non-return valves 80mm nominal bore and above shall be of the swing check type of Cast Iron construction in accordance with the requirement of B.S.4090.

The pressure classification of all globe valves shall depend upon the pressure conditions pertaining to the Site of works.

e) Ball Valves

All ball valves for use in connection with hot and cold water services shall be of the Portsmouth type in accordance with the requirements of B.S.1212, constructed from Bronze or other corrosion resistant materials. These valves fall into three pressure classifications as follows: -

- (i) Low pressure - 3.58 b maximum
- (ii) Medium pressure - 7.72 b maximum
- (iii) High pressure - 12.62 b maximum

The pressure classification required for each ball valve will be designated in the description of its associated equipment contained in section C of the Specification.

(f) Manually Operated Mixing Valves

Mixing valves for shower fittings and other appliances being provided under the sub-contractor Works shall be manufactured in accordance with the requirements of BS 1415 from Bronze or other corrosion resistant materials.

5 Waste Fitment Traps

a) Standard and Deep Seal P & S Traps

Where standard or deep seal traps are specified they shall be manufactured in suitable non-ferrous materials in accordance with the full requirements of BS 1184.

In certain circumstances, Cast Iron traps may be required for cast iron baths and in these instances bath traps shall be provided which are manufactured in accordance with the full requirements of BS 1291.

b) Anti-Syphon Traps

Where anti-syphon traps are specified, these shall be similar or equal to the range of traps manufactured by Greenwood and Hughes Limited, Deacon Works Littlehampton, Sussex, England.

The trade name for traps manufactured by this company is 'Grevak'.

6 Pipe Supports

a) General

This sub-clause deals with pipe supports securing pipes to the structure of buildings for above ground

application.

The variety and type of support shall be kept to a minimum and their design shall be such as to facilitate quick and secure fixings to metal, concrete, masonry or wood.

Consideration shall be given, when designing supports, to the maintenance of desired pipe falls and the restraining of pipe movements to a longitudinal axial direction only.

The Sub-contractor shall supply and install all steelwork forming part of the pipe support assemblies and shall be responsible for making good damage to builders work associated with the pipe support installation.

The Sub-contractor shall submit all his proposals for pipe supports to the Engineer for approval before any erection works commence.

b) Steel and Copper Pipes and Tubes

Pipe runs shall be secured by clips connected to pipe hangers, wall brackets, or trapeze type supports. 'U' bolts shall not be used as a substitute for pipe clips without the prior approval of the Engineer.

An approximate guide to the maximum permissible supports spacing in metres for Steel and Copper pipe and tube is given in the following table for horizontal runs.

Size Nominal s Bore	Copper Tube To BS 659	Steel Tube To BS 1387
15mm	1.25m	2.0m
20mm	2.0m	2.5m
25mm	2.0m	2.5m
32mm	2.5m	3.0m
40mm	2.5m	3.0m
50mm	2.5m	3.0m
65mm	3.0m	3.5m
80mm	3.0m	3.5m
100mm	3.0m	4.0m
125mm	3.0m	4.5m
150mm	3.5m	4.5m

The support spacing for vertical runs shall not exceed one and a half times the distances given for horizontal runs.

c) **Cast Iron and Asbestos Cement Spigot and Socket Jointed Pipes**

Cast Iron and asbestos cement socketed pipes shall generally be supported at every socket joint by means of either Holderbats secured rigidly to the structure, or purpose made scrapes for attachments to rigid steel support brackets.

When Holderbats are used, they shall conform to the requirements of BS 416. Suitable anchors shall be provided at all changes of pipe directions, junctions and tees to counteract the effect of end thrust loads.

(d) **Asbestos Cement Pressure Pipe**

Asbestos Cements pressure pipe with either cast iron detached joints or asbestos cement screw joints shall be supported and anchored on either side of the joints. The joints shall remain free.

Pipe hangers and trapeze type supports shall not be suitable for the suspension of asbestos pressure pipes unless they are designated with suitable restrictions to prevent swinging at the same time providing the necessary support requirements.

Within building, asbestos pressure pipes shall be carried either on concrete support or rigidly fixed steel wall brackets.

Suitable anchors shall be provided at all changes of pipe directions junctions and tees to counteract the effect of end thrust loads.

(e) **Concrete and Pitch Pipes**

These pipes shall not be used for above ground application.

f) **Expansion Joints and Anchors**

Where practicable, cold pipework systems shall be arranged with sufficient bends and changes of direction to absorb pipe expansion providing that the pipe stresses are contained within the working limits prescribed in the relevant BS specification.

Where piping anchors are supplied, they shall be fixed to the main structure only. Details of all anchor design proposals shall be submitted to the Engineer for approval before erection commences.

The Sub-contractor when arranging his piping shall ensure that no expansion movements are transmitted directly to connections and flanges on pumps or other items of plant.

The Sub-contractor shall supply flexible joints to prevent vibrations and other movements being transmitted from pumps to piping systems or vice versa.

7 Sanitary Appliances

All sanitary appliances supplied and installed as part of the Sub-contract works shall comply with the general requirements of BS Code of Practice 305 and the particular requirements of the latest BS Specifications.

8 Pipe Sleeves

Main runs of pipework are to be fitted with sleeves where they pass through walls and floors. Generally the sleeves shall be of PVC except where they pass through the structure, where they shall be of mild steel. The sleeves shall have 6mm – 12mm clearances all around the pipe or for insulated pipework all around the installation. The sleeve will then be packed with slag wool or similar material.

9 Installation

9.1 General

Installation of all pipework, valves, fittings and equipment shall be carried out under adequate supervision from skilled staff to the relevant codes and standards as specified herein. The Sub-contractor shall be

responsible to the Main Contractor for ensuring that all builders' work associated with his piping installation is carried out in a satisfactory manner to the approval of the Engineer.

9.2 Above Ground Installation

a) Water Services

Before any joint is made, the pipes shall be hung in their supports and adjusted to ensure that the joining faces are parallel and any falls which shall be required are achieved without springing the pipe. Where falls are not shown on the Contract Drawings or stated elsewhere in the Specification, pipework shall be installed parallel to the lines of the buildings and as close to the walls, ceilings, columns, etc., as is practicable.

All water systems shall be provided with sufficient drain points and automatic air vents to enable them to function correctly. Valves and other user equipment shall be installed with adequate access for operation and maintenance. Where valves and other operational equipment are unavoidably installed beyond normal reach or in such position as to be difficult to reach from a small stepladder, extension spindles with floor or wall pedestals shall be provided.

Screwed piping shall be installed with sufficient number of unions to facilitate easy removal of valves and fittings, and to enable alterations of pipework to be carried out without the need to cut the pipe.

Full allowances shall be made for the expansion and contraction of pipework, precautions being taken to ensure that any force produced by the pipe movements are not transmitted to valves, equipment or plant.

All screwed joints to piping and fittings shall be made with P.T.F.E. tape. The test pressure shall be maintained by the pump for about one hour and if there is any leakage, it shall be measured by the quantity of water pumped into the main in that time. A general leakage of 4.5 litres per 25mm of diameter, per 1.6 kilometre per 24 hours per 30 metres head, may be considered reasonable but any visible individual leak shall be repaired.

b) Sanitary Services

Soil, waste and vent pipe system shall be installed in accordance with the best standard of modern practice as described in BS 5572 to the approval of the Engineer.

The Sub-contractor shall be responsible for ensuring that all ground waste fittings are discharged to a gully trap before passing to the sewer via a manhole.

The Sub-contractor shall provide all necessary rodding and inspection facilities within the draining system in positions where easy accessibility is available.

Where a branch requires rodding facilities in a position to which normal access is unobtainable, then that branch shall be extended so as to provide a suitable purpose made rodding eye in the nearest adjacent wall or floor to which easy access is available.

The vent stacks shall terminate above roof level and where stack passes through roof, a weather skirt shall be provided. The Sub-contractor shall be responsible for sealing the roof after installation of the stacks.

The open end of each stack shall be fitted with a plastic coated or galvanized steel wire guard. Access for rodding and testing shall be provided at the foot of each stack.

c) Sanitary Appliances

All sanitary appliances associated with the Sub-contract works shall be installed in accordance with the best standard of modern practice as described in C.P. 305 to the approval of the Engineer.

9.3 Underground Installation

a) **General**

All underground water and drainage service installations shall be carried out in accordance with the best standard of modern practice as described in C.P. 301 and C.P. 310 respectively and the following clause.

b) **Sequence of Operation for Underground Service Installation**

(i) **Setting Out**

As described in BS code of practice 301 Clause 502

(ii) **Breaking Up Surface (If in Roads)**

As described in BS code of practice 301 Clause 503

(iii) **Excavation and Timbering**

As described in BS code of practice 301 and 503 and the following:-

Excavation shall be made to such depths and dimensions as may be required by the Engineer to obtain prior falls and firm foundations. No permanent constructions shall be commenced on any bottom until the excavation has been examined and approved by the Engineer.

Should the Sub-Contractor in error or without the instructions of the Engineer make any excavation below the required level of the pipe or bed, as the case may be, then he shall be required to refill such excavation to the correct levels with concrete 1: 4 : 8 to 38mm maximum aggregate size.

The Sub-Contractor's prices shall have included for excavating in all materials met with, for trimming bottoms to the necessary falls and for any extra excavation required for planking, strutting and working space.

The Sub-Contractor shall keep the whole of the trenches or other excavations free from water and shall execute such works and install such pumps as may be necessary to keep the excavation dry at all times.

No sub-soil water shall discharge into the sewage system without written permission of the Engineer.

(iv) **Laying of Concrete Beds or other Supports for Pipes**

As described in BS code of practice 301 Clause 504 and the following:-

All drains below buildings and roads shall be encased in concrete 150mm thick.

Concrete beds and supports shall be concrete 1:3:6 to 25mm maximum aggregate size.

(v) **Pipe Laying and Jointing**

Drain pipes shall be laid and jointed as described under BS code of practice 301 clause 505.

Water pipes shall be laid and jointed as described under BS code of practice 310, Clause 401, 402, 403 and 404

(vi) **Manholes**

(a) **General**

All manholes provided under the Sub-Contract works shall be constructed of approved materials and in an approved manner, by the Main Contractor.

All manholes shall be watertight and if constructed of brickwork, solid block work or stone work, they shall be rendered internally with a cement mortar of at least 12mm thickness and finished with a smooth surface.

The sides of all channels in every manhole shall be ought up vertically to a height of not less than the diameter of the drain and shall be benched in good concrete from the top of the channels at an surface with a coat of 1:1 cement mortar.

In all other respects, manhole shall be constructed in accordance with BS code of practice 301

(b) Rectangular and Square Manholes

Rectangular and square straight through manholes shall be constructed from brickwork, solid blockwork, stone and concrete to comply with the following minimum internal dimensions (millimetres)

Depth below internal Ground of Access Outgoing shaft Invert	Dimension SLXW	Size of Main Shaft Diameter	Internal Chamber Dimension SLXW	Height of Chamber above Benching	wall Thickness
Up to 740		100 to 150	610x460		150
Up to 740		230 to 460	760x760		150
Up to 1200		100 to 150	760x760		150
160 to 1200		230 to 460	910x910		150
1220 to 1800		100 to 150	910x910		150
1220 to 1800		230 to 460	1070x910		150
1830 to 4550	760x760	100 to 150	1370x910	1370	230
1830 to 4550	760x760	230 to 460	1370x1070	1370	230
4570 & Over	760x760	100 to 150	1370x1140	1680	230
4570 & Over	760x760	230 to 460	1370x1140	1680	230

When branches are connected into the manhole, the length and width dimension of the chamber shall be increased as follows:-

c) Length

Branch Diameter

100mm 300mm/branch on the side with most branches

150mm 380mm/branch on the side with most branches

230and 300mm 460mm/branch on the side with most branches

460mm 610mm/branch on the side with most branches

Width

Branch Diameter

100mm to 300mm for each side with branches plug

160mm 460mm or the diameter of the main drain which ever is the greater

(c) Precast Concrete Circular Manholes

Where specified straight through precast concrete manholes shall be manufactured and constructed to comply with BS 556 and the following dimensional requirements, (Dimension: Millimetres)

Depth Ground of Outgoing Invert	Internal Access Shaft Diameter	Size Main Channel Diameter	Chamber Diameter	Height Chamber Above Benching
Up to 740	-	100 to 460	910	-
760 to 2410	-	100 to 460	1070	-
2440 to 4550	-	100 to 460	1220	1370
4570 & over	760	100 to 460	1370	2680

When branches are connected into manhole the internal diameter of the chamber shall be increased as necessary up to maximum chamber diameter 1830.

(d) Steps Iron and Covers

Access shaft to manhole of depth greater than 760mm shall be provided with approved steps iron at suitable intervals. Every manhole or manhole access shaft shall be fitted with a removable airtight cast iron cover to adequate size and strength, fixed in a manner that prevents surface water gaining into the system.

Cast manhole covers and frames shall be manufactured in accordance with the requirements of BS 497 and shall generally be classified into the following categories:

Heavy Duty : For Carriageway

Medium Duty : For Footpaths

Light Duty : For domestic premises or other places where they do not have to carry wheeled Traffic.

(e) Back Drop Connections

Where the level of the branch drain entering the manhole is higher than can be suitably accommodated by the normal type benching, then the branch drain shall be connected to the manhole by means of a back drop Connection.

(f) Channels

Where the branch channel connects to the main channel in the manhole, the invert of the branch channel shall be a minimum of 38mm higher than the main channel.

(g) Testing of Pipelines

After pipelines are connected up and joints have been sealed, the pipeline shall be tested before pipes are, if required haunched or surrounded in concrete

Methods of testing and inspection shall be in accordance with Clause 4 of the Specification.

(h) Concrete Bedding Hunching and Surround

Concrete 3 bedding, hunching and surrounding shall be provided as necessary o where called for by the Engineer in accordance with the requirements laid down in BS code of practice 301, Clause 310

(i) Backfilling

Backfilling of trenches, headings and around manholes shall be carried out in accordance with the methods described in BS code of practice 301, clause 508.

(j) Reinstatement of Surface

Following the final Backfilling of all trenches, headings and manhole surrounds, the surface of the excavated areas shall be fully reinstated to the approval of the Engineer.

Where excavation have been carried out in public highways or other areas are not forming part of the site, the sub-contractor shall be deemed to have allowed in his price for all charges associated with the temporary and final reinstatement requirements of the local of highway Authority concerned.

No Claims for extra in this respect will be accepted.

(k) Sewer Connection

Sewer Sub-contractor shall pay all charges associated with the connection by the local Authority of the drainage to the main sewer, including necessary reinstatements

10 Testing and Inspection

10.1 Site Tests – Pipework Systems

a) Above Ground Internal Water Services Installation

All water service pipe system installed above ground shall be tested hydraulically for a period of one hour to not less than one and half times to design working pressure.

If preferred, the Sub-contractor may test the pipelines in sections. Any such section found to be satisfactory need not be the subject of a further test when system has been completed, unless specifically requested by the Engineer.

During the test, each branch and joint shall be examined carefully for leaks and any defects revealed shall be made good by the Sub-contractor and the section re-tested.

The Sub-contractor shall take all necessary precautions to prevent damage occurring to special valves and fittings during the tests. Any item damaged shall be repaired or replaced at the Sub-contractor's expenses.

b) Underground Water Mains

After laying, jointing and anchoring, the main shall be slowly and carefully charged with water, so that all air is expelled and allowed to stand full for three days before testing under pressure.

A long main shall be tested in sections as the work of laying proceeds and all joints shall be exposed for inspection during the testing.

The open end of the main may be temporarily used for testing under moderate pressure by fitting a

water pipe expanding plug, of which several types are available. The end of the main and the plug should be secured by struts or otherwise, to resist the end thrust of the water pressure in the main.

If the section of main terminates with a sluice valve, the wedge of the valve shall not be used to retain the water, instead the valve shall be fitted temporarily with a blank flange, or if a socket valve with a plug and the wedge shall be placed in the open position while testing. The Sub-Contractor shall provide suitable end supports to withstand the end thrust of the water pressure in the main.

c) Above Ground Soil Waste and Ventilation System

All soil, waste and ventilating pipe system forming part of the above ground installation, shall be given appropriate test procedures as described in BS 5572, 1972.

Smoke tests on above ground soil, waste and ventilating pipe system shall not be permitted.

Pressure tests shall be carried out before any work which is to be concealed is finally enclosed.

In all respects, tests shall comply with the requirements of BS 5572.

d) Underground Drainage System

A site test shall be carried out on all drainage pipes before concrete hunching or surrounds are applied. These tests shall be carried out preferably from manhole to manhole.

Short branch drains connected to a main drain between manholes shall be tested as one system with the main drain. In long branches a testing junction shall be inserted next to the junction with the main drain and the branch tested separately. After the test has been passed, the testing junction shall be effectively sealed.

Water tests shall be carried out in accordance with the methods described under BS code of practice 301, Clause 601 (b) and (c) and the test pressure shall not be less than 1,520mm head at the highest point in the pipe section and not more than 10,360 head at any point it the section.

The test pressure shall be maintained for a period of one hour during which time the pipe and joints shall be inspected for sweating and leakage. Any leak discovered during the tests shall be made good by the Sub-Contractor and the section re-tested.

In addition to pressure tests, drain pipe runs shall also be tested for straightness where applicable. This test shall be carried out in accordance with one of the two methods described in BS code of practice 301, clause 601 (e).

Testing of manholes shall be carried out in accordance with the methods described under BS code of Practice 301, clause 602 (f)

(e) Above Ground Soil Waste and Ventilation System

All soil waste and ventilating pipe system forming part of the above ground installation, shall be given appropriate test procedures as described in BS 5572 1972

Smoke tests on above ground soil, waste and ventilation pipe system shall not be permitted.

Pressure tests shall be carried out before any work, which is to be concealed, is finally enclosed.

In all other respects, testes shall comply with the requirements of BS 5572.

10.2 Site Test – Performance

Following satisfactory pressure test on the pipework system, operational tests shall be carried out in accordance with the relevant BS Code of practice on the systems as a whole to establish that special valves, gauges, control, fittings, equipment and plant are functioning correctly to the satisfaction of the Engineer.

All hot water pipework shall be installed with pre-formed fibre glass lagging to a thickness of 25mm where the pipe runs above a false ceiling or in areas where the ambient temperature is higher than normal with the result that pipe “sweating”, due to condensation will cause nuisance.

All lagged pipes which run in a visible position after erection shall be given a canvas cover and prepared for painting as follows:

- i) Apply a coating of suitable filler until the canvas weave disappears and allow to dry.
- ii) Apply two coats of an approved paint and finish in suitable gloss enamel to colours approved by the Engineer.

All lagging for cold and hot water pipes erected in crawl ways, ducts and above false ceiling which, after erection are not visible from the corridors of rooms, shall be covered with a reinforced aluminium foil finish banded in colours to be approved by the Engineer.

In all respects, unless otherwise stated, the hot and cold water installation shall be carried out in accordance with the best standard of modern practice as described in C.P.342 and C.P.310 respectively to the approval of the Engineer.

The test pressure shall be applied by means of a manually operated test pump or, in the case of long main or mains of large diameter, by a power driven test pump which shall not be left unattended. In either case precautions shall be taken to ensure that the required pressure is not exceeded.

Pressure gauges should be recalibrated before the tests.

The Sub-contractor shall be deemed to have included in his price for all test pumps, and other equipment required under this specification.

The test pressure shall be one and a half times the maximum working pressure except where a pipe is manufactured from a material for which the relevant BS specification designates a maximum test pressure.

11 Sterilization of Hot and Cold Water Systems

All underground and above ground water distribution systems cisterns, tanks, pumps etc shall be thoroughly sterilized and flushed out after the completion of all tests and before being fully commissioned for handover.

The sterilization procedures shall be carried out by the Sub-contractor in accordance with the requirements of BS Code of Practice 301, Clause 409 and to the approval of the Engineer.

12 Water Mains

12.1 Piping

All piping shall be plain ended and suitable for use with flexible mechanical couplings (e.g. Viking Johnson, Dresser or Gibault). Steel pipes shall comply with BS 534-Galvanised steel pipes for distribution system shall comply with BS Galvanized steel pipes for distribution system shall comply with BS 1387-1967 medium tubes and be supplied with flanges on pipes 75mm diameter and over. All pipes less than 75mm diameter shall be screwed and socketed, unless otherwise stated.

12.2 U.P.V.C Pipes

UPVC piping shall be in accordance with BS 3505: 1968.

The maximum sustained working pressure to which the pipes and fittings will be subjected is based on water at a temperature of 20⁰ c.

The Contractor shall submit full details of the colour of the pipe he intends to supply. The Colour of the pipe shall be such as to meet the requirements of Clause 2 'material' and Clause 8.5 'opacity' of BS 3505.

The pipes up to and including 50mm diameter shall be of solvent weld type. The pipe shall be supplied with interchangeable sockets pre-formed at the factory and of such internal diameter that it takes the plain end of the pipe with same nominal diameter.

The joints shall sustain the end thrust to which the pipe shall be submitted. The contractor shall supply sufficient quality of the cleaner and adhesive which shall be required to make the joints with the pipes.

The pipes of 75mm diameter and over shall consist of a grooved socket at one end of the pipe. The socket shall be designed to give a clearance fit on the outside diameter of the parent pipe. The sealing medium that shall seat in the groove shall be a rubber ring.

If the formation of the socket and groove results in the thinning of the original wall thickness of the pipe, it shall be compensated for by shrinking the outside of the socket area as by reinforcing sleeve of the same material as the pipe.

The socket and groove shall incorporate no sharp angles where the stress points are created.

The socket and groove shall incorporate no sharp angles where the stress points are created.

The joint shall take 10% deformation of the spigot at the point where the stress points where it enters the socket without leakage from the pipe when subjected to the test pressure specified for the pipe. Thermal expansion of the pipe shall be accommodated in the joint. The joint shall be capable of lined deflection up to 30°.

The sealing ring shall supply be of the first grade natural rubber and the physical properties of the mix shall meet the requirement of BS 2494.

The contractor shall supply sufficient quantity of any lubricant or other material that shall be needed to make the joint, which shall be assembled by hand.

The fittings shall have the same type of joint and or the pipes to be used. The contractor shall submit full lists of the materials, dimensions and test pressures of the fittings offered.

Precautions shall be taken to avoid damage of the pipes and fittings.

In handling and storing the pipes and fittings, every care shall be taken to avoid distortion, flattening, scoring or other damage. The pipes and fittings shall not be allowed to drop or strike objects. Pipe lifting and lowering shall be carried out by approved equipment only. Special care shall be taken in transit, handling and storage to avoid any damage to the ends.

All jointing of pipes and fittings shall be carried strictly in accordance with the manufacturer's instructions.

12.3 Manufacturer's Instructions

The contractor shall be responsible for obtaining copies of any manufacturer's instructions for pipe joining and shall familiarize himself and his employees with these instructions.

All necessary tools and equipment required for laying, jointing and testing of pipes and joints shall be provided by the contractor at no extra cost.

12.4 Fittings and Specials for Galvanized Steel Pipes

All specials shall be of such dimensions as will meet with piping supplied. Screw down stop valves shall comply with BS 1010. Specials shall comply with BS 1740.

12.5 Flanged Adaptors and Flanges

Flanged adaptors shall be piece suitable for connecting a flanged sluice valve to the type of piping supplied. All flanged or special shall conform to BS 10 part 1 and shall be drill to Table 'C' and machined across the faces. The flanged adaptors shall comply with BS 78 and BS 3961. All PVC flanged shall be supplied with metal backing rings jointing of flanges shall be carried out using the joint rings, bolts and washers as necessary.

12.6 Tees

The spigot ends of all tees shall be suitable for connection to the pipework supplied using the aforementioned flexible mechanical joints and branches shall be flanges drilled to BS 10 table 'C'.

12.7 Hydrants

Hydrants shall comprise a 75mm sluice valve and a 75mm Duckfoot bend with gunmetal screw connection to detailed drawings. These specials shall comply with the requirements of BS 750: 1964.

12.8 Gate Valves

All gate valves 80mm nominal bore and above, other than those required for fitting to buried water mains shall be of cast iron construction, in accordance with the requirements of BS 3464.

All gate valves required for fitting to buried water mains shall be of cast iron construction in accordance with the requirements of BS1218.

All gate valves up to and including 65mm nominal bore shall be of bronze construction in accordance with the requirements of BS 1952.

The pressure classification of all valves shall depend upon the pressure conditions pertaining to the site of works.

12.9 Air Valves

Air valves shall be of cast iron conforming to BS 14 52 Grade 14. They shall not be suitable for working pressure nor less than that specified for the class of pipe to which they are connected.

12.10 Ball Float Valves

Ball float valves shall be to BS 1212 parts 1 and 2 shall be suitable for working pressure not less than the working pressure for the class of pipe specified for connection to the ball float valve.

12.11 Non-Return Valves

Non-return valves shall be of cast iron with flanges and shall conform to BS 4090: 1966.

12.12 Stop Cocks

Stopcock up to 50mm diameter shall be brass and shall conform to BS 1010 part 1: 1959 part 2;1973.

12.13 Rubber and Insertion Jointing

Rubber and insertion jointing for flange jointed shall comply with BS 2494 part 1 and no jointing rings shall be used in the contract, which have not been supplied by manufacturers approved by the Engineer.

12.14 Bituminous paints

All bituminous or tar paints for protection of buried steel bolts, pipes specials etc. shall be the best of their respective kinds manufactured by approved makers.

12.15 Steel Pipe and Fittings for Rising Main

All piping shall be plain ended and suitable for use with flexible mechanical couplings (e.g. Viking Johnson, dresser) The grade of steel used shall comply with the requirements of BS 3601: 1964. Pipes shall be welded or seamless and shall conform to BS 534: 1966 or an equivalent acceptable standard.

All pipes shall be externally and internally protected with bitumen in accordance with clauses 5.4 and 5.5 of BS 534: 1966.

The external protection shall be reinforced with oven glass, cloth glass , tissue wrapping or by other approved material.

The ends of all bitumen lined pipes, fittings and specials shall be closed by means of discs or other suitable covers firmly held in place.

12.16 Drain-Off Taps, Stops Valves for Water Services

Fittings for mains of size 50mm or under shall comply with BS 1010. Samples must be submitted to the Engineer for approval prior to installation of fittings.

12.17 Storage of Plants and Material

The contractor shall, at his own expenses, make arrangements for dumps along the route of the pipe line for a storage of pipes, his plant and materials to suit his own convenience, but such arrangements shall be subjected to the Engineer's approval.

12.18 Loading, Handling and Conveying of Pipes

The contractor shall before commencing to lay the pipes, valves or other materials examine them and ascertain that they are in perfectly sound condition and he shall be responsible for any laying. The stocking of pipes and specials on site, loading and unloading etc. shall be carried out to the satisfaction of the Engineer.

12.19 Interferences with Fences, Drains, Pipes, Property etc.

The contractor shall ensure the proper reinstatement of fences, drains, telephone lines, KP&LC. Cables etc where affected by his work. All service shall be adequately protected and propped to the satisfaction of the Engineer. The contractor shall be liable for any damage caused to the service due to his failure to provide adequate protection.

12.20 Method of Excavation

- a) The Contractor shall excavate the pipe trenches in the line and to the depths indicated by the Engineer. Except where otherwise indicated on the Drawings or indicated by the Engineer, it is intended that the trench shall be excavated to such a depth as will allow of a minimum cover of 5000mm over top of the barrel of the pipe when laid plus or minus a tolerance of 75mm either way. All trenches shall be excavated in open cuttings.
- b) Where the trenches passes through grassland, arable land or garden, whether enclosed or otherwise, the turf, if any shall be pared off and stalked, and the productive soil shall be carefully removed for a width of 600mm greater than the nominated trench width or equal to the overall width of track of the excavating machine, whichever is greater, and laid aside to be subsequently used in reinstating the surface of the ground after the trench has been refilled.
- c) The bottom of the trench shall be property trimmed off, and all low places or irregularities shall be where rock or large stones are encountered, they shall be cut down to a depth of at least 75mm below the level at which the bottoms of the barrel of the pipes are to be laid, and covered to a like depth with materials, so as to form a fine and even bed for the pipe.
- d) Joints holes shall be excavated to suit minimum dimension as to allow the joints to be well and properly jointed.
- e) The pipe trench shall be kept clear of water at all times.
- f) The contractor shall whenever necessary by means of timbering, or otherwise support the sides of the trench so as to make them thoroughly secure, and afford adequate support to adjoining roads, lands, buildings and property during the whole time the trench remains open and shall remove such timbering or other work shall be deemed to be included in the rate for excavation. In case the Contractor is instructed by the Engineer to leave any portion of such timber in position, he will be paid for it accordingly.
- g) The cleared width inside the timbering in the case of single pipes shall be at least 320mm in excess of the external diameter of the pipe be laid, in order to allow it to be freely lowered into position, in the trench without damage to the external protection.
- h) Where more than one pipe is to be laid parallel, then the clear width inside the timbering shall be at least 520mm in excesses of the combined external diameters of the pipes.
- i) Should the excavations be taken out to a greater depth than is specified the bottom shall be made good to the correct level with mix 1:3:6 concrete or other materials approved by the Engineer. No payment shall be made for any other excavation carried out by the contractor and the coat of filling up to required levels.
- j) If a mechanical excavator is used by the contractor, he shall indemnify the employer against all claims for damages that in the opinion of the Engineer, may be caused by the use of this plant. When a mechanical excavator is used the bottom 230mm of excavation shall be got out by hand to ensure an even bed for the pipes.

12.21 Main Laying

Mains shall be laid in straight lines and/or smooth curves as indicated on the drawings. The vertical profile of the pipes shall be to even gradients. Any pipes not so laid shall be removed if so directed by the Engineer, and re-laid in proper manner at the contractor's expense.

In laying the pipes and specials, care shall be taken not to damage the protective linings and the pipes shall be handled with tackle as directed by the Engineer.

The pipes and specials shall be slug and sounded with hammer for flaws before they are lowered into trench. After the pipes or specials have been checked they shall be cleaned internally and carefully lowered into trench and set to proper gradient and line so that is a continuous rise from each washout to air valve.

12.22 Temporary Bench Marks and Sight Rails.

The contractor shall fix rails for use with boning rods at intervals of not more than 65 meters and temporary Bench mark related to the survey of Kenya Datum shall be provided at intervals as directed by the Engineer.

12.23 Curves and Bends

Large diameter curves of main shall wherever possible be formed by giving a set not exceeding 30 to each joint, bends being used only where large diameter curves are not possible.

12.24 Cutting of Pipes

The contractor shall, subject to approval of the Engineer, cut pipes to such lengths as directed. Pipes should be cut off clean and square while the axis cuts should be made with an approved cutter from rotary cutting machine, engineer may approve cutting by oxyacetylene cutters.

12.25 Flanged Joints

In laying pipes and specials with flanged joints, flanges shall be brought together and bolted with the faces absolutely parallel. A rubber jointing ring 3mm thick shall be used in each flange joint and one washer with each bolt. The ring shall be a strip ring lying within the bolt circle and full flange width ring. The bolts shall be tightened up gradually and equally in customary manner in order to distribute the stress evenly over the flange.

12.26 Surface Boxes

Sluice valves, air valves and fire hydrants shall be covered with surface boxes in accordance with details as shown on the Drawings. In roads and footpaths the boxes shall be laid flush with the surface.

12.27 Fixing of Valves, Air Valves and Washouts Pipes

The contractor shall fix the sluice valves, air valves, washout pipes pipes complete with iron casing for spindles and surface boxes in accordance with and in position shown on the drawings. As far as possible the cutting of pipes for this should be avoided.

12.28 Support and Anchor Blocks

Concrete mix 1:3:6 shall be placed around and against bends and other specials in trenches.

12.29 Colour Coding

All underground pipes are to be wrapped with adhesive plastic tape at each meter in colours blue for drinking water and green for untreated water. All pipework above ground and valves in valve chambers and pits are to be painted in similar colours.

12.30 Lettering

The lettering for sluice valves, fire hydrants, air valve and washout abbreviated SV FH and WO respectively shall be in accordance with the detail shown on the Drawings colour as detailed hereafter: -

Untreated water:	White lettering on green background
Drinking water:	White on blue background
Fire Hydrant:	White lettering on yellow background

12.31 Testing

a) The test pressure shall be one and a half the maximum working pressure except where a pipe is manufactured from a material for which the relevant BS specification designates a maximum test pressure should not exceed 120,180 and 240 meters/head for clause B, C, or D pipes, respectively.

The pump shall maintain the test pressure for about one hour and if there is any leakage it shall be measured by the quantity of water pumped into the main that time.

b) When a section of the mains has been jointed, the ends shall be closed with caps, plugs or flanges, which must be strongly strutted against a solid backfilled rammed as hereinafter and as shown on the Drawing, for its whole length so as to cover the mains to a depth of not less than 500mm, except at the joint holes which shall be kept clear of all backfiring, if necessary by the use of timbering, so that each joint is left fully exposed for inspection. No backfilling will be permitted before testing of each section.

As long a section of main as possible shall be tested at one time subject to the maximum length of open trench approved by Engineer or permitted by the Highway Authority, and the test shall be carried out within 12 working days of the completion of such sections of mains.

Where a main is laid across a road or in such a position as to interfere seriously with the normal use of the road, the contractor may, with the consent of the Engineer and at his own risk, fill in such joint holes as may be necessary.

He shall at his own expense, re-excavate any or all joint holes necessary to locate a leak and carry out repair work should the results of his hydraulic test prove unsatisfactory.

The section shall then be filled with mains water, great care being taken to drive out all air through air valves, ferrules or otherwise to the approval of the Engineer.

c) After the section to be tested has been charged and all air liberated it shall stand underrate moderate pressure for several days' final airing. The leakage from the mains and connections from each section tested shall not exceed 4 litres per 25mm diameter of main, per 2Km. Length each 24 hours, every 30 meters head of pressure, and any visible individual shall be repaired.

To determine the rate of leakage, the contractor shall furnish a suitable hydraulic test pump, pressure gauge, connection and water meter or other appliance, for measuring the amount of water pumped. If the leakage were at a greater rate than that specified, the contractor should re-excavate the trench where necessary and shall remake the joints and replace defective work until the leakage shall be reduced to the allowable amount.

d) The employer shall charge the contractor the cost of any coupling required to join up tested lengths of main if, in the Engineer's opinion, greater lengths could reasonably have been tested or if failure under test requires the pipe to be cut, or other methods of laying should have been adopted.

The contractor shall supply water used by the contractor in testing the main. The contractor shall carry out all work, which may be necessary for making temporary connections to the existing mains to obtain water for testing at his own expense.

e) In carrying out the test for waiter tightness only the Engineer shall authorize the operation of all

valves, but the contractor shall provide all the necessary labour to assist in the opening and closing of the valves to the Engineer's instructions and he shall allow in his price for all his expenses in connection with testing on completion.

The Engineer shall be the sole judge of water tightness.

12.32 Cleansing and Sterilizing the Main

When a pipeline is complete and where applicable, has successfully passed the test it shall be thoroughly washed out using, if possible, an open end. Thereafter it shall be sterilized by being filled with a suitable solution containing not less than 20p.p.m. of free available chlorine or such other Sterilizing agent as the Engineer shall approve. After standing for 24 hours the main shall again be washed out and refilled with mains water prior to the taking of Bacteriological samples.

The contractor shall provide all necessary stop-ends fittings and chemicals for this work.

Emptying and washing out of the pipes shall be done in such a manner as not to damage the trench or cause due flooding of vicinity, and the contractor shall supply and use such piping, specials and/or hose as may be necessary to facilitate the flow of water to the nearest drain or watercourse. Water used for washing out and sterilizing will be supplied by the employer.

Before any section of the mains is put into use, bacteriological samples will be taken by the Engineer's representatives and only on the receipt of a satisfactory certificate from the medical Research Laboratory of the Employer will the main or section of main be permitted to be put into supply and be considered as having been substantially completed.

Any expenditure involved in Providing facilities or materials for taking of samples shall be included in the contractor's tendered rates and Engineer will specify and shall be sole judge as to the number of sample required and points at which they are to be taken.

The cost of the Bacteriological Examination will be borne by the employer but if the sample and samples are not satisfactory the cost of any subsequent analyses will be borne by the contractor.

12.33 Clearance of Site

The contractor shall remove all surplus pipes, special and other fittings from the site as directed by the Engineer. The site of works shall be leveled and all surplus excavation, debris, cut trees or bushes shall be carted to the approved tip sites.

12.34 Existing Installations

a) Cold Water

Where pipes for cold water are to be connected up to existing installations, the condition of the existing installation is to be reported to the Engineer in order to establish if part of the existing installation is to be replaced.

b) Sanitary Fittings

Where existing sanitary fittings are to be removed or replaced, the fittings are to be removed with utmost care and fittings and taps to be handed over to the client.

c) Sealing Off Existing Drains and Manholes

Existing foul, surface water and subsoil drains exposed during progress of work are to be recorded and reported for investigation by the Architects. Where not required to be removed, seal off with concrete or grout solid as directed. Seal off connection to manholes, demolish wall to 50mm below surrounding ground

level and fill remainder of manhole with consolidated approved rubber and cover to level of surrounding ground as directed.

13 Cold Water Storage Tanks

Cold-water storage tanks shall include the ball valves and connectors for inlet, supply, washout, and overflow and may also include in his pricing the price of the overflow and amount pipes to a place to be indicated by the Engineer. He shall also include the washout valve.

Where paint is required the sub-contractor shall use the paints, which will not be toxic. The tanks shall be manufactured to the following British Standards: -

- (a) Galvanized Mild Steel tanks to BS 417
- (b) Sectional Steel tanks to BS 1564

Where non-standard sizes shall be used, they shall be manufactured to the relevant standard but with the approval of the Engineer.

14 Water Heaters

Electricity Heated

Non-pressure and low-pressure types domestic electric water heaters shall comply with BS 843:1964. High-pressure types shall be of a standard not less than the appropriate BS

Domestic heaters shall, if nothing else is specified with 25mm thick fibreglass lagging and enclosed in the corrosion-proofed steel, finished in white stove enamel and be similar to manufactured 'HEATRAE'

Electric thermostatically controlled immersion heaters shall comply with BS 3456 section A8:1963 and C.P. 324. 202:1948.

Purpose made storage water heaters of the specified size shall comply with BS 853 and shall be to the specified working and test pressure. The heaters shall be provided with all necessary bosses, coils etc, and shall be hot dip galvanized after manufacture. Installation shall, if nothing else is specified, be fibreglass to the specified thickness with finish suitable for painting.

Domestic heaters for floors mounting shall, if not provided with legs, be mounted on a minimum 100mm high concrete plinth.

Floor mounted purpose made heaters shall be provided with minimum 225mm high legs of sufficient strength welded to the heaters and to suitable floor plates. Before galvanizing, wall mounted heaters shall be supplied with all necessary brackets.

15.0 Electrical Services

Suitably rated control panels shall be supplied and installed as part of this section of the Contract to meet the starting and operating characteristics of the fan, and motors.

The panels shall be either wall or floor mounted to suit the specific area and requirements. Power supplies to these panels shall be extended from adjacent isolating switches to be provided under the electrical services section of this Contract. Complete co-ordination shall be maintained with the electrical services to ensure supply and termination details are satisfactorily carried out to suit the plant and installation requirements.

15.1 Motor Control Panels

All starters, control equipment and the like shall be enclosed in purpose made sheet panels. The panels

shall be installed within the plant rooms to suit the dimensions of the actual panels. All details of the panels and layouts within the plant shall be to the approval of the Engineer and shall include:

- Triple pole isolating switch removable neutral link and HRC fuses.
- Control circuit fuses of the HR cartridge type
- Under voltage release, adjustable and complete tower to allow for voltage associated with the electrical supply and motor starting.
- Over voltage protection, details to be agreed.
- Ammeter of the moving iron mounted on panel with selector switch.
- Pilot lamp, green.
- Rotary switch for HAND/OFF/AUTO operation, where required. Removable neutral link of heavy section copper.
- Motor winding over-temperature release. The Contractor shall provide this feature in conjunction with the specified thermistor protection
- Duty selection switches.
- Manual stop-start button units to operate in conjunction with rotary switch.
- Hours run meter/counter.

The Contractor shall allow at present for the contractors to re-close automatically on the restoration of the mains voltage. This requirement shall be subject to further discussions with the Employer to suit the Diesel plant and the mode of operation of electrical supplies.

All starter panels shall include sufficient miniature circuit breakers, with neutral bar, to supply auxiliary or associated equipment. One 30TP and one spare 15TP MCBs shall be included as spares.

All starter panels, motor starters and controllers shall comply with BS 587. Enclosures shall be rigid, at least 1.6mm thick, with rolled corners stiffened as necessary, dust-proof, vermin-proof, damp and corrosion protected with a grey colour stone enamel or other approved finish, fully tropicalised, with washable air filters. Instruments, gauges, ammeters, indicator lamps, etc shall be flush mounted. Panel doors shall include isolating switches to prevent them being opened unless the switches are in the off position. Each door shall be provided with a lock, and three sets of keys for all panel door locks shall be handed over to the Engineer.

Terminals for all outgoing main and control cables shall be marked and positioned so that the cables may be carried to the outlet from the panel without crossing or being carried round the panel. Terminal numbers and markings shall correspond to those used on connected equipment and wiring diagrams. All internal interconnecting wiring between individual units and the terminal chamber shall be carried out by the panel manufacturer.

Each panel shall be provided with a main isolator so that the whole panel may be completely isolated.

The Contractor shall determine all motor starter requirements and associated auxiliaries and controls prior to manufacture and shall submit the design and circuit diagrams to the Engineer for approval.

Contractors shall determine all motor starter requirements and associated auxiliaries and controls prior to manufacture and shall submit the design and circuit diagrams to the Engineer for approval.

Contractors shall be of air-break type BS 5424 Part 1 and/or BS 587, and shall be provided as follows:

- Magnetic blow-outs and air chutes on each pole.
- Renewable hard drawn copper contacts.
- Auxiliary contacts for remote control.
- Continuously rated operating coils, (Max 240V)

- Thermal overload protection device incorporating single phasing protection.

Starters shall be rated as follows:

- Ordinary duty - For motors which will run continuously for periods in excess of two hours.
- Intermediate duty - For motors under automatic control other than time controls. When the intervals of operation are greater than two hours.

Starters shall be of the following type:

- Up to and including 4KW motor: Single phase on/off with overload protection (D.O.L.).
- Over 4 kW and up to 15 kW: Star Delta starter.
- For starters incorporating reduced voltage starting the changeover of voltage shall be automatic.

Terminals shall be accessible and shall be provided with adequate clearance between phases and between phases and earth. Where starters are not enclosed in a composite panel, an integral isolating switch as specified for control panels shall be provided. Where electric motors are either not visible from the control panel or are located more than 10m distance they shall be provided with a local lock-off stop control circuit switch, or a main circuit isolator where there is no control circuit. A weatherproof lock-off stop control circuit switch shall be provided for motors located externally or otherwise exposed to the weather.

15.2 Motors

Motors shall comply with BS 816 Part 1 and shall be arranged for conduit entry.

Motors shall be fitted with locating type bearings and/or heavy thrust bearings at the non-driven and collar type at the drive end. Motors shall be of the totally enclosed fan cooled type, tropicalised to BS 5000 Part 99 suitably finished to resist corrosion by fluids or fumes. The rating of all motors shall be chosen to provide continuously the maximum power requirements of the plant. The motors shall be of the standard induction type. They may be of the squirrel cage, horizontal or vertical spindle type of all to the approval of the Engineer.

Vertical spindle type motors shall be provided with substantial canopies of approved design.

The locked rotor current shall be stated on the name plate of each motor and shall be not more than six times the full load current.

Thermistors shall be fitted to all motors above 5 kW. They shall be fitted during manufacture and their ends shall be brought out to additional terminals on the connector block of the motor.

All motors shall be rated 3 phases. 415 volt or single phase, 240 volt. high power factor continuous maximum rating complying with BS 5000 Part 99 and Class F insulation complying with BS 2757 unless otherwise specified. All motors larger than 4 kW shall be three phase.

All three phase motors shall be supplied with six stud terminals with each end of the stator phase windings connected, terminals shall be of suitable size to accept the cable lugs of the feeding cables. Terminal blocks shall be mounted on the side of the motor case in an approved box complete with lid, gasket and tapped ET entry hole.

Rubber installation shall not be used on coil connections. Each motor shall be fitted with cable terminals and glands to accept the specified types of cable.

No motor shall run at a speed higher than 1500 rpm unless otherwise specified. Motors driving through Vee-belts

shall be fitted with slide rails. The power factor shall not be less than 0.9 lagging. All motors shall be from the same manufacturer as far as possible.

15.3 Cabling and Wiring

The Contractor shall carry out all power and control wiring including LV and ELV or any other voltage for the control equipment and alarm systems and interconnecting wiring between starter panels, remote control items, and motor units as required.

Cabling shall be carried out in PVC insulated, PVC sheathed, single wire armoured and PVC sheathed overall cable, using compression type glands provided with means of securing armoured wires within the body of the gland, under armour moisture seal and outer sheath seal.

Each core termination shall be fitted with a plastic ferrule engraved with an identification corresponding to the wiring diagrams.

Multicore control cables to the remote stop, start allow water cut-out/ alarms shall be 0.62mm² PVC SWAPVC where external to the pump station and PVC/PVC or similar, where internal. All cables, whether internal or external being suitably protected.

All conductors shall be copper and the installations, both internal and external being carried out in accordance with the regulations and by-laws previously stated. Trenching and the fixing of cables shall be in accordance with locally specified standards details of which have been specified within the subcontract documents for the electrical services. These details can be made available upon request should the Contractor not be familiar with these requirements.

Details of the ratings, types and methods for all cables and wiring to be supplied under this sub-contract shall be submitted with the tenders, wiring, PVC single core shall be run in either galvanised conduit or galvanised trunking of suitable sizes where surface in plant rooms and heavy gauge PVC were cast into walls, slabs etc.

PART C:
PARTICULAR SPECIFICATIONS
FOR
PLUMBING AND DRAINAGE INSTALLATIONS

PART C : PARTICULAR SPECIFICATIONS FOR PLUMBING AND DRAINAGE INSTALLATIONS

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PARTICULAR SPECIFICATIONS FOR PLUMBING AND DRAINAGE INSTALLATIONS

1 Introduction

The specifications cover the execution of Plumbing and Drainage installations and should be read in conjunction with other relevant specifications, drawings and contract documents issued to the contractor in conjunction with the sub-contract.

2 Included in the Sub-Contract

The works include, unless otherwise specified, supply delivery, installation, testing and commissioning, cleaning-up and setting to work all the installations described in the specifications and as shown on the contract drawings.

The provisions of all labour, materials, tools instruments testing apparatus and scaffolding necessary to execute the work in a first class manner, even such labour materials instruments or apparatus which are not specifically mentioned in the contract but are necessary for the satisfactory completion of the work, including such elements as:-

- Cold water supply pipework and fittings to the water storage tanks from the existing water mains.
- Water storage tanks complete with all necessary covers, fittings, washout and overflow pipes and supports. The subcontractor is expected to take the overflow and washout pipes to a reasonable discharge point.
- The water supply pipework to the functional and sanitary as shown on the drawing plus the necessary fixing support and jointing materials from the water storage tanks.
- The sanitary and operational fittings together with the fixing supports and jointing of the supply and discharge pipes.
- The waste and soil pipework from the sanitary and operational fittings to the first manhole including all fixing, supports and jointing materials.
- All cutting away and all making good will if nothing else is specified, be carried out by the main contractor but it will be the responsibility of the sub-contractor to ensure that this work is kept to a minimum, be responsible for the correct marking out of all chasers and holes; and will provide also necessary details to the main contractor.
- The sub-contractor shall also be responsible for ensuring that runs for floor or wall chases, holes to be cut or left will be marked out at the appropriate stage of structural work.
- The sub-contractor shall undertake all notifications demanded by the Authorities in order to comply with current regulations and produce all certificates, if any, the authorities without extra charge.
- The sub-contractor shall as part of his tender supply all necessary information such as manufacture, catalogue or type numbers, brochures or copies of catalogue pages, weight and all other relevant information which are necessary to classify the equipment tendered for.
- All other material labour, tools instruments, scaffolding, etc, which are necessary for completion in a first class manner of the plants to the Engineer satisfaction. Excluded are only materials and workmanship especially mentioned herein as “ Excluded from this Sub-contractor”
- The sub-contractor shall include for cables, pipes etc from central facilities to working area.
- Provide the Engineer for his approval complete working and manufacturing drawing as specified.
- Commissioning and testing of the plants as specified.

- Supply of complete operation and maintenance manuals as specified as well as adequate instruction of the client's maintenance personnel as specified.
- The sub-contractor shall include for full maintenance during initial maintenance period as specified.

3 Excluded from the Sub-Contract

- All concrete works, inclusive of necessary holes, plinths etc
- All block work inclusive of necessary holes (to be marked by the Sub-contractor) etc
- All electrical wiring up to and inclusive of isolators and switchboards.
- The main contractor will provide central located facilities for supply of water and power during the construction period.

4 Extent of the Sub-Contractor's Duties

At the commencement of the work, the sub-contractor shall investigate and report to the Engineer if all materials and equipment to be used in the work, and not specified as supplied by others, are available locally. If not available, the subcontractor shall at this stage place orders for the materials in question and copy the orders to Architects and/or the Engineer. Failure to do so shall in no way relieve the sub-contractor from supplying the specified materials and equipment in time.

Any item or material found to be defective shall be replaced by the sub-contractor within seven days of his being notified and any result of defective workmanship shall be repaired including supply of new parts if necessary, immediately upon being notified.

The sub-contractor shall furnish at his own cost any samples of material or workmanship required for the sub-contract works, that may be called for by the Engineer for his approval, and the Engineer may reject materials or workmanship not in his opinion up to the approved standard. The sub-contractor shall allow in his prices such samples.

The sub-contractor shall when authorized in writing by the Architect or the Engineer, make variations from the specifications and drawing. No profit will be allowed on omitted items or works.

The sub-contractor shall submit to the Architect or to the Engineer claims for any work for which he considers demanding extra payments before the beginning of such work.

The sub-contractor shall be responsible for verifying all dimensions relative to his work by actual measurements taken in the site.

The sub-contractor shall request any alteration to the building structures within 30days of the awarding of the sub-contractor. Only such alteration as deemed unavoidable by the Engineer will be considered.

The sub-contractor shall collaborate with the Engineer and the main contractor in planning the installation before work is commenced. Particular care shall be taken to ensure that there is close collaboration with the other sub-contractors when installing services.

The Engineer and Architects shall have full rights to inspect the work in progress and all materials equipment for use in the installation prior to it's erection whether these are on site or the sub-contractor's workshop.

The sub-contractor shall allow for all reasonable access to the works for this purpose.

Where large items of equipment are to be installed, the sub-contractor shall advise the main contractor in good time so that access is provided for installation before work is commenced on site.

The sub-contractor or his responsible representative shall be in all site meetings as and when required in order to discuss the works, make necessary decisions, receiving relevant instructions and to confirm fulfillment of time schedules.

5 Finish Painting

When all the installations have been set to work, tested and commissioned, the sub-contractor shall prime the pipework with an undercoat and paint 2 No. coats of paints in accordance to BS 1710 Colour coding and to the satisfaction of the Engineer and the Architect.

PART D:
PARTICULAR SPECIFICATIONS
FOR
PORTABLE FIRE EXTINGUISHERS

PART D: PARTICULAR SPECIFICATIONS FOR PORTABLE FIRE EXTINGUISHERS

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PART D

PARTICULAR SPECIFICATIONS FOR PORTABLE FIRE EXTINGUISHERS

1. General

The particular specifications details the requirements for the supply, installation and commissioning of the portable fire extinguishers which shall conform to BS 5423:19 77. The sub-contractor drawings but which are necessary for the completion and satisfactory function of the equipment.

2. Scope of works

The sub-contractor shall supply, deliver, erect, test and commission all the portable fire extinguishers which are called for in this specification and shown on the contract Drawings and listed in the Bills of Quantities.

3. Water/CO₂ Fire Extinguishers

The portable 9-litre water filled CO₂ cartridge operated portable fire extinguishers shall comply with BS 1382: 1977. Unless manufactured with stainless Steel, bodies shall all have internal surfaces completely coated with either a less tin, lead alloy, or zinc applied by hot dipping. There shall be no visibly unallocated areas.

The extinguishers shall be clearly marked with the following: -

- a) Method of operation
- b) The words 'WATER TYPE'(GAS PRESSURE) in prominent letters
- c) Name and address of the manufacturer or responsible vendor.
- d) The nominal charge of the liquid in imperial gallons and litres
- e) The liquid level to which the extinguisher is to be charged
- f) The year of manufacture
- g) A declaration to the effect that the extinguisher has been tested to a pressure of 350 lb/sq in (24.1 bar).
- h) A declaration to the effect that the extinguisher has been tested to a pressure of 350 lb/sq in 24.1 Bar
- i) The number of the British Standard "BS 1382" or " BS 5423"

4. Portable Carbon Dioxide Fire Extinguishers

The portable carbon dioxide fire extinguishers shall comply with BS 3326: 1960 and BS 5423: 1977

The body of the extinguishers shall be a seamless steel cylinder manufactured to one of the following British Standards, BS 1287 or BS 1288.

The filling ratio shall comply with BS 5355 with Valves fittings for compressed gas cylinder to BS 341. Where a hose is fitted it shall be flexible and have a minimum working pressure of 300 lb/sq in (206.85 bar), the hose is not to be under internal pressure until the extinguisher is operated.

The nozzle shall be manufactured of brass gunmetal, Aluminium or Stainless Steel and may be fitted with a suitable valve for temporarily stopping the discharge if such means are not incorporated in the operation head.

The discharging horn shall be designed and constructed so as to direct the discharge and limit the entertainment for air. It shall be constructed of electrically non-conductive material.

The extinguishers shall be clearly marked with the following:

- a) The words; 5kg carbon dioxide fire extinguishers and to include the appropriate nominal gas content.
- b) Method of operation
- c) The word “Re-charge immediately after use”
- d) Instruction for periodical checking
- e) The number of the British Standard BS 3326: 1960
- f) The manufacturer’s name or identification markings.

5. **Dry Powder Portable Fire Extinguishers**

The portable dry powder fire extinguishers shall comply with BS 3465: 1962 and BS 1449 or aluminium to BS 1470: 1972 and shall be suitably protected against corrosion.

The dry powder charge shall be non-toxic and retain it’s free flowing properties under normal storage conditions. Any pressuring agent used as an expelling shall be in dry state; in particular compressed air.

The discharge tube and gas tube if either is fitted shall be made of steel, brass, copper or other not less suitable materials. Where a hose is provided it shall not exceed 1.060m and shall be acid and alkali resistant. Provision shall be made for securing the nozzle when not in use.

The extinguisher shall be clearly marked with the following information: -

- a) The words “Foam Spray Fire Extinguisher”
- b) Method of operation in prominent letters
- c) The working pressure and the capacity of the foam charge in litres
- d) Manufacturer’s name or identification mark
- e) The words “**RECHARGE AFTER USE**” if rechargeable type
- f) Instructions to regularly check the weight of the pressure container or inspect the pressure indicator on stored pressure type when fitted, and remedy any loss indicated by either.
- g) The year of manufacture
- h) The pressure to which the extinguisher was tested.
- i) The number of this British Standard BS 3465 or BS 5423: 1977.

- j) When appropriate complete instructions for recharging the extinguisher shall be clearly marked on the extinguisher or otherwise be supplied with the refill.

6 Foam Spray Portable Fire Extinguishers

The portable foam spray fire extinguishers shall comply with BS 3465: 1962 and BS 5423. The body shall be constructed of Steel not less than the requirements of BS 1449 or Aluminium to BS 1470: 1972 and shall be suitably protected against corrosion.

The foam spray charge shall be non-toxic and retain its free flowing properties under normal storage conditions. Any pressurizing agent used as an expelling shall be in dry state; in particular compressed air.

The discharge nozzle and gas tube if either is fitted shall be made of Steel, Brass, Copper or other not less suitable material. Provision shall be made for securing the nozzle when not in use.

The extinguisher shall be clearly marked with the following information:-

- The words 'Foam Spray Fire Extinguisher'
- Method of operation in prominent letters
- The working pressure and the capacity of the foam charge in letters
- Manufacturer's name or identification mark
- The words '**RECHARGE AFTER USE**' if rechargeable type
- Instructions to regularly check the weight of the pressure container or inspect the pressure indicator on stored pressure types when fitted, and remedy any loss indicated by either.
- The year of manufacture
- The pressure to which the extinguisher was tested
- The number of this British Standard BS 3465 or BS 5423:1977
- Appropriate complete instructions for recharging the extinguisher shall be clearly marked on the extinguisher or otherwise be supplied with the refill.

7 Fire Blanket

The fire blanket shall be made from cloth woven with pre-asbestos yarn or any other fire proof material and to measure 1210 x 1800mm and shall be fitted with specialties folded so as to offer instantaneous single action release blanket from storing jacket.

PART F:

TECHNICAL SPECIFICATIONS FOR

AIR-CONDITIONING

&

MECHANICAL VENTILATION INSTALLATIONS

PART F: TECHNICAL SPECIFICATIONS FOR AIR-CONDITIONING & MECHANICAL VENTILATION INSTALLATIONS

1.0 General

This section covers the supply and installation of ventilation and air-conditioning equipment and fittings.

The following specification is the General Specification for the Mechanical Ventilation sub-contract, and shall be read in conjunction with the Bills of Quantities, and the Drawings.

Where proprietary materials are specified, the sub-contractor may propose alternatives for the consideration of the Engineer, but the written approval of the Engineer must be obtained prior to the use of such an alternative.

The centrifugal fan type shall have blades of die-cast aluminum.

1.1 Supply Centrifugal Fan Unit

The Contractor shall supply, install, test and commission In-line centrifugal supply fan unit as set out in the equipment schedules shown in the end of this Specification.

The unit shall be selected to suit the type of roof structure on which it will be mounted all to the approval of the Engineer.

The unit shall be fully tropicalised for temperatures up to 50°C and relative humidity up to 100%.

A flat square wire guard shall be supplied to close off the opening in the gable where this is required.

Birds guards shall be provided to prevent entry of birds via air discharge openings.

Motor and fan, and housing shall all be suitably isolated with respect to vibration.

The motor shall be the totally enclosed type, single phase. It shall be metric, ball bearing, squirrel cage induction type, for direct on-line starting. All motors shall have Class F insulation, the motor ratings shall comply generally with B.S. 5000:1973 and IEC 34.1, with protection to IEC 34.5 Group IP54. The motors shall be provided with overheat protection. The motor bearings shall be prefabricated for 30000 hours running or five years' intermittent use. Where lubricators are fitted, the motors shall be re-lubricated after two years.

1.2 Filtration

The extract fan shall be fitted, on its upstream side, suitable filter complete with housing. Panel or unit filters shall only be used up to air flow of 6m³/sec. Dry replaceable media types shall be used, and shall be sized according to the manufacturers' instructions. Advancement of the media shall be controlled by a pressure differential switch. Sizing of the unit shall be such that the media requires replacement approximately every six months.

2.0

DUCTWORK

2.1

General Requirements

The general Contractor shall prepare and submit detailed ductwork drawings to the Engineer for approval in accordance with Clause 1B.6 of this Specification.

All duct sizes indicated on the Drawings refer to inside dimensions.

Ductwork joints shall be square with all sharp edges removed.

Sheet metal shall be rigidly supported and braced to prevent vibration.

Ducts and hangers shall be installed straight, plumb and level.

Ductwork shall be routed directly with a minimum of directional changes and abrupt transition.

Adequate space shall be provided around ducts to ensure proper support and to allow the installation of the specified insulation.

Diverting vanes shall be installed at branches connected into the main duct without a neck.

Fairings shall be provided where pipes or structures penetrate ducts. When the fairing is longer than 500mm the original velocity shall be maintained. When the fairing is shorter than 500mm the velocity may be increased by not more than 10 percent.

Turning vanes shall be provided in elbows whose center lines radius is less than 150 percent of the duct width, or where indicated on the Drawings.

Duct bracing and supports indicated are the minimum acceptable.

Additional bracing or supports shall be installed to eliminate any distortion or vibration when the systems are either in operational or under test.

All connections between ductwork, including flexible connections, fittings and equipment, shall be made with gradually tapered transition fittings.

2.2

Ductwork

In general all HVAC ductwork, stack heads, register boots, supply air transitions, plenums etc., shall be galvanized steel metal of the gauges and construction hereinafter specified.

All ductwork shall be installed in compliance with the most recent editions of NFPA 90 and 90A and all relevant codes and ordinances. Transitions shall be fabricated with a combined angle not greater than 2.12.1.5 degrees.

Branch take-off fittings (top, bottom and side) shall be fabricated with a throat area equal to 1.5 times the cross sectional area of the branch duct.

All angular turns shall be made with a duct centre lines radius equal to 1.5 times the cross sectional area of the branch duct.

All angular turns shall be made with a duct centre line radius equal to 1.5 times the width of the duct. Were, due to space limitations, it becomes necessary to make turns with a shorter radius, air foil type turning vanes shall be used.

2.3 Galvanized Sheet Metal Ductwork

Where construction methods, sheet metal gauges, duct fabrication and installation techniques etc., are not specifically detailed herein or indicated on the drawings, such work shall be fabricated in strict accordance with the latest recommendation methods, gauges, procedures, etc., described in the most recent editions of the ASHRAE Guide and Handbook, the SMACNA Standards of Low/High pressure Ductwork and the DW/142.1 standard of HVACA 1982.1.

2.4 Specification

Duct shall be installed in accordance with the Drawings and the following HVAC, ASHRAE and SMACNA Specification.

REFERENCE

**TITLE
SCOPE**

HVAC Ref. No.		Specification for sheet Galvanized steel
DW/142.1	metal and black medium and high pressure/velocity air systems.	
DW/161	Recommendations for identification of air distribution systems	Code of practice for Methods of identification of source and destination of air, direction of flows classification by means of standard symbols.
DW/143	ductwork leakage testing	Practical guide to Leakage testing procedure.
SMACNA		Low/and high pressure duct Construction Specification
ASHRAE	Chapter 1-Duct Contraction.	1983 Equipment Volume Duct construction

2.5 Materials:

Galvanized ductwork shall comprise strip mill cold-reduced sheet, continuously hot-dipped galvanized to BS 2.1989: Grade Z2.1 or Z3.

2.6 Protection:

Galvanized ductwork shall be protected by one coat of mordant solution or calcium plumbate primer followed by two coats of bituminous paint.

Galvanized ductwork in contact with aluminum sections (grilles etc), shall, before fastening to ducts, be protected with one coat of primer and two coats of zinc chromate paint.

All aluminum sections shall be anodized to BS 1615. Mild steel shall be protected by one coat of red oxide paint followed by two coats of bituminous paint.

Ductwork: Thickness, stiffening and spacing of supports.

The stiffening of ducts shall be provided by the types of cross joints indicated in the tables plus intermediate stiffeners where necessary to comply with the spacing requirements.

An approved type of sealant shall be used on all cross joints.

Sheet thickness requirements are given in the following tables. In all cases the larger dimension determines the sheet thickness and stiffening. For plant connections, apparatus, casing and special applications (fire dampers etc), the next thickness of sheet up shall be used and additional stiffening shall be provided.

Rectangular - Low Velocity - Steel Duct Work

Maximum spacing between joints/stiffeners.

Minimum angle section for Intermediate Stiffeners	Length Nominal	Beading or cross-breaking (mm)	(mm)	(mm)	Without (mm)	
			With beading or cross-breaking	Without beading or cross-breaking		
Up to 400				0.6	Unlimited	None
400-600				0.6	1500	2.15
601-800				0.8	1500	2.15
801-1000				0.8	12.100	2.15
1001-1500				1.0	800	40 x
1501-2000				1.0	800	800
2001 - 3000		1.2. 600		50 x 50 x 5	40 x 40 x 4	

For ducts galvanized after manufacture

Upto 300	1.2	As equivalent sizes above F/4
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2.7 Air Leakage:

The air leakage rate shall not exceed 1.53 liters per second per square metro of surface area for Class A positive, and leaks shall not be audible. The air leakage from a chosen test section shall be the proportion of the length of section under test to the total length of all ducts in the distribution system.

2.8 Air Leakage Test Procedure:

The HVAC Specification DW/143 sets out a method for testing which shall be employed by the Engineer. The Contractor shall be familiar with the testing method employed.

2.9 Protection and Cleaning

During construction all open ends of ductwork shall be covered with one layer of canvas.

All foreign materials shall be removed from the ducts and ductwork shall be cleaned inside and outside.

Ducts shall be cleaned before operating fans and filters. Fans shall not be operated unless filters are installed. After testing all cleanable filters shall be washed and renewable media shall be replaced.

2.10 Testing

After completion of the duct systems and before insulation is installed, the entire system shall be tested under operating conditions for performance and leakage.

Testing shall be carried out in the presence of the Engineer.

2.11 Volume Dampers

Volume control dampers shall be supplied and installed with locking levers and quadrants, indicating their position in main ducts and in all branch ducts supplying three or more air outlets and all fresh air intakes, and where shown on the Drawings.

Volume Control dampers shall be of the splitter, butterfly, or louver type. Damper blades shall be not less than eighteen gauge thick, reinforced with 2.15mm angles 3.2.1mm thick along unsupported sides longer than 300mm. Angles shall not interfere with the operation of the damper nor cause additional turbulence. Stops shall be angles of equal dimensions to the reinforcing angles. The maximum dimension of any damper blade shall be 800mm . Duct shall be stiffened at damper locations as necessary.

Door shall be supplied for access to all damper quadrants installed in ducts located in suspended ceilings

etc. Location and detailed installation drawings shall be supplied for all access doors. Doors shall be attached to frames with concealed hinges. Locks shall be of the flush type, screw driver operated with bronze cams.

Upon completion of the ductwork, dampers shall be adjusted and set to deliver the amounts of air indicated on the Drawings.

2.12 Fire Dampers

Fire dampers shall be provided and fixed within the thickness of all fire barrier walls with a fire rating equivalent to the barrier. Each fire damper shall be operated by a fusible link set at 72.1 degrees C and fitted with an access door for inspection and replacement.

Details of the construction and operation of all fire dampers shall be submitted to the Engineer for approval before manufacture commences. Operation of all fire dampers shall be tested on Site after installation.

All fire dampers arranged to close by gravity shall be suitable weighted, arranged in the direction of the air flow and provided with an effective stop.

Fire dampers of the fire/shield curtain type, spring operated, shall also be permitted. The damper casing shall be completely airtight and of not less than 1.2.15mm thick galvanized sheet steel. The continuous series of ribbed interlocking blades shall be formed from not less than 0.8mm stainless steel and the spring shall be of not less than 0.2.15mm stainless steel.

The fire dampers shall comply with the Standards for safety UL555:1970, issued by the Underwrite's Laboratories inc., of the U.S.A.

2.14 Fusible Link Attachment

This shall consist of an adjustable, accessible, fusible link designed to melt at 72.1 degrees C, and attached to an opposed blade damper assembly, spring-controlled to close fully when the link melts. The link shall not interfere with normal damper operation.

2.15 Turning Vanes

Turning vanes shall be fabricated of the same material as the ducts in which they are installed.

Turning vanes for low and medium pressure systems shall comprise 1mm (2.10 gauge) galvanized steel.

Turning vanes shall be either double vanes or shop fabricated turning vanes constructed to the same standard. Samples of shop fabricated units shall be submitted to the Engineer for approval.

2.16 Dissimilar Metals

Connections between dissimilar metals shall be avoided by dielectric insulation. Joints between dissimilar metal duct sections shall be formed with companion flanges separated by a compressed asbestos gasket.

All units, bolts, screws and other hardware used in the sheet metal construction shall be fabricated of materials identical or similar to the duct construction, to prevent galvanic corrosion.

2.18 Flexible Ducts

Flexible ducts connecting the low pressure duct system to the linear slot diffusers, shall consist of a continuous vinyl-coated, spring steel wire helix fused to, and supporting, a continuous layer of vinyl-coated fibreglass mesh. A 13mm thick insulating and sound attenuating blanket of fibreglass wool shall encase the duct, and be sheathed with a moisture barrier consisting of vinyl impregnated and coated fibreglass fabric. The materials shall be incombustible.

Flexible duct connections shall be effected in one continuous length, with a double ply cuff at each end secured to ductwork spigots by a worm drive screw clamp, as supplied by the manufacture to the flexible ducts.

2.19 Plenum Boxes

Plenum boxes shall be constructed from rigid 50mm by 5mm steel angle and 1.2.1mm thick galvanized sheet steel.

A hinged access door, at least 450mm, with quick-release fasteners, shall be provided in the side of each plenum box.

The sides, top and bottom of the plenum box shall be lined with 2.15mm thick rock wool or fibreglass insulation, neoprene coated and suitable for velocities up to 12.1m/sec. The lining shall be secured with an approved adhesive and pinned into place by means of nylon hangers, or similar, at 2.100mm centres.

2.20 Air Outlets

a) General Requirements.

All outlets shall be sealed around the edges to prevent air leakages.

Supply air with a velocity in excess of 0.2.15m or less above finished floor level. Room air shall be mixed with the primary air by induction to effect subsequent equalisation of the room temperature without stratification.

Where supply or return outlets are installed in a continuous line, intermediate frames and margins shall be omitted. Guides shall be provided for each element to ensure that adjoining lengths shall be mitred for full alignment.

With outlets used with fan coil units, the Contractor shall co-ordinate the outlet dimensions, arranged and pressure drop with the fan coil unit, to ensure that they will be compatible.

Unless shown otherwise on the Drawings air outlets in ceiling shall be provided with a finish to match the colour of the adjacent false ceiling; other air outlets shall be provided with a natural anodized aluminum finish, all to the approval of the Engineer.

b) Ceiling Mounted Supply/Return Linear Diffusers

The Contractor shall supply and install, in the location shown on the drawings, multi-slot supply and return linear diffusers.

These shall be similar to those manufactured by Martingale Technical Systems Limited, 2.10, St. John's Road, Penn, Bucks, HP10 8HW, England.

Tel. 0494813843/9, Tlx. 837012.1 MARGAL, Fax 0494815150. The slot diffusers shall be suitable for horizontal discharge by the adjustment of the blades. The diffusers shall be constructed of extruded aluminum with the from necessary fixings such as splice plates,

hugging clips and suspension brackets and care shall be taken to ensure the cross joints between the supply and return air diffusers. The supply diffusers shall be supplied with galvanized mild steel plenum boxes for connection to the ductwork system by way of side entry spigots.

Diffusers shall be of streamlined design, with a complete absence of abstraction in the air stream resulting in a low sound level rating. Diffusers shall be designed such that they may be balanced without the use of dampers, deflectors or return vanes.

The diffusers deflectors shall be fabricated from thermosetting plastic which is nonflammable, directionally stable and has a high resistance to cracking and blemishing. A metal back plate shall be provided for each diffuser.

The inlet spigot sizes shall be as shown on the drawings. The diffusers shall be provided with a hit and miss volume control, grid pattern air straightener and air deflection blades.

The diffusers shall be connected to the ductwork system by flexible ducting sized to suit the diameter of the entry spigots.

The selection shown on the drawings is for quotation purposes only and the Contractor shall check the air performance of the diffusers prior to placing any orders. The selection shall be based on the ceiling heights shown on the drawings and an air temperature differential (room minus air supply) of 11°C.

The noise rating in NC for a horizontal projection supply linear. Diffusers of one slot and 1800mm long shall not exceed 2.12.1NC when supplying 33 liters per second active metro. The pressure drop with the damper in the 100 percent open position shall not exceed 15 Pa for the supply air.

c) Supply and Extract Air Registers

Each supply air register shall have two sets of separately adjustable louvres, (one set horizontal, the other vertical) and shall be complete with an opposed blade multi-leaf damper. The louvres and the volume dampers shall be constructed from extruded aluminum sections with a metallic aluminum finish to the approval of the Engineer.

Extract air registers shall be supplied and fitted as shown on the drawings and shall be similar to the supply air registers except that the rear set of blades shall be omitted. Registers shall be as manufactured by "WOODS" OF ENGLAND

d) Transfer Grilles

Transfer grilles shall be supplied and fitted as shown on the drawings. Grilles shall be fabricated from aluminum alloy inverted "V" louvre extrusions. They shall be of the non-vision type and of appearance to match the surrounding finishes, all to the satisfaction of the Engineer. The grilles shall be supplied with a telescopic frame permitting installation from 2.18 to 60mm thick. Transfer grilles installed on walls shall be double faced. These shall be manufactured by Trax.

e) Discharge Louvres

Exhaust louvres shall be white anodized aluminum unless indicated otherwise on the Drawings.

Louvres shall be weatherproof, with fixed blades set at 30 degrees, and shall have a free area of 85 percent. These shall also be manufactures by Trax.

f) Intakes

Sand trap louvres shall be provided on all air intakes. The sand shall have an efficiency of 80 percent on the 2.10 to 2.100 micron test (AC coarse) dust distribution and 50 percent on the 1 to 70 micron test (AC fine) dust distribution. Louvres shall be of mill finish aluminum with 1.5mm thick lades and 2.1.0mm thick casing. Self emptying sand drain holes shall be provided. The air pressure drop through the louvres shall not exceed 30 Pa. Galvanized wire bird screens shall be provided on all intakes.

g) Accessories - Regulation and Distribution

At each supply diffuser, register and grille, the Contractor shall provide accessories to ensure a positive regulation of the air volume and a uniform distribution of the air flow over the entire outlet. The following shall be supplied as a minimum:

- Supply diffusers
- For distribution : an adjustable frame and blades.
- For regulation : an adjustable splitter or louvre blades
- Supply Grilles and Registers

The Contractor shall provide either lever-operated radium blades attached to a pivoting frame and mounting bracket, or individually adjustable blades in a gasketed frame mounted at the outlet, for each outlet, all to the approval of the Engineer.

h) Supply/Extract Square Ceiling Diffusers

The square supply diffusers shall be aluminum louvre-faced surface mounted, suitable for 4-way blow with integral opposed blade volume damper.

The Contractor shall check and make sure that the diffusers will fit in with the ceiling construction, particularly as to the edge flanged detail and overall size. They shall be as manufactured by Koolair.

3.0 Thermometers and Pressure Gauge.

3.1 General

Pressure gauges shall be mounted at the sensing point unless otherwise indicated.

The instrument shall be selected such that the normal range of operating temperatures and pressures falls within the middle-third of the instrument range. Compound gauges shall be employed when operating pressure in near or below atmospheric.

Temperature sensing devices shall be located in a portion of the fluid stream where it is possible to measure the average fluid temperature without obstructing the flow. Pipes of 42.1mm diameter

and less shall be increased by at least one pipe size at the point of insertion. Extension necks shall be provided where thermometers and pressure gauges are located in insulated piping, vessels, ductwork, casing and equipment.

3.2 **Thermometers**

Mercury-in-steel type thermometers, with a 100mm dial and a length of copper covered steel capillary tubing to connect the dial with the bulb, shall be supplied and installed as specified. Each thermometer shall be provided with a back flange or arranged for flush mounting.

Mercury-in-glass type thermometers with metal guard shall be supplied and installed as specified and as approved by the Engineer.

Unless otherwise specified, thermometer bulbs shall be of steel type, screwed 2.10mm NB British Standard pipe and supplied with stainless steel separable sockets suitable for screwing, brazing or welding into the pipe carrying the medium to the measured.

A red mark on each thermometer scale shall indicate the working temperature at the point of measurement.

3.3 **Pressure gauge**

Gauges shall be of the Bourdon tube type with a 115mm diameter cast iron, cast aluminum or steel case with moisture-proof and dustproof blowout discs. Panel mounted gauges shall have steel or aluminum hinged rings; direct mounted gauges shall have black numerals on a white background.

Bourdon Tube : Phosphor bronze, beryllium copper or stainless steel.

Socket : Stainless Steel.

Accuracy : Not less than 1% of scale range.

Gauges for combined pressure and vacuum services shall have a compound seal..

3.4 **Sound Attenuation and Vibration Isolation Materials**

3.5 **Sound Attenuation**

Where required by the Specification the supply and return air sheet metal ductwork each air handling unit and all plenum supply and return ducts, shall be lined internally on all four sides with 2.15mm thick glass fibre of density not less than 48kg/cu.m up to the walls of sound attenuation to reduce the noise emitted by the fans. The interlay clear dimensions of the duct complete with linear shall not less than the sizes indicated on the Drawings. The glass fibre lining shall be fixed to the sides of the duct using an approved adhesive and shall be secured by means of a galvanized perforated plate liner.

The ductwork shall also be thermally insulated on the outside.

The inside surface of the lined sections of ductwork shall be as smooth as possible so that the resistance to air flow is not appreciably greater than the unlined duct. All lined sections of ductwork shall be inspected and approved by the Engineer before erection on Site.

Where attenuation are fitted on the return supply sides of the units acoustic insulation may be omitted, provided that the noise transmitted by the plant does not exceed the space noise levels specified.

The attenuators indicated in the schedules are for quotation purpose only and the Contractor shall check and provide a detailed acoustic design for approval by the Engineer prior to the or ordering

of any attenuator. The Contractor shall submit an acoustic analysis of the air-conditioning systems based on the proposed equipment and shall make any adjustments to the specified parameters. i.e. systems external resistance etc as may be required.

3.6 Equipment Isolation

All mechanical equipment, piping, duct, etc shall be mounted on or suspended from approved foundations or supports. All floor mounted equipment shall be erected on either a 100mm high reinforced concrete plinth or on steel beams. Where vibration isolation equipment is used the plinths or beams shall be extended to support the isolation system.

Vibration isolation systems shall limit the static deflections as required and indicated on the Drawings with a minimum isolation efficiency of 0.96. The vibration isolation system shall be installed in accordance with the manufacturer's instructions. All vibration isolation systems exposed in the following manner; All steel parts shall be hot dipped galvanized; all bolt shall be cadmium plated and springs shall be cadmium plated and neoprene coated.

All of the above equipment, including mounting, hangers, structural steel bases, concrete formwork and flexible pipe connectors, shall be furnished by a single manufacturers of vibration isolation equipment.

3.7 Piping Isolation

All ceiling-suspended and floor-supported piping that is connected to mechanical equipment shall be isolated from the building structure for a distance of 15 metros from the equipment, in the following manner.

Ceiling-suspended piping shall be isolated by a combination of spring and neoprene-in-shear hangers. The first four hangers located adjacent to mechanical equipment, shall be capable of supporting the piping at a fixed elevation during installation irrespective of load changes.

Floor-supported piping shall be located on concrete plinths and shall be isolated by a heavy duty neoprene pad as indicated on the Drawings. Base elbows used to support piping risers shall be isolated by means of heavy duty neoprene pads.

3.8 Duct Isolation

All duct runs shall be isolated from the building structure for a distance of 16 metros from the mechanical equipment in the following manner. Ceiling-suspended duct work shall be isolated by double deflection neoprene-in-shear hangers. Floor-supported ductwork shall be isolated by double deflection neoprene-in-shear mountings. Thrust restraints which are similar to spring shall be installed to resist thrust caused by air pressure. The spring shall be selected for the same deflection as the equipment. All air handling equipment with a total static pressure of 750 Pa and above shall be isolated with flexible canvas or rubber duct connections together with thrust restraints.

3.9 Flexible Connectors

Flexible connectors shall be installed at the suction and discharge ends of all rotating mechanical equipment, including pumps, water chillers, and air handling units. The connectors shall be installed horizontally unless otherwise shown on the Drawings or approved by the Engineer. The pipe connectors shall be of the rubber hose or metal hose type with flanges suitable for the working pressure and temperatures of the respective systems.

3.10 Piping and Duct Penetrations

All piping and ducts which penetrate floor, walls and shafts shall have the gap between sleeves or timber frames sealed with fibrous materials and caulking to the approval of the Engineer, to prevent the transmission of airborne noise.

3.11

Attenuators

Each attenuator shall provide an insertion loss, under operating conditions, of not less than that indicated in the final acoustic design analysis, which is to be produced by the Contractor. Manufacturers shall specify the insertion losses expected from the attenuators offered. Under the operating conditions, and this information shall be derived from tests carried out in accordance with BS 4718:19971.

Each attenuator shall have a pressure loss at the design flow and temperature of not less greater than that shown in the Schedules. The manufacture's quoted pressure losses shall be derived from tests carried out in accordance with BS 4718:1971.

Each attenuator shall have a pressure loss at the design flow and temperature of not greater than that shown in the Schedules. The manufacturer's quoted pressure losses shall be derived from tests carried out in accordance with BS 4718:1971. Where the attenuator is known the supplier shall indicate the expected effect of turbulence due to adjacent duct elements on the quoted pressure losses.

Suppliers of attenuators shall provide, with the certified insertion loss data, information relating to the attenuator generated octave band sound power levels (12.15 kHz) at the operating conditions. The outer casing of all duct attenuators shall be constructed in accordance with the current HVCA ductwork specification. Unless otherwise indicated in the Schedule, the casing shall conform to the Medium & Low" pressure code in terms of its thickness, seams and materials. All attenuators shall be fitted with drilled angle flange connections, unless alternative connections are specified in the Schedules or instructed by the Engineer. Flanges shall conform to the relevant HVCA code or its equivalent.

Account elements in rectangular attenuators of height greater than or equal to 900mm shall incorporate fair leading and trailing edges (not square ends), and the inert, rot-proof and non-combustible mineral wool or glass fibre acoustic medium shall be packed to a density of not less than 48kg/m³ and retained by a perforated steel sheet facing. The manufacturer shall note any particular requirements, e.g. painting, special materials, etc., that are indicated on the schedules of Drawings. Splitter shall be constructed such that no ingress of acoustic medium shall occur into the gas stream under the operating conditions.

Where acoustic elements from splitters within the attenuator, the usual arrangements shall be with the splitters vertical and half-width splitter fixed to each side wall of the casing. However, it is the responsibility of the supplier to ensure that the parallel splitter elements in the attenuator are located near bends, bifurcations, etc. Horizontal splitters shall be suitable stuffed to prevent flexing and restriction of the airways.

For circular attenuators, all internal acoustic elements shall comprise mineral or glass fibre as the acoustic medium, as specified above for rectangular attenuators, retained by a perforated metal facing.

When attenuators are manufactured in modules, each unit shall be shop assembled and this

Specification together with the manufacturer's own guarantee and performance rating, shall apply to the unit as a whole. Attenuator units shall be delivered to site with blocked ends to prevent ingress of rubble, etc. prior to installation, and to reduce the risk of damage the direction of airflow through the attenuator shall be clearly marked on the casing.

Attenuators for high temperature application (e.g. diesel or turbine exhausts, boiler flues, etc) shall have their casing manufactured from an approved gauge of sheet steel, and adequate precautions taken to cater for expansion and thermal shock. The internal elements and non-combustible mineral or glass fibre cloth behind the perforated metal facing. For every high temperatures, steel wool or equivalent materials shall be used as the acoustic medium.

Acoustic and aerodynamic requirements of the Specification re met. It is the Contractor's responsibility to ensure that the Engineer is advised of the actual sizes being offered where these differ from the Schedule.

3.12 Acoustic Weather Louvre

All acoustic weather louvres shall provide an insertion loss, under the operating conditions, of not less than that indicated in the relevant acoustic hardware schedules. In addition, the static pressure loss, under maximum operating duty, shall not exceed that shown in the Schedules.

The louvres shall be constructed from an appropriate gauge of galvanized mild steel, or aluminum, supporting louvre blades of like materials. The acoustic material in the blades shall have a density of 60-100kg/m³ and be inert, rot and vermin proof, non-hygroscopic and incombustible mineral fibre, faced with mineral fibre tissue and retained on the lower blade face by perforated galvanized mild steel or aluminum. When the louvres are manufactured in sections, each unit shall be shop assembled as a whole unit and this specification, together with the manufacturer's own guarantee and performance ratings, shall apply to the unit as a whole.

Acoustic weather louvres shall be supplied with an integral bird screen of galvanized mild steel or aluminum mesh, fixed to its internal face. The mesh pitch shall be a maximum of 25mm. The louvres between the outside of the louvre frame and the wall or duct shall be made good and sealed with a heavy duct grade and/or a non-hardening, dense mastic.

4.0 Electrical Services

Suitably rated control panels shall be supplied and installed as part of this sub-contract to meet the starting and operating characteristics of the fan units.

The panels shall be either wall or floor mounted to suit the specific area and requirements. Power supplies to these panels shall be extended from adjacent isolating switches to be provided under the electrical services sub-contract. Complete co-ordination shall be maintained with the electrical services sub-contractor to ensure supply and termination details are satisfactorily carried out to suit the plant and installation requirements.

4.1 Motor Control Panels

All starters, control equipment and the like shall be enclosed in purpose made sheet panels. The panels shall be installed within the plant rooms to suit the dimensions of the actual panels. All details of the panels and layouts within the plant shall be to the approval of the Engineer and shall include:

- Triple pole isolating switch removable neutral link and HRC fuses.
- Control circuits fuses of the HR cartridge type.

- Under voltage release, adjustable and complete tower to allow for voltage associated with the KP & LC supply and motor starting.
- Over voltage protection, details to be agreed.
- Ammeter of the moving iron mounted on panel with selector switch.
- Pilot lamp, green.
- Rotary switch for HAND/OFF/AUTO operation, where required.
- Removable neutral link of heavy section copper.
- Motor winding over-temperature release. The Contractor shall provide this feature in conjunction with the specified thermistor protection.
- Duty selection switches.
- Manual stop-start button units to operate in conjunction with rotary switch.
- Hours run meter/counter.

The sub-contractor shall allow me to present for the contractor to reclose automatically on the restoration of the mains voltage. This requirement shall be subject to further discussion with the Employer to suit the standby Diesel plant and the mode of operation of essential and non-essential supplies.

All starter panels shall include sufficient miniature circuit breaker, with neutral bar, to supply auxiliary or associated equipment. One 30TP and one spare 155P MCBs shall be included as spares.

All starter panels, motor starters and controllers shall comply with BS 587. Enclosures shall be rigid, at least 1.6mm thick, with rolled corners stiffened as necessary, dust-proof, vermin-proof, damp and corrosion protected with a grey colour stone enamel or other approved finish, fully tropicalised, with washable air filters. Instruments, gauge, ammeters, indicator lamps, etc shall be flush mounted. Panel doors shall include isolating switches to prevent them being opened unless the switches are in the off position. Each door shall be provided with a lock, and three sets of keys for all panel door locks shall be handed over to the Engineer.

Terminal for all outgoing main and control cables shall be marked and positioned so that the cables may be carried to the outlet from the panel without crossing or being carried round the panel. Terminal numbers and markings shall correspond to those used on connected equipment and wiring diagrams. All internal interconnecting wiring between individual units and the terminal chamber shall be carried out by the panel manufacturer.

Each panel shall be provided with a main isolator so that the whole panel may be completely isolated.

The sub-contractor shall determine all motor starter requirements and associated auxiliaries and controls prior to manufacture and shall submit the design and circuit diagrams to the Engineer for approval.

Contractor shall determine all motor starter requirements and associated and controls prior to manufacture and shall submit the design and circuit diagrams to the Engineer for approval.

Contractors shall be of air-break type BS 5424 part 1 and/or BS 587, and shall be provided as follows:

- Magnetic blow-outs and air chutes on each pole.
- Renewable hard drawn copper contacts.
- Auxiliary contacts for remote control
- Continuously rated operating coils (Max 240V)
- Thermal overload protection device incorporating single phasing protection.

Starters shall be rated as follows.

- Ordinary duty - For motors which will run continuously for periods in excess of two hours.
- iate duty - For motors under automatic control other than time control. When the intervals of operation are greater than two hours.

Starters shall be of the following types:-

- Up to and including 400W motor: Single phase on/off with overload protection.
- Over 3.75 kW and upto 15kW: Star Delta starter.
- For starters incorporating reduced voltages starting the changeover of voltage shall be automatic.

Terminals shall be accessible and shall be provided with adequate clearance between phases and between phases and earth. Where starters are not enclosed in a composite panel, an integral isolating switch as specified for control panels shall be provided. Where electric motors are either not visible from the control panel or are located more than 10m distance they shall be provided with a local lock-off stop control circuit switch, or a main circuit isolator where there is no control circuit. A weatherproof lock-off stop control circuit switch shall be provided for motors located externally or otherwise exposed to the weather.

4.2 Motors

Motors shall comply with BS 816 Part 1 and shall be arranged for conduit entry. Motors shall be fitted with locating type bearings and/or heavy thrust bearings at the non-drive end and collar type at the drive end. Motors shall be of the totally enclosed fan cooled type, tropicalised to BS 5000 Part 99 suitably finished to resist corrosion by fluid or fumes. The rating of all motors shall be chosen to provide continuously the maximum power requirements of the plant. The motors shall be of the standard induction type. They may be of the squirrel cage, horizontal or vertical spindle type of all to the approval of the Engineer.

Vertical spindle type motors shall be provided with substantial canopies of approved design.

The locked motor currents shall be stated on the name plate of each motor and shall be not more than six times the full load current.

Thermistors shall be fitted to all motors above 5kw. They shall be fitted during manufacture and their ends shall be brought out at additional terminals on the connector block of the motor.

All motors shall be rated 3 phases. 415 volt or single phase, 240 volt, high power factor continuous maximum rating complying with BS 5000 Part 99 and Class F insulating complying with BS 2757 unless otherwise specified. All motors larger than 400kw shall be three phase.

All three phase motors shall be supplied with six stud terminals with each end of the stator phase windings connected, terminals shall be of suitable size to accept the cable lugs of the feeding cables. Terminal blocks shall be mounted on the side of the motor case in an approved box complete with lid, gasket and tapped ET entry hole.

Rubber installation shall not be used on coil connections. Each motor shall be fitted with cable terminals and glands to accept the specified types of cable.

No motor shall run at a speed higher than 1500 rmp unless otherwise specified. Motors driving through

Vee-belts shall be fitted with slide rails. The power factor shall be less than 0.9 lagging. All motors shall be from the same manufacturer as far as possible.

4.3 Cabling and Wiring

The Contractor shall carry out all power and control wiring including LV and ELV or any other voltage for the control equipment and alarm systems and interconnecting wiring between starter panels, remote control items, and motor units are required.

Cabling shall be carried out in PVC insulated, PVC sheathed, single wire armoured and PVC sheathed overall cable, using compression type glands provided with means of securing armoured wires within the body of the gland, under armour moisture seal and outer sheath seal.

Each core termination shall be fitted with a plastic ferrule engraved with an identification corresponding to the wiring diagrams.

Multicore control cables to the remote stop, start allow water cut-out/alarms shall be 0.62mm² PVC/SWAPVC where external to the pump station and PVC/PVC or similar, where internal. All cables, whether internal or external being suitably protected.

All conductors shall be copper and the installations, both internal and external being carried out in accordance with the regulations and by-laws previously stated. Trenching and the fixing of cables shall be in accordance with locally specified standards details of which have been specified within the sub-contract documents for the electrical services. These details can be made available upon request should the sub-contractor not be familiar with these requirements.

Details of the rating, types and methods for all cables and wiring to be supplied under this sub-contract shall be submitted with the tenders, wiring, PVC single core shall be run in either galvanized conduit or galvanized trunking of suitable sizes where surface in plant rooms and heavy gauge PVC were cast into walls, slabs etc.

4.4 Testing and Commissioning

The sub-contractor shall be responsible for testing and commissioning the air conditioning mechanical ventilation systems to ensure they are in proper working order to the satisfaction of the Engineer, all in accordance with the requirements set out below. A full test shall be carried out, and the following taken.

- (a) Volumes in all major ducts and for all extract diffusers and diffusers and supply grilles.
- (b) Noise rating in the above rooms, and from all mechanical ventilation fans.
- (c) Total flow rates for every mechanical ventilation system installed under this sub-contract.
- (d) Running current for each electric motor in amperes (recorded against the manufacturer's full load current).
- (e) Air static pressure differential across each fan, filter, coil etc.

The operation of all controls, safety devices, alarms and standby equipment shall be demonstrated in liaison with the electrical services sub-contractor.

PARTICULAR SPECIFICATIONS FOR AIR CONDITIONING UNITS

5.0 General

This part of the sub-contract comprises the supply, delivery and complete installation of single split direct expansion units and a modular multi-system as outlined in the Bills of quantities.

The design data for the lift motor room is as follows:-

Mean ambient temperature	:	:	28°c
Altitude	:	:	1750m above sea level
Room Temperature	:	:	22 ± 1°C

5.1 Indoor Units

The indoor units shall incorporate a quiet centrifugal fan, liquid crystal display wired remote controller, air purifying filter employing static electricity to remove particles and Airflow direction louvers. All the controls shall be by use of microprocessor,

The unit shall have the following parameters:-

Cooling capacity:- as specified in the bills of quantities

Air Flow rate (High Speed): - as specified in the bills of quantities

Fan speed:- 3 speeds and Auto

Limiting Noise level 41 dB(A) at high speed.

The units shall be mounted as shown as per tender drawings. Condensate removed from the air shall drain into the drip pan and then drain by an integrated pump through condensate drainpipe to the ground.

All units shall be as specified in the bills of quantities

5.2 Outdoor Unit

The unit shall comprise of several modules (compressors and inverters) interconnected together and shall be running sequentially depending on the cooling load demands from the conditioned space. The modules and their arrangement shall be as specified in the bills of quantities and shall be sized to match the indoor units.

The outdoor units shall have the following parameters: -

Sound level (limit) - 49 dB(A) at 1 meter

The modules shall be complete with integral isolator, compressors, condenser fans, LP/HP cut-outs, auto restart after power failure and weather proof.

Components**a) Compressors**

These shall be rotary with three-phase motors having internal current/thermal overload device and pressure relief valve.

b) Condenser

These shall be forced-draught type with acrylic-dipped copper tubes mechanically expanded into aluminum fins spaced at approximately. 10 per 25mm.

c) Fans

These shall be of the forward curved centrifugal type and shall be made of aluminum, reinforced fibre or rigid plastic material.. The fan shall have variable speeds to enable the user to reduce both air volume and noise levels.

d) Operating Controls

These shall comprise an ON/Off switch, combined with fan speed controller and a compressor selector to give a range of options such as: off; fan only; fan & low cool, fan 7 high cool.

There shall be a bimetallic, single-pole single-throw (SPST) thermostat with sensing phial clipped in the return air stream behind the air filter. This shall cycle the compressor but the evaporator fan shall be unaffected as long as the unit is switched "ON".

e) Safety Controls

These shall comprise either externally or internally mounted compressor motor overloads, to safeguard against thermal or electrical overloads.

f) Central Remote Controller.

The controller shall be connected to the outdoor unit. The remote shall control the entire indoor units installed and shall be connected to the outdoor unit.

g) Noise Level

Fan and motor assemblies shall be complete with anti-vibration mountings and shall operate quietly, with the noise level at 1 metre not exceeding noise curve NR 49dB(A).

h) Refrigerant piping

The refrigerant piping shall be neatly installed and clipped on the wall. The pipes shall also be neatly boxed or put in a trunking to the approval of the engineer.

i) Installation Requirements

Suitable aperture and supporting frame to be fitted in a wall shall be made. The unit shall be properly balanced and supported in a manner that prevents noise or "drumming" regardless of the type of structure in which it is supported.

j) Mounting Brackets

The air-conditioners shall be held in position by two mounting brackets, fixed to the wall. The sub-contractor shall ensure that any damage to the wall is made good-inside and out around the frame, and repaint as necessary. The sub-contractor shall ensure that the unit is perfectly level from side to side and that from front to back it is sloping slightly to the rear of the baseplate.

k) Power Supply

The power point serving the system shall be as close as possible to the modules and slightly lower to the side on which the power cable enters the front of the chassis and of the fused switch type.

With the indoor air filters in place, the power supply shall be switched on to start the unit working steadily through the full operating sequence permitted by the controls. The sub-contractor shall ensure that the control switch operates in every position which can be selected.

l) Testing and Commissioning

The sub-contractor shall test and commission the unit to the entire satisfaction of the Engineer and the Employer. In particular he shall check the full load amperage drawn using a clip-on ammeter to confirm that this does not exceed values shown on the nameplate. The sub-contractor shall adjust the supply air grille to produce effective distribution throughout the room, free from draughts and pockets of stagnant air. Control knobs shall be checked and confirmed to be tight. The differential between the temperatures of the air entering the return grille and that leaving the discharge grille shall be ascertained to be what the manufacturer recommends.

The sub-contractor shall produce operation and maintenance manuals to be given to the Engineer for onward transmission to the Employer.

m) Maintenance Contract

The contractor shall provide all necessary technical brochures and operation manuals to the Client upon completion of works. He shall also quote for maintenance of these units after the 6 months liability period is over.

The scope of maintenance works shall include but not be restricted to all normal servicing of the unit which shall be carried out as stipulated in the maintenance contract agreement to be entered between the Client and the Sub-contractor.

PART G:
PARTICULAR SPECIFICATION
FOR
SOLAR WATER HEATING INSTALLATIONS

1.1 Location of Site

The site of the proposed Sub-contract works is situated in NAIROBI Town in Upperhill.

1.2 Description

The project comprises of construction of a Paediatric Emergency Centre and Burns Management Centre

1.3.1 Commencement of Works

The Sub-contractor is submitting his tender shall be deemed to have included for commencing any necessary work on site at such time as will comply with the main contractors programme.

1.3.2 Climatic Conditions

The following climatic conditions apply at site of the works and all plant, equipment, apparatus, material and installations shall be suitable for these conditions.

Maximum temperature 33⁰C

Minimum temperature 14⁰C

Average temperature 24⁰C

Relative Humidity Range 10-95⁰C

Altitude 1975m above sea level

Rainfall Extremely heavy at certain period of the Year.

1.4 Solar Panels

Solar panels shall be similar or equal to “Solarpak” absorber panels as manufactured by Solarhart, and shall be generally in accordance with the following.

Absorber panel area 2.0m²

Type: Liquid based flat plate solar energy in low heat sense.

Absorber panel

The copper panel shall be thermally bonded (using soft solder) to tubular framework comprising of a series of 12.7mm diameter water tubes silver brazed to two 25, 4mm diameter heater tubes.

The absorber panel assembly shall be placed in an insulated 24 gauge galvanized box crumpled internally and finished with red oxide. Complete with anti-condensate tubes. Water proofing is achieved by means of rubber grommets around the header tubes and sealings strips. The glass shall be retained by 24 gauge aluminium of GMS retaining strips held in position by stainless steel streaker screws.

Heat Absorbing Surface

- (a) The material shall be copper panel with AMCRO selective surface.
- (b) Radiation properties – Solar absorption 0.92 – 0.94 Thermal emission (at 70° = 0.07-0.09)

Cover: 4mm clear glass

Insulation: Beneath the absorber 25mm rockwool and side insulation 10mm thick fibre glass.

Module size: External dimensions

<u>Width</u>	<u>Length</u>	<u>Thickness</u>
1000mm	2000mm	70mm

Width ends of header 1210mm

Temperature: Ambient to 99°C temperature

Range: Heating type installation

Maximum: The 'Solapak' absorbers shall be structurally capable for withstanding 'no flow' temperature.

Each unit shall be capable of raising 53 litres of water per day from 18°C with solar radiation of 17.8j/m² per day.

The unit shall be assembled in banks on the Contract Drawings with an angle of inclination from the horizontal shown.

Inter connection between individual units shall be made by using Beasley connector fittings. Each bank of units shall be mounted upon a frame manufactured from angle or channel rolled mild steel sections galvanized after manufacture and bolted down to the structures.

1.5 Hot water Cylinders

The hot water cylinder shall be horizontal pattern stainless steel of all welded construction and of varying dimensions each with a capacity given of 1000 litres. Thickness of steel sheet or plate for sides and dished ends shall be 3.2mm (Grade A).

The cylinder shall be manufactured and tested in accordance with B.S 417: part 2: 1973. Each tank shall be blanked off provision for 3kw heater which is to be located within hot water cylinder.

Each cylinder shall be complete with the following connections and mountings:-

- 40mm dia flow to solapaks
- 40mm dia return from solapaks
- 40mm dia Hot water flow
- 25mm dia Thermostat pocket
- 15mm dia drain cock
- 1 No. dia thermometer 0-100°C
- 1 No. 3 kW electric heater

The cylinders shall be insulated neatly beveled to an of 45°C round all fittings and connections.

1.6 Feed and Expansion Cistern

The feed and expansion cistern shall be of galvanized mild steel with loose cover all grade A: construction (3.2mm thick)

1.7 Pipework and Fittings

Pipework shall be galvanized mild steel tubing in accordance with B.S 138/GD 'B' fittings shall be galvanized mild steel fittings manufactured in accordance with B.S 143. All connections to items and equipment shall be made with union connectors and connections of pipes above 50mm dia shall be flanged. Interconnections between solar panels shall be made using the special Beasly connectors.

All pipe supports shall be in brass, copper or gunmetal at centre not exceeding those given in the following table:

Pipework nominal bore	Intervals for Horizontal runs	Intervals for vertical runs
mm	m	m
13	1.4	2.0
19	1.4	2.0
25	1.7	2.4
32	1.7	2.4
38	2.0	2.8
51	2.0	2.8
63	2.0	2.8
76	2.4	3.4

1.8 Valve and Cocks

Valves shall be gunmetal with union connections similar or equal to those manufactured by Torkshire Imperial Metals Ltd. Isolating valves shall be in accordance with B.S 1952 with non rising spindle as type 610 but with union connectors with the exception of the valves on the cold feed which shall have a lockshield as type 610LS. Regulating valves shall be type 608. Drain cocks shall be the 562M. automatic air vents shall be of bronze construction as manufactured by Hatterslye (Ormskirt) Ltd or equivalent and approved.

1.9 Insulation

The piping insulation shall be as Armaflex flexible foamed tube insulation as manufactured by Armstrong and the fixing to be of the slip-on or snap-on method and then rejoined with Armaflex adhesive and to be in accordance with the following table.

Pipework nominal	Copper pipe	Armaflex I.D. (Nominal)
mm	gms	mm
12	12	22
19	22	27
25	28	35
32	35	45
38	42	48
51	54	60
64	67	76
76	80	89

PROPOSED CONSTRUCTION OF HUMANITIES & SOCIALSCIENCES LECTURE HALLS
BILLS OF QUANTITIES FOR AIR CONDITIONING & MECHANICAL VENTILATION INSTALLATIONS
BILL NO. 1: AIR CONDITIONING & MECHANICAL VENTILATION INSTALLATIONS

ITEM No.	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KSH CTS.
1.01	"Mixed flow extract Fan' as Sodeka ECO series or an approved equivalent. The fan to have a capacity of 0.6 m3/s and maximum static pressure of 270Pa . The fan to be controllable astermination to light circuit provided by others.	No.	2		
1.02	"Mixed flow extract Fan' as Sodeka ECO series or an approved equivalent. The fan to have a capacity of 0.8 m3/s and maximum static pressure of 270Pa . The fan speed to be controllable as low, medium and high speeds.	No.	2		
DUCTWORK					
Supply and install the following ductwork in galvanized mild steel sheets with 1.2mm thickness. Rates to allow for duct support hanger jointing and all other necessary accessories.					
STRAIGHT LENGTHS					
1.03	350x300 Straight Length	LM	60		
1.04	250x200 Straight Length	LM	34		
BENDS					
1.05	350x300mm 90 ⁰ ditto	No.	14		
1.06	250x200mm 90 ⁰ ditto	No.	12		
TEE BRANCH					
1.07	350x300mm Tee Branch	No.	14		
1.08	250x200mm Tee Branch	No.	12		
TRANSITION PIECES					
1.09	350x300mm to 250x200mm	No.	14		
1.10	Allow for Flexible ducts for connection of extract and supply diffusers/ grills with plenum boxes (Provisional)	Lm	24		
1.11	200 mm dia round grill grill Ceiling mounted supply and extract to engineer's approval.	No.	14		
1.12	18,000BTU/hr cooling capacity highwall split unit with respective matching outdoor unit. Rate to include pipework for a length approximately 9lm, wireless remote control, drainage pipework in upvc 25mm and recharge of refrigerant gas as R32 or an approved equivalent.	No.	1		
Total C/F to Summary Page (BILL NO.1)					-

**PROPOSED CONSTRUCTION OF HUMANITIES & SOCIALSCIENCES LECTURE HALLS
BILLS OF QUANTITIES FOR AIR CONDITIONING & MECHANICAL VENTILATION INSTALLATIONS**

**PROPOSED CONSTRUCTION OF HUMANITIES & SOCIALSCIENCES LECTURE HALLS
BILLS OF QUANTITIES FOR AIR CONDITIONING & MECHANICAL VENTILATION INSTALLATIONS
BILL NO. 2: FREEZER ROOM**

Item NO.	Description	UNIT	QTY	RATE	AMOUNT KSH CTS.
	Supply, Deliver Install, test and commission the cold room as per specification. Rates must include connection to power from isolators provided by others				
2.01	14KW evaporator unit	No.	1		
2.02	Semi-hermatic condensing unit	No.	1		
2.03	Insulated door	No.	1		
2.04	Control panel	No.	1		
2.05	Thermostat	No.	1		
2.06	Dial Thermometer	No.	1		
2.07	Solenoid valve	No.	1		
2.08	LP/HP Cut – out switch	No.	1		
2.09	Vapor seal	M2	120		
2.10	Thermal insulation 100mm thick	M2	120		
2.11	SWG 20 Aluminium sheet	M2	108		
2.12	Electrical works/wiring including cables and conduits	Item			
2.13	65W vapour proof light fittings	No.	1		
2.14	External display to show interior thermal conditions to be installed on door	No.	1		
2.15	Filter drier	No.	1		
2.16	Refrigerant pipework consisting of a suction line & liquid line in copper tubing all insulated in Armaflex insulation	Item			
2.17	High pressure gauge	No.	1		
2.18	Low pressure gauge	No.	1		
2.19	Allow for inspection & repairs to cold room insulation and proper securing of aluminium room cladding	Item			
	Total Carried to Summary Page				

**PROPOSED CONSTRUCTION OF HUMANITIES & SOCIALSCIENCES LECTURE HALLS
BILLS OF QUANTITIES FOR AIR CONDITIONING & MECHANICAL VENTILATION INSTALLATIONS**

BILL NO. 3: GENERAL ITEMS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KSH CTS.
3.01	Allow for presentation of all the required samples as per specifications, Bills of Quantities and Drawings.	Item	1		
3.02	Prepare and submit Working Drawings comprising the following to the satisfaction of the Engineer both in hard and soft copy. All drawings to be in Autocad® 2000 format or an approved higher version: - i) Fully dimensioned drawings of all plants and apparatus. ii) General arrangement drawings of equipment, plant etc. iii) Routes – types and sizes and arrangement of all pipework. iv) Wiring and piping diagrams of plant and apparatus. v) Schematic diagram of individual plants and switch and control boards. vi) All the required operating instructions for all panels, boards, control panels etc. (Note: Full set of drawings to be presented as per drawing list).	Item	1		
3.03	As item no. 3.05, but for Record (As-Installed) Drawings comprising: i) Fully dimensioned drawings of all plants and apparatus. ii) General arrangement drawings of equipment, plant etc. iii) Routes – types and sizes and arrangement of all pipework. iv) Wiring and piping diagrams of plant and apparatus. v) Schematic diagram of individual plants and switch and control boards. vi) All the required operating instructions for all panels, boards, control panels etc.	Item	1		
3.04	Prepare and submit Maintenance Manuals for all items installed.	Item	1		
3.05	All other items of general preliminary to cover, but not limited to:- i. Attendance on all other sub-contractors, such as for Electrical Installations Plumbing & drainage Installations and Generator Installations etc. ii. Hiring and keeping a Supervisor/Foreman on site iii. Constant supervision of the works. iv. Provision of all the required spares. v. Testing and Inspection of materials/works. vi. Provision of labour camps. vii. Storage of materials. viii. Initial maintenance (During Defects Liability) ix. Providing water/electricity for the works. x. Protection of the works/materials xi. Clearing away on completion. xii. Preparing Final Account. xiii. Providing all Test Certificates, etc.	Item	1		
Total C/F to Summary Page (BILL NO.2)					-

**PROPOSED CONSTRUCTION OF HUMANITIES & SOCIALSCIENCES LECTURE HALLS
 BILLS OF QUANTITIES FOR AIR CONDITIONING & MECHANICAL VENTILATION INSTALLATIONS
 SUMMARY PAGE**

ITEM NO.	DESCRIPTION	AMOUNT KSHS. CTS
1.00	Bill No. 1, B/F from page 1	-
2.00	Bill No. 2, B/F from page 2	-
2.00	Bill No. 3, B/F from page 3	-
3.00	Sub - Total	-
Total for HVAC Installations C/F to Form of Tender		-

Total Amount in words _____

Tenderer's Name and Stamp _____
 (as in form of tender)

Signature _____

Date _____

PROPOSED CONSTRUCTION OF HUMANITIES & SOCIALS SCIENCES LECTURE HALLS
BILLS OF QUANTITIES FOR PLUMBING, DRAINAGE & FIRE FIGHTING INSTALLATIONS
BILL NO. 1 – SANITARYWARE

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (KShs Cts)	AMOUNT (KShs Cts)
	Supply, deliver and install the following sanitary fittings including all the necessary fittings and jointings. All Sanitary fittings are to be as "Ideal Standard" or equal & approved.				
1.01	"Ideal Standard" "Vitreous China" floor standing with 9 litre cistern, Close coupled WC suite with lever and valveless fittings having plastic syphon complete with inlet, outlet, dual flush press button overflow supporting brackets & soft closing seat/cover and all the relevant accessories or an approved equivalent.	NO	3		
1.02	"Ideal Standard" "Vitreous China" squat pan with 9 litre cistern suite with valveless fittings having plastic syphon complete with inlet, outlet, dual flush press button, overflow supporting brackets & all the relevant accessories or an approved equivalent.	NO	2		
1.03	Urinal bowl concealed inlet to be supplied complete with press delay action type flush valve	NO	2		
1.04	Ideal Standards divider.	NO	2		
1.05	WC "S" or "P" connector to drain pipe for horizontal outlet WC Pan	NO	5		
1.06	Wall hung chrome plated toilet roll holder to Engineer's approval	NO	6		
1.07	Arabic shower in Stainles Steel finish 1200mm length.	NO	6		
1.08	Robe/Coat Hook in SS or equal and approved.	NO	6		
1.09	"Ideal Standard" Pedestal wash hand basin in Vitreous china with 1 No. tap holes size 500 x 425mm complete with - Elbow Lever Operated Tapis pillar type - 1 ¼" waste fitting - 1 ¼" bottle trap - Pedestal	NO	1		
1.10	WHB as Undercounter with above accessories	NO	4		
1.11	Tapis angle valves or equal and approved.	NO	31		
1.12	Flexible connector to Engineers approval.	NO	31		
1.13	Wall mounted Chrome plated bath/shower mixer, complete with a hot and cold rain shower, chrome plated mixer handles and wall mounted low level foot-bath tap or equal and approved.	NO	1		
1.14	Press action operation Soap Dispenser. The dispenser is to be complete with wall mounting brackets, key and initial discharge.	NO	5		
1.15	Barrel Centre pull hand drying Tissue Dispenser as Kim Fay.	NO	5		
	Total C/F to Page 2				

PROPOSED CONSTRUCTION OF HUMANITIES & SOCIALS SCIENCES LECTURE HALLS
BILLS OF QUANTITIES FOR PLUMBING, DRAINAGE & FIRE FIGHTING INSTALLATIONS
BILL NO. 1 – SANITARYWARE

ITEM No.	DESCRIPTION	UNIT	QTY	RATE (KShs Cts)	AMOUNT (KShs Cts)
	Total Brought Forward from Page 1				
1.16	'Hichem Polypropylene Sinks' black Complete size 460 x 330 x 210 mm. complete with matching anti-siphon bottle trap & sink waste	No.	8		
1.17	'Hychem screwed taps' 1 way lever operated swivel swanneck tap with removable serrated nozzle	No.	8		
1.18	Stainless steel deep single Bowl sink for dhobi area with heavy duty Elbow operated Tapis long neck bib tap - 40mm (1 ½ ") waste and stopper with chrome plated chain - 40mm (1 ½") bottle trap.	No.	1		
1.19	6" Elbow Lever Oprated tap as Tapis or an approved equivalent	No.	5		
1.14	For WC suite Wall hung WC Suite by Ideal Standards range in white Consisting of Wall hung Barrier Free WC suite, H/Duty soft close WC Seat & Cover with S/Steel Hinges, height 1140mm, actuated with hytouch pneumatic cover plate. Complete with wash hand basin described as item 1.07 but with hansgrohe single lever basin tap or an approved equivalent. Mediclinic Hinge Down Grab Rail with Toilet Roll Holder and Straight Grab Rail wall mounted stainless steel, surface satin finish, rough finishing for better grip, 32 mm diameter, 1100 mm, material thickness 1.2 including mounting accessories Ditto but 135 degrees side bar (660 x 338 x 95mm size)	No.	1		
1.20	Dilution Pot 20Litres or an approved equivalent	No.	2		
Total C/F to Summary Page (BILL NO.1)					

PROPOSED CONSTRUCTION OF HUMANITIES & SOCIALS SCIENCES LECTURE HALLS
BILLS OF QUANTITIES FOR PLUMBING, DRAINAGE & FIRE FIGHTING INSTALLATIONS
BILL NO. 2 - COLD AND HOT WATER SUPPLY PIPEWORK

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KShs Cts)
	Supply and Instal Chlorinated Polyvinyl Chloride (CPVC) as manufactured by Astral FlowGuard under lincense from Lubrizol or an approved equivalent. The CPVC compund shall meet cell class 23447 B by ASTM D1784 and have design stress of 2000 PSI and maximum service temperature of upto 93 degrees celsius. Jointing & installation methods shall be as per manufacturers' recommendations only. All pipe diameters are internal diameters.				
	Plumbing Pipes				
2.01	65mm diameter CPVC pipe	LM	30		
2.02	40mm diameter CPVC pipe	LM	84		
2.03	32mm diameter CPVC pipe	LM	66		
2.04	25mm diameter CPVC pipe	LM	74		
	Elbow and Bends				
2.05	65mm diameter CPVC elbow/bend	NO	32		
2.06	40mm diameter CPVC elbow/bend	NO	28		
2.07	32mm diameter CPVC elbow/bend	NO	32		
2.08	25mm diameter CPVC elbow/bend	NO	16		
	Tees				
2.09	65mm diameter CPVC equal tee	NO	24		
2.10	40mm diameter CPVC equal tee	NO	32		
2.11	32mm diameter CPVC equal tee	NO	24		
2.12	25mm diameter CPVC equal tee	NO	16		
	Female threaded joints				
2.13	65mm diameter CPVC Female threaded joint	NO	24		
2.14	40mm diameter CPVC Female threaded joint	NO	32		
2.15	32mm diameter CPVC Female threaded joint	NO	24		
2.16	25mm diameter CPVC Female threaded joint	NO	16		
	Male threaded joints				
2.17	65mm diameter CPVC Female threaded joint	NO	24		
2.18	40mm diameter CPVC Female threaded joint	NO	32		
2.19	32mm diameter CPVC Female threaded joint	NO	24		
2.20	25mm diameter CPVC Female threaded joint	NO	16		
	Isolation Valves				
2.21	65mm diameter isolation valves	NO	2		
2.22	40mm diameter isolation valves	NO	4		
2.23	32mm diameter isolation valves	NO	4		
2.24	25mm diameter isolation valves	NO	4		
	Total C/F to Summary Page (BILL NO.2)				

PROPOSED CONSTRUCTION OF HUMANITIES & SOCIALS SCIENCES LECTURE HALLS
BILLS OF QUANTITIES FOR PLUMBING, DRAINAGE & FIRE FIGHTING INSTALLATIONS
BILL NO. 3 - DRAINAGE RETICULATION PIPEWORK

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KShs Cts)
	Drainage Pipes				
3.01	100mm diameter UPVC Grey pipe (heavy duty)	LM	60		
3.02	50mm ditto	LM	120		
3.03	40mm ditto	LM	120		
3.04	32mm ditto	LM	24		
	Bends				
3.05	100mm diameter UPVC sweep bend	NO	24		
3.06	100mm diameter UPVC sweep bend	NO	18		
3.07	50mm ditto	NO	24		
3.08	40mm ditto.	NO	38		
3.09	32mm ditto.	NO	12		
	Drainage Pipes				
3.10	110mm diameter HDPE	LM	26		
3.11	60mm ditto	LM	24		
3.12	50mm ditto	LM	18		
3.13	40mm ditto	LM	6		
	Bends				
3.14	100mm diameter HDPE sweep bend	NO	12		
3.15	100mm diameter ditto	NO	8		
3.16	50mm ditto	NO	12		
3.17	40mm ditto.	NO	6		
3.18	32mm ditto.	NO	6		
3.19	75mm diameter Sluice valve with wheel as Crane	NO	0		
3.20	75mm diameter high pressure non-return valve	NO	6		
	Tees				
3.21	100mm diameter sweep tee	NO	12		
3.22	b) 50mm ditto	NO	28		
3.23	c) 40mm ditto	NO	12		
3.24	d) 32mm ditto	NO	4		
	Reducing Sockets				
3.25	100x50mm diameter reducing socket	NO	6		
3.26	b) 50x40mm diameter reducing socket	NO	8		
	Inspection Plugs/Access caps				
3.27	100mm diameter access caps	NO	4		
3.28	b) 100mm diameter inspection plugs	NO	4		
3.29	c) 50mm ditto	NO	6		
3.30	d) 40mm ditto	NO	6		
3.31	Four-way 100 x 50mm floor trap.	NO	14		
3.32	100mm diameter gully trap complete with chamber and cover.	NO	7		
3.33	2500 Litres Cylindrical PVC water storage tank as "Roto " complete with 32mm (1/2") high pressure pegler ball valve, inlet, outlets and an overflow.	NO	3		
	Ditto but 10,000 litres cylindrical tank with all the above accessories to Engineers approval.	NO	2		
3.34	DG PED MINI 3 pressurization pump set as duty and standby complete with synchronization control panel.	SET	1		
	Total C/F to Summary Page (BILL NO.3)				

**PROPOSED CONSTRUCTION OF HUMANITIES & SOCIALS SCIENCES LECTURE HALLS
 BILLS OF QUANTITIES FOR PLUMBING, DRAINAGE & FIRE FIGHTING INSTALLATIONS
 BILL NO. 4 - PORTABLE FIRE FIGHTING EQUIPMENT**

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (KShs Cts)
4.01	5 Kg carbon dioxide gas fire extinguisher complete with pressure gauge, initial charge and mounting brackets.	NO	1		
4.02	9 Kg Dry Powder fire extinguisher complete with pressure gauge, initial charge and mounting brackets.	NO	1		
4.03	Elide Fire ball	NO	1		
Total C/F to Summary Page (BILL NO.4)					

PROPOSED CONSTRUCTION OF HUMANITIES & SOCIALS SCIENCES LECTURE HALLS
BILLS OF QUANTITIES FOR PLUMBING, DRAINAGE & FIRE FIGHTING INSTALLATIONS
BILL NO. 5: SOLAR WATER HEATING

ITE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
					KSH.	CTS.
	Supply and install solar hot water system as described below.					
5.01	High efficiency 2.3 sq. Meters solar collectors sourced from Calpak, shell, BP or equal and approved equivalent which incorporate full area copper absorption plates ultrasonically welded to copper circulation tubes, advanced specification insulation and tempered security glass to provide energy absorption of up to 95%.	No.	2			
5.02	Galvanised steel mounting frame and supplied complete with all fittings including air bleed and pressure release valve.	No.	2			
5.03	300 Ltrs Long life hot water storage tanks including resin insulated GRP casing for indefinite life, STAINLESS STEEL cylinder internally piped to optimise hot water availability and a built in electric booster.	No.	1			
5.04	25mm diameter air release valve	No.	2			
5.05	25mm diameter Heat resistant rubber tubing to discharge at the gutter	LM	6			
Total C/F to Summary Page (BILL NO.5)						

PROPOSED CONSTRUCTION OF HUMANITIES & SOCIALS SCIENCES LECTURE HALLS
BILLS OF QUANTITIES FOR PLUMBING, DRAINAGE & FIRE FIGHTING INSTALLATIONS
BILL NO. 6: GENERAL ITEMS

ITE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT KSH CTS.
6.01	Allow for presentation of all the required samples as per specifications, Bills of Quantities and Drawings.	Item	1		
6.02	Prepare and submit Working Drawings comprising the following to the satisfaction of the Engineer both in hard and soft copy. All drawings to be in Autocad® 2000 format or an approved higher version: - i) Fully dimensioned drawings of all plants and apparatus. ii) General arrangement drawings of equipment, plant etc. iii) Routes – types and sizes and arrangement of all pipework. iv) Wiring and piping diagrams of plant and apparatus. v) Schematic diagram of individual plants and switch and control boards. vi) All the required operating instructions for all panels, boards, control panels etc. (Note: Full set of drawings to be presented as per drawing list).	Item	1		
6.03	As item no. 6.05, but for Record (As-Installed) Drawings comprising: i) Fully dimensioned drawings of all plants and apparatus. ii) General arrangement drawings of equipment, plant etc. iii) Routes – types and sizes and arrangement of all pipework. iv) Wiring and piping diagrams of plant and apparatus. v) Schematic diagram of individual plants and switch and control boards. vi) All the required operating instructions for all panels, boards, control panels etc.	Item	1		
6.04	Prepare and submit Maintenance Manuals for all items installed.	Item	1		
6.05	All other items of general preliminary to cover, but not limited to:- i. Attendance on all other sub-contractors, such as for Electrical Installations Plumbing & drainage Installations and Generator Installations etc. ii. Hiring and keeping a Supervisor/Foreman on site iii. Constant supervision of the works. iv. Provision of all the required spares. v. Testing and Inspection of materials/works. vi. Provision of labour camps. vii. Storage of materials. viii. Initial maintenance (During Defects Liability) ix. Providing water/electricity for the works. x. Protection of the works/materials xi. Clearing away on completion. xii. Preparing Final Account. xiii. Providing all Test Certificates, etc.	Item	1		
Total C/F to Summary Page (BILL NO.6)					-

**PROPOSED CONSTRUCTION OF HUMANITIES & SOCIALS SCIENCES LECTURE HALLS
 BILLS OF QUANTITIES FOR PLUMBING, DRAINAGE & FIRE FIGHTING INSTALLATIONS
 SUMMARY PAGE**

ITEM	DESCRIPTION	AMOUNT KSHS. CTS
1.00	Bill No. 1, B/F from Page 2	
2.00	Bill No. 2, B/F from Page 3	
3.00	Bill No. 3, B/F from page 4	
4.00	Bill No. 4, B/F from page 5	
5.00	Bill No. 5, B/F from page 6	
6.00	Bill No. 6, B/F from page 7	
7.00	Sub - Total	
Total for Plumbing and Drainage Installations C/F to Form of Tender		

Total Amount in words _____

Tenderer's Name and Stamp _____
 (as in form of tender)

Signature _____

Date _____

PROPOSED CONSTRUCTION OF HUMANITIES & SOCIALSCIENCES LECTURE HALLS
BILL OF QUANTITIES FOR MEPF INSTALLATION
SUMMARY PAGE

ITEM NO.	DESCRIPTION	TOTAL (VAT INCLUSIVE) KSHS.
1	MECHANICAL INSTALLATION SUMMARY PAGE:- PLUMBING DRAINAGE & FIRE FIGHTING INSTALLATIONS	
2	HVAC INSTALLATIONS	
TOTAL CARRIED FORWARD TO FORM OF TENDER		

BILL NO. 10

P.C AND PROVISIONAL SUMS

PRIME COST AND PROVISIONAL SUMS

Item	Description	Unit	Quantity	Rate	Amount
<u>PRIME COST AND PROVISIONAL SUMS</u>					
<i>Prime Cost Sums</i>					
A	Provide sum for foul water drainage	Item	1	1,000,000.00	1,000,000.00
Total carried to General Summary:Kshs					1,000,000.00

PROPOSED CONSTRUCTION OF HUMANITIES & SOCIAL SCIENCES LECTURE HALLS**GENERAL SUMMARY**

BILL NO.	SECTION NAME	REF	AMOUNT
01	PARTICULAR PRELIMINARIES	5/5	
02	GENERAL PRELIMINARIES	6/15	
03	BUILDERS WORK		
	<i>i) Lecture hall lab</i>	7/17	
04	ELECTRICAL SERVICES INSTALLATIONS	8/SUM	
05	MECHANICAL SERVICES INSTALLATIONS	9/SUM	
06	PRIME COST AND PROVISIONAL SUMS	10/1	1,000,000.00
07	CONTIGENCY		1,000,000.00
	TOTAL CARRIED TO FORM OF TENDER	KSHS.	