

REPUBLIC OF KENYA

THE COUNTY ASSEMBLY OF SIAYA



PROPOSED ELECTRICAL POWER UPGRADE AT THE COUNTY ASSEMBLY OF SIAYA BUILDING (RE-ADVERTISEMENT)

TENDER NO: CAS/TEND/ELEC/8/B/2021-2022

G.O.K IFMIS REF NO: 1009987

Consultant:

Clomom Consultants & Engineers Ltd.
Consulting Engineers
P.O. Box 21292- 00100
NAIROBI.

Email: Clomomengineers@gmail.com

ISSUE DATE: 10TH JUNE 2022

CLOSING DATE: 20TH JUNE 2022

NB:

**ALL BIDS MUST BE SUBMITTED THROUGH G.O.K IFMIS SUPPLIER PORTAL @
supplier.tresury.go.ke**

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INVITATION TO TENDER

PROCURING ENTITY: COUNTY ASSEMBLY OF SIAYA

CONTRACT NAME AND DESCRIPTION: PROPOSED ELECTRICAL POWER UPGRADE

AT THE COUNTY ASSEMBLY BUILDING- RE-ADVETISEMENT

The *County Assembly of Siaya* invites sealed tenders for the *Proposed Electrical Power Upgrade*

At The County Assembly Building.

Tendering will be conducted under **open competitive method (National)** using a standardized tender document. Tendering is open to **all qualified and interested Tenderers.**

1. Qualified and interested tenderers may obtain further information and inspect the Tender Documents during office hours from **8:00a.m to 5: 00p.m** at the address given below.
2. A complete set of tender documents may be purchased or obtained by interested tenders upon payment of a non- refundable fees **N/A** in cash or Banker's Cheque and payable to the address given below. Tender documents may be obtained electronically from the Website(s); www.siyaasassembly.go.ke, or Government Tenders portal @ **tenders.go.ke**, or www.supplier.tresury.go.ke. Tender documents obtained electronically will be free of charge.
3. Tender documents may be viewed and downloaded for free from the website: www.siyaasassembly.go.ke, or Government Tenders portal @ **tenders.go.ke**, or www.supplier.tresury.go.ke. Tenderers who download the tender document must forward their particulars immediately to clerk@siyaasassembly.go.ke, to facilitate any further clarification or addendum.
4. Tenders shall be quoted be in Kenya Shillings and shall include all taxes. Tenders shall remain valid for **140 days** from the date of opening of tenders.
5. All Tenders must be accompanied by a tender security of **Kshs 200,000**, from bank or Insurance firm approved by PPRA.
6. The Tenderer shall chronologically serialize all pages of the tender documents submitted.
7. Completed tenders must be delivered to the address below on or before **MONDAY, 20TH JUNE 2022, at 12;00 noon.**
8. Tenders will be opened immediately after the deadline date and time specified above or any dead line 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.
9. Late tenders will be rejected.
10. The addresses referred to above are:

**COUNTY ASSEMBLY CLERK,
COUNTY ASSEMBLY OF SIAYA
P.O.BOX 7-40600
SIAYA**

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

- (1) Name of Procuring Entity: COUNTY ASSEMBLY OF SIAYA
- (2) Physical address for hand Courier Delivery to an office or Tender Box

**COUNTY ASSEMBLY HEADQUARTERS
OFFICE OF THE ASSEMBLY CLERK
P.O.BOX 7-40600
1ST FLOOR
SIAYA
ATT: ERICK ODHIAMBO OGenga**

B. Address for Submission of Tenders.

- 1) Name of Procuring Entity: COUNTY ASSEMBLY OF SIAYA
- 2) Postal Address: COUNTY ASSEMBLY CLERK, P.O.BOX 7-40600 SIAYA
- 3) Physical address for hand Courier Delivery: COUNTY ASSEMBLY OF SIAYA HEADQUARTERS, GROUND FLOOR.

C. Address for Opening of Tenders.

- 1) Name of Procuring Entity: COUNTY ASSEMBLY OF SIAYA
- 2) Physical address for the location : BOARDROOM III

[*Authorized Official (name, designation, Signature and date)*]

Name: **ERICK ODHIAMBO OGenga**

Designation: **Ag. COUNTY ASSEMBLY CLERK**

Date: **10th JUNE 2022**

PART 1: TENDERING PROCEDURES

SECTION I

INSTRUCTIONS TO TENDERERS

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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**.

- 32** 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 conflicts 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 enterprisetoenableitcompetewithfirmsintheprivatesectoronanequalbasis.
- 39** 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.
- 310** 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*”.
- 311** 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.

4.0 Eligible goods, equipment, and services

- 4.1** Goods, equipment and services to be supplied under the Contract may have their origin in any country that is not ineligible under ITT 3.9. At the Procuring Entity's request, Tenderers may be required to provide evidence of the origin of Goods, equipment and services.
- 4.2** Any goods, works and production processes with characteristics that have been declared by the relevant national environmental protection agency or by other competent authority as harmful to human beings and to the environment shall not be eligible for procurement.

5.0 Tenderer's responsibilities

- 5.1** The tenderer shall bear all costs associated with the preparation and submission of his/her tender, and the Procuring Entity will in no case be responsible or liable for those costs.
- 5.2** The tenderer, at the tenderer's own responsibility and risk, is encouraged to visit and examine and inspect the Site of the Works and its surroundings and obtain all information that may be necessary for preparing the tender and entering into a contract for construction of the Works. The costs of visiting the Site shall be the tenderer's own expense.
- 5.3** The Tenderer and any of its personnel or agents will be granted permission by the Procuring Entity to enter upon its premises and lands for the purpose of such visit. The Tenderer shall indemnify the Procuring Entity against liability arising from death or personal injury, loss of or damage to property, and any other losses and expenses incurred as a result of the examination and inspection.
- 5.4** The tenderer shall provide in the Form of Tender and Qualification Information, a preliminary description of the proposed work method and schedule, including charts, as necessary or required.

B. CONTENTS OF TENDER DOCUMENTS

6.0 Sections of Tender Document

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

- 6.2** 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.

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

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

- 7.1** 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.

8.0 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

9.0 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

11.1 The Tender shall comprise the following:

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

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

12.0 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.

13.0 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.

- 133** 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.
- 134** 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

- 141** 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.
- 142** 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.
- 143** 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.
- 144** The Tenderer shall quote any discounts and the methodology for their application in the Form of Tender, in accordance with ITT 12.1.
- 145** 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.
- 146** 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.

15.0 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, in sufficient 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.

- 17.5** 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.
- 17.6** The Tenderer shall provide further documentary proof, information or authorizations that the Procuring Entity may request in relation to ownership and control which information on any changes to the information which was provided by the tenderer under ITT 6.4. The obligations to require this information shall continue for the duration
Of the procurement process and contract performance and after completion of the contract, if any change to the information previously provided may reveal a conflict of interest in relation to the award or management of the contract.
- 17.7** All information provided by the tenderer pursuant to these requirements must be complete, current and accurate as at the date of provision to the Procuring Entity. In submitting the information required pursuant to these requirements, the Tenderer shall warrant that the information submitted is complete, current and accurate as at the date of submission to the Procuring Entity.
- 17.8** If a tenderer fails to submit the information required by these requirements, its tender will be rejected. Similarly, if the Procuring Entity is unable, after taking reasonable steps, to verify to a reasonable degree the information submitted by a tenderer pursuant to these requirements, then the tender will be rejected.
- 17.9** If information submitted by a tenderer pursuant to these requirements, or obtained by the Procuring Entity (whether through its own enquiries, through notification by the public or otherwise), shows any conflict of interest which could materially and improperly benefit the tenderer in relation to the procurement or contract management process, then:
- i) If the procurement process is still 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 as is depending 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.
- 17.10** If a tenderer submits information pursuant to these requirements that is incomplete, inaccurate or out-of-date, or attempts to obstruct the verification process, then the consequences 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 tender.

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.

19.0 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.

20.0 Format and Signing of Tender

- 20.1** The Tenderer shall prepare one original of the documents comprising the Tender as described in ITT 11 and clearly mark it “ORIGINAL.” Alternative Tenders, if permitted in accordance with ITT 13, shall be clearly marked “ALTERNATIVE.” In addition, the Tenderer shall submit copies of the Tender, in the number specified in the **TDS** and clearly mark them “COPY.” In the event of any discrepancy between the original and the copies, the original shall prevail.
- 20.2** Tenderers shall mark as “CONFIDENTIAL” all information in their Tenders which is confidential to their business. This may include proprietary information, trade secrets, or commercial or financially sensitive information.
- 20.3** The original and all copies of the Tender shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Tenderer. This authorization shall consist of a written confirmation as specified in the **TDS** and shall be attached to the Tender. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the Tender where entries or amendments have been made shall be signed or initialed by the person signing the Tender.
- 20.4** In case the Tenderer is a JV, the Tender shall be signed by an authorized representative of the JV on behalf of the JV, and so as to be legally binding on all the members as evidenced by a power of attorney signed by their legally authorized representatives.
- 20.5** Any inter-lineation, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the Tender.

D. SUBMISSION AND OPENING OF TENDERS

21.0 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.

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

22.0 Deadline for Submission of Tenders

22.1 Tenders must be received by the Procuring Entity at the address specified in the **TDS** and no later than the date and time also specified in the **TDS**. When so specified in the **TDS**, tenderers shall have the option of submitting their Tenders electronically. Tenderers submitting Tenders electronically shall follow the electronic Tender submission procedures specified in the **TDS**.

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

23.0 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.

25.0 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

26.0 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

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

by the Procuring Entity in the evaluation of the tenders, in accordance with ITT 31.

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

28.0 Deviations, Reservations, and Omissions

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

- a) *“Deviation”* is a departure from the requirements specified in the tender document;
- b) *“Reservation”* is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the tender document; and
- c) *“Omission”* is the failure to submit part or all of the information or documentation required in the Tender document.

29.0 Determination of Responsiveness

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

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

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

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

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

30.0 Non-material Non-conformities

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

30.2 Provided that a Tender is substantially responsive, the Procuring Entity may request that the tenderer submit the necessary information or documentation, within a reasonable period of time, to rectify 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.

30.3 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**.

31.0 Arithmetical Errors

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

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

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

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

32.0 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

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

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

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

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

34.0 Nominated Subcontractors

- 34.1** Unless otherwise stated in the **TDS**, the Procuring Entity does not intend to execute any specific elements of the Works by subcontractors selected/nominated by the Procuring Entity. In case the Procuring Entity nominates a subcontractor, the subcontract agreement shall be signed by the Subcontractor and the Procuring Entity. The main contract shall specify the working arrangements between the main contractor and the nominated subcontractor.
- 34.2** Tenderers may propose 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.
- 34.3** Domestic subcontractor's qualifications shall not be used by the Tenderer to qualify for the Works unless their specialized parts of the Works were previously designated so by the Procuring Entity in the **TDS** 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.

35.0 Evaluation of Tenders

- 35.1** The Procuring Entity shall use the criteria and methodologies listed in this ITT and Section III, Evaluation and Qualification Criteria No other evaluation criteria or methodologies shall be permitted. By applying the criteria and methodologies the Procuring Entity shall determine the Lowest Evaluated Tender in accordance with ITT 40. To evaluate a Tender, the Procuring Entity shall consider the following:
- a) Price adjustment in accordance with ITT 31.1 (iii); excluding provisional sums and contingencies, if any, but including Day work items, where priced competitively;
 - b) price adjustment due to discounts offered in accordance with ITT 14.4;
 - c) converting the amount resulting from applying (a) and (b) above, if relevant, to a single currency in accordance with ITT 32;
 - d) price adjustment due to quantifiable non material non-conformities in accordance with ITT 30.3; and
 - e) any additional evaluation factors specified in the **TDS** and Section III, Evaluation and Qualification Criteria.
- 35.2** The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be considered in Tender evaluation.
- 35.3** 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** In case 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,

39.0 Qualifications of the tenderer

- 39.1** The Procuring Entity shall determine to its satisfaction whether the eligible Tenderer that is selected as having submitted the lowest evaluated cost and substantially responsive Tender, meets the qualifying criteria specified in Section III, Evaluation and Qualification Criteria.
- 39.2** The determination shall be based upon an examination of the documentary evidence of the Tenderer's qualifications submitted by the Tenderer, pursuant to ITT 17. The determination shall not take into consideration the qualifications of other firms such as the Tenderer's subsidiaries, parent entities, affiliates, subcontractors (other than Specialized Sub-contractors if permitted in the Tender document), or any other firm(s) different from the Tenderer.
- 39.3** An affirmative determination shall be a prerequisite for award of the Contract to the Tenderer. A negative determination shall result in disqualification of the Tender, in which event the Procuring Entity shall proceed to the Tenderer who offers a substantially responsive Tender with the next lowest evaluated price to make a similar determination of that Tenderer's qualifications to perform satisfactorily.

40.0 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. In case 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

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

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

45.0 Debriefing by The Procuring Entity

45.1 On receipt of the Procuring Entity's Notification of Intention to Enter into a Contract referred to in ITT 43, an unsuccessful tenderer may make a 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.

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

46.0 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

- 47.1** 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.
- 47.2** Within fourteen (14) days of receipt of the Contract Agreement, the successful Tenderer shall sign, date, and return it to the Procuring Entity.
- 47.3** The written contract shall be entered into within the period specified in the notification of award and before expiry of the tender validity period.

48.0 Performance Security

- 48.1** Within twenty-one (21) days of the receipt of the Letter of Award from the Procuring Entity, the successful Tenderer shall furnish the Performance Security and, any other documents required in the **TDS**, in accordance with the General Conditions of Contract, subject to ITT 38.2 (b), using the Performance Security and other Forms included in Section X, Contract Forms, or another form acceptable to the Procuring Entity. A foreign institution providing a bank guarantee shall have a correspondent financial institution located in Kenya, unless the Procuring Entity has agreed in writing that a correspondent bank is not required.
- 48.2** Failure of the successful Tenderer to submit the above-mentioned Performance Security and other documents required in the **TDS** or sign the Contract shall constitute sufficient grounds for the annulment of the award and forfeiture of the Tender Security. In that event the Procuring Entity may award the Contract to the Tenderer offering the next Best Evaluated Tender.
- 48.3** Performance security shall not be required for 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 Complaint

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

SECTION II TENDER DATA SHEET (TDS)

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.	
A. General	
ITT1.1	<p>The name of the contract is PROPOSED ELECTRICAL POWER UPGRADE AT THE COUNTY ASSEMBLY OF SIAYA BUILDING (RE-ADVERTISEMENT)</p> <p>The reference number of the Contract is: CAS/TEND/ELEC/8/B//2021-2022</p> <p>Lot1-Name _____ N/A</p> <p>Lot2-Name _____ N/A</p> <p>Lot... Name _____ N/A</p> <p>ETC.</p>
ITT2.3	<p>The Information made available on competing firms is as follows:</p> <p>_____</p>
ITT2.4	<p>The firms that provided consulting services for the contract being tendered for are: CLOMMOM CONSULTANTS AND ENGINEERS LTD</p> <p>_____</p>
ITT3.1	Maximum number of members in the Joint Venture (JV) shall be: <i>[insert a number]</i> . 1

B. Contents of Tender Document	
ITT 7.1	<p>(i) The Tenderer will submit any request for clarifications in writing at the Address: P.O.BOX 7-40600 SIAYA</p> <p>_____</p> <p>To reach the Procuring Entity not later than: 20TH JUNE 2022</p> <p>(ii) The Procuring Entity shall publish its response at the website: www.siayaassembly.go.ke_____</p>
ITT 7.2	<p>(A) A pre-arranged pretender site visit take place at the following date, time and place: Date: THURSDAY, 16TH JUNE 2022 Time: 10:00 A.M Place: SIAYA COUNTY ASSEMBLY</p> <p>(B) Pre-Tender meeting [insert "shall" or "shall not"] take place at the following date, time and place: Date: _____N/A Time: _____N/A Place: _____N/A</p>
ITT 7.3	The Tenderer will submit any questions in writing, to reach the Procuring Entity not later than 16TH JUNE 2022 at 4:00 P.M
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>(1) Name of Procuring Entity: County Assembly of Siaya</p> <p>Physical address for hand Courier Delivery to an office or Tender Box (City, Street, Building, Floor Number and Room: County Assembly of Siaya Headquarters, Ground Floor.</p> <p>(3) Postal Address: P.O.BOX 7-40600 Siaya.</p> <p>(4) Insert name, telephone number and e-mail address of the officer to be contacted.</p> <p>Name: Erick Odhiambo Ogenga</p> <p>E-mail: clerk@siayaassembly.go.ke_____</p>
C. Preparation of Tenders	
ITT 11.1 (h)	The Tenderer shall submit the following additional documents in its Tender: N/A
ITT 13.1	Alternative Tenders shall not be permitted.
ITT 13.2	Alternative times for completion shall not be permitted.
ITT 13.4	Alternative technical solutions shall be permitted for the following parts of the Works: N/A

ITT 15.2 (a)	Foreign currency requirements allowed/not allowed.
ITT 18.1	The Tender validity period shall be 140 days.
ITT 18.3	(a) The Number of days beyond the expiry of the initial tender validity period will be 14 days. (b) The Tender price shall be adjusted by the following percentages of the tender price: N/A
ITT 19.1	Tender shall provide a Tender Security of KSHS 200,000 from Bank in form of bank guarantee or Insurance firm in form of bond approved by PPRA. The Security should be in Kenya shillings.
ITT 20.1	In addition to the original of the Tender, the number of copies is: 1 (One)
ITT 20.3	The written confirmation of authorization to sign on behalf of the Tenderer shall consist of; POWER OF ATTORNEY

D. Submission and Opening of Tenders

ITT 22.1	(A) For Tender submission purposes only, the Procuring Entity's address is: _____ (1) Name of Procuring Entity; COUNTY ASSEMBLY OF SIAYA (2) Postal Address: P.O.BOX 7-40600 SIAYA (3) Physical address for hand Courier Delivery to an office or Tender Box: COUNTY ASSEMBLY OF SIAYA HEADQUARTERS, FIRST FLOOR (4) Date and time for submission of Tenders; MONDAY, 20TH JUNE 2022 at 12;00 noon. (5) Tenderers shall submit tenders electronically.
ITT 25.1	The Tender opening shall take place at the time and the address for Opening of Tenders Provided below: (6) Name of Procuring Entity: COUNTY ASSEMBLY OF SIAYA (1) Physical address for the location (City, Street, Building, Floor Number and Room): COUNTY ASSEMBLY OF SIAYA HEADQUARTERS (7) State date and time of tender opening. MONDAY, 20TH JUNE 2022 at 12;00 noon, BOARDROOM III.
ITT 25.1	If Tenderers are allowed to submit Tenders electronically, they shall follow the electronic tender submission procedures specified in the G.O.K IFMIS SUPPLIER PORTAL, www.supplier.treasury.go.ke.

E. Evaluation, and Comparison of Tenders

ITT 30.3	The adjustment shall be based on the Average price of the item or component as quoted in other substantially responsive Tenders. If the price of the item or component cannot be derived from the price of other substantially responsive Tenders, the Procuring Entity shall use its best estimate.
-----------------	--

ITT 33.4	The invitation to tender is extended to the following group that qualify for Reservations N/A
-----------------	--

ITT 34.1	At this time, the Procuring Entity <u>N/A</u> <i>[insert "intends" or "does not intend"]</i> 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><i>[Indicate N/A if not applicable]</i></p> <p>The parts of the Works for which the Procuring Entity permits Tenderers to propose Specialized Subcontractors are designated as follows: AS SPECIFIED BY THE TENDERER</p> <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 (d)	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 N/A
ITT 49.1	<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>For the attention: ERICK ODHIAMBO OGEGA</p> <p>Title/position: Ag. COUNTY ASSEMBLY CLERK</p> <p>Procuring Entity: COUNTY ASSEMBLY OF SIAYA</p> <p>Email address: clerk@siyaasassembly.go.ke</p> <p>In summary, a Procurement-related Complaint may challenge any of the following (among others):</p> <p>the terms of the Tender Documents; and</p> <p>the Procuring Entity's decision to award the contract.</p>

SECTION III

EVALUATION AND QUALIFICATION CRITERIA

10 GENERAL PROVISIONS

- 11** 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.
- 12** 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.

13 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.

20 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.

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

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

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 tender 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.

OPTION2

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.

50 ALTERNATIVE TENDERS (ITT 13.1)

Alternative Tenders (ITT 13.1)

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

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 shareholding 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 for award. If not, the lowest evaluated tender from Group B based on the first evaluation price shall be selected.
- 70 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.
 - 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 of Kenya Shillings_Seven Million (7,000,000)
 - ii) Minimum average annual construction turnover of Kenya Shillings Ten Million (10,000,000) , equivalent calculated as total certified payments received for contracts in progress and/or completed within the last 5 Years.
 - iii) At least_3 contract(s) of a similar nature executed within Kenya, or the East African Community or a

broad, that have been satisfactorily and substantially completed as a prime contractor, or joint venture member or sub-contractor each of minimum value Kenya shillings Five Million (5,000,000) equivalent.

- iv) Contractor's Representative and Key Personnel, which are specified as__
- v) Contractors key equipment listed on the table "Contractor's Equipment" below and more specifically listed.
- iv) Other conditions depending on their seriousness.

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_____(*specify 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 _____(*specify 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

Item No.	Qualification Subject	Qualification Requirement	Document To be Completed by Tenderer	For Procuring Entity's Use (Qualification met or Not Met)
1	Nationality I	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	
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 [.....].	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 I	No consistent history of court/arbitral award decisions	Form CON - 2	

Item No.	Qualification Subject	Qualification Requirement	Document To be Completed by Tenderer	For Procuring Entity's Use (Qualification met or Not Met)
11	Financial Capabilities	<p>(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 <i>[insert amount]</i> equivalent for the subject contract(s) net of the Tenderer's other commitments.</p> <p>(ii) The Tenderers shall also demonstrate, to the satisfaction of the Procuring Entity, that it has adequate sources of finance to meet the cash flow requirements on works currently in progress and for future contract commitments.</p> <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 <i>[insert number of years]</i> years shall be submitted and must demonstrate the current soundness of the Tenderer's financial position and indicate its prospective long-term profitability.</p>	Form FIN - 3.1, with attachments	
12	Average Annual Construction Turnover	Minimum average annual construction turnover of Kenya Shillings <i>[insert amount]</i> , equivalent calculated as total certified payments received for contracts in progress and/or completed within the last <i>[insert of year]</i> years, divided by <i>[insert number of years]</i> years	Form FIN - 3.2	
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 <i>[insert number of year]</i> years, starting 1 st January <i>[insert year]</i> .	Form EXP - 4.1 Experience	

Item No.	Qualification Subject	Qualification Requirement	Document To be Completed by Tenderer	For Procuring Entity's Use (Qualification met or Not Met)
14	Specific Construction & Contract Management Experience	<p>A minimum number of <i>[state the number]</i> 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 <i>[insert year]</i> and tender submission deadline i.e. ... (number) contracts, each of minimum value Kenya shillings 5,000,000 Equivalent.</p> <p><i>[In case the Works are to be tender as individual contracts under multiple contract procedure, the minimum number of contracts required for purposes of evaluating qualification shall be selected from the options mentioned in ITT 35.4]</i></p> <p>The similarity of the contracts shall be based on the following: <i>[Based on Section VII, Scope of Works, specify the minimum key requirements in terms of physical size, complexity, construction method, technology and/or other characteristics including part of the requirements that may be met by specialized subcontractors, if permitted in accordance with ITT 34.3]</i></p>	Form EXP 4.2(a)	

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				
1				
2				
3				
4				
5				
D				
1				
2				
3				
4				
5				
E				
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	Current location	
	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-1</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:	
	Jobtitle:	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): _____

Counter signature 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.

5.1 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: _____
1. Attached are copies of original documents of <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 <input type="checkbox"/> In case of JV, letter of intent to form JV or JV agreement, in accordance with ITT 3.5 <input type="checkbox"/> In case of state-owned enterprise or institution, in accordance with ITT 3.8, documents establishing: <ul style="list-style-type: none">• Legal and financial autonomy• Operation under commercial law• Establishing that the Tenderer is not under the supervision of the Procuring Entity
2. Included are the organizational chart, a list of Board of Directors, and the beneficial ownership.

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-mailaddress: _____
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, a list of Board of Directors, and the beneficial ownership.

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 award	Outcome as percentage of Net Worth	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.

5.4 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)				
	Year1	Year2	Year 3	Year4	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*

542 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		

543 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.

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

5.5 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 contractor contracts as specified in Section III, Evaluation and Qualification Criteria.

Financial Resources		
No.	Source of financing	Amount (Kenya Shilling equivalent)
1		
2		
3		
4		

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					

58 FORM EXP -4.1**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				
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	
If member in a JV or sub-contractor, specify participation in total Contract amount				
Procuring Entity's Name:				
Address: Telephone/fax number E-mail:				
Description of the similarity in accordance with Sub-Factor 4.2(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.

1. 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:				
Description of the key activities in accordance with Sub-Factor 4.2(b) of Section III:				

²If applicable

OTHER FORMS

6. FORM OF TENDER

INSTRUCTIONS TO TENDERERS

- i) *The Tenderer must prepare this Form of Tender on stationery with its letterhead clearly showing the Tenderer's complete name and business address.*
- ii) *All italicized text is to help Tenderer in preparing this form.*
- iii) *Tenderer must complete and sign CERTIFICATE OF INDEPENDENT TENDER DETERMINATION and the SELF DECLARATION OF THE TENDERER attached to this Form of Tender.*
- iv) *The Form of Tender shall include the following Forms duly completed and signed by the Tenderer.*
 - *Tenderer's Eligibility- Confidential Business Questionnaire*
 - *Certificate of Independent Tender Determination*
 - *Self-Declaration of the Tenderer*

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

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

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

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

To: *[insert complete name of Procuring Entity]*

Dear Sirs,

- i) 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 there in 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]*_____

The percentage or amount quoted above does not include provisional sums, and only allows not more than two foreign currencies.

- ii) 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.
- iii) 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.
- iv) We understand that you are not bound to accept the lowest or any tender you may receive.
- v) 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;
 - 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.")

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

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

- xvi) Binding Contract: We understand that this Tender, together with your written acceptance thereof included in your Letter of Acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed;
- 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) We, the Tenderer, have completed fully and signed the following Forms as part of our Tender:
- (a) Tenderer's Eligibility; Confidential Business Questionnaire - to establish we are not in any conflict to interest.
 - (b) Certificate of Independent Tender Determination - to declare that we completed the tender without colluding with other tenderers.
 - (c) Self-Declaration of the Tenderer - to declare that we will, if awarded a contract, not engage in any form of fraud and corruption.
 - (d) Declaration and commitment to the Code of Ethics for Persons Participating in Public Procurement and Asset Disposal.

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

Name of the Tenderer: *[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

Tenderer 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			

(ii) **Conflict of interest disclosure**

	Type of Conflict	Disclosure YES OR NO	If YES provide details of the relationship with Tenderer
1	Tenderer is directly or indirectly controls, is controlled by or is under common control with another tenderer.		
2	Tenderer receives or has received any direct or indirect subsidy from another tenderer.		
3	Tenderer has the same legal representative as another tenderer		
4	Tender has a relationship with another tenderer, directly or through common third parties, that puts it in a position to influence the tender of another tenderer, or influence the decisions of the Procuring Entity regarding this tendering process.		
5	Any of the Tenderer's affiliates participated as a consultant in the preparation of the design or technical specifications of the works that are the subject of the tender.		
6	Tenderer would be providing goods, works, non-consulting services or consulting services during implementation of the contract Specified in this Tender Document.		
7	Tenderer has a close business or family relationship with a professional staff of the Procuring Entity who are directly or indirectly involved in the preparation of the Tender document or specifications of the Contract, and/or the 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)

.....
(Signature)

.....
(Date)

Bidder Official Stamp

FORM SD2

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

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

1. THAT I am the Chief Executive/Managing Director/Principal Officer/Director of
(insert name of the Company) who is a Bidder in respect of **Tender No.**..... for
..... (*insert tender 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 is representation, 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 in 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.

2. FORM OF TENDER SECURITY-DEMAND BANK GUARANTEE

Beneficiary: _____

Request for Tenders No: _____

Date: _____

TENDER GUARANTEE No.: _____

Guarantor: _____

1. We have been informed that _____ (here in 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)]

4. FORM OF TENDER SECURITY (TENDER BOND)

[The Surety shall fill in this Tender Bond Form in accordance with the instructions

indicated.] BOND NO. _____

1. BY THIS BOND *[name of tenderer]* as Principal (hereinafter called “the Principal”), and *[name, legal title, and address of surety]*, **authorized to transact business in** *[name of country of Purchaser]*, as Surety (hereinafter called “the Surety”), are held and firmly bound unto *[name of Purchaser]* as Obligee (hereinafter called “the Purchaser”) in the sum of *[amount of Bond]**[amount in words]*, for the payment of which sum, well and truly to be made, we, the said Principal and Surety, bind ourselves, our successors and as signs, jointly and severally, firmly by these presents.
2. WHERE AS the Principal has submitted or will submit a written Tender to the Purchaser dated the _____ day of _____, 20, for the supply of *[name of Contract]* (herein after called the “Tender”).
3. NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal:
 - a) Has withdrawn its Tender during the period of Tender validity set forth in the Principal's Letter of Tender (“the Tender Validity Period”), or any extension thereto provided by the Principal; or
 - b) Having been notified of the acceptance of its Tender by the Purchaser 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 Purchaser's Tendering document.then the Surety undertakes to immediately pay to the Purchaser up to the above amount upon receipt of the Purchaser's first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser shall state that the demand arises from the occurrence of any of the above events, specifying which event (s) has occurred.
4. The Surety here by agrees that its obligation will remain in full force and effect up to and including the date 30 days after the date of expiration of the Tender Validity Period set forth in the Principal's Letter of Tender or any extension thereto provided by the Principal.
5. IN TESTIMONY WHEREOF, the Principal and the Surety have caused these presents to be executed in their respective names this day of _____ 20.

Principal: _____
Corporate Seal (*where appropriate*)

Surety: _____

(Signature)
(Printed name and title)

(Signature)
(Printed name and title)

4. 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

5. 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>

SECTION 5A
PRELIMINARIES

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CONTRACT PRELIMINARIES

1.01 Examination of Tender Documents

The tenderer is required to check the number of pages of this document and should he find any missing or indistinct, he must inform the Engineer at once and have the same rectified.

All tenderers shall be deemed to have carefully examined the following:

- a) Work detailed in the Specification and in the Contract Drawings.
- b) The Republic of Kenya Document “General Conditions of Contract”.
- c) Other documents to which reference is made.

He shall also be deemed to have included for any expenditure which may be incurred in conforming with the above items (a), (b), (c) and observe this expense as being attached to the contract placed for the whole or any part of the work.

The tenderer shall ensure that all ambiguities, doubts or obscure points of detail, are clarified with the Engineer before submission of his tender, as no claims for alleged deficiencies in the information given shall be considered after this date.

1.02 Discrepancies

The Sub-contractor shall include all work either shown on the Contract Drawings or detailed in the specification. No claim or extra cost shall be considered for works, which has been shown on the drawings or in the specification alone.

Should the drawing and the specification appear to conflict, the Sub-contractor shall query the points at the time of tendering and satisfy himself that he has included for the work intended, as no claim for extra payment on this account shall be considered after the contract is awarded.

1.03 Conditions of Sub-contract Agreement

The Sub-contractor shall be required to enter into a Sub-contract with the Main Contractor.

The Conditions of the Contract between the Main Contractor and the Sub-contractor as hereinafter defined shall be the latest edition of the Agreement and Schedule of Conditions of Kenya Association of Building and Civil Engineering Contractors as particularly modified and amended hereinafter.

For the purpose of this contract the Agreement and Schedule of Conditions and any such modifications and amendments shall read and construed together. In any event of discrepancy the modifications and amendments shall prevail.

1.04 **Payment**

Payment will be made through certificates to the Main Contractor, unless he specifically agrees to forego this right, in which case direct payment can be made to the Sub-contractor. All payments will be less retention as specified in the Main Contract. No payment will become due until materials are delivered to site.

1.05 **Definition of Terms**

Throughout these Sub-contract documents units of measurements, terms and expressions are abbreviated and wherever used hereinafter and in all other documents they shall be interpreted as follows:

- i) **Employer:** The term “**Employer**” shall mean **County Assembly of Siaya**
- ii) **Architect:** The term “**Architect**” shall mean -----
- iii) **Engineer:** The term “**Engineer**” shall mean **Clomom Consultants and Engineers Ltd**
- iv) **Quantity Surveyor:** The term “**Quantity Surveyor**” shall mean -----
- v) **Main Contractor:** The term “**Main Contractor**” shall mean the firm or company appointed to carry out the Building Works and shall include his or their heir, executors, assigns, administrators, successors, and duly appointed representatives.
- vi) **Sub-contractor:** The term “**Sub-contractor**” shall mean the persons or person, firm or Company whose tender for this work has been accepted, and who has entered into a contract agreement with the Contractor for the execution of the Sub-contract Works, and shall include his or their heirs, executors, administrators, assigns, successors and duly appointed representatives.
- vii) **Sub-contract Works:** The term “**Sub-contract Works**” shall mean all or any portion of the work, materials and articles, whether the same are being manufactured or prepared, which are to be used in the execution of this Sub-contract and whether the same may be on site or not.
- viii) **Contract Drawings:** The term “**Contract Drawings**” shall mean those drawings required or referred to herein and forming part of the Bills of Quantities.
- ix) **Working Drawings:** The term “**Working Drawings**” shall mean those drawings required to be prepared by the Sub-contractor as hereinafter described.
- x) **Record Drawings:** The term “**Record Drawings**” shall mean those drawings required to be prepared by the Sub-contractor showing “as installed” and other records for the Sub-contract Works.
- xi) **Abbreviations:**

CM shall mean **Cubic Metre**

SM shall mean **Square Metre**

LM shall mean **Linear Metre**

LS shall mean **Lump Sum**

mm shall mean **Millimetres**

No. Shall mean **Number**

Kg. shall mean **Kilogram**

BS shall mean. **Current standard British Standard Specification published by the British Standard Institution**

“Ditto” shall mean the whole of the preceding description in which it occurs. Where it occurs in description of succeeding item it shall mean the same as in the first description of the series in which it occurs except as qualified in the description concerned. Where it occurs in brackets it shall mean the whole of the preceding description which is contained within the appropriate brackets.

1.06 **Site Location**

The site of the Sub-contract Works is situated **in Siaya**

The tenderer is recommended to visit the site and shall be deemed to have satisfied himself with regard to access, possible conditions, the risk of injury or damage to property on/or adjacent to the site, and the conditions under which the Sub-contract Works shall have to be carried out and no claims for extras will be considered on account of lack of knowledge in this respect.

1.07 **Duration of Contract**

The Sub-contractor shall be required to phase his work in accordance with the Main Contractor's program (or its revision). The program is to be agreed with the Main Contractor.

1.08 **Scope of Sub-contract Works**

The Sub-contractor shall supply, deliver, unload, hoist, fix, test, commission and hand-over in satisfactory working order the complete installations specified hereinafter and/or as shown on the Contract Drawings attached hereto, including the provision of labour, transport and plant for unloading material and storage, and handling into position and fixing, also the supply of ladders, scaffolding the other mechanical devices to plant, installation, painting, testing, setting to work, the removal from site from time to time of all superfluous material and rubbish caused by the works.

The Sub-contractor shall supply all accessories, whether of items or equipment supplied by the Main Contractor but to be fixed and commissioned under this Sub-contract

1.09 **Extent of the Sub-contractor's Duties**

At the commencement of the works, 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 the others are available locally. If these materials and equipment are not available locally, the Sub-contractor shall at this stage place orders for the materials in question and copy the orders to the Engineer. Failure to do so shall in no way relieve the Sub-contractor from supplying the specified materials and equipment in time.

Materials supplied by others for installation and/or connection by the Subcontractor shall be carefully examined in the presence of the supplier before installation and connection. Any defects noted shall immediately be reported to the Engineer.

The Sub-contractor shall be responsible for verifying all dimensions relative to his work by actual measurements taken on site.

The Sub-contractor shall mark accurately on one set of drawings and indicate all alterations and/or modifications carried out to the designed system during the construction period. This information must be made available on site for inspection by the Engineer.

1.10 **Execution of the Works**

The works shall be carried out strictly in accordance with:

- a) All relevant Kenya Bureau of Standards Specifications.
- b) All relevant International Standard Specifications and Codes of Practice.
- c) Technical Specifications.
- d) The Contract Drawings.
- e) The Bye-laws of the Local Authority.
- f) The Architect's and/or Engineer's Instructions.

The Contract Drawings and Specifications to be read and construed together.

1.11 **Validity of Tender**

The tender shall remain valid for acceptance within **120 days** from the final date of submission of the tender, and this has to be confirmed by signing the Tender Bond. The tenderer shall be exempted from this Bond if the tender was previously withdrawn in writing to the Employer before the official opening.

1.12 **Firm – Price Sub-contract**

Unless specifically stated in the documents or the invitation to tender, this is a firm-price Contract and the Sub-contractor must allow in his tender for the increase in the cost of labour and/or materials during the duration of the contract. No claims will be allowed for increased costs arising from the fluctuations in duties and/or day to day currency fluctuations. The Sub-contractor will be deemed to have allowed in his tender for any increase in the cost of materials which may arise as a result of currency fluctuation during the contract period.

1.13 **Variation**

Refer to General Conditions of Contract and Special Conditions of Contract

1.14 **Prime Cost and Provisional Sums**

A specialist Sub-contractor may be nominated by the Architect to supply and/or install any equipment covered by the Prime Cost or Provisional Sums contained within the Sub-contract documents.

The work covered by Prime Cost and Provisional Sums may or may not be carried out at the discretion of the Architect.

The whole or any part of these sums utilized by the Sub-contractor shall be deducted from the value of the Sub-contract price when calculating the final account.

1.15 **Bond**

The tenderer must submit with his tender the name of one Surety who must be an established Bank only who will be willing to be bound to the Main Contractor for an amount equal to **10%** of the Sub-contract amount.

1.16 **Government Legislation and Regulations**

The Sub-contractor's attention is called to the provision of the Occupational Safety and Health Act 2007 and subsequent amendments and revisions, and allowance must be made in his tender for compliance therewith, in so far as they are applicable.

The Sub-contractor must also make himself acquainted with current legislation and any Government regulations regarding the movement, housing, security and control of labour, labour camps, passes for transport, etc.

The Sub-contractor shall allow for providing holidays and transport for work people, and for complying with Legislation, Regulations and Union Agreements.

1.17 **Import Duty and Value Added Tax**

The Sub-contractor will be required to pay full Import Duty and Value Added Tax on all items of equipment, fittings and plant, whether imported or locally manufactured. The tenderer shall make full allowance in his tender for all such taxes.

1.18 **Insurance Company Fees**

Attention is drawn to the tenderers to allow for all necessary fees, where known, that may be payable in respect of any fees imposed by Insurance Companies or statutory authorities for testing or inspection.

No allowance shall be made to the Sub-contractor with respect to fees should these have been omitted by the tenderer due to his negligence in this respect.

1.19 **Provision of Services by the Main Contractor**

In accordance with Clause 1.08 of this Specification the Main Contractor shall make the following facilities available to the Sub-contractor:

- a) Attendance on the Sub-contractor and the carrying out of all work affecting the structure of the building which may be necessary, including all chasing, cutting away and making good brickwork, etc., except that all plugging for fixing, fittings, machinery, fan ducting, etc., and all drilling and tapping of steel work shall be the responsibility of the Sub-contractor. Any purpose made fixing brackets shall not constitute Builder's Work and shall be provided and installed by the Sub-contractor unless stated hereinafter otherwise.

- b) The provision of temporary water, lighting and power: All these services utilized shall be paid for by the Main Contractor. The Sub-contractor shall, however, allow for additional connections/extensions required for his purposes.
- c) Fixing of anchorage and pipe supports in the shuttering, except that all anchorage shall be supplied by the Sub-contractor who shall also supply the Main Contractor with fully dimensioned drawings detailing the exact locations.
- d)
 - i) Provision of scaffolding, cranes, etc. but only in so far as it is required for the Main Contract Works. It shall be the Sub-contractor's responsibility to liaise with the Main Contractor to ensure that there is maximum co-operation with other Sub-contractors in the use of scaffolding, cranes, etc.
 - ii) Any specialist scaffolding, cranes, etc. by the Sub-contractor for his own exclusive use shall be paid for by the Sub-contractor.

1.20 **Suppliers**

The Sub-contractor shall submit names of any supplier for the materials to be incorporated, to the Engineer for approval. The information regarding the names of the suppliers may be submitted at different times, as may be convenient, but no sources of supply will be changed without prior approval.

Each supplier must be willing to admit the Engineer or his representative to his premises during working hours for the purpose of examining or obtaining samples of the materials in question.

1.21 **Samples and Materials Generally**

The Sub-contractor shall, when required, provide for approval at no extra cost, samples of all materials to be incorporated in the works. Such samples, when approved, shall be retained by the Engineer and shall form the standard for all such materials incorporated.

1.22 **Administrative Procedure and Contractual Responsibility**

Wherever within the Specification it is mentioned or implied that the Sub-contractor shall deal direct with the Employer or Engineer, it shall mean "through the Contractor" who is responsible to the Employer for the whole of the works including the Sub-contract Works.

1.23 **Bills of Quantities**

The Bills of Quantities have been prepared in accordance with the standard method of measurement of Building Works for East Africa. All the Quantities are based on the Contract Drawings and are provisional and they shall not be held to gauge or to limit the amount or description of the work to be executed by the Sub-contractor but the value thereof shall be deducted from the Sub-contract Sum and the value of the work ordered by the Engineer and executed thereunder shall be measured and valued by the Engineer in accordance with the conditions of the Sub-contract.

All work liable to adjustment under this Sub-contract shall be left uncovered for a reasonable time to allow measurements needed for such adjustment to be taken by the Quantity Surveyor or Engineer. Immediately the work is ready for measuring the Sub-contractor shall give notice to the Quantity Surveyor or Engineer to carry out measurements before covering up. If the Sub-contractor shall make default in these respects he shall, if the Architect so directs, uncover the work to enable the necessary measurements to be taken and afterwards reinstate at his own expense.

1.24 **Sub-contractor's Office in Kenya**

The Sub-contractor shall maintain (after first establishing if necessary) in Kenya an office staffed with competent representative and such supporting technical and clerical staff as necessary to control and coordinate the execution and completion of the Sub-contract Works.

The representative and his staff shall be empowered by the Sub-contractor to represent him at meetings and in discussions with the Main Contractor, the Engineer and other parties who may be concerned and any liaison with the Sub-contractor's Head Office on matters relating to the design, execution and completion of the Sub-contract Works shall be effected through his office in Kenya.

It shall be the Sub-contractor's responsibility to procure work permits, entry permits, licenses, registration, etc., in respect of all expatriate staff.

The Sub-contractor shall prepare a substantial proportion of his Working Drawings at his office in Kenya. No reasons for delays in the preparation or submission for approval or otherwise of such drawings or proposals will be accepted on the grounds that the Sub-contractor's Head Office is remote from his office in Nairobi or the site of the Sub-contract Works or otherwise.

1.25 **Builder's Work**

All chasing, cutting away and making good will be done by the Main Contractor but the Sub-contractor shall mark out in advance and shall be responsible for accuracy of the size and position of all holes and chases required.

The Sub-contractor shall drill and plug holes in floors, walls, ceiling and roof for securing services and equipment requiring screw or bolt fixings.

Any purpose made fixing brackets shall not constitute builder's work and shall be provided and installed by the Sub-contractor unless stated hereinafter to the contrary.

1.26 **Structural Provision for the Works**

Preliminary major structural provision has been made for the Sub-contract Works based on outline information ascertained during the preparation of the Specification.

The preliminary major structural provision made will be deemed as adequate unless the Sub-contractor stated otherwise when submitting his tender.

Any major structural provision or alteration to major structural provisions required by the Sub-contractor shall be shown on Working Drawings to be submitted to the Engineer within 30 days of being appointed.

No requests for alterations to preliminary major structural provisions will be approved except where they are considered unavoidable by the Engineer. In no case will they be approved if building work is so far advanced as to cause additional costs or delays in the work of the Main Contractor.

1.27 **Position of Services, Plant, Equipment, Fittings and Apparatus**

The Contract Drawings give a general indication of the intended layout. The position of the equipment and apparatus, and also the exact routes of the ducts, main and distribution pipework shall be confirmed before installation is commenced. The exact siting of appliances, pipework, etc., may vary from that indicated.

The routes of services and positions of apparatus shall be determined by the approved dimensions detailed in the Working Drawings or on site by the Engineer in consultation with the Sub-contractor or the Main Contractor.

Services throughout the ducts shall be arranged to allow maximum access along the ducts and the services shall be readily accessible for maintenance. Any work, which has to be re-done due to negligence in this respect, shall be the Sub-contractor's responsibility.

The Sub-contractor shall be deemed to have allowed in his Sub-contract Sum for locating terminal points of services (e.g. lighting, switches, socket outlets, lighting points, control

switches, thermostats and other initiating devices, taps, stop cocks) in positions plus or minus 1.2m horizontally and vertically from the locations shown on Contract Drawings. Within these limits no variations in the Sub-contract Sum will be made unless the work has already been executed in accordance with previously approved Working Drawings and with the approval of the Engineer.

1.28 **Checking of Work**

The Sub-contractor shall satisfy himself to the correctness of the connections he makes to all items of equipment supplied under the Sub-contract agreement and equipment supplied under other contracts before it is put into operation. Details of operation, working pressures, temperatures, voltages, phases, power rating, etc., shall be confirmed to others and confirmation received before the system is first operated.

1.29 **Setting to Work and Regulating System**

The Sub-contractor shall carry out such tests of the Sub-contract Works as required by British

Standard Specifications, or equal and approved codes as specified hereinafter and as customary.

No testing or commissioning shall be undertaken except in the presence of and to the satisfaction of the Engineer unless otherwise stated by him (Sub-contractor's own preliminary and proving tests exempted).

It will be deemed that the Sub-contractor has included in the Sub-contract Sum for the costs of all fuel, power, water and the like, for testing and commissioning as required as part of the Sub-contract Works. He shall submit for approval to the Engineer a suitable programme for testing and commissioning. The Engineer and Employer shall be given ample warning in writing, as to the date on which testing and commissioning will take place.

The Sub-contractor shall commission the Sub-contract Works and provide attendance during the commissioning of all services, plant and apparatus connected under the Sub-contract Agreement or other Sub-contract Agreements, related to the project.

Each system shall be properly balanced, graded and regulated to ensure that correct distribution is achieved and where existing installations are affected, the Sub-contractor shall also regulate these systems to ensure that their performance is maintained.

The proving of any system of plant or equipment as to compliance with the Specification shall not be approved by the Engineer, except at his discretion, until tests have been carried out under

operating conditions pertaining to the most onerous conditions specified except where the time taken to obtain such conditions is unreasonable or exceeds 12 months after practical completion of the Sub-contract Works.

1.30 **Identification of Plant Components**

The Sub-contractor shall supply and fix identification labels to all plant, starters, switches and

items of control equipment including valves, with white traffolyte or equal labels engraved in red

lettering denoting its name, function and section controlled. The labels shall be mounted on equipment and in the most convenient positions. Care shall be taken to ensure the labels can be read without difficulty. This requirement shall apply also to major components of items of control equipment.

Details of the lettering of the labels and the method of mounting or supporting shall be forwarded to the Engineer for approval prior to manufacture.

1.31 **Contract Drawings**

The Contract Drawings when read in conjunction with the text of the Specification have been completed in such detail as was considered necessary to enable competitive tenders to be obtained for the execution and completion of the Sub-contract works.

The Contract Drawings are not intended to be Working Drawings and shall not be used unless exceptionally they are released for this purpose.

1.32 **Working Drawings**

The Sub-contractor shall prepare such Working Drawings as may be necessary. The Working Drawings shall be complete in such detail not only that the Sub-contract Works can be executed on site but also that the Engineer can approve the Sub-contractor's proposals, detailed designs and intentions in the execution of the Sub-contract Works.

If the Sub-contractor requires any further instructions, details, Contract Drawings or information drawings to enable him to prepare his Working Drawings or proposals, the Sub-contractor shall accept at his own cost, the risk that any work, commenced or which he intends to commence at site may be rejected.

The Engineer, in giving his approval to the Working Drawings, will presume that any necessary action has been, or shall be taken by the Sub-contractor to ensure that the installations shown on

the Working Drawings have been cleared with the Main Contractor and any other Sub-contractors whose installations and works might be affected.

If the Sub-contractor submits his Working Drawings to the Engineer without first liaising and obtaining clearance for his installations from the Main Contractor and other Sub-contractors whose installations and works might be affected, then he shall be liable to pay for any alterations or modification to his own, the Main Contractor's or other Sub-contractor's installations and works, which are incurred, notwithstanding any technical or other approval received from the Engineer.

Working Drawings to be prepared by the Sub-contractor shall include but not be restricted to the following:

- a) Any drawings required by the Main Contractor, or Engineer to enable structural provisions to be made including Builder's Working Drawings or Schedules and those for the detailing of holes, fixings, foundations, cables and paperwork ducting below or above ground or in or outside or below buildings.
- b) General Arrangement Drawings of all plant, control boards, fittings and apparatus or any part thereof and of installation layout arrangement of such plant and apparatus.
- c) Schematic Layout Drawings of services and of control equipment.
- d) Layout Drawings of all embedded and non-embedded paperwork, ducts and electrical conduits.
- e) Complete circuit drawings of the equipment, together with associated circuit description.
- f) Such other drawings as are called for in the text of the Specification or Schedules or as the Engineer may reasonably require.

Three copies of all Working Drawings shall be submitted to the Engineer for approval. One copy of the Working Drawings submitted to the Engineer for approval shall be returned to the Sub-contractor indicating approval or amendment therein.

Six copies of the approved Working Drawings shall be given to the Main Contractor by the Sub-contractor for information and distribution to other Sub-contractors carrying out work associated with or in close proximity to or which might be affected by the Sub-contract Works.

Approved Working Drawings shall not be departed from except as may be approved or directed by the Engineer.

Approval by the Engineer of Working Drawings shall neither relieve the Sub-contractor of any of his obligations under the Sub-contract nor relieve him from correcting any errors found subsequently in the Approved Working Drawings or other Working Drawings and in the Sub-contract Works on site or elsewhere associated therewith.

The Sub-contractor shall ensure that the Working Drawings are submitted to the Architect for approval at a time not unreasonably close to the date when such approval is required. Late submission of his Working Drawings will not relieve the Sub-contractor of his obligation to complete the Sub-contract Works within the agreed Contract Period and in a manner that would receive the approval of the Architect.

1.33 **Record Drawings (As Installed) and Instructions**

During the execution of the Sub-contract Works the Sub-contractor shall, in a manner approved by the Engineer record on Working or other Drawings at site all information necessary for preparing Record Drawings of the installed Sub-contract Works. Marked-up Working or other Drawings and other documents shall be made available to the Engineer as he may require for inspection and checking.

Record Drawings, may, subject to the approval of the Engineer, include approved Working Drawings adjusted as necessary and certified by the Sub-contractor as a correct record of the installation of the Sub-contract Works.

They shall include but not restricted to the following drawings or information:

- a) Working Drawings amended as necessary but titled “Record Drawings” and certified as a true record of the “As Installed” Sub-contract Works. Subject to the approval of the Engineer such Working Drawings as may be inappropriate may be omitted.
- b) Fully dimensioned drawings of all plant and apparatus
- c) General arrangement drawings of equipment, other areas containing plant forming part of the Sub-contract Works and the like, indicating the accurate size and location of the plant and apparatus suitability cross-referenced to the drawings mentioned in (b) above and hereinafter.
- d) Routes, types, sizes and arrangement of all pipework and ductwork including dates of installation of underground pipework.
- e) Relay adjustment charts and manuals.
- f) Routes, types, sizes and arrangement of all electric cables, conduits, ducts and wiring including the dates of installation of buried works.
- g) System schematic and trunking diagrams showing all salient information relating to control and instrumentation.
- h) Grading Charts.
- i) Valve schedules and locations suitability cross-referenced.
- j) Wiring and piping diagrams of plant and apparatus.
- k) Schematic diagrams of individual plant, apparatus and switch and control boards.

These diagrams to include those peculiar to individual plant or apparatus and also those applicable to system operation as a whole.

1) Operating Instruction

Schematic and wiring diagrams shall not be manufacturer's multipurpose general issue drawings. They shall be prepared specially for the Sub-contract Works and shall contain no spurious or irrelevant information.

Marked-up drawings of the installation of the Sub-contract Works shall be kept to date and completed by the date of practical or section completion. Two copies of the Record Drawings of Sub-contract Works and two sets of the relay adjustment and grading charts and schematic diagrams on stiff backing shall be provided not later than one month later.

The Sub-contractor shall supply for fixing in sub-stations, switch-rooms, boiler houses, plant rooms, pump houses, the office of the Maintenance Engineer and other places, suitable valve and instructions charts, schematic diagrams of instrumentation and of the electrical reticulation as may be requested by the Engineer providing that the charts, diagrams, etc., relate to installations forming part of the Sub-contract Works. All such charts and diagrams shall be of suitable plastic material on a stiff backing and must be approved by the Engineer before final printing.

Notwithstanding the Sub-contractor's obligations referred to above, if the Sub-contractor fails to produce to the Engineer's approval, either:-

- a) The Marked-up Drawings during the execution of the Sub-contract Works or
- b) The Record Drawings, etc., within one month of the Section or Practical Completion

The Engineer shall have these drawings produced by others. The cost of obtaining the necessary information and preparing such drawings, etc., will be recovered from the Sub-contractor.

1.34 **Maintenance Manual**

Upon Practical Completion of the Sub-contract Works, the Sub-contractor shall furnish the Engineer four copies of a Maintenance Manual relating to the installation forming part of all of the Sub-contract Works.

The manual shall be loose-leaf type, International A4 size with stiff covers and cloth bound. It may be in several volumes and shall be sub-divided into sections, each section covering one Engineering service system. It shall have a ready means of reference and a detailed index.

There shall be a separate volume dealing with Air Conditioning and Mechanical Ventilation installation where such installations are included in the Sub-contract Works.

The manual shall contain full operating and maintenance instructions for each item of equipment, plant and apparatus set out in a form dealing systematically with each system. It shall include as may be applicable to the Sub-contract Works the following and any other items listed in the text of the Specifications:

- a) System Description.
- b) Plant

- c) Valve Operation
- d) Switch Operation
- e) Procedure of Fault Finding
- f) Emergency Procedures
- g) Lubrication Requirements
- h) Maintenance and Servicing Periods and Procedures
- i) Colour Coding Legend for all Services
- j) Schematic and Wiring Diagrams of Plant and Apparatus
- k) Record Drawings, true to scale, folded to International A4 size
- l) Lists of Primary and Secondary Spares.

The manual is to be specially prepared for the Sub-contract Works and manufacturer's standard descriptive literature and plant operating instruction cards will not be accepted for inclusion unless exceptionally approved by the Engineer. The Sub-contractor shall, however, affix such cards, if suitable, adjacent to plant and apparatus. One spare set of all such cards shall be furnished to the Engineer.

1.35 **Hand-over**

The Sub-contract Works shall be considered complete and the Maintenance and Defects Liability Period shall commence only when the Sub-contract Works and supporting services have been tested, commissioned and operated to the satisfaction of the Engineer and officially approved and accepted by the Employer, provided always that the handing over of the Sub-contract Works shall be coincident with the handing over of the Main Contract Works.

The procedure to be followed will be as follows:

- a) On the completion of the Sub-contract Works to the satisfaction of the Engineer and the Employer, the Sub-contractor shall request the Engineer, at site to arrange for handing over.

- b) The Engineer shall arrange a Hand-over Meeting or a series thereof, at site.
- c) The Sub-contractor shall arrange with the Engineer and Employer for a complete demonstration of each and every service to be carried out and for instruction to be given to the relevant operation staff and other representatives of the Employer.
- d) In the presence of the Employer and the Engineer, Hand-over will take place, subject to Agreement of the Hand-over Certificates and associated check lists.

1.36 **Painting**

It will be deemed that the Sub-contractor allowed for all protective and finish painting in the Sub-contract Sum for the Sub-contract Works, including colour coding of service pipework to the approval of the Engineer. Any special requirements are described in the text of the Specifications.

1.37 **Spares**

The Sub-contractor shall supply and deliver such spares suitably protected and boxed to the Engineer's approval as are called for in the Specifications or in the Price Schedules.

1.38 **Testing and Inspection – Manufactured Plant**

The Engineer reserves the right to inspect and test or witness of all manufactured plant equipment and materials.

The right of the Engineer relating to the inspection, examination and testing of plant during manufacture shall be applicable to Insurance companies and inspection authorities so nominated by the Engineer.

The Sub-contractor shall give two weeks' notice to the Engineer of his intention to carry out any inspection or tests and the Engineer or his representative shall be entitled to witness such tests and inspections.

Six copies of all test certificates and performance curves shall be submitted as soon as possible after the completion of such tests, to the Engineer for his approval.

Plant or equipment which is shipped before the relevant test certificate has been approved by the Engineer shall be shipped at the Sub-contractor's own risk and should the test certificate not be approved new tests may be ordered by the Engineer at the Sub-contractor's expense.

The foregoing provisions relate to tests at manufacturer's works and as appropriate to those carried out at site.

1.39 Testing and Inspection -Installation

Allow for testing each section of the Sub-contract Works installation as described hereinafter to the satisfaction of the Engineer.

1.40 Labour Camps

The Sub-contractor shall provide the necessary temporary workshop and mess-room in position to be approved by the Architect.

The work people employed by the Sub-contractor shall occupy or be about only that part of the site necessary for the performance of the work and the Sub-contractor shall instruct his employees accordingly.

If practicable, W.C. accommodation shall be allocated for the sole use of the Sub-contractor's workmen and the Sub-contractor will be required to keep the same clean and disinfected, to make good any damage there to and leave in good condition.

1.41 Storage of Materials

Space for storage will be provided by the Main Contractor but the Sub-contractor will be responsible for the provision of any lock-up sheds or stores required.

Nominated Sub-contractors are to be made liable for the cost of any storage accommodation provided specially for their use. No materials shall be stored or stacked on suspended slabs without the prior approval of the Architect.

1.42 Initial Maintenance

The Sub-contractor shall make routine maintenance once a month during the liability for the Defects Period and shall carry out all necessary adjustments and repairs, cleaning and oiling of

moving parts. A monthly report of the inspection and any works done upon the installation shall be supplied to the Engineer.

The Sub-contractor shall also provide a 24 -hour break-down service to attend to faults on or malfunctioning of the installation between the routine visits of inspection.

The Sub-contractor shall allow in the Sub-contract Sum of the initial maintenance, inspection and break-down service and shall provide for all tools, instruments, plant and scaffolding and the transportation thereof, as required for the correct and full execution of these obligations and the provision, use or installation of all materials as oils, greases, sandpaper, etc., or parts which are periodically renewed such as brake linings etc., or parts which are faulty for any reason whatsoever excepting always Acts of God such as storm, tempest, flood, earthquake and civil revolt, acts of war and vandalism.

1.43 **Maintenance and Servicing After Completion of the Initial Maintenance**

The Sub-contractor shall, if required, enter into a maintenance and service agreement with the employer for the installation for a period of up to five years from the day following the last day of the liability for Defects Period which offers the same facilities as specified in Clause 1.41 (Initial Maintenance).

The terms of any such agreement shall not be less beneficial to the employer than the terms of Agreements for either similar installation.

The Sub-contractor shall submit with his tender for the works, a firm quotation for the maintenance and service of the installation as specified herein, which shall be based upon the present day costs and may be varied only to take into account increases in material and labour unit rate costs between the time of tendering and the signing of the formal maintenance and service agreement and which shall remain valid and open for acceptance by the Employer to and including the last day of the fifth complete calendar month following the end of the liability for Defects Period.

1.44 **Trade Names**

Where trade names of manufacturer's catalogue numbers are mentioned in the Specification or the Bills of Quantities, the reference is intended as a guide to the type of article or quality of material required. Alternate brands of equal and approved quality will be acceptable.

1.45 **Water and Electricity for the Works**

These will be made available by the Main Contractor. The Sub-contractor shall be liable for the cost of any water or electric current used and for any installation provided especially for their own use by the Main Contractor.

1.46 **Protection**

The Sub-contractor shall adequately cover up and protect his own work to prevent injury and also to cover up and protect from damage all parts of the building or premises where work is performed by him under the Contract.

1.47 **Defects after Completion**

The defects liability period will be six months from the date of completion of the Main Contract as certified by the Engineer.

1.48 **Damages for Delay**

Liquidated and ascertained damages as stated in the Main Contract Agreement will be claimed against the Main Contract for any unauthorized delay in completion. The Sub-contractor shall be held liable for the whole or a portion of these damages should he cause delay in completion.

1.49 **Clear Away on Completion**

The Sub-contractor shall, upon completion of the works, at his own expense, remove and clear away all plant, equipment, rubbish and unused materials, and shall leave the whole of the works in a clean and tidy state, to the satisfaction of the Engineer. On completion, the whole of the works shall be delivered up clean, complete and perfect in every respect to the satisfaction of the Engineer.

1.50 **Final Account**

On completion of the works the Sub-contractor shall agree with the Engineer the value of any variations outstanding and as soon as possible thereafter submit to the Engineer his final statement of account showing the total sum claimed sub-divided as follows:

Statement A - detailing the tender amounts less the Prime Cost and Provisional Sums,
included

therein.

Statement B - detailing all the variation orders issued on the contract.

Statement C - Summarizing statement A and B giving the net grand total due to the Sub-contractor for the execution of the Sub-contract.

1.51 **Fair Wages**

The Sub-contractor shall in respect of all persons employed anywhere by him in the execution of the Sub-contract, in every factory, workshop or place occupied or used by him for execution of the Sub-contract, observe and fulfill the following conditions:

- a) The Sub-contractor shall pay rates of the wages and observe hours and conditions of labour not less favourable than those established for the trade or industry in the district where work is carried out.
- b) In the absence of any rates of wages, hours or conditions of labour so established the Sub-contractor shall pay rates and observe hours and conditions of labour are not less favourable than the general level of wages, hours and conditions observed by other employers whose general circumstances in the trade or industry in which the Sub-contractor is engaged are similar.

1.52 **Supervision**

During the progress of the works, the Sub-contractor shall provide and keep constantly available for consultation on site an experienced English - speaking Supervisor and shall provide reasonable office facilities, attendance, etc., for the Supervisor.

In addition, during the whole of the time the works are under construction, the Sub-contractor shall maintain on site one experienced foreman or charge-hand and an adequate number of fitters, etc., for the work covered by the Specification. The number of this staff shall not be reduced without the prior written approval of the Architect or Engineer.

Any instructions given to the Supervisor on site shall be deemed to have been given to the Sub-contractor.

Depending on the scope of coordination works required onsite, the Engineer shall recommend the appointment of a Resident Electrical Engineer, who will be required to be based on site. The Resident Engineer shall be appointed and paid by the Engineer. Provision to be made for the appointment of the Resident Engineer.

One copy of this Specification and one copy of each of the Contract Drawings (latest issue) must be retained on site at all times, and available for reference by the Engineer or Sub-contractor.

1.53 **Test Certificates**

The Sub-contractor shall provide the Engineer with three copies of all test reports or certificates that are or may be required by this Specification.

1.54 **Labour**

The Sub-contractor shall provide skilled and unskilled labour as may be necessary for completion of the contract.

1.55 **Discount to the Main Contractor**

No discount to the Main Contractor will be included in the tender for this installation.

1.56 **Guarantee**

The whole of the work will be guaranteed for a period of **twelve (12)** months from the date of the Architect's certification of completion and under such guarantee the Sub-contractor shall remedy at his expense all defects in materials and apparatus due to faulty design, construction or workmanship which may develop in that period.

PART 2: WORKS REQUIREMENTS

SECTION V BILLS OF QUANTITIES

ITEM	DESCRIPTION	PAGE
1	PREAMBLE TO BILLS OF QUANTITIES	5/3-5/7
2	SECTION 5A PRELIMINARIES	5A/1-5A/18
3	SECTION 5B: BILLS OF QUANTITIES FOR PRELIMINARY ITEMS	5B/1-5B/4
4	SECTION 5C: BILLS OF QUANTITIES FOR ELECTRICAL INSTALLATIONS	5C/1-5C/13

PREAMBLE TO BILLS OF QUANTITIES

1. General Note to Tenderers

1.1 The total of the prices in the summary of prices shall include for the whole of the Contract works in accordance with the specifications as defined before and shall be carried forward to Form of Tender.

1.2 Any prices omitted from any item, section or part of the price schedule shall be deemed to have included in another item, section or part.

1.3 The prices shall include for all obligations under the Contract including and not limited to:

- a) Supply of any materials, equipment, apparatus, fittings, spares and tools
- b) Insurance
- c) Clearing and forwarding
- d) Delivery, handling and storage at site
- e) Packing for storage
- f) Replacing any defective or damaged item
- g) Installation
- h) Testing
- i) Painting
- j) Commissioning
- k) Maintenance during the defects liability period

- 1.4 The unit rates shall include import duty and VAT where applicable, and shall be expressed in Kenya Shillings.
- 1.5 Any tenderer whose firm uses the title “Engineer” or “Engineering” must provide evidence of registration of at least one of the directors by the Engineers Registration Board of Kenya to avoid disqualification.
- 1.6 **Any tenderer who fails to price the Preliminary items will be deemed to have allowed 5% of his tender price to cover these items, i.e. 5% of the total tender price will be deducted as preliminaries, if the tenderer does not enter specific prices against items of preliminary.**
- 1.7 The Sub-contractor is instructed to read all the pages, and all the items of the Bills of Quantities very carefully. Should there be an apparent omission of words or figures, or should the sub-contractor be in doubt about the precise meaning of any word or figures, or for any reason whatsoever feel more clarification is necessary, either in the drawings or Bills of Quantities, to facilitate reasonable pricing of the tender document, he should inform the engineer at once so that the correct interpretation or clarification may be given before tendering. No liability will be accepted on mistakes and/or omissions which should have been corrected in the format above.
- 1.8 The specification should be priced in Kenya Currency i.e. Shillings and cents.
- 1.9 The following meanings/interpretations shall be attached:-

. Lighting Point:	"Install a lighting point complete with concealed diameter 20mm H.G PVC conduit, conduit couplers, box, wiring in 1.5mm ² Twin + Earth PVC-CU cables and all accessories, but excluding the light switch".
DALI Lighting Point:	"Install a lighting point complete with concealed diameter 20mm H.G PVC conduit, conduit couplers, box, wiring in 2Core 1.5mm ² PVC/PVC CU cables and all accessories.
Socket Outlet:	"Install 13A power outlet comprising concealed diameter 20mm H.G PVC conduit, conduit couplers, box, ring main wiring in 6x2.5mm ² SC-PVC-CU cables and all accessories including 13A switched socket". All socket outlets <u>must</u> have safety shutters on both live and neutral.
. Telephone Point:	"Install telephone cord outlet point complete with telephone jack-plug, concealed diameter 25mm H.G PVC conduit box, and draw wire." All Telephone outlets must have continuous diameter 25mm links throughout respective buildings.
. 20A DP Outlet:	"Install outlet for 20A DP switch comprising concealed diameter 25mm H.G PVC conduit, wiring in 3x4.0mm ² SC-PVC-CU cables, box, 20A DP switch with neon light and all accessories".

- . **Electric Door Lock:** "Install an outlet for electric door lock comprising concealed diameter 20mm H.G PVC conduit box, wiring in 3x2.5mm² SC-PVC-CU cables, and all accessories including flush mounted electric door lock as YALE, or approved equivalent, (supplied with a key for use when power fails) complete with an integral transformer, and wired to, and complete with, a spring-loaded 5A switch marked "press". The two electric door locks in the "Air-lock" shall be wired so that both CAN NOT be opened at the same time.

- . **Fire Alarm Point:** "Install outlet for fire alarm sensor/sounder comprising concealed 20mm H.G PVC conduit, box, and all accessories". All fire alarm points must be inter-linked with diameter 20mm conduits.

- . **Consumer Unit:** "Supply and install SP/N power consumers unit, complete with SP/N integral isolator".

- . **Distribution Board:** "Supply and install TP/N power distribution board, complete with TP/N integral isolator."

- . **Main Switchboard:** Supply and install main switchboard free standing complete with all switchgear, as per schematics shown.

- . **Meter boards:** Supply and install metal clad meter boards C/W all Switchgear.

- . **Earthing:** "Protective multiple earthing to Kenya Power and Lighting Co. standards, comprising 1200mm deep-driven pure electrolytic copper earth electrode, electrode clamps, 16mm² yellow/green earth lead, earth pit complete with cover and all accessories".

- . **Labelling:** "Comprehensive, concise and instructive permanent labelling of all the sub-circuits, complete with identification of the sizes of all the sub-circuit cables, permanent traffolyte identification of the board such as "DB. A" and identification of the sizes of the sub-mains and their origin e.g "Board A: Supply: 4x16mm² SOURCE: DB.1"

- . **Blanking Plates:** "Supply and install blanking plates in all the spare ways."

- . **Switched Spur Outlet:** Install 13A fused switched spur outlet with neon light and 5A integral fuse, complete with concealed diameter 20mm H.G

PVC conduit, box, wiring in 6x2.5mm² ring main wiring for computer power supply and all accessories."

. Cooker outlet: Install 45A DP cooker control unit, complete with twin metal box, concealed 25mm H.G PVC conduit, box, wiring in 3x6.0mm² SC-PVC-CU cables and all accessories including 45A DP cooker control unit, with an integral socket, neon lights, and cooker connector unit.

- 1.10 Unless specifically stated otherwise, all light fittings will be as Philips manufacture. All power accessories, sockets, telephone outlets, TV outlets, distribution boards/consumer units, switches, spur outlets etc must either be Crabtree, MK or Schneider. Approved equivalent makes may be accepted subject to the engineer's prior approval.
- 1.11 The Sub-contract is for supplying, delivering, fixing/installing, testing, commissioning and setting to work to the full satisfaction of the Engineer/Architect and the Sub-contractor's price must include all cost for the entire process.
- 1.12 All conduits/ducts must be heavy gauge. Where steel pipes are specified, they must be minimum of class B in strength.
- 1.13 The installation shall be carried out strictly in accordance with the provision of the 17th Edition of Wiring Regulation as published by the Institution of Electrical Engineers, Great Britain, the most current relevant standards issued by the Kenya Bureau of Standards, and with strict adherence to the safety requirements and by-laws of the Kenya Power and Lighting Co. Ltd.
- 1.14 The Sub-contractor shall ensure that the highest standards of workmanship and highest quality materials are used at all times. Inferior workmanship and low quality materials shall be rejected and replaced at the Sub-contractors own cost.
- 1.15 The sub-contractors shall be solely responsible for the correct and accurate ordering of materials in accordance with the drawings and Bills of Quantities.
- 1.16 No claims on advance payment and/or materials off-site will be allowed unless the sub-contractor advances valid reasons acceptable to the employer. Should a claim on advance payment be allowed, the sub-contractor will be required to submit an Advance Payment Bond for the full value claimed.

- 1.17 The sub-contractor shall strictly follow the Main Contractor's programme of works and (the sub-contractor) must ensure that at no time does his activities cause delays to the Main Contractor.
- 1.18 This is a fixed price sub-contract, and the sub-contractor is expected to allow (in his unit rates) for generous fore-casts on fluctuations.
- 1.19 The Bills of Quantities shall be read in conjunction with Notes to All Tenderers, Preliminaries, General Specifications, Particular Specifications and all the relevant drawings.
- 1.20 A rate or price shall be entered against each item in the priced Bills of Quantities whether quantities are stated or not. The cost of items against which the sub-contractor has failed to enter a rate or price shall be deemed to be covered by other rates and prices entered in the Bills of Quantities.
- 1.21 The whole cost of complying with provisions of the sub-contract shall be included in the items provided in the 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.
- 1.22 General directions and descriptions of work and materials are not necessarily repeated nor summarized in the Bills of Quantities. Reference to the relevant sections of the sub-contract document shall be made before entering prices against each item in the priced Bills of Quantities.
- 1.23 Provisional sums and contingencies included and so designated in the Bills of Quantities shall be expended in whole or in part at the direction and discretion of the Engineer.
- 1.24 Errors in pricing will be corrected by the Employer for any arithmetic errors in computation or summarization as follows:-
- a) Where there is a discrepancy between amounts in figures and amounts in words, the amount in words will govern.
 - b) Where there is discrepancy between the unit rate and the total amount derived from the multiplication of the unit price and the quantity, the unit rate quoted will govern unless in the opinion of the employer, there is an obviously gross misplacement of the decimal point in the unit prices, in which event the total amount as quoted will govern and the unit rate will be corrected.
- 1.25 Other than ceiling mounted fixtures, accessories, light fittings etc, all the other mounting heights will be re-confirmed with the Engineer/Architect on site.

- 1.26 All light fittings must be complete with appropriate lamps, bulbs, tubes, starters, control gear etc as applicable. Where a light fitting has multiple lamps, tubes, bulbs, each lamp/tube/bulb must have its own separate choke/starter/p.f. correction capacitor/control gear etc.
- 1.27 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.
- 1.28 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.

2.0 Statement of Compliance

- a) I confirm compliance of all clauses of the General Conditions, General Specifications, Particular Specifications, Technical Specifications in this tender.
- b) I confirm I have not made and will not make any payment to any person, which can be perceived as an inducement to win this tender.

Signed:for and on behalf of the Tenderer

Date:

Official Rubber Stamp:

SECTION 6A
GENERAL SPECIFICATIONS FOR ELECTRICAL INSTALLATIONS

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PART 6A:

GENERAL ELECTRICAL SPECIFICATION

1 GENERAL

This section specifies the general requirement for plant, equipment and materials forming part of the Sub-contract Works and shall apply except where specifically stated elsewhere in the Specification or on the Contract Drawings.

1.1 Quality of Materials

All plant, equipment and materials supplied as part of the Sub-contract Works shall be new and of first class commercial quality, shall be free from defects and imperfections and where indicated shall be of grades and classifications designated herein.

All products or materials not manufactured by the Sub-contractor shall be products of reputable manufacturers and so far as the provisions of the Specification is concerned shall be as if they had been manufactured by the Sub-contractor.

Materials and apparatus required for the complete installation as called for by the Specification and Contract Drawings shall be supplied by the Sub-contractor unless mention is made otherwise.

Materials and apparatus supplied by others for installation and connection by the Sub-contractor shall be carefully examined on receipt. Should any defects be noted, the Sub-contractor shall immediately notify the Engineer.

Defective equipment or that damaged in the course of installation or tests shall be replaced as required to the approval of the Engineer.

1.2 Regulations and Standards

- a) The Sub-contract Works shall comply with the current editions of the following:
- b) The Kenya Government Regulations.
- c) The United Kingdom Institution of Engineering and Technology (IET) Wiring Regulations.

- d) The United Kingdom Chartered Institute of Building Services Engineers (CIBSE) Guides and Commissioning Codes.
- e) British Standards and Codes of Practice as published by the British Standards Institution (BSI) and/or International Standards and Codes of Practice as published by the International Electro technical Commission (IEC)
- f) Green Star SA certification requirements
- g) The Electricity Supply Authority By-laws.
- h) Local Authority By-laws.
- i) Relevant Kenya Bureau of Standards

1.03 Power Supply on Site

The supply voltage will be 415 volts 3 phase 50 Hz. TN-S system, viz. separate neutral and protective conductor throughout the system.

2. INSTALLATION OF CABLES

2.01 General

Bending of cables shall be in accordance with IET Wiring Regulations 522.8 and no cable shall be bent to radius less than that specified by the cable manufacturers.

Cables shall be rated for the maximum connected load with due consideration to the following factors:-

- (i) Voltage drop not in excess of 4% of the nominal voltage.
- (ii) Ambient temperature.
- (iii) Degree of excess-current protection.
- (iv) Grouping.
- (v) Cables run under defined conditions.

2.02 Cables in conduits and Trunking

All cables shall be polyvinyl chloride (PVC) insulated to latest editions of BS 6004/BS EN 50525, 450/750 volt grade, unless an alternative is specified elsewhere in the contract documents. The quality and size of cables contained in any one conduit shall comply with IET Wiring Regulations Chapter 52 and Appendix 4.

No cable with a cross-section area of less than 1.5mm^2 shall be used. All cables installed in a conduit or trunking system shall be PVC single insulated conductors and shall be colour coded in accordance with the IET Wiring Regulations 514 and Appendix 7.

Final sub-circuits shall be run in conduits separate from main or sub-main cables. All cables in conduit shall be drawn in simultaneously. All cables shall be drawn in without the use of excessive force, without the use of lubricants and the wiring shall be easily withdrawable.

2.03 **PVC/SWA/PVC Cable**

These cables shall comprise copper conductors unless specifically detailed otherwise, laid up with PVC fillers bedded with an extruded inner PVC sheath, armoured with a single layer of galvanized steel wires, aluminium or strip as specified, and covered overall with PVC sheath.

Cables shall be manufactured to current editions of BS 5467 and BS 6724 with conductor dimensions and resistances in accordance with current edition of BS EN 60228, "copper conductors in insulated cables and cords", Armouring shall be galvanised steel to current edition of BS EN 10257.

Where the armour wires of cables are used to provide protective conductor they shall comply with the requirements of Chapter 54 of the IET Wiring Regulations; alternatively, additional cables with copper conductors shall be installed to reduce the impedance to a level which ensures compliance with Section 543 of the IET Wiring Regulations.

Unless permission is given by the Engineer, no joints will be allowed. In the event of joints being authorized, they shall be made using plastic boxes of approved design filled with an approved cold pouring plastic or resin compound. The cable box shall incorporate suitable copper tapes and clamps to bond the armouring of the jointed cables.

The PVC/SWA/PVC cables should be terminated in the cable manufacture's approved glands. These shall be of the compression type providing controlled radial compression of the sheath seal. The gland shall incorporate an armour clamping ring and earthing ring and, where used outdoors, a lead washer shall be used to ensure a watertight joint between the gland and the unit to which it is fitted. The earthing ring shall be rigidly fixed to the item of equipment and terminated using brass nuts, bolts and washers. All gland terminations shall be protected by a PVC shroud which shall fit tightly over the cables.

The electrical Sub-Contractor is responsible for determining the true nature and extent of cable routes. No claim on the grounds of lack of knowledge will be entertained. All cable routes shall be agreed with the Engineer. After the cables have been installed and terminated, but prior to putting into service, they shall be subjected to an insulation test of 500 volts and the results of these tests (recorded on test sheets) forwarded to the Engineer.

3. CONDUIT AND CONDUIT FACILITIES - MILD STEEL CONDUIT SYSTEM

3.01 Conduits

Conduits shall be installed as required by the IET Wiring Regulations and as detailed in this specification.

All metal conduits must be heavy gauge, seam welded, steel tube screwed conduits manufactured to current edition of BS EN 61386, for metric conduit, unless specified otherwise. Conduits shall be finished black stove enamelled, except in positions exposed to water (other than water used in construction), steam condensation or the action of weather, where hot galvanised conduits shall be used.

Any conduits work rejected by the Engineer shall be replaced at no extra cost. No conduit smaller than 20 mm in diameter or bigger than 50mm diameter shall be used.

All bends in conduit shall be in accordance with the IET Wiring Regulations, and made in a conduit bending machine fitted with a former of the correct radius for each conduit size.

Conduits shall be secured in an efficient pipe vice whilst being screwed. Conduit system shall be installed so as to ensure compliance with requirements of IET Wiring Regulations.

3.02 Conduit Fittings

Conduit fittings shall have same finish as the conduits being used and shall comply with current edition of BS EN 61386. All conduit fittings shall be screwed or loop-in malleable iron circular type, fitted with covers secured by brass screws. Rectangular adaptable steel boxes may be used on multi-conduit runs.

All circular type boxes must be fitted with long screwed spout conduit entries with the screwed thread terminating within the spout and the edges of the internal orifice of the box rounded and smoothed to act as a bush except for the adaptable steel rectangular boxes and loop-in conduit boxes, in which case male bush and coupling must be used for conduit connections. In concealed installation, boxes shall be fixed with the rims flush with the finished surface, but when, for any reason whatsoever, the rims are below the surface, suitable extension rings of the required depth shall be provided and installed to finish flush with the surrounding surfaces and with the lids of sufficient oversize (7.5 mm minimum all round) to cover the junction between box and plaster. In no case will the use of site-manufactured bends, sets, elbows, inspection elbows or tees be permitted.

3.03 Fixing of Conduits

All conduits must be firmly and rigidly fixed to be entirely without whip or movement. Space-bar saddles, or strap saddles, must be used on the timbers in roof spaces and will be allowed when the conduits are run on the underside of exposed unsealed floor or ceiling joints. Pipe hooks or crumpets will not be allowed except for security conduits in chases, or screeds, when the top of the hook must at least be 10 mm below the finished surface of the wall, or 25 mm below the floor finish. Pipe hooks shall be galvanised.

The finish of the saddles must in all cases conform to the finish of the supported conduits. Galvanised, sherardized or cadmium plated screws shall be used in all cases where galvanised conduits are installed.

The standard cast iron distance saddle, (single fixing base and two-screw fixing top), must be used for all conduits run on the surface of walls and ceilings etc., fixed at intervals of not more than 1.2 metres.

3.04 Conduit Runs and Concealment

The routes of the conduit installation shall be agreed with the Engineer prior to commencing the installation. Conduits shall be installed at least 150 mm from, and preferably under, any hot water pipes and at least 50 mm from other surface pipes and cables. Conduits shall be bonded to other surfaces in accordance with the requirements of IET Wiring Regulations 413-2 and 547-4 to 547-7 inclusive.

Each continuity test shall be applied to the system before plastering, screeding, or casting of concrete is commenced. Surface work will be allowed where certain pre-fabricated methods of construction preclude the concealment of the runs, and or fair-faced brickwork or block work or other unplastered walls.

Conduit runs shall be planned to obviate the need for draw-in boxes, but where the use of such boxes is unavoidable they shall be accessible at all times and be fitted with covers. When Conduits are specified as being installed on the surface the runs must be arranged to render the whole system as neat and inconspicuous as possible, having regard to the existing architectural features. All vertical and horizontal runs must be taken where conduits converge and run together near distribution centres to obtain a symmetrical layout. The distance between the conduits shall be maintained through bends and sets and shall not vary noticeably.

3.05 Flexible Metallic Conduit

Flexible Conduit shall comply with the BS 731 part 1. "Flexible steel conduit and adaptors for the protection of electrical cables." It shall be used for the final connection from a rigid conduit installation to the terminal boxes of all the equipment provided with a means of positional adjustment and /or where vibration may reasonably be expected to occur.

Flexible conduits shall be PVC sheathed and shall be terminated using approved glands. In all instances a separate PVC insulated green and yellow coloured protective conductor complying with table 41A1 or 41A2 and section 543 of the IET Wiring Regulations shall be installed, terminating at each end into purpose-made earthing terminals.

Under no circumstances will flexible conduits be accepted in lieu of sets and bends in a rigid conduit installation.

In normal circumstances flexible conduits shall have a minimum length of 300 mm and a maximum unstretched length of 800mm. It shall permit a full range of withdrawal, adjustment or movement of the equipment.

3.06 Locking, Bushing and Coupling

All conduit ends must be filed square and reamed before erection to ensure freedom from internal burrs and roughness.

Running couplings shall only be used on black enamelled steel conduit installations, and the use of this shall be kept to the minimum. All running couplings shall be secured by means of the lock nuts or lock rings, and the exposed thread painted after installation.

Every conduit connection to the equipment, boxes, distribution boards, loop-in boxes, cable trunking etc, shall be made by means of a screw coupling and a male hexagonal headed smooth bore brass bush. The smooth bore shall be fitted to secure the conduit to the item connected via a purpose-made clear hole to be closed by the bush and coupling when fitted. Paint must be removed from the surface of the item connected to allow it to be covered by the end of the coupling which shall be filed, clean and square, to ensure a good mechanical and electrical metal to metal joint. Any exposed area of metal from which paint has been removed must be made good in a matching paint. Bushes shall be fitted and tightened by means of correctly fitting spanners. Mutilated bushes damaged whilst being fitted must be removed and replaced.

Conduits connecting via couplings shall be connected by a means of 15 mm long threaded section and shall have a gap of approximately 2 mm between them. No thread shall be exposed except running couplings.

3.07 Continuity and Earthing

The whole of the conduit installations shall be mechanically and electrically sound and continuous throughout their length in accordance with the IET Wiring Regulations.

Where the conduit system is used to provide a protective conductor it shall comply with the requirements of Chapter 54 of the IET Wiring Regulations particularly Section 543; alternatively, a separate protective conductor shall be installed in the conduit to comply with Section 543 of the IET Wiring Regulations.

4. CABLE TRUNKING-SHEET STEEL

Trunking shall only be installed in situations which will remain readily accessible throughout the life of the buildings. No cable trunking shall be installed behind a plastered ceiling or in other inaccessible situations.

All cable trunking shall comply with BS 4678, part 1 "Steel surface trunking" and part 2 for "Steel underfloor (duct) trunking".

Sheet steel cable trunking may be used on installations employing steel conduits, for connecting two or more switchboards together or where several conduits would otherwise have to run alongside each other. Proper allowance should be made for the derating of cables installed together in a container system. The cables must be capable of carrying the current imposed by the equipment connected. Attention is drawn to Chapter 52 of the IET Wiring Regulations, particularly Section 522, and Appendix 9: the current carrying capabilities of cables indicated shall not be exceeded. The Engineer must be consulted as to precise details concerning trunking routes and applications.

All lengths of trunking shall be heavy gauge zinc coated steel connected together by internally fitted rectangular couplings of sufficient width to provide a minimum bearing face of 25mm, to which the lengths shall be bolted on site or welded at the factory.

Adequate provision shall be made to allow for expansion.

All Tee pieces and bends shall be formed with similar means of connection and the inner radii area shall be such that cables will not be bent through a radius less than that prescribed in the IET Wiring Regulations. Only bends and tees of approved pattern will be accepted.

All fixing screws within the trunking shall be of the round head type. The trunking shall have an over-lapping well-fitted lid securely fixed to the trunking by approved means that will avoid damage to the cables. Self-tapping screws shall not be used.

All necessary accessories including long sleeve couplings, end piece, bends, sets, tees, reducers, branches, fillets, pinracks, cable retainers etc., shall be purpose-made units rather than being fabricated on site.

Where a change in direction of trunking run occurs, the deviation should be effected by a purpose-made unit manufactured on similar lines to the bends and tee pieces described above. Where this is not practical, changes in direction shall be fabricated in a neat workmanlike manner. All joints shall fit closely and gaps will not be permitted. All burrs and sharp edges shall be removed and no screw shall protrude into the trunking.

Trunking shall be firmly attached to its associated equipment either by bolted flanges or by male bushes and couplings.

Where trunking is connected to equipment by means of flange connectors, the entry into the equipment shall be of the same cross-section as the trunking.

Where trunking does not terminate in equipment, the otherwise open end shall be capped with a cover suitable bolted in position.

Where communications, extra low voltage circuits (category 1) etc., are contained in a trunking, the requisite number of separate compartments shall be provided to segregate the wiring. Where conduits are taken off such trunking they shall not pass through other compartments unless prior permission is obtained from the Engineer.

The entire trunking is required to be recessed in the structure of the building, the finished edge of the trunking is to be installed flush with the plasterwork.

Trunking runs shall be so arranged that the lid or cover plate is always on the top or side and not underneath, unless this cannot be avoided, in which case the Engineer's permission shall be obtained.

Wherever trunking passes through walls, vertical partitions etc., a fixed piece of trunking lid shall be fitted to the trunking extended 25 mm either side of the wall or other barrier, this is to allow removal of the adjacent lid without disturbing the building fabric. Care shall be taken to ensure that no opening is left between the trunking and the building structure through which fire might spread. In addition a suitable barrier of incombustible material shall be provided and fitted inside the trunking, in accordance with the IET Wiring Regulations 528-1. On vertical runs of trunking internal incombustible barriers shall be fitted at the distance between floors or 5m, whichever is the less, in accordance with IET Wiring Regulations 523-6.

All necessary trunking support work, hangers, brackets and fixing requirements shall be provided by the electrical Sub-Sub-Contractor.

Earth links of the appropriate size and type shall be installed at every jointing coupling, manufactured bend, etc., throughout the entire trunking system. Where trunking is used to provide a protective conductor it shall comply with the requirements of Chapter 54 of the IET Wiring Regulations, particularly Section 543; alternatively, a separate protective conductor shall be installed in the trunking to comply with section 543 of the IET Wiring Regulations.

In cases where sheet steel trunking is installed and there is danger of movement, a flexible earth

conductor shall be installed bonding all joints in the trunking. This shall be fitted in addition to the standard earth links. Cable retaining strips shall be fitted at 1 m intervals. Insulated cable support pins shall be fitted at intervals of 4 m in vertical runs of trunking and at the top of the vertical trunking.

5 CABLE TRAYS

Cable trays shall be formed from perforated steel of not less than 0.9 mm thickness up to and including 100 mm width - 1.25 mm thickness from 150 mm up to and including 300 mm width - and 2.00 mm thickness above 300 mm width. They shall be galvanised unless otherwise specified. Tray shall be adequately sized to support the cable without bunching.

Support shall be by means of steel brackets installed at intervals necessary to provide a rigid fixing and ensure that no undue deflection occurs in the complete installation. The brackets shall be galvanised prior to fixing. Dome-headed bolts, nuts and washers of finish suitable to the tray shall be used between tray and brackets.

Fixing to the surfaces of walls, ceilings, etc. shall be by means of expansion-type masonry plugs or bolts. Fixings shall be galvanised unless otherwise stated. Cable trays shall be installed using factory-formed bends, elbows, tees, couplers and risers etc. Site fabrication of elbows etc., will only be permitted with prior approval of the Engineer and where it is not possible to obtain the necessary factory-made item.

Where cuts have been made, the tray shall be painted with zinc rich paint.

Holes which have been cut to allow cables to pass through shall be suitably bushed.

Suspension sets shall comprise threaded M12 cadmium plated hanger rods together with nuts and locking washers, vertical hanger brackets, support channel, tray hold-down clips etc., all of which shall have a galvanised finish.

All cables shall be securely fixed to tray work and the complete installation must be carried out in a neat and workmanlike manner without crossovers. A 25% reserve margin in size and weight shall be allowed for all cable tray works.

Cables of 30 mm diameter and above shall be fixed using the appropriate size cable straps of approved manufacture.

On light duty multi-cable runs, cable straps of plastic coated metal shall be used to secure cables.

Bunching of cables will not be permitted.

Cables shall be clipped by means of copper or brass saddles and clips where high temperature or humid conditions are likely to be experienced. In all cases, saddles, clips, straps, etc., shall be fixed to the tray by means of brass screws or bolts and nuts.

6. PROTECTION OF PVC/SWA/PVC CABLES

6.01 General

Cable routing shall be such that the maximum degree of protection against accidental damage is obtained by running cables along the inside of channels and beams, etc.

Cables shall be laid in performed trenches or duct throughout all paved areas. Ducts shall be installed for underground cables before the paving is constructed.

Cable ducts shall be sealed at both ends using materials which are resistant to any likely corrosive and insect attack in the area concerned.

All cables rising through floors and trench covers, except in switch rooms, shall be protected by a length of steel pipe which shall project at least 150 mm above the finished surface level.

The open end of the pipe shall be sealed with a suitable compound. Care must be taken that all phases of single core cables pass through the same protective steel duct.

6.02 Cables Direct in Ground

All excavation and backfilling of cable trenches will be carried out by the main Sub-Contractor unless otherwise specified, but the electrical Sub-Sub-Contractor shall in any case make sure that trenches are made to a depth as specified.

The electrical Sub-Sub-Contractor shall lay cables direct in the ground in the following manner:-

75 mm (3 inches) of dry fine sand shall be placed to form a bed for the cables. After cables have been laid they shall be covered with additional dry fine sand well punned over and around the cables to a level of 75 mm above the top of the uppermost cable. Mechanical pinners shall not be used for this work. The electrical Sub-Sub-Contractor shall supply and install concrete cable tiles which shall be carefully placed over the cable forming each circuit.

Until all the cables have been laid in the trench and have been covered with their protective tiles, no sharp metal tools such as spades or fencing stakes, shall be used in the trench. Rollers used during laying of cables shall have no sharp projecting parts liable to damage the cables.

6.03 Cables above Ground

For main cable runs the cable shall be run on approved tray or ladder rack, and secured to it at intervals of not more than 400 mm horizontally and 600 mm vertically.

Cables shall be dressed together and fixed with a common saddle. If the number of cables is such as to require the tying of cables, the number of tiers shall generally be two.

7 TERMINATION OF CABLES

Cables shall be terminated in accordance with Chapter 52 of the IET Wiring Regulations, particularly Section 527.

Cables shall be terminated by one of the following methods:-

- (i) The cable conductors shall be sweated into lugs of the appropriate size for the cable and equipment terminal.
- (ii) The cable conductors shall be secured by compression type lugs of the correct size for the cable and equipment terminal.
- (iii) The cable conductors shall be secured in pinch screw terminals.
- (iv) The cable shall be secured by means of clamps.

Where cables are required to terminate at connectors, as at lighting points, such connectors shall secure all the strands of stranded cables. Care shall be taken to ensure that cables are not damaged during preparation for termination.

Cables terminating at pinch screw terminals shall be twisted together and single cables shall have the conductor doubled back to ensure adequate purchase for pinching screws.

Cables connected to lamp holders or other components at which heat is produced shall be insulated with heat resisting material capable of withstanding, without detriment, the temperature encountered.

All terminations on PVC/SWA/PVC insulated cables shall be by compression type glands of an approved design and manufacture with facilities for clamping the armouring the outer sheath of the cable.

Glands mounted outdoors shall incorporate a seal to prevent ingress of moisture into the gland, and all glands shall be fitted with a thermoplastic shroud.

Where circular terminations are to be made, these shall be completed using Ross Counterney terminals.

Where cables are terminated in "Klippon" type terminals with parallel faced jaws, the individual cores shall be terminated using the appropriate flat or hook blade crimped lugs. Where the terminal faces are concaved, the cores shall be terminated in wires pin crimped lugs.

The electrical Sub-Sub-Contractor shall avoid multiple connections under one screw or one pin. Where more than two wires are required, a common termination jumper bar shall be used.

Terminals shall be mounted on rails or supports. All internal wiring is to be clearly marked by markers.

8 SEGREGATION OF SERVICES

Cables of differing voltages shall be segregated so that there is no possibility of a fault in a power cable damaging any adjacent cables or imposing a different voltage upon them.

9 IDENTIFICATION OF CABLES

All cables shall be fitted with non-corrosive cable identification bands at each end, and at all changes of direction where they leave a group of cables. All cables cores connected to equipment having marked terminals shall be fitted with non-corrosive identification bands bearing markings corresponding to those of the terminals at both ends.

10. EARTHING

The whole of the metallic portion of the installation, other than current carrying parts, shall be electrically and mechanically bonded to the consumer's main earth terminal and also if applicable, to the lighting protection system or other points specified.

The installation shall be earthed in accordance with the Sixteenth Edition of the Regulations for Electrical Installation issued by the IEE, BS CP1013, "Earthing" and BS 6651 'The protection of structures against Lightning'. The electrical Sub-Sub-Contractor's attention is drawn to Chapter 54 of the IET Wiring Regulations.

A main earth terminal shall be supplied and installed adjacent to the electricity supply cable termination. The terminal shall be of ample size and capacity to suit the installation. All items of equipment, switchgear, etc., shall be bonded to this earth terminal using PVC insulated PVC sheathed cables, coloured green and yellow and sized in accordance with Tables 41A1 of the IET Wiring Regulations. A label reading "**SAFETY ELECTRICAL CONNECTION - DO NOT REMOVE**" in engraved upper case characters not less than 4.75mm high, shall be permanently fixed immediately adjacent to or on the earth terminal.

A heavy duty copper clamp complying with BS. 951 shall be used to bond the main protective conductor to the electricity supply cable armouring or metallic sheath (where applicable the armouring and sheath shall be bonded together).

All protective conductors shall, where possible, be enclosed within metal trunking or conduit serving switchgear, distribution board etc., so as to provide mechanical protection. Where protective conductors are run on building surfaces they shall be properly fixed and supported by means of PVC coated metal saddles along selected routes.

Earth continuity between separate items of switchgear, distribution boards etc., mounted adjacent to one another shall be affected by means of high conductivity continuous copper tape, or PVC sheathed cable, coloured green and yellow, and sized in accordance with the

Table 41A1 or 41A2 and Section 543 of the IET Wiring Regulations, connecting all items to the earth terminal.

All items of switchgear, accessories, luminaries, conduits, and the outer sheaths of MICS cables, the armouring of all PVC/SWA/PVC cables together with all other items of electrical plant and equipment shall be effectively earthed by means of a protective conductor in accordance with Table 41A1 and 41A2 and section 543 of the IET Wiring Regulations.

At every terminal point on the fixed wiring an integral earth terminal shall be provide e.g. BESA boxes, accessory boxes etc. A protective conductor shall be provided and installed between this terminal and the earth terminal on the associated switch, socket outlet, luminaire etc.

Each circuit protective conductor shall be connected to a multi-way earth terminal provided and fixed within each distribution board. The earth terminal shall be provided with an adequate number of ways such that not more than one conductor per terminal shall be installed and the earthing conductors shall be connected in the same sequence as the current carrying conductors.

All metal piped services, e.g., Heating, Water and Gas Services, metal wastes and piped services at sinks, baths and showers etc., shall be bonded to the earth terminal in accordance with the IET Wiring Regulations 413-2.

A 50mm section of each gas and water pipe, at position close to their entry into the relevant building, shall be cleaned and made smooth. A copper earthing clamp designed to permit the connection of protective conductors shall be provided and sized in accordance with Table 41A1 and 41A2 and Section 543 of the IET Wiring Regulations.

The clamp shall be a proprietary type or shall be fabricated from high conductivity copper strip, minimum size 40 mm x 4 mm which shall encircle the cleaned sections of the pipe. A permanent label indelibly marked with the words, "**SAFETY ELECTRICAL CONNECTION - DO NOT REMOVE**" in legible type not less than 4.75 mm high, shall be permanently fixed at the points of connections.

The final connection of bonding conductors from gas, water pipes and other services to the earthing terminal shall not be completed until earth electrode and earth impedance tests have been satisfactorily completed.

Bonding connections to pipework shall be as un-obstructive as possible where practicable shall be made in service ducts or accessible voids and shall be readily on the Record Drawings. All materials and sundry item shall be provided whether or not specifically mentioned, necessary to completely and effectively earth the installation. The installation shall be fully protected against dampness and corrosion and the effect of electrolytic action between dissimilar materials. A completely permanent installation shall be provided which shall be fully accessible for regular testing and inspection.

The value of earth resistance from any point of an installation to the general mass of earth shall be low enough to ensure operation of circuit protective devices and shall in any case not exceed four(4) ohms for electrical equipment, seven (7) ohms for lighting protection. Each earthing cable shall terminate in an approved design of cable lug.

Where earth conductors are run upon structures or walls they shall be fastened by means of heavy gauge non-ferrous fasteners not more than 0.75 m apart on horizontal runs and not more than 1.2 m apart on vertical runs and to give a minimum clearance of 4 mm from the fixing face.

In the event of the electrical sub-Sub-Contractor not being able to establish a suitable earth connection to the electricity supply cable, earth electrodes shall be installed which shall be galvanised or copper clad steel extendable rods not less than 16 mm diameter and not less than 1.2 m in length. Connections to electrodes shall be made by means of solderless mechanical clamps.

To avoid corrosion, all earth system connections shall be cleaned bright and immediately covered with silicon MS4 compound or approved equal.

Earth pits, where required, shall be in accordance with the Sub-Contractor's relevant drawings, with the facility to disconnect the earth ring while measuring the electrode earth resistance.

11 LIGHTNING PROTECTION

Lighting protection shall be provided on high buildings/structures more than 10 m in height. such protection shall be effected by bonding each individual building/structures direct to the earthing system, in accordance with the BS CP 326, by a minimum size of 170mm² conductor.

12 FUSED-SWITCH UNITS, SWITCHFUSES AND ISOLATORS

The above units comply with BS 5419 and shall be 500 volt type and installed where specified and indicated on the relevant drawings.

All switchgear shall be provided with suitable locks for padlocking the switches in the 'OFF' position. The cover shall be interlocked with the operating mechanism to prevent it from being opened in the 'ON' position. This interlocking shall also prevent the switch from being closed with the cover open unless for maintenance purposes. The cover shall be gasketed to prevent ingress of dust.

The switch action mechanism shall be of the parallel operation (double break type having cartridge fuses mounted switches) and shall be ASTA certified to meet adequately all the duties specified.

The end plates shall be removable for drilling for conduit or cable entry and shall be fitted with additional distance pieces where necessary. Switchgear boards shall be fixed to the wall/floor by Rawl bolts or other approved fixings.

No building alteration shall be allowed when moving the switchboard into position, the switchboard being supplied in sections to be built in position, if so required.

Switchgear shall be delivered to site when required to suit the progress of the works. Care shall be taken to preserve the manufacturer's paint finish. Any refurbishing etc. shall be carried out, using paint obtained from the switchboard manufacturer, to the original standard of finish.

All fuses in switchgear shall be HRC fuses sized for the fused-switch units or switch-fuses etc., in which they are incorporated. They shall be ASTA certified for compliance with BS 88, Category of Duty 440 A.C 5 Class 01 and in all cases fuse links shall be selected to provide circuits discrimination.

13 CONTROL PANELS AND CUBICLES

The details specified in clause 4.11 shall apply as far as fused switches, bus-bars and rating etc are concerned. The panels shall be constructed from rolled steel channel minimum size 60 mm x 30 mm deep x 5 mm or equivalent angle section clad with sheet steel of 3 mm gauge. 2 mm gauge may be used for covers and doors of not more than 1 m square.

Terminals shall be of the "Klippon" standards rail-mounted feed-through type or approved equal. All terminals shall be identified by means of numbered or lettered marking tags, which shall be identical to the number of letter applied to the cables. Cables shall be identified as terminations by means of cable markers as manufactured by "Klippon" or approved equal. 25% spare terminals capacity within wiring duct shall be provided. All components motors, starters, relays, timers, etc. shall be labelled showing their reference and function and these shall relate to the panels' schematic wiring diagram provided with the "As-built" drawing and manuals.

All control panels shall be fitted with multi-pole isolating switches through which all electricity supplies shall pass. The door(s) of the control panel shall not open unless the isolating switch is in the "off" position. A facility to lock the control panel-isolating switch in the "off" position shall be included.

14 DISTRIBUTION BOARDS

14.1 General

All distribution boards, unless stated otherwise, shall be miniature Circuit Breaker Distribution Boards and shall be of surface or flush type, as specified. Facilities for local isolation of the distribution boards shall be provided by either a local fused-switch unit or an integral isolating switch, whichever is specified.

Where surface mounted on a flush installation, all conductors shall terminate behind the board in an adequate box. For surface mounting, trunking shall be fixed between the board and ceiling level, or conduits run directly into the board. Adequate earth continuity connection shall be made between the various components.

14.2 Fused Distribution Boards

All fuse boards shall be of 500 volt rating to BS. 5486 part 11 "Particular requirements for Fuse boards". The details specified in clause 4.12 shall apply as far as cabinet and construction, cabling arrangements, bus bars, neutral bars, earthing and isolating switches are connected.

Fuse banks shall be spaced so as to obviate the necessity for insulating barriers, but protection shall be provided by means of insulating shields to prevent accidental contact with the main bus bars and connections.

All fuses lighting and heating circuits shall be of the HRC cartridge type, ASTA certified, for compliance with BS. 88, category of Duty 440 A.C 5 class 01.

14.3 Miniature Circuit-Breaker Distribution Boards

MCB distribution boards shall comply with BS. 5486 part 12 'Particular requirements for miniature circuits-breaker boards'. The cases shall be constructed of heavy gauge sheet steel, in such a manner as to afford rigidity and maximum ease of wiring for full size circuit and main cables.

The cover shall be provided with an efficient gasket or alternatively designed with generous overlapping edges to prevent the ingress of dust. Components shall not be manufactured from zinc alloy in conjunction with sheet steel where they are relied upon for earth continuity.

Where the cover is required to be lockable, cylinder type locks shall be provided, having two keys per lock. All locked distribution boards shall be handed to the Engineering Supervisor on completion of the works. The cases shall be provided with detachable cable/conduit terminating plates, which shall be reversible and interchangeable from top to bottom.

All screws and nuts used in the construction of the case shall be fitted with shake proof washers and care taken to ensure efficient earth continuity. An external earthing terminal with cable socket shall be fitted.

All MCB banks shall be fitted to frames, with robust locking plates provided to ensure the frames rigidly in the fixed position.

The banks shall be so spaced to obviate the necessity for insulating barriers, but protection shall be provided by means of insulating shields to prevent accidental contact with main bus bars and incoming mains cable.

Bus-bars shall be of high conductivity, hard drawn copper conductors connected to the MCB contacts by means of spring washered screws or bolts, unless plug-in type MCBs are specified.

Neutral bars shall be similar to the main bus bars and shall have two screw terminals per way for rating of 30 amps or over. Single screw connections will be allowed for capacities up to 30 amps. The neutral bars shall have one terminal for each MCB within the board, and connection of conductors to the neutral bar shall be in the same order as the MCB ways.

Where installations are carried out with cables with a protective conductor, all distribution boards shall also contain internal earthing bars similar to the neutral bars detailed above, with one terminal for each MCB within the board. Earthing conductors shall be connected in the manner described for neutral conductors to neutral bars.

Where a main integral isolating switch is provided in an MCB case it shall be arranged to isolate incoming live and neutral main cables from the bus-bars. The isolator switch shall be rated at 500 volts and of the quick make-and break pattern with positive action. Incoming and outgoing terminals shall be fitted with two clamping screws and outgoing conductors to the bus-bars shall be high conductivity hard drawn copper rods.

Isolating switches shall comply with IET Wiring Regulations, Part 537, and shall be capable of carrying their full rated load continuously and shall 'make' or 'break' their full rated load without undue burning of the contacts.

14.4 Miniature Circuits Breaker (MCB)

All MCBs shall have movements which are positive in both directions (make and break) so as to enable units to be closed decisively by the operation of the handle, and to be able to assume the 'OFF' position unless the contacts are definitely separated, to safeguard against false indications.

The handle shall be trip free to make it impossible for the operator to hold the breaker in the closed position under faulty conditions. The operating mechanism and arc chambers of the circuit breaker shall be separated from the terminals and fixing screws.

Terminal identification shall be readily discernable as viewed from the front of the board with automatic and clear signal identification for both 'ON' and 'OFF' position.

All terminals shall be readily accessible from the front and each wiring chamber shall be closed by a screw fixed cover which protects the terminals and prevents dust from settling on the insulation.

Where the full capacity of a distribution board is not required the electrical Sub-Sub-Contractor shall fix blanking plates in the vacant MCB housings. All MCBs shall be rated at 500 volts minimum, and comply with BS 3871. "Miniature and moulded case circuits breakers" and 4752 part 1, "Circuit breakers".

14.5 Moulded Case Circuit Breakers (MCCB)

Where specified, MCCBs shall be of the thermal/magnetic type, having a quick make, quick break, trip free mechanism which prevents the MCCB from being closed or held against short circuits or overloads. Tripping of every multi-pole MCCB shall be such that operation ensures simultaneous action in all phases.

Clear indication shall be provided for the three positions of operation of the mechanism - 'ON', 'OFF' and 'TRIPPED'. The operation shall be such that the MCCB shall trip automatically under fault conditions and, to reset, the dolly shall require first moving through the 'off' position. All MCCBs shall be provided with facilities for locking the breaker in 'OFF' position.

All MCCBs shall be rated at 500 volts minimum, be ASTA certified for this operational duty, and comply with BS. 3871 and BS. 4752 Part 1.

15 LABELLING AND ENGRAVING

15.1 Labelling

All fused-switch units, switch-fuses, switches, bus-bars chambers, distribution boards etc., and all items of equipment on the main panel shall be identified in accordance with section 514 of the IET Wiring Regulations and shall have securely fitted externally a white 'Traffolyte', 'Formica' or other approved plastic laminate label engraved with 6 mm high black letters detailing the function of the equipment and any reference number.

Red, yellow, blue, plastic laminate phase discs shall be fixed inside all switchgear and distribution boards to indicate to which phase of the supply the various circuits are connected. The colourings shall comply with Part 524 of the IET Wiring Regulations.

Each TP or TP & N item of switchgear shall have fitted on the cover a white plastic laminate label having 'CAUTION' - 415 VOLTS' engraved in 10 mm high red lettering.

5.2 Engraving

The electrical Sub-Sub-Contractor shall allow for engraving of all switched fused spurs, double pole switch accessories and any other accessories, which are customarily required.

The accessory plate shall be engraved in either black or red, capital letters 5 mm high, detailing and appliance or equipment being supplied by the accessory e.g., 'WATER PUMP' etc.

16 MOUNTING HEIGHTS

The approximate position of main switchgear, control equipment distribution boards, fittings and accessories shall be as indicated on the Drawings. Actual positions shall be determined on site by the Engineer.

Unless otherwise stated on the relevant drawings or directed by the Engineer the following mounting heights of all accessories above finished floor level shall be adhered to: -

Lighting Switches **1000 mm to centre**

Socket Outlet and Spur **400 mm to centre (or 150 mm above work top level to centre)**

Distribution Boards **1800 mm to lower edges.**

All groups of accessories shall be in line either vertically or horizontally or as specified.

17 LUMINAIRES

All Luminaires shall be of the manufacture, size and type specified and shall comply in all respects to BS 4533 "Electric Luminaires".

The electrical Sub-Sub-Contractor shall supply and install all luminaires including lamps, lamp-holders, control gear, capacitors, glassware, diffusers or other attachments, heat resistant internal cables, fuses and terminals and all necessary suspension gear. In case where Luminaires are supplied by the client the Sub-Sub-Contractor shall deliver to site store, install, commission and set to work.

Unless otherwise stated, Luminaires shall be suitable for Class 1 normal indoor environments, giving a degree of protection against ingress of moisture or dust.

All Luminaires shall be assembled and installed in accordance with the respective manufacturer's instructions/recommendations, in the position and mounting heights specified.

Luminaires shall not be installed under dirty and hazardous site conditions, and any damage or deterioration to luminaires installed under these conditions shall be made good by the electrical Sub-Sub-Contractor.

The Luminaires shall be cleaned free of dust and dirt after completion of the installation. Where dirt, dust, corrosion or other conditions cause imperfections in the luminaires, they shall be replaced.

Luminaires, diffusers, attachments or glassware etc., shall be properly stored to final erection, in such a manner as to avoid damage of any kind.

Luminaires fixings shall generally be suitable for direct connection to conduit boxes or as otherwise specified. Luminaires not provided with suitable BESA box shall be modified as necessary.

Where a flexible cord supports, or partly supports, a luminaire the maximum mass supported by the cord shall not exceed the values set out in IET Wiring Regulations 523-32.

The minimum cross-section area flexible core to the employed shall be 0.75mm^2 .

Specified attention shall be given to Chapter 52 of the IET Wiring Regulations, particularly Regulation 521-5 and 521-6, Appendices 9 and 10.

Pendant tungsten luminaires shall be fitted with heat resistant flexible cord complying with BS 6500, capable of continuous operation with a conductor temperature of 150 degrees C. The cable shall be of the circular multicore type, finished white, if not otherwise specified.

Ceiling mounted tungsten luminaires, spotlights and other luminaires of the category 'hot' luminaires shall be wired internally with cable suitable for continuous operation at 185 degree C. Where cable tails are provided they shall be of the heat resistant type capable of operation at 185 degree C.

Exterior luminaires, fixed to the walls of buildings etc., shall be wired such that final circuit wiring terminates within the luminaire. All final circuit cables so installed shall be provided with heat resistant sleeves from the connection point within the luminaire for a distance of 300 mm.

All fluorescent and other discharge luminaires shall be provided with an integral fused connector block. The rating of the fuse shall be in accordance with the manufacturer's instructions to protect the internal wiring of the luminaire and to provide discrimination between final circuit protection and luminaire protection.

All recessed and semi-recessed luminaires in ceilings shall be connected by three core 0.75 mm² high temperature flexible cord from the terminals of the luminaires to a plug-in ceiling rose fixed and connected to an accessible outlet box in the wiring system, within the suspended ceiling immediately above the luminaire. The ceiling rose shall be accessible via the opening provided in the ceiling.

The electrical Sub-Sub-Contractor shall ensure that the methods of suspension for luminaires are electrically and mechanically sound.

Luminaires suspended by means of tubes shall be fitted to ball joints allowing a swing of at least 20 degrees all round. Reliable earthing between the fixed and moving parts shall be provided by means of a flexible braided copper tape.

Fluorescent luminaires shall be provided with a minimum of two fixings, except in the case of recessed modular luminaires or surface-mounted luminaires exceeding 300 mm in width, where four number fixings (one from each corner) shall be provided by means of conduit drops or threaded rods.

Normally visible luminaires support shall be conduit. All fluorescent luminaires shall be solidly mounted with all assembly nuts, bolts and accessories made tight to prevent vibrations and noise. Anti-vibration packing shall be fitted where necessary. Luminaires mounted direct to trunking shall be fixed by means of the manufacturer's recommended fixing assemblies.

Unless stated otherwise, all luminaire supports shall be fixed to the building primary structure. Luminaires shall not be supported from suspended ceiling unless otherwise specified. The electrical Sub-Sub-Contractor shall be responsible for mounting and fixing arrangements.

Break joint rings of approved colour shall be provided for all suspended luminaires and fluorescent battery luminaires where the batten is of insufficient width to cover completely the conduit box and its associated clearance hole in the ceiling.

The metalwork of all luminaires shall be effectively bonded to the earthing system in accordance with Chapter 54 of the IET Wiring Regulations.

Care shall be taken to ensure that the internal wiring of luminaires and the cable of any fixed wiring shall not be in contact with high temperature areas in luminaires.

Lighting track shall be of the type, size, finish, number of circuits and manufacture specified and shall comply with the requirements of the relevant section of BS. 4533. The positions of luminaires as shown on the Drawings are approximate only and exact position shall be determined after reference to the Engineering supervisor.

18. CEILING ROSES

Surface mounted ceiling roses shall be of all insulated, high impact moulded plastic construction complying with BS. 67 and shall be suitable for direct attachment to conduit outlet boxes. Recessed or semi-recessed ceiling roses shall be manufactured from porcelain. Break joint rings shall be provided when used on flush conduit outlet boxes.

Ceiling roses shall not be connected to fixed wiring in such a manner that one of the terminals remains 'live' when the associated switch is in the 'off' position, unless that terminal is inaccessible to touch when the ceiling rose cover is removed, e.g. for replacement flexible cord.

Terminals shall be provided for switched live, neutral and protective conductors. Loop-in facilities shall also be provided.

19 LAMPS

Lamps shall be compatible with the luminaire for which they are intended and shall be of the wattage, type and colour specified. Lamps shall be of the correct voltage rating for the particular electricity supply concerned.

Tungsten filament lamps, unless otherwise specified, shall be of the 'PEARL' type and of the long-life type giving 2000 hours average life.

Luminaires designed to accommodate lamps with reduced physical dimensions shall be fitted with lamps of the mushroom type of approved equal.

20 **EXTERNAL LIGHTING**

External lighting system shall comprise the lighting points at the position shown on the Drawings and shall include the provision, erection and connection of all lighting columns, bollards, wall and ceiling luminaires and the provision and connection of all control gear together with the laying, jointing and connection of all necessary cables.

All excavation, trenching, backfilling etc., will be undertaken by the main Sub-Contractor.

All lighting columns shall be of the type specified, suitable for looping in and out three No.2 Core PVC/SWA/PVC cables of the specified size.

Where discharge lamps are specified the associated control gear shall be mounted in the base of the column above the fused 'cut out', all on a timber board housed within the base of the column.

Each lighting column/bollard shall be completed with all adaptors, spigots, mounting brackets, luminaires, control gear and lamps and shall be provided with a base compartment and locking door.

All column/bollards shall be fixed in the position specified.

Cable routes are shown on the relevant drawings and the electric Sub-Sub-Contractor shall lay the lighting cables in the trenches.

All connections shall be made in an approved manner, and the installations shall be finished complete and handed over in working order to the full satisfaction of the Engineer.

21 **LIGHTING SWITCHES**

Lighting switches shall be of the type, size and manufacture as specified.

Wall and ceiling switches shall comply with BS 3676. Wall and ceiling switches controlling A.C lighting circuits shall be rated 20 amp and be of the slow break quick make, type unless stated otherwise.

Where several switches on one phase are shown at one position, a ganged box shall be used.

Where switches at any location are connected to different phases, purpose-make phase barrier switches shall be installed. The phases shall be separated by means of rigidly fixed barriers and the cable for each phase shall be confined to the area enclosed by the barriers for that phase.

Switches connected to a particular phase shall have separate cover or covers fitted over each phase. The covers shall be engraved "CAUTION 415 VOLTS".

The switch plate of the specified finish shall be fitted over phase covers to render the switch unit indistinguishable from the switches that are not phase barrier switches.

Alternatively, each gang shall have its own piping and box for each phase, physically separated from other phases with similar arrangements.

For flush position on a plastered or equivalent finish wall, the switches shall have overlapping plates.

In any places where the finish is fair-faced brickwork, the wiring shall be installed on the back of the wall and make a back entry into the accessories. Each switch in these areas shall be neatly recessed and incorporate an overlapping plate.

For surface-mounted positions and such Plant Rooms, Electrical Switch room etc., employing a surface-mounted system or wiring, switches shall be surface-mounted, having metal front plates of an aluminium finish, mounted in matching metal boxes.

22 SOCKETS OUTLETS

All socket outlets and plugs shall be supplied and installed in accordance with the manufacture, type, sizes and finish specified.

All round pin 2A, 5A, 15A, and 30A socket outlets shall comply with the requirements of BS 546.

All sockets outlets shall be switched, unless otherwise specified.

All switched sockets outlets shall be complete with steel boxes of the same manufacture, complete with earth terminal.

Assemblies shall comply fully with the requirements of the IET Wiring Regulations concerning the bonding of protective conductor terminals and each such terminal shall be connected by a conductor, having a minimum cross-sectional area of 2.5 mm², to a permanent earthing terminal incorporated in the associated box providing an effective, solid connection to the earth continuity conductor of the installation.

Where the assembly does not provide a reliable electrical contact between the cover plate and box with effective connection of metal operating bars and toggles, then an insulated earthing lead shall be provided, solidly connected to the metal plate and operating bar or toggle and terminating at the fixed earthing terminal incorporated in the associated box. 13 amp sockets will generally be installed using ring circuits in accordance with Appendix 5, Table 5A of the IET Wiring Regulations.

All plugs shall be of moulded rubber or other resilient material complying with BS 1363 or BS 546. The plug shall have internal cord grip. 13 amp plugs shall be fitted with cartridge fuse links to BS 1362. The fuse rating shall be selected to give protection to the flexible cord or cable connected.

All fuses installed within 13 amp plug top, fused spurs, clock connections etc., shall be cartridge fuse links rated at 240 volts, ASTA certified for compliance with BS 1362 'General purpose fuse links for domestic and similar purposes', or BS 464 'Cartridge fuse links (rated at up to 5 amperes) for AC and DC service', or BS 2950 'Cartridge fuse-link for telecommunications and light electrical apparatus'.

All equipment, which is locally fused, shall have fitted fuses with characteristics, which are recommended by the manufacturer of the equipment.

If any appliance or equipment suffers due to incorrect fusing of the appliances, such appliances or equipment shall be repaired or replaced at the electrical Sub-Sub-Contractor's cost, to the satisfaction of the Engineer.

23 INSPECTION AND TESTING

A visual inspection shall be made in accordance with IET Wiring Regulations 612-1. References shall be made to appendix 14 of the IET Wiring Regulations, which is a checklist for initial inspection of installations.

The electrical installation shall be inspected and tested by the electrical Sub-Contractor in accordance with part 6 of the IET Wiring Regulations.

Where any part of installation is to be concealed within a building, fabric tests shall be made to ensure that the installation is satisfactory prior to concealment.

Upon completion of the works the whole installation shall be subjected to the tests detailed hereafter and every defect shall be noted, corrected and brought to the notice of the Engineer.

All tests shall be witnessed by the Engineer to his full satisfaction and he shall be given at least one week's notice in writing of the proposed tests.

All labour and test instruments shall be provided by the electrical Sub-Contractor and the instruments shall be correctly calibrated and certified for the limits of accuracy required and shall be operated by competent person. If, in the Engineer's opinion, a particular instrument is not suitable, then an acceptable alternative shall be provided. The Engineer shall be at liberty to demand the use of any testing instrument or apparatus that he may reasonably consider to be necessary in the execution of the testing.

In the event of the installation failing to pass the test, the Engineer has the full authority of the Employer to deduct from the Contract Price all reasonable expenses incurred, due to him being required to attend a repetition of the test.

The following items, where relevant, shall be tested in the sequence indicated. Standard methods of testing, in respect of some of the following regulations of this section, are given in Appendix 15 of the IET Wiring Regulations.

- i) Continuity of ring final circuit conductors.
- ii) Continuity of protective conductors, including main supplementary equipotential bonding.
- iii) Earth electrode resistance.
- iv) Insulation resistance.
- v) Insulation of site-built assemblies.
- vi) Protection of barriers or enclosures provided during erection.
- vii) Insulation of non-conducting floors and walls.

- viii) Polarity.
- ix) Earth fault loop impedance.
- x) Operation of residual current devices and fault voltage operated protected devices.

Upon completion of all tests and commissioning, two copies of detailed certificates shall be provided by the electrical Sub-Contractor to show that the equipment, materials, installation etc., have been tested and commissioned. One copy of each, duly completed and signed shall be submitted to the Engineer within 154 days of the results being obtained. The second copy of the certificates shall be retained to be included with operator and maintenance manuals.

The results of the test and details of completion for the electrical test shall be detailed on the Test and Completion Certificates respectively; issued by the National Inspection council for Electrical Installation Contracting or other approved authority.

24 AS BUILT DRAWINGS, AND DOCUMENTATION

Within one month of the date of completion the electrical Sub-Contractor shall provide 3 prints of all electrical drawings showing the electrical installations "As built". In case the electrical Sub-Contractor fails to provide "As Built" drawings as required, these will be prepared by others at the expense of the electrical Sub-Contractor.

APPENDIX 1

SUPPLEMENTARY SPECIFICATION FOR PVC INSULATED CABLES

AND NON-METALLIC CONDUITS WIRING SYSTEM.

1. PVC 1 CABLE

The wiring shall be carried out in 250-volt grade or 440 volt grade for 3-phase PVC Insulated cable, as specified elsewhere run in non-metallic conduit. The cable shall be of the sizes specified on the drawing.

2. INSTALLATION OF WIRING

Cable shall be drawn into accessories, distribution boards and switchgear after the erection of the conduit system. Under no circumstances shall it be permitted to draw cable into an incomplete section of the conduit installation.

3. JOINTS IN CABLES

The wiring shall be carried out on the looping-in principle. All joints shall be made at the terminals of main switches, distribution boards, ceiling roses, switches and socket outlets, etc. and fixed apparatus only. No joints shall be made in boxes unless approved.

4. CAPACITY OF CONDUITS

The cable shall run in the conduit so as not to exceed the capacities as set out in Table 10 of the IET Wiring Regulations (13th Edition with current amendments).

Conduits shall be best quality new super high impact grade heavy gauge 'A' riding PVC unplasticised conduits as manufactured by Egetude limited suitable for plain connections.

Conduit of sizes less than 20 mm shall not be used without the written authority of the D.R.

5. BENDING

The conduit shall be bent and formed strictly in accordance with the manufacturer's instructions: -

- i) Small size, i.e. 20 and 25 mm shall be bent cold by inserting the correct size bending spring. It is essential for right angle bends that the conduit is bent past 90 degrees to allow for "spring back".

- ii) Large size of conduit shall be pre-heated before inserting rubber cord to prevent kinking. Conduit badly formed or bent or damaged in any way, shall not be used.

6. JOINTING

Joints shall be made water-tight by the use of 'Egaweld' cement applied with a brush or rug. 'Egaweld' shall be applied to the complete circumference of conduit. Conduit shall be thoroughly cleaned at the ends to ensure a good adhesion of the fittings. 'Egaweld' shall not be permitted to enter into the conduit.

7. CONDUIT FITTINGS

All conduit fittings and accessories, including couplers, ordinary clips, saddles, pipe hooks, reducers, stopping plugs, lockouts and male and female bushes shall be manufactured dimensionally, similar to B.S.S. 31/1940. Solid tees shall not be used. Solid inspection elbows or bends or inspection tees shall be used only in exceptional circumstances and then only with D.R.'s approval.

Where it eases the installation of cast-in-situ back entry boxes on the loop-in system, purpose made bends manufactured by Egatube and comprising a tight bend with a push socket at one end and a threaded socket at the other end may be used with the D.R.'s approval.

8. FIXING OF CONDUITS

Conduit shall be installed on the loop-in system and shall either be cast-in-situ in the main concrete structure, concealed in chases cast in concrete walls, or chases cut in solid partition walls, run in ceiling spaces or in hollow partitions of floors, or concealed below the floor screed, whichever shall prove to be the most suitable method of installation for use in the building under construction. Unless it is clearly specified or shown on the drawing, the method of installing conduit shall be subjected to the approval of the D.R.

Sunken conduit run in chases in walls shall be fixed by means of mild steel pipe hooks or non-metallic saddles spaced not more than 1 m apart. Where conduit is concealed behind plaster it shall be sunk to a depth of either 10 mm below finished plaster level, or installed flush with the structural wall level before application of plaster, whichever is the lesser depth.

Conduit fixed on the surface of walls or ceiling shall be fixed by spacer bar saddles fixed not more than 1 m apart.

Surface conduit shall also be fixed 230 mm on both sides of all boxes, the box itself securely fixed. Where such an arrangement of boxes and saddles would prove to be both unsightly and unnecessary, short lengths of conduit not exceeding 1 m in length between boxes need not be secured further than by connection to the adjacent boxes. In such cases the D.R. reserves the right to insist upon additional fixing being provided, should he for any reason whatsoever consider such additional fixing necessary.

Where two or more lines of conduit run parallel to each other, on the surface of walls, etc., the distance between them shall not be less than 15mm and conduits shall not cross.

Conduit shall be installed in such a manner as to prevent interference with other services and shall be kept at least 180 mm clear of gas or water pipes, and heat in excess of 68 degrees C.

A means of expansion shall be provided in conduit runs in excess of 6 m without any bend or set, by use of 'Egetude' expansion couplings, which shall also be used at building expansion joints.

Conduit cast-in-situ shall be frequently secured to the steel reinforcement work, with heavy binding wire to prevent movement of the conduit and conduit boxes during the pouring and vibrating of the concrete. Outlet boxes shall be securely fixed to the shuttering with nails, or by means, which shall be visible as a marker on removal of the shuttering only where marks can be concealed. Conduit shall be installed after the first grid of steel reinforcement work is securely fixed and all open ends of conduits shall be protected by couplings plugged with a suitable non-metallic stopping plug. The number of right angle bends in conduit cast-in-situ shall not exceed two between boxes.

Immediately prior to installation the wiring all conduit and fittings shall be dried and cleaned out by drawing through a cloth swab. Rawl plugs shall be used for fixing to brickwork, self-tapping screws for fixing to aluminium section, raw nuts, raw-anchors spring toggles, gravity toggles or rawlbolts, shall be used for fixing to other materials as approved by the D.R.

Corners shall be turned by easy bends or sets made in accordance with the manufacturer's instructions without altering the section or splitting conduit.

9. CIRCULAR INSPECTION

Boxes will not be permitted in floors unless approved. Boxes cast-in-situ must face downwards from the ceiling/floor section. Small standard circular non-metallic conduit boxes, conforming dimensionally with B.S. 31/1940 with standard circular non-metallic (4mm) lids and nylon fixing screws, shall be provided and fixed at all junctions.

The above circular boxes or equivalent looping boxes shall be provided and securely fixed for all ceiling points. When the conduit is run on the surface, all circular boxes for ceiling points shall be fixed with screws.

Where ceiling roses occur and the ceiling box is recessed below the finished level of the ceiling, suitable extensive rings to accommodate the ceiling rose must be provided. Where ceiling boxes, including extension rings, are flush with the ceiling surface, break joints rings shall be provided to hide the joints.

Where a non-metallic outlet box of thermoplastic material is used for the suspension of a lighting fitting, care shall be taken to ensure that the temperature of the box does not exceed 60 degrees c. The weight suspended from the box shall not exceed 3 kg.

Where wiring system incorporates galvanised conduit and trunking, the trunking shall be deemed to be galvanised unless specified otherwise.

The number of cables to be installed in trunking shall be such as to permit easy drawing in without damage to the cables, and shall in no circumstance be such that a space factor of 45% is exceeded.

Conduit and trunking shall be mechanically and electrically continuous. Conduit shall be tightly screwed between the various lengths so that they butt at the socketed joints. The internal edges of conduit and all fittings shall be smooth, free from burrs and other defects. Oil and other insulating substance shall be removed from the screw threads. Where conduits terminate in fuse-gear, distribution board, adaptable boxes, non-spouted switchboxes, etc., they shall, unless otherwise stated, be connected thereto by means of smooth bore male brass brushes, compression washers and sockets. All exposed threads and abrasions shall be painted (using an oil point for black enamelled tubing and galvanised tubing immediately after the conduits are erected. All bends and sets shall be made cold without altering the section of the conduit. The inner radius of the bend shall not be less than four (4) times the outside diameter of the conduit. Not more than two right angle bends will be permitted without the inter-position of a draw-in box. Where straight runs of conduit are installed, draw-in boxes shall be provided at distances not exceeding 15 m. No tees, elbows, sleeves, either of inspection or solid type, will be permitted.

Conduit throughout shall be of sufficient section and so arranged with draw-in boxes to allow easy drawing in and out of any one or all of the cables in the conduit.

Conduits shall be swabbed out prior to drawing in cables, and they shall be laid so as to drain off all condensed moisture without injury to end connections.

Conduits and trunking shall be run at least 150 mm clear of hot water and steam pipes, and at least 75 mm clear of cold water and other services unless otherwise approved by the D.R.

Conduits installed and buried in walls shall allow a minimum of 15 mm cover. These conduits and those cast-in-situ concrete slabs shall be given one coat of rust prevention paint before installation of conduit and before concrete is placed. Sunk circular conduit boxes shall be provided with break joint rings of white moulded material or metal.

Surface conduit shall be run in square symmetrical lines and shall be marked on site for approval before installation. Conduits shall be fixed by means of distance saddles spaced at not more than 1.2 m for 20mm and 50mm conduit and 1.5 m for larger sizes. Conduits shall be fixed each side of conduit boxes at a distance not exceeding 250 mm, and the saddles shall be equally spaced.

Where conduit runs enter specified areas requiring flameproof equipment, barrier boxes shall be inserted immediately before the conduit enters the flameproof area.

All conduit installed within this area shall be solid drawn galvanised, as shall be conduit fittings and accessories and Buxton Certified as suitable for Group 11 Hazards. Equipment shall comply with B.S 229, B.S.S. 889, and Code of Practice C.P. 1003. In no case shall conduits from different distribution boards be connected at one box, likewise cables from different distribution boards shall not be housed in the same conduit specified.

All conduit boxes, except loop-in pattern concrete floor shall be fixed direct to the structure apart from the support provided by the conduits. Box lids where required shall be heavy gauge metal, secured by means of zinc plated or cadmium steel screws. All adaptable boxes and lids of the same size shall be interchangeable.

Boxes used in conjunction with mineral insulated copper sheathed cable boxes shall be galvanised and painted after erection.

Draw-in boxes in the floor are generally to be avoided but where they are essential they must be grouped in positions approved by the D.R. and covered by suitable floor straps, with non-ferrous tray and covers.

The floor trap covers are to be recessed and filled in with a material to match the floor surface.

The Sub-Contractor must take full responsibility for the fillings of all covers, but the fillings in materials will be supplied and the filling shall be carried out by the Main Building Sub-Contractor.

Where it is intended to fix enclosed lighting fittings directly to a box to suspend a fitting of weight in excess of 3 kg., Egetude steel insert clips shall be used.

10. SWITCH AND SOCKET OUTLET BOXES

All boxes intended for switches, socket outlet or other outlets shall be fitted with brass ferrules to accommodate fixing screws.

11. STOPPING PLUGS

All spare ways in junction boxes, etc., left for possible future extensions shall be fitted with the stopping plugs.

12. EARTHING

Where fittings and accessories require earthing, an earth continuity conductor be run through the conduit. The earth continuity conductor shall be a green coloured PVC insulated copper wire of

minimum size 2.5 sq. mm and shall be continuous between terminals. Where the earth terminal is formed by a brass screw and washer, "Ross Courtney" type terminations shall be used. All switch, socket outlet, ceiling boxes etc., shall be supplied with an earth terminal.

13. EARTH CONTINUITY

Each final sub-circuit that is required to be earthed shall be provided with its own individual earth continuity conductor which shall be run from a terminal on the earth bar in the distribution board or consumer's control unit protecting any particular final sub-circuit.

SECTION 6B
PARTICULAR SPECIFICATIONS FOR ELECTRICAL INSTALLATIONS

CONTENTS

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PART B:

PARTICULAR SPECIFICATIONS

SECTION 1: GENERAL

1.01 The electrical Sub-Contractor shall supply labour and supply, deliver, install, fix, connect, test, label, and commission the electrical works, clean, complete and working to every detail as described in the specification and by related specifications to the satisfaction of the Consulting Engineer/Architect.

1.02 Exclusions

Excluded from this Sub-contract is:-

- i) Control panels for motor-starters and internal wiring between control-panels, motor thermostat. etc.

SECTION 2

SUPPLY AND DISTRIBUTION

2.01 Supply and Distribution system

The power supply shall be from an existing Main LV board located in existing switch-room in the existing basement. The internal distribution shall be effected through cable ladder system.

2.02 Main Switch Board

Mains power distribution is through ducts and mainly cable ladders.

The schematic for main switchboard are shown on drawings.

All switch fuses, fuse switches, MCCB's including meters shall be of reputable manufacture meeting current International and Kenya Standards as stipulated in the general specifications. Any other quality that does not strictly meet these standards shall not be acceptable.

Unless specifically stated otherwise, vertical power distribution shall be via riser (bus-bar) trunking. All incoming circuit breakers in the Main Switchboard to be motorized and set at different timings to allow for sequential loading of the standby generator. Exact trunking details to be given at the time of approving shop drawings for the main switchboard.

SECTION 3

LIGHTING AND SMALL POWER INSTALLATIONS

3.01 INSTALLATION SYSTEM

With the exception of where otherwise noted on the drawings, the installation shall throughout be carried out in PVC insulated copper cables of not less than 1.5 mm² copper drawn in high grade PVC conduit.

3.02 LIGHTING CONTROL SYSTEM

Indoor Lighting

- 3.03 Types of accessories and fixed apparatus to be used shall be as manufacture Philips dynalite. Subject to the approval of the Engineer equivalent makes may be used. All light fittings to be of manufacture shown on the detailed descriptions, or approved equivalent.

3.04 CONNECTIONS TO FIXED APPLIANCES

The Sub-contractor shall supply and interconnect flexible cords between spur units/outlets boxes and the appliances where the symbol for flex connections are shown.

All connections shall be made by white heat-resisting PVC flexible cords having fuse rating in accordance with the respective circuits subjected to a minimum of 0.75mm².

3.05 MOUNTING HEIGHTS AND LOCATIONS

All mounting heights stated shall mean the heights from finished floor level to underside of the accessory.

Each mounting heights for wall fixtures shall, however, be re-confirmed on site.

All mounting heights to be guided by Americans with Disability Act.

Lighting control Switches/User interfaces

1000 mm above floor level and 100 mm away from architrave. If mounted in a column they shall be located in the centre.

Sockets Outlets

450 mm above finished floor except for areas that are otherwise stated.

Connection Units and Outlets

Connection units having cord outlets shall be located as to limit the length of the flex cord to approx. 600 mm and be located slightly higher than the inlet on the appliances. The same applies to outlet boxes.

Conduit Boxes (General)

Where one fitting is shown in a room the box shall be in the centre (unless otherwise stated). Where two or more fittings are to be installed they shall be half of the between two fittings. Where one row of fittings is to be installed they shall be located in the centre. Where installed between beams they shall be in between two beams. All boxes shall be with covers.

3.06 WALL AND CEILING FINISHINGS

The Sub-Contractor is to obtain information regarding the ceiling claddings before any installation is commenced as he will be held responsible if the conduit boxes as well as boxes for switches and socket outlets, telephone, etc are not installed at the right depth.

3.07 LIGHTING FITTINGS

The sub-Contractor shall supply, deliver to site, install and commission all the fittings.

The tenderer may submit an alternative schedule of equal makes of fittings with the tender where applicable.

3.08 FIXING AND LOCATION

Details of fixing and location of various fittings are as shown on relevant drawings.

Fluorescent and incandescent fittings shall, in addition to being fixed to the conduit boxes, also be fixed by means of PVC covered raw plugs (no wooden plugs) at the fixing centres.

A rubber gasket shall be fitted on the conduit boxes for the outdoor fittings in order to provide a waterproof seal.

- 3.09 All switch panels shall be as MK manufacture or equivalent subject to the Engineer's approval. Each panel shall be fed from a particular phase as NOT more than one shall be allowed inside one panel. Separate conduits shall be installed to each panel.

3.10 POWER INSTALLATIONS

The sub-Contractor shall include for all installations shown on the drawings.

The sub-contractor shall satisfy himself that there is a continuous conduit, trunking and /or duct system to facilitate installation of the entire power installation and shall be held responsible where continuity does not exist.

3.11 INSTALLATION SYSTEM

The installation system for the indoor installation shall be carried out in concealed PVC conduits, PVC ducts and surface mounting trunking. The size of the cables shall not be less than 2.5 mm² for ring main circuits.

SECTION 4

4. FIRE ALARM SYSTEMS

4.01 INSTALLATION

The installation for the above shall be carried out using PVC 1.5mm² copper cables and PVC 2.5mm² copper cables(speakers) in high impact grade PVC conduit. All cables for fire alarm installations to be fire-resistant. Tests for fire resistance will be performed as part of this sub-contract.

The sub-contractor shall ensure continuous link-up between individual break-glass call units, detectors, bells and panels.

SECTION 5 INSTALLATION FOR COMMUNICATION AND SECURITY SERVICES

5.01 INSTALLATION SYSTEM

In the tender for electrical installations supports for all cables in the communications and security services shall be included. The electrical tender shall include for trunking, conduits etc. to ensure a continuous supply system from the server rooms to any individual outlet.

Holes in structures shall be provided by the main-contractor.

The conduits shall at each point terminate in deep switch-boxes as specified for lighting control switches.

5.02 MOUNTING HEIGHTS AND LOCATIONS

Mounting heights shall be as for socket outlets.

5.03 BLANK-OFF PLATES

As MK list No. 3827 white.

SECTION 6C

TECHNICAL SPECIFICATIONS FOR STRUCTURAL LIGHTNING PROTECTION

CONTENTS

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TECHNICAL SPECIFICATIONS FOR STRUCTURAL LIGHTNING PROTECTION

1.0 DESIGN CONSIDERATIONS

This consideration is based on the provisions of BS 6651.

If it has been established that a structure requires lightning protection, certain general design considerations need to be made.

Could, for instance, any of the metallic components in or on the structure be incorporated into the lightning protection scheme? Could the metal in and on the roof be used? Should window cleaning rails, window frames, handrails surrounding the structure be incorporated in the protection network? The reinforcing bars or the steel frame of a structure may well provide a conductive path within the lightning protection system.

If metallic components in a building are not used, then the structure will require externally fitted conductors. A Lightning Protection System can incorporate all natural conductors, all externally fitted conductors, or a combination of both. BS 6651 does not, however recommend the routing of conductors inside the structure.

2.0 MAJOR COMPONENTS

The principle components of a lightning protection system should comprise the following:

- Air termination networks
- Down conductors
- Earth termination networks
- Bonding to prevent side flashing

2.1 Air Termination Networks

It is now accepted that lightning can strike the upper part of tall structures. BS 6651 now introduces the concept of air termination networks on all sides of tall buildings (ie, vertical air termination networks). No part of the roof within the air termination network should be more than 5m from a

conductor. For large flat roofs, this will be achieved typically by a network mesh of 10m x 20m. For high risk structures, ie, explosive factories, etc. the air termination mesh is reduced to 5m x 10m.

If a building's metal reinforcing bars are to be used as down conductors, these should be connected to the air termination network in the correct number of positions.

BS 6651 advises the use of a rolling sphere to determine zones of protection. To minimize the likelihood of a lightning strike damaging the side of the buildings, it is suggested that the rolling sphere method be applied to identify those areas where an extension of the air termination network should be considered. This recommendation could be summarized as follows:-

Where there is a risk that a lightning strike to the sides of a structure may cause masonry to be dislodged, then an extension of the air termination network should be considered.

To ensure complete continuity of the lightning protection system BS 6651 recommends that:

Where structures vary in height and have more than one roof termination network, the lower roof network should not only be joined to its down conductors, but also joined to the down conductors of the taller portions of the structure. This will ensure that a lightning strike to a lower portion of the structure will not lead to side-flashing to other 'remote' down conductors and will provide a multi down conductor path for the lightning current to disperse.

The protective systems of churches and similar non-conducting structures should include air termination networks, down conductors and earth termination networks. It is, however, very difficult to design protective systems for these structures collectively. BS 6651, therefore, advises that such structures should be treated as special cases: that the presence of a tower or spire should be disregarded when designing the protection of the lower parts of the structure.

For less complex tall structures of varying heights, the 'rolling sphere method' as described should be employed. The rolling sphere method is a simple means of determining where the zones of protection should be located. Wherever the sphere touches the structure determines the extent of the air termination network.

There is a reference in BS 6651 to the use of covered conductors for air termination networks. Although it advocates that, wherever possible, bare conductors should be used, it permits the use of PVC covered or painted conductors.

2.2 Down Conductors

The function of a down conductor is to provide a low impedance path from the air termination network to the earth termination network, to allow the lightning current to be safely conducted to earth.

BS6651 advocates the use of various types of down conductors. A combination of strip and rod conductors, reinforcing bars, structural steel stanchions, etc. can be used as all or part of the down conductor system-providing they are appropriately connected to the air and earth termination networks, and are known to offer good electrical conductivity.

The code suggests there is no advantage in using ‘shielded’ coaxial cables as down conductors. In fact there is thought to be the disadvantage that potentials up to hundreds of kilo-volts can occur between the inner and outer conductor (shield) at the top of the down conductors so triggering a side flash.

Down conductor systems should, where possible, take the most direct route from the air termination network to the earth termination network. Ideally they should be symmetrically installed around the outside walls of the structure starting from the corners. Routing to avoid side-flashing should always be given particular attention in designing any installation.

Down conductors should be positioned no more than 20m apart around the perimeter at roof or ground level, whichever is the greater. If the structure is over 20m in height, then the spacing is reduced to every 10m or part thereof.

Sharp bends in down conductors at the edge of the roofs are unavoidable and are permitted in BS 6651; however, re-entrant loops in a conductor can produce high inductive voltage drops which could lead to the lightning discharge jumping across the side of the loop. To minimize this problem BS 6651 recommends that the length of the conductor forming the loop should not exceed eight times the width of the open side of the loop.

2.3 Earthing – General

Earthing plays a vital role in all electrical systems. The main reasons for earthing are:-

- To protect people and livestock
- To protect equipment
- To permit the equipment to function correctly
- To ensure the reliability of electrical services.

A good earth connection should possess the following characteristics:-

- Low electrical resistance between the electrode and the earth. The lower the earth electrode resistance the more likely the lightning or fault current will choose to flow down that path in preference to any other, allowing the current to be conducted safely to and dissipated in the earth.
- Good corrosion resistance. The choice of material for the earth electrode and its connections is of vital importance. It will be buried in soil for many years so has to be totally dependable.
- Ability to carry high currents repeatedly.
- Ability to perform the above functions for a minimum of 30 years.

2.4 Soil Conditions

Achieving a good earth will depend on local soil conditions. A low soil resistivity is the main aim, and factors that affect this are:

- Moisture content of the soil.
- Chemical composition of the soil, eg. Salt content.
- Temperature of the soil.

Note: It is now deemed bad practice to use salt as a chemical means of reducing soil resistivity, because of its very corrosive nature. Salt along with other chemicals, has the disadvantage of leaching out of the surrounding soil after a period of time, thus returning the soil to its original resistivity.

Once the soil resistivity has been calculated from the local soil measurements, the appropriate earth electrode system can be chosen by using typical formulae listed below:

Horizontal Strips (Rectangular Section)

$$R = \rho / 275L \log_{10} 200L^2 / wD$$

Horizontal Strips (Circular Section)

$$R = \rho / 275L \text{ Log}_{10} 100L^2/dD$$

Vertical Strips (Rectangular Section)

$$R = \rho / 275L \text{ Log}_{10} 800L/w$$

Vertical Strips (Circular Section)

$$R = \rho / 275L \text{ Log}_{10} 400L/d$$

Where:

R= Apparent earth electrode resistance in ohms.

ρ = Soil resistivity in ohm.cm

D= Depth of electrode in metres.

d= Diameter of electrode in centimetres.

L= Length of electrode in metres.

W= Width of electrode in centimetres.

Assume we use a standard 5/8" diameter rod (nominal diameter 14mm) Actual shank diameter 14.2mm

Thus $d = 1.42\text{cm}$

$L = ?$

If we let $L = 6\text{m}$ and substitute to see what value of R is obtained

$$R = 10,000/275 \times 6 \times \text{Log}_{10} 400 \times 6/1.42$$

$$= 6.0606 \times 3.228$$

$$= 19.56 \text{ ohms}$$

Thus 6m of extensible rods (5x1.2m) can be used to obtain the desired resistance value of 20 ohms.

The above example illustrates the importance of the accuracy of the soil resistivity figure. If the survey is inaccurate, then the calculated apparent electrode resistance R will be inaccurate and misleading.

2.5 Solid Plates or Mats

Earth plates or mats can be buried instead of driving rod electrodes but installation is expensive and time consuming.

2.6 Reinforcing bars in foundations as natural earths

This is an economical method of using the mass of metal already underground in the form of the reinforcing bars, within the structure's foundations. Precautions should be taken to ensure there is electrical continuity between these re-inforcing bars and the earth/lightning protection connections above ground.

2.7 Underground Pipe Work System

Buried water pipes were previously considered to be a reliable method of earthing but the increasing use of plastic pipes or replacing metal joints with plastic ones now makes this method unreliable.

Other forms of earth electrode can be used, including ring conductors or radial strips emanating from a particular point, or a combination of conductors with earth rods.

2.8 Voltage Gradient

A further factor affecting the choice of an electrode system is the electrical considerations.

Step and touch voltages on the surface of the ground in the vicinity of earth electrodes must be restricted to safe values.

This can be achieved by using electrodes to form a ring around the area to be protected. The electrodes must be buried sufficiently deep to reduce surface potential.

An effective method of reducing the voltage gradient of rod electrodes is to install them with the top of the electrode some distance beneath the surface of the soil. The connection between the electrode and down conductor being made with insulated conductor.

An example of how effective this can be is illustrated by tests which gave the following results.

The maximum voltage gradient over a two metre span adjacent to a 25mm diameter earth electrode was 85% of the total electrode potential when the top of the assembly was at ground level. This electrode potential was reduced to 20% when the electrode was buried 0.3 m below ground level and 5% when buried 1.0 m below ground level.

One of the biggest problems for the installation contractor is of obtaining an earth resistance of, say, one ohm or less in an area of high soil resistivity. Unfortunately, there is no magical solution. However, several options are available to the contractor in the form of soil conditioning agents.

2.9 Soil-Conditioning Agents

Introducing a soil conditioning agent into the ground can reduce the soil resistivity and hence reduce the earth resistance.

There are various agents available, the choice of any particular one will depend on the type of earth required – temporary or permanent; the locality; the condition of the soil, etc.

As previously mentioned moisture forms an important part in obtaining a low soil resistivity value and it is the impurities in the water that produce this. One way of reducing the soil resistivity is to pour chemical solutions i.e.: copper sulphate; sodium carbonate; calcium sulphate, over the local area and allow it to migrate through the soil. The disadvantage of this is the large volume of solutions required, which makes it a cumbersome and time-consuming exercise. Also chemicals will eventually leach out of the local soil, returning it to its original high resistivity. Dissolving chemicals into the soil is also likely to encourage corrosion of the earth electrode. Hence the reason for the British Standard Code of Practice 7430 on Earthing and BS6651 Protection of Structures against Lightning – not recommending the use of a salt as a means of reducing the soil resistivity.

Other soil-conditioning are available including Bentonite and Marconite.

Bentonite is used as an earth-electrode back-fill to reduce soil resistivity by retaining moisture. The clay consists largely of sodium montmorillonite, which when mixed with water swells to many times its dry volume. It has the ability to hold its moisture content for a considerable period of time and to absorb moisture from the surrounding soil (e.g. from rainfall).

Marconite is a conductive carbonaceous aggregate which when mixed with conventional cement, effectively increases the surface area of the earth-electrode, thus lowering its earth resistance. Ideal for use on sub-stations and transmission/distribution networks or in hot, dry climates, and also has electromagnetic screening and anti-static flooring applications.

Both products have applications with deep-driven electrodes. The ground/soil in question can be drilled using a portable drill rig, transported to the site. Significant depths can be reached depending on the type of ground.

The electrode assembly can then be inserted into the pre-drilled hole and back-filled with Bentonite or Marconite, or any other appropriate conditioning agent.

It is vital with any earthing system that regular inspection is carried out for possible damage. Regular checks on earth electrode resistance to ensure optimum protection are advised.

The key to arriving at a successful earthing electrode system is not to sacrifice quality for cost. Many products currently on the market fall far short of the recommended standards. BS 7430: 1991 Code of Practice for Earthing contains recommendations for material specification to ensure components are corrosion-resistant and provide adequate mechanical strength.

The correct choice of material and installation should ensure a life span of 30 years for the earth electrode.

2.10 Earthing – Lightning Protection Systems

There are two stages in testing an earth network for satisfactory resistance.

- 1) An earth electrode should be connected to each down conductor with a test link incorporate into every down conductor path.

With the test link removed and without any bonding to other services, etc, the earth resistance of each individual earth electrode should be measured. The resistance, in ohms, should not exceed ten times the number of down conductors on the structure. For example, if there are fifteen down conductors equally spaced around a building, then the resistance of each electrode with the test link removed should not exceed $10 \times 15 = 150$ ohms.

- 2) With the test links replaced the resistance to earth of the complete lightning protection system is measured at any point on the system. The reading from this test should not exceed ten ohms. This is still without any bonding to other services.

BS 6651 provides a guide to the minimum dimensional requirements of various electrode systems. For example, where earth rods are chosen, the minimum combined rod length to complete an earth electrode system should be 9 metres – therefore a small structure with only two down conductors would have a minimum requirement of 4.5 metres for each electrode. Each local earth rod electrode should be a minimum length of 1.5 metres.

It must be remembered that this dimensional requirement does not effect, in any way, the need to obtain the satisfactory earth resistance values mentioned in (1) and (2) above.

3.0 BONDING

All metal work on or around a structure must be bonded to the lightning protection system if side-flashing is to be avoided. When a lightning protection system is struck, its electrical potential with respect to earth is significantly raised and, unless suitable precautions are taken, the discharge may seek alternative paths to earth by side-flashing to other metal-work in or on the structure.

Typically, water pipes, gas pipes, metal sheaths and electrical installations which are in contact with earth, remain at earth potential during a lightning discharge. Even metal parts that are not in contact with earth will see a potential difference between them and the lightning protection system during a discharge, even if this potential is smaller in magnitude to the metal parts in direct contact with earth.

It is vital that all exposed metal work is bonded into the lightning protection installation.

There are two ways of preventing side-flashing. The first is to isolate nearby metal from the lightning protection system. So, even if a strike occurs, the clearance distance between the metalwork and the lightning protection system would be so great that the strike would prefer to follow the lightning protection path rather than jump across to the metal work. Obviously, this will not be practical for certain fixed metal installations, for example central heating systems or metal

windows. In these cases, the second method of preventing side-flashing has to be considered, that of connecting the metal work to the lightning protection system with an appropriate bond.

To determine whether the distance between the suspect metal work and the lightning protection system is large enough for the metal work to be considered 'isolated' or close enough to be 'bonded' BS 6651 provides a mathematical means of determining the minimum isolation distance for a given set of parameters.

Simple formulae are used in conjunction with two curves to evaluate the minimum isolation distance required between the suspect metalwork and the lightning protection system. If the figure obtained, with the given set of parameters, results in, say, a separation distance, of 2m, then if the actual gap is less than 2m, bonding is required. If the gap is greater than 2m, then isolation is sufficient, and no bonding is required.

BS6651 also provides specific recommendations for protecting buildings which contain explosives or highly flammable contents, dwelling houses/domestic properties, fences, trees and structures near trees, structures with radio and television aerials and a whole range of other miscellaneous structures including tents, sports stadiums, bridges, etc.

The code also mentions that internal bonds can be half the cross sectional area of external bonds as they are, at most, only likely to carry a proportion of the total lightning current.

3.1 Corrosion

As mentioned earlier the correct choice of materials for a lightning protection system is vital. Metal fittings must be compatible with the metal or metals used externally on the structure over which the system passes or with which it may be in contact.

Aluminium and copper, the two metals most commonly used in lightning, protection systems, are not compatible, so great care must be taken when both are used in a system – particularly where they come into contact with each other.

If aluminium is selected as the material for air termination networks and down conductors, it has to be connected to copper at or around the test clamp. This connection should be positioned at the beginning of the earth termination network. This is because both BS 6651 and the Earthing Code BS 7430 do not permit aluminium to be buried underground.

Simple and effective means of joining aluminium and copper conductors in one connector do exist. Ingots of high purity copper and aluminium are friction welded together forming an effective

electrical and mechanically robust joint. This termination, if used in conjunction with contact inhibitor grease minimises the effect of corrosion.

The contact surfaces of dissimilar metals should be kept completely dry and protected against the ingress of moisture, otherwise corrosion will occur. A particularly effective means of excluding moisture is to use inhibitor pastes, bitumastic paint, or approved protective wrappings.

As aluminium is prone to corrosion when in contact with Portland cement and mortar mixes, aluminium conductors need to be fixed away from the offending surface with an appropriate fixing.

Earth conductors between the test clamp(s) and earth electrodes should be protected against corrosion where they enter the ground for a distance of 0.3m above and below ground level. This can be achieved by using PVC protective sleeving.

4.0 LIGHTNING PROTECTION DESIGN

For a well-designed lightning protection system, the following information will be required:

1. Drawings of the structure requiring protection, showing the roof plan and at least two elevations. These drawings should be clear, precise and have the scale shown.
2. The materials used in the construction of the structure should be stated along with information on the type of fixings permissible (e.g. can the roof be drilled to take screw plugs).
3. For what purpose is the structure being used? (i.e. its use will determine the risk category of the structure).
4. The proximity of other structures, trees and its general locality.
5. Information regarding any unusual features such as aerial masts on the roof of buildings, which may not be shown on the drawings.
6. At what stage of construction is the structure (i.e. complete, partly built, etc).
7. Notification of code that the scheme is to be designed to e.g. BS 6651 (1992).

8. Is there any soil resistivity data available?

5.0 EARTHING SYSTEM DESIGN

General statements regarding earthing have been made earlier. This Section however is specifically aimed at assisting with earth electrode calculations – whether they be for a simple power earth, or for a more complex design, say a high voltage sub-station.

5.1 Why do we require an Earth?

The function of an earth system for an electrical installation can be split into three broad bands:

- i) To limit the potential of any part of the installation to a pre-determined value with respect to the general mass of earth.
- ii) To permit the flow of current in the event of a fault to earth so that the protective equipment has time to operate and thus isolate the faulty circuit.
- iii) To ensure that, if a fault occurs, non current carrying metalwork associated with the equipment does not attain a dangerous potential respect to the general mass of earth.

Points (i) and (ii) are normally essential to the security of the system, and are generally known as system earthing.

Point (iii) is aimed at ensuring safety of humans, animals and property and is sometimes known as equipment earthing.

5.2 How do we choose our Earth Electrode System?

Having determined that there is an earthing requirement, how do we go about deciding what type of earth electrode we should use? The previous chapter elaborated the various types of earth termination networks available, and their differing properties are a major consideration. However, the most significant factor that will govern our choice is the ground itself. A borehole survey of the ground where the earthing is to be installed will indicate whether rock is present and at what depth, a factor that will not only affect the electrical consideration but will also have a direct bearing on installation costs. The information required by the earth electrode designer, however, is the

resistivity of the soil: that value of “rho” that will enable him to calculate the earth resistance – i.e. the resistance of the soil to the passage of electric current.

Compared to a length of copper conductor the soil or earth could be regarded as a relatively poor conductor of electricity; for example, the resistivity of copper is 1.72×10^{-8} ohm metres, whereas chalk in Norfolk might register a value of 100 ohm metres. In reality, however, the earth’s enormous mass, and, hence, its large cross-sectional area for the current path, gives it quite a low resistance, i.e. – the earth is, in fact, a good conductor. Since soil strata differs significantly from country to country, or even from site to site, it is not possible to be specific about the correct choice of earth electrode system without carrying out a detailed soil resistivity survey.

5.3 Soil Resistivity Measurements

A technique for measuring the earth’s resistivity was proposed by the American, Dr. Frank Wenner, in a scientific paper published in 1915. Since that time it has been universally accepted as the most popular method to employ.

The Wenner method gives the average resistivity of the soil between ground level and a given depth. Using this method, Furse site surveys measure the soil resistivity of various depths up to a minimum of 20 metres. This enables the plotting of a soil resistivity v. depth graph to reveal the optimum earth electrode system and where in the soil-strata it should be located.

5.4 Earthing Design

If the objective is to achieve a desired resistance to earth for a particular installation, e.g. one ohm, then formulae given in BS 7430 (1991) can be used to calculate the required amount of electrodes. If the earthing requirements are more comprehensive, for instance achieving a stipulated resistance to earth and also addressing the problems associated with step and touch voltages, then an internationally accepted standard such as IEEE standard 80 (1986) – Guide for Safety in AC Substation Grounding, should be employed. Other nationally recognised standards on earthing may be used to calculate the earth electrode requirements, but most design efforts concentration BS7430 and IEEE80.

For BS 7430 systems the resistance values are calculated to allow the Designer simply to select the ‘bill of quantities’ which gives his required resistance. IEEE80 designs include a schematic drawings representing the earth grid layout; from this, accurate site installation drawings can then be produced.

SECTION 6D:

TECHNICAL SPECIFICATION FOR FIRE ALARM SYSTEM

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SECTION A

1.0 SYSTEM DESIGN

1.1 The Code of Practice for design, installation and servicing

This specification is for the design and installation of fire detector alarm systems for general applications and is based on BS5839 Part 1: 1988.

1.2 Property Protection

A satisfactory fire alarm system for the protection of property will automatically detect a fire at an early stage, indicate its location and raise an effective in time to summon the fire fighting forces (both resident staff and fire brigade).

The general attendance time of the fire brigade should be less than 10 minutes. Therefore an automatic direct link to the fire brigade is essential.

1.3 Life Protection

A satisfactory fire alarm system for the protection of life can be relied upon to sound a fire alarm while sufficient time remains for the occupants to escape.

2.0 ZONE DETAILS

2.1 Zoning of the system

To ensure a fast and unambiguous identification of the fire source, the protected area should be divided into zones.

When determining the area to be covered by a zone, consideration should be given to accessibility, size, the fire routine determined for the premises, and particularly in occupied premises, that each zone is accessible from the main circulation routes leading from the where the control panel is sited.

In general the following guide lines for the size of a zone should be observed:

1. **If the total area** (i.e. the total of the floor areas of each storey) of the building **is not greater than 300m²** then the building need only be one zone, no matter how many floors it has.
2. **The total floor area** for a zone should not exceed **2000m²**.
3. **The search distance should not exceed 30m.** This means the distance that has to be travelled by a searcher inside a zone to determine visually the position of a fire should not exceed 30m. The use of remote indicator lamps outside doors may reduce the number of zones required.
4. **Where stairwells or similar structures extend beyond one floor but are in one fire compartment,** the stairwell should be a separate zone.
5. **If the zone covers more than one fire compartment, then the zone boundaries should follow compartment boundaries.**
6. If the building is split into several occupancies, **no zone should be split between two occupancies.**

Notes:

1. A fire compartment is an area bordered by a fire resisting structure usually at least 30 minutes resistance.
2. Zone limits can be relaxed only in certain manually operated systems.
3. It may be an advantage to have manual call points on separate zones to detectors. This will avoid misleading information regarding the position of fire, particularly on staircase landings.
4. Removal of a detector from a zone circuit must not isolate a break glass call point on the same circuit.

3.0 ADDRESSABLE SYSTEMS

In an addressable system several zones may be connected to the control panel by a single loop circuit.

Maximum area covered by one loop is 10,000 sq m.

In addressable systems the detector or manual call point in alarm can be shown by the use of an alpha numeric display. This on its own will not be acceptable and the zone in which the detector/manual call point has operated must be displayed.

The zonal indication may be mounted adjacent to the control panel, and the plan of the building/floor should also be displayed. This means, the use of mimic diagram would seem to be the most suitable means for zone identification.

However in small systems where the identification of location of an incident by an individual device is not confusing, then zonal information may not be required.

4.0 BREAK GLASS AND MANUAL CALL POINTS

The break glass call point is a device to enable personnel to raise the alarm in the event of a fire, by simply breaking a frangible element and thus activating the alarm system.

The following guidelines should be observed for the correct siting and positioning of break glass call points:

1. Break glass call points should be **located on exit routes** and in particular on the floor landings of staircases and at all exits to the open air.
2. Break glass call points should be located so that no person need travel more than 30m from any position within the premises in order to give an alarm.
3. Generally, call points should be fixed at a height of 1.4m above the floor, at easily accessible, well-illuminated and conspicuous positions free from obstruction.
4. The method of operation of all call points in an installation should be identical unless there is a special reason for differentiation.
5. Manual and automatic devices may be installed on the same system although it may be advisable to install the manual call points on separate zones for speed of identification.

An important component of any fire alarm system is the alarm sounder, normally a bell or electronic sounder, which must be audible throughout the building in order to alert and/or evacuate the occupants of the building.

The following guidelines should be observed for the correct use of alarm sounders:

1. A minimum sound level of either 65dBA or 5Dba above any background noise likely to persist for a period longer than 30 seconds, whichever is greater should be produced by the sounders at any occupiable point in the building.
2. If the alarm system is to be used in premises such as hotels, boarding houses etc., where it is required to wake sleeping persons then the sound level should be 75dBA minimum at the bedhead.
3. All audible warning devices used in the same system should have a similar sound and be distinct from any other audible alarms used for other purposes. Except in noisy areas where high performance sounders may be required.
4. A large number of more quiet sounders rather than a few very loud sounders may be preferable to prevent noise levels in some areas from becoming too loud.
5. It is unlikely that sounder noise levels in a room will be satisfactory if more than one dividing wall or door separates it from the nearest sounders.
6. The level of sound provided should not be so high as to cause permanent damage to hearing.
7. The number of fire alarm sounders used inside a building should be sufficient to produce the sound level recommended, but should in any case be at least two.

5.1 Other requirements include:

1. The sounders should be arranged on at least two separate circuits, so that the failure of one circuit does not cause all sounders in the building to fail.
2. Frequency range between 500 – 1000Hz.
3. Most single doors will cause a 20db drop in sound level. Fire doors – 30db.

4. Where mains sounders are being used to supplement 24V DC sounders, the 240V AC supply should be monitored.
5. To achieve 75db at the bedhead, a sounder should be installed in the bedroom.

6.0 SELECTION OF EQUIPMENT DETECTION TYPES

When choosing the type of detector to be used in a particular area it is important to remember that the detector has to discriminate between fire and the normal environment existing within the building, i.e. smoking in hotel bedrooms, fumes from forklift trucks in warehouses, steam from bathrooms, kitchens etc.

6.1 Heat detectors

Heat detectors may be the Point type (which responds to temperatures surrounding one particular spot), or the Line type (which responds to temperature change along its line).

All Point type heat detectors should include a fixed temperature element operating at a pre-determined temperature. Some may also include a rate-of-rise element designed to operate in response to a rapid rise in temperature. Heat detectors are in general less sensitive than other types of detector and should therefore not be used where a small fire will cause unacceptable losses.

6.2 Smoke detectors

There are two principal methods of smoke detection: the ionisation chamber, and the optical scatter chamber. The detection method chosen will usually depend on the type of risk to be protected against. In the ionisation chamber, an electric current flows between two electrodes and is reduced by smoke. Ionisation detectors are particularly sensitive to small particle smoke such as that produced in rapidly burning fires but are relatively insensitive to large particle smoke such as that produced by overheated PVC or smouldering polyurethane foam. In the optical chamber, light is scattered, or in some cases absorbed by smoke. Optical detectors are more sensitive to large particles found in optically dense smoke, but are less sensitive to the small particle smoke.

Today, optical smoke detectors are more widely used than ionisation types due to the growing use of flame retardant materials in building construction, decoration and furnishings. Careful consideration must be given to any specific risks that might occur.

6.3 Siting and spacing of detectors

In a building the greatest concentration of smoke and heat will generally collect at the highest parts of the enclosed areas and it is here therefore, that detectors should normally be sited. Heat detectors should be sited so that the heat sensitive element is not less than 25mm, nor more than 150mm, below the ceiling or roof. If a protected space has a pitched or north light roof, then smoke detectors should be installed in each apex. The following parameters should be followed when spacing detectors:

The maximum horizontal distance between any point in the area and the nearest detector:

1. Under flat horizontal ceilings and corridors more than 5m wide

- i) For Point type Heat Detectors 5.3m (maximum area 50m²)
- ii) For Point type Smoke Detectors 7.5m (maximum area 100m²)

Heat Detectors

Max area of coverage per detector = 50m²

Max distance covered = 5.3m (for square layout this is 3.5m to wall 7m between detectors)

Smoke Detectors

Max area of coverage = 100m²

Max distance covered – 7.5m (for a square layout this is 5m to wall, 10m spacing)

2. In a corridor less than 5m wide (where adjoining rooms are protected by automatic detection)

ADD to the maximum horizontal distance 50% of the difference between 5m and the actual width of the corridor.

e.g.: In a 2m wide corridor, the difference between: 2m and 5m = 3m

50% of 3m = 1.5m

Maximum distance of travel for a Point type Smoke Detector = $7.5\text{m} + 1.5\text{m} = 9\text{m}$

3. In the apex of a pitched or north light roof

A row of detectors should be sited in the apex. One row of detectors should be sited at the highest point, a minimum distance of 0.5m from the vertical wall.

ADD to the maximum horizontal distance 1% for each degree of slope up to a maximum increase of 25%

e.g.: A Point type detector at the apex of a 20 degree slope.

20% of 7.5m = 1.5m

Maximum distance of travel 9m

The maximum area of coverage may also be increased proportionally.

4. Obstructions

- (i) Where the passage of smoke or hot gas from a position to a detector is likely to be disturbed by a ceiling obstruction (such as a beam) having a depth greater than 150mm, but less than 10% of the height of the ceiling, then the horizontal distance should be decreased by twice the depth of the obstruction.

e.g.: For a point type smoke detector obstructed by a beam of 200mm depth Maximum distance of travel

$= 0.2 \times 2 = 0.4\text{m}$

$7.5\text{m} - 0.4\text{m} = 7.1\text{m}$

- (ii) Where a ceiling obstruction, such as a beam, is greater than 10% of the height of the ceiling then the areas either side of the obstruction should be considered as separate rooms.

- (iii) Ceiling beams less than 150mm can be ignored.

5. Detectors (Other than beam type)

Detectors should not be mounted less than 500mm from any walls or partitions. Where rooms are divided into sections by walls, partitions or storage racks reaching within 300mm of the ceiling, the dividers should be considered as if they reach the ceiling.

7.0

LIMITS OF CEILING HEIGHT

Detectors should not normally be mounted on ceilings higher than the general limits on Table 1 below. If small sections of a ceiling (not exceeding in total 10% of the ceiling area) exceed in height the general limits of the table, those higher sections may be protected by Point type heat detectors provided that the ceiling height in the higher sections does not exceed 10.5m, or by Point type smoke detectors provided that the ceiling height in the higher sections does not exceed 12.5m.

Limits of ceiling height		
Detector type	Ceiling heights in metres	
	General Limits	Rapid attendance
Heat detectors BS5445: Part 5		
Grade 1	9.0	13.5
Grade 2	7.5	12.0
Grade 3	6.0	10.5
Point smoke detectors BS 5445: Part 7	10.5	15.0
High temperature heat detectors BS 5445: Part 8	6.0	10.5
Optical beam smoke detectors BS 5839: Part 5	25.0	40.0

Siting limits for smoke beam detectors		
	Minimum (m)	Maximum (m)
Height of optical beam above floor	2.7	25.0*
Optical beam length	10.0	100.0
Distance of optical beam from a flat ceiling or apex	0.3	0.6
Horizontal distance between optical beams measured at right angles to a beam	--	14.0
Horizontal distance between optical beam and an adjacent wall or partition.	See Note	7.0

* The height may be increased to 40m provided that the rapid attendance criteria are met.

Note: Generally the beam should not pass closer to the wall or partition than 500mm, and not closer to an obstruction than 500mm. However, up to 3m of the beam may be closer than this.

8.0 CEILING HEIGHT LIMITS WITH RAPID ATTENDANCE

Although an increased ceiling height means that the fire will be larger when it is detected, the size of the fire when fire fighting starts will also depend on the delay between detection and the start of fire fighting. If this delay is small, then the increase in fire size at detection due to a higher ceiling can be acceptable.

If the detection system is automatically connected to the fire brigade either directly or via a central (fire alarm) station and the usual attendance time of the fire brigade is not more than 5 minutes, then the rapid attendance limits of ceiling height given in the table in the top right may be applied. If

small sections of a ceiling (not exceeding in total 10% of the ceiling area) exceed in height the limits of the table in the top right, those higher sections may be protected by Point type heat detectors if their height does not exceed 18 metres.

9.0 CONTROL EQUIPMENT

The control and indicating panel will depend on the size of the protected building and the extent of the automatic protection provided.

Specification of equipment would be based on numbers of zone circuits, sounder circuit, battery standby, remote centre link ancillary control relays, and other individual customer requirements.

Next to the control unit should be a diagrammatic plan showing zone locations.

Siting of control and indication equipment

1. In an area of low fire risk
2. On the ground floor by entrance used by the fire brigade.
3. In an area common to all building users.
4. Where automatic detectors are in use, the control equipment area must be protected.
5. Alarm sounder must be sited next to the control unit.

10.0 STANDBY POWER SUPPLIES

Standby supplies will usually be from secondary batteries with automatic chargers. These batteries must have an expected life of at least 4 years and the code specifically bans the use of automotive type batteries.

When the mains supply fails the standby must be able to operate the alarm load for 30 minutes after a certain minimum duration. The minimum duration varies with the type of system and building occupancy.

For life protection (L) if a mains failure will be recognized within 12 hours, a standby duration of 24 hours is required. If the 12-hour requirement is not likely to be met, a standby of 24 hours after the detection of the fault is required.

For property protection (P) if the mains failure will immediately be recognized then a 24 hours standby is required, if not, then the required duration is 24 hours longer than the building may remain unoccupied.

11.0 WIRING

The satisfactory operation of a fire alarm system depends on the interconnection of its components. Some interconnections may have to function correctly for significant periods after being attacked by fire, e.g: cables to power supplies, control equipment and sounders.

Other cables must function when a trigger device operates, but are not needed after an alarm has been raised, e.g: cables to manual call points, smoke detectors and heat detectors.

Cables can therefore be classed in two groups:

1. Cables permissible if operation is not required during fire, e.g: Cables to manual call points, smoke and heat detectors.
2. Cables permissible if operation is required during a fire, e.g: Cables to power supplies, control equipment and alarm sounders.

While mineral insulated cables are preferable for fire alarm applications, the following cables can be used for the two groups:

Group 1

1. **MICC** to BS 6207: Part 1 with or without **PVC** sheath.
2. Cables complying with BS 6387 at least in categories **AWX** or **SWX** or **A** or **S**.
3. **PVC** – insulated to BS 6004 sheathed or non-sheathed with mechanical protection.
4. Rubber insulated to BS 5007
5. **PVC** single type **BK**, **BR** and **BU** to BS 6231.
6. **PVC** insulated **SWA** to **BS** 6346

7. Cross-linked polyethylene or hard ethylene-propylene rubber insulated **SWA**
8. to BS 5467

9. Polyethylene insulated PVC sheathed coaxial cable to the dimensional requirements of BS 2316: Part 3 but with a minimum of 16-strands/0.2mm diameter central conductor.

10. Cables designed for the detection of heat.

Group 2

Cables 1 & 2 in Group 1 may be used for Group 2 applications. All the other cables shown above may also be used provided that they are protected either by burying them within a wall and covering them with 12mm of plaster or equivalent, or protecting them from a significant fire risk by shielding them with a wall, partition or floor having a minimum demonstrate 0.5 hour fire resistance.

These requirements may in certain cases be reduced when included in areas of low risk or when covered by an automatic extinguishing system.

Certain cables may also need mechanical protection against impact, abrasion or rodent attack. As a guide, cables 1, 6 and 7 above will not need further protection but all others may in risk circumstances. BS5839 Part 1 gives full details.

Other types of cables can be used provided that their suitability can be clearly demonstrated.

Conductors carrying fire alarm power or signals should be separated from conductors used for other systems.

12.0 INSTALLATION OF CABLES

Cables should be installed in accordance with the good practices recommended in the latest edition of the IEE wiring regulations.

Connection to a mains supply should be via an isolating switch fuse reserved solely for the purpose. Its cover must be painted red and labelled **fire alarm – do not switch off**.

Conductor size should take voltage drop into account. In any case conductors should have a cross-sectional area of not less than 1 square mm or, if stranded, of not less than 0.5 square mm.

Where possible, cables should be routed through areas of low fire risk.

Cables installed in damp, corrosive or underground locations should be PVC sheathed. Where there is a risk of mechanical damage, cables should be protected accordingly.

Cables in cavities or voids should be separated from other cables by 300mm, unless enclosed in a conduit, ducting or trunking.

Screened cables complying to be BS 7629 can be run in duct or tray without segregation.

13.0 ROUTINE TESTING OF SYSTEM

The system should be regularly tested and serviced. BS5839 Part 1 makes the following recommendations:

Daily

- (i) Check that the panel indicates normal operation. If not, record any fault indicated in the event log and report the fault to a responsible person.
- (ii) Check that any fault recorded for the previous day has received attention

Weekly

- (i) Operate a manual call point or smoke detector to ensure the system operates properly. Each week a different detector should be checked.
- (ii) Check that the sounders have operated and then reset the system
- (iii) Check the battery connections.
- (iv) Complete the event log with details of date, time, trigger device tested and enter **“Routine Weekly Test”** the **“Action Required”** and reported to a responsible person

Quarterly

- (i) Check entries in the log book and take any necessary action.
- (ii) Examine the batteries and their connections.
- (iii) Operate a manual call point or smoke detector to ensure the system operates properly, checking that all sounders are operating.
- (iv) Check that all functions of the alarm control panel operate by simulating fault conditions.
- (v) Visually check that structural alterations have not been made that could have an effect on the siting of detectors and other trigger devices.
- (vi) Complete the event log with details of date, time, trigger device tested and “**Quarterly Test**” in the event sections. Any defects or alterations to equipment should also be entered.

Annually

- (i) Carry out an inspection as detailed for the quarterly inspection.
- (ii) Every detector should be tested **in situ**.
- (iii) All cable fittings and equipment should be checked to ensure that they are secure and undamaged.

SECTION B:

14.0

ANALOGUE ADDRESSABLE FIRE DETECTION SYSTEMS

Analogue Addressable Systems provide combined enhanced detection sensitivity and reduced false alarm potential to create a safer, trouble-free detection environment.

Analogue addressable systems should achieve levels of fire detection and protector which embrace the virtues of fast and accurate response and high levels of detection sensitivity with a significantly reduced false alarm potential.

The addressable system to meet the following:-

- The requirements of BS. EN54 Pt. 2 and 4: 1998
- Installer-friendly 'plug in' feature
- 2km maximum loop length
- Up to 120 devices per loop.
- **Other Required Features:-**
 - Programmable sounder circuits direct from control panel.
 - Capability to add manual sounder circuits, via loop alarm interface units.
 - Sounders wired directly on to the detector loop
 - Large capacity high intensity LCD-8 lines, with 40 characters per line
 - Capacity for repeater panels on loop
 - Facilities for on-site programming
 - Password protected user and service menus
 - Networking facility

- Dirty detector fault warning facility
- Day/night sensitivity adjustment capability
- Coincidence detection
- Pre-alarm facility
- Power supply remote option

14.1 Network Capability

The loop control panels should be capable of being interconnected easily to produce larger systems.

When a fire or fault condition is detected on any of the control units an event message is passed to all the other panels connected to the system. It should be possible to interconnect fire detection systems on larger sites to form a single-site network.

Within information from individual panels, available across the network, an overall fire plan, involving alerting or evacuating affected parts of the site can be implemented.

When a fire or fault condition is detected on any of the control units, an event message is passed on to all other panels connected to the system. Each panel will then display event information such as panel number, loop, zone/sector and address data. Alarm line operation across the network can be facilitated using zone and sector numbering.

Alarm sounder options

Alarm sounders can be connected to the system as follows:

- (i) On dedicated alarm lines, wired directly from the control panel. Four and eight separate alarm outputs to be are provided in the two and four loop control panels respectively.

Each alarm circuit to be separately programmable to activate from any designated zone or zones of devices on the detection loop.

- (ii) Additional alarm lines to be connected to the system via alarm line interface units. Each unit to provide four programmable alarm line outputs and be capable of being positioned anywhere on the detection loop wiring.
- (iii) Where loop-wired sounders are used, these should be connected directly on the detector loop wiring. These units to be programmed either to sound a general alarm or be individually operated by a signal from any designated zone or zones of detection devices-hence offering a complete analogue addressable system on a single pair of wires.

Electronic sounders to give sound outputs complying with the requirements of BS5839 Pt 1: 1998. The sounders to be capable of giving various sound types.

14.2 Additional programmable features

The following additional features to be programmed into the system:

- address to zone number allocation (up to 128 zones)
- address to device type (e.g. detector or call point)
- zone, address, device type and sector text (24 characters each)
- zone or sector intermittent alarm pattern allocation
- 2 stage alarm timer
- Zone or sector to auxiliary relay timed operation. Further relays may be added by using remote relay interface units.
- auxiliary input operation (e.g. silence/sound/evacuate etc)
- 40 characters of site text displayed by the panel in normal state, with the time and date.
- customer fire or fault programming
- double knock/coincidence
- day/night sensitivity
- adjustable detector threshold levels

15.0 SYSTEM FEATURES

Styled for the buildings of tomorrow

Information relating to the status of the system to be clearly indicated via the panel's alphanumeric 8 line, high intensity liquid crystal display.

15.1 1, 2 or 4 Loop options

The panels to be capable of being connected to either 1, 2 or 4 detector loops each loop being up to 2 km in length and 4 or 8 programmable sounder circuits, respectively.

Additionally, the panels to be capable of being networked together to provide even higher levels of detection and alarm system capacity. When networked, each panel to be configured to provide information relating to the entire fire detection system, thus enhancing the level of building safety.

15.2 Operation

Access level one controls to be positioned on the front of the panel, for ease of operation. Level two controls are to be concealed behind a key operated cover, and once exposed, they should enable the operator to interrogate the system's memory to obtain information on the location, status and progress of any fire incident.

Further levels of control, for example the disablement of, and reinstatement of detectors and zones, to be available via a security access code.

The system's memory to be capable of recording historical information relating to the minimum, maximum and current analogue levels received from any address, providing the facility for the constant monitoring of detector condition and a record of 'normal' fluctuations in the environment at each location, for simplification of routine testing and maintenance procedures.

15.3 Installation

Each panel to be supplied with address modules 1-60 for each loop. These are to be inserted into each appropriately numbered detector or call point on the system. Address modules 61-120 to be supplied separately to cater for systems with more than 60 addressable devices per loop.

15.4 Standard

The system to comply with BS EN54 Pt 2 1998 – Control and Indicating Equipment (CIE) and BS EN54 Pt 4 1998 – Power Supply Equipment (PSE)

16.0 SYSTEM OPERATION

16.1 Operational characteristics

The following is a brief summary of the main functions and the expected operational characteristics of the system.

- **Adjustable pre and full alarm facilities**

Adjustable pre and full alarm thresholds to be set for individual detector addresses.

Once a pre-alarm threshold has been reached, a signal to be sent to designated locations, alerting those responsible for system monitoring, that the potential for a fire incident may exist. When the full alarm threshold is reached, the system to automatically provide warning signals to pre-determined areas of the system, for purposes of facilitating orderly evacuation of those areas affected.

A day/night operation facility to be provided to give a desensitized level of detection during the day and full sensitivity during night time operation, without affecting immediate alarms from manual call points.

- **Automatic detector fault facility**

High and low- level fault thresholds to be indicated. If a device's analogue level drifts, over a period of time from its normal background value, a fault indication to be given at the panel, showing the address of the detector. The detector can then be inspected and serviced or replaced if necessary. This facility to be included to increase building safety through simplification of routine maintenance, and testing.

- **Line extensions**

Alarm and relay extension lines to be connected at any address on the analogue detection loop, using the appropriate interface.

- **Repeater facility**

The dedicated repeater panel to be either connected to the detection loop, or spurred directly from a panel, if preferred. The Repeater Unit to be supplied with an 80 character LCD and integral power supply unit.

- **Enhanced detector addressing**

Each system to be programmed to provide an address/detector indication for each device, which enables a 'DEVICE TYPE ERROR' indication to be displayed at the control panel in the event of a wrong device being fitted.

- **PC control colour graphics and data acquisition facility**

This add-on package, to feature a PC and monitor, complete with software and the origination of up to 12 site plans. Additional plans can be added as extras.

SECTION C: ANALOGUE ADDRESSABLE DETECTORS

17.0 ANALOGUE DETECTORS

The analogue photoelectric smoke detector is ideally suited to the detection of slow burning fires. It employs an infra-red light source and photodiode to provide early warning of a hazard. Smoke particles entering the detection chamber cause light scatter, which is detected by the photodiode. The detector to be resistant to false alarms caused by dust, insects, high humidity and draughts.

17.1 Analogue Ionization Smoke Detector

Particularly suitable for identifying clean burning fires. The detector to incorporate twin sampling chambers which provide enhanced stability and inhibit the potential for false alarms caused by changing environmental conditions.

Analogue Heat Detector to be capable of being configured by the control panel to operate either as a fast response, medium response heat detector, or a high temperature detector.

Common Mounting Base to be compatible with detectors (both analogue and conventional). The base to incorporate a secure locking tab and position indicator, facilitating the correct orientation of the detector for optimum viewing of the detector's LED.

18.0 ANALOGUE REPEATER PANELS

Analogue Addressable Repeater Panel

The repeater unit to incorporate a 2 x 40 character liquid crystal display, with the optional facility of an integral printer. Additional features to include own log, to receive and store information from the main panel, and an output to facilitate the addition of a mimic repeater panel. The standard unit to be surface or flush mounted.

Slim line Mimic Diagram (SMD)

The slim line machine is designed to augment the information provided by main or repeat panel.

The SMD helps to maximize alarm flexibility, whilst reducing system wiring to an absolute minimum.

The module is installed either as a sounder detector base or as a stand-alone wall or ceiling mounted unit. Either option is accommodated directly on the two wire detector loop.

The fully programmable SMD to allow alarm organization on a single sounder, zonal or general alarm basis.

The self-powered facility to allow up to 120 detection devices and up to 55 addressable sounders to be connected on to the loop wiring.

The SMD to have selectable tones, continuous intermittent or warble. To be used in systems designed to BS5839 Pt 1. The sound output to be rated at 93 dB.

Addressable Sounder

The loop wired addressable sounder is to be used with analogue addressable fire systems.

Installed either in conjunction with a detector or on a stand alone basis, the sounder is addressed and powered directly from the detector loop.

The unit to provide a sound level of 85 dBA, and offer continuous intermittent or warble sound types, all within the recommended BS5839 Pt 1 frequency.

Each analogue loop to have a maximum of 30 units.

19.0 LOOP INTERFACE UNITS

To help provide input/output signals from anywhere on the loop wiring. This device to enable automatic operation of building plant in the event of a fire or the interface with existing fire detection or fire extinguishing systems to be easily incorporated.

Alarm/power supply interface units to allow additional alarm lines to be wired from any loop location. Each unit to provide the facility for using four independent programmable alarm circuits (1A maximum per alarm line, 3A maximum load). Alarm lines to be controlled without the need to wire directly back to the panel.

Relay/power supply interface unit to provide four additional programmable relay contacts (5A, 30 VDC) to enable output signals for operating external equipment.

This unit to have a dedicated 240VAC supply and should be capable of being connected at any address location on the detection loops.

Interface units, loop maximums. A maximum of 3 alarm interfaces and 4 relay interfaces may be connected to each loop controller, with each loop controller controlling two loops.

As a two loop panel contains a single loop controller, a maximum of 3 alarm line interfaces and 4 relay interfaces may be connected to loops 1 and 2 or a combination of both. A four loop panel contains 2 loop controllers enabling a maximum of 3 alarm interfaces to be connected to either loop 1 or 2 with a similar number on either loop 3 or 4.

Short circuit isolator provides protection of the detection loop. This ensures that the remainder of the loop protected by the short circuit isolator arrangement continues to function should a fault occur.

Standard interface unit enables a spur, containing a maximum of 5 standard detectors, and an unlimited number of conventional call points to be connected to the detection loop. UP to 10 interface units may be connected to a loop. Conventional call points should be wired before conventional detectors on any spur circuit. They should not be mixed.

Input/Output interface unit provides both input and output signals directly on to the loop. Input signals from other fire protection systems can be displayed at the control panel. Output signals can be provided in order to operate plant shut down or door release equipment.

The call point is addressed in a similar manner to the addressable detector bases, using the same set of address modules. There is no restriction on the number that may be used on a loop, up to a maximum of 120 address points. An LED indicator is incorporated as standard to confirm that the unit has operated.

Weatherproof break glass call point

For exterior applications, where required.

SECTION VII: EVALUATION CRITERIA

STAGE 1 DETERMINATION OF RESPONSIVENESS

This stage of evaluation shall involve examination of the pre-qualification conditions as set out in the Tender Advertisement Notice or Letter of Invitation to Tender and any other conditions stated in the bid document.

These conditions will include the following:

- A) Chronological serialization of all pages of tender document.
- B) Confirmation of submission of 2 envelope bid (**Mandatory Requirement**)
- C) Registration with National Construction Authority (Category **NCA 5** and above for Electrical Installations)
- D) Manufacturers Letter of Authority for Supply of the equipment clearly indicating brand being proposed including alternative firms dealing with the same brand.
- E) Certificate of Registration/Incorporation under Company's Act
- F) Provision of Bid Security of Kshs 200,000 from a reputable Bank or Insurance company.
- G) Dully filled Form of Tender
- H) Valid KRA Tax Compliance Certificate
- I) Power of Attorney
- J) Valid Single business permit
- K) Duly filled signed and stamped Site visit form.
- L) Duly filled signed and stamped Confidential Business Questionnaire.
- M) Duly filled signed and stamped Independent tender determination form
- N) Duly filled signed and stamped Form SD1 and SD2
- O) Duly filled signed and stamped Form ELI – 1.1
- P) Evidence of list of proposed equipment showing proof of ownership/ lease / hire.

The bid security shall be in accordance with clauses 13 and 23.2 of Instruction to Tenderers which states as follows:

- **Clause 13.1** of Instruction to Tenderers “the tenderer shall furnish as part of his tender, a tender surety in the amount stated in the tender document in the Appendix to Instructions to Tenderers”.
- **Clause 13.2** of Instruction to Tenderers, “the unconditional Tender surety shall be in Kenya shillings and be in form of a certified cheque, bank draft, an irrevocable letter of credit or a guarantee from a reputable Bank located in the Republic of Kenya. The format of the surety shall be in accordance with the sample form included in the tender documents and the tender surety shall be valid for **120 days** from the date of tender opening”.
- **Clause 23.2** of Instruction to Tenderers: “For the purposes of this clause, a substantially responsive tender is one which conforms to all terms and condition and specifications of the tender document without material deviation or reservation and has a valid Bank/Insurance guarantee”.

The employer may seek further clarification/confirmation if necessary to confirm authenticity/compliance of any condition of the tender.

The tenderers who do not satisfy any of the above requirements shall be considered Non-Responsive and their tenders will not be evaluated further.

STAGE 2 TECHNICAL EVALUATION

The tender document shall be examined based on clause 2.2 of the Instruction to Tenderers which states as follows:

In accordance with clause 2.2 of Instruction to Tenderers, the tenderers will be required to provide evidence for eligibility of the award of the tender by satisfying the employer of their eligibility under sub clause 2.1 of Instruction to Tenderers and adequacy of resources to effectively carry out the subject contract. The tenderers shall be required to fill the Standards Forms provided for the purposes of providing the required information. The tenderers may also attach the required information if they so desire.

Also the bid will be analyzed to determine compliance with General and Particular technical specifications for the works as indicated in the tender document.

The evaluation team will thoroughly scrutinize the documents to satisfy themselves that the tenderer has filled, completed and provided comprehensive and supportive documents outlining:-

1. Key personnel to execute in the works
2. Contracts completed in the last 5 years and their relevance to the contract
3. Schedule on the ongoing contracts and their relevance to the contract

Presentation of realistic time frame for completion of the contract shall be included with the proposal and evaluated.

Following the above analyses, where the proposed equipment are found not to satisfy the specifications, the tender will be deemed Non – Responsive and will not be evaluated further.

MARKING SCHEME

The detailed scoring plan shall be as shown in table 1 below: -

TABLE 1

TABLE 1

Item	Description	Point Scored	Max. Point	
i	Statement of Compliance Signed and stamped ----- ----- 6 Signed but not stamped or vice versa ----- ----- 4 Not signed nor stamped ----- ----- 0		6	
ii	Tender Questionnaire Form Completely filled ----- ----- 6 Partially filled ----- ----- 4 Not filled ----- -----0		6	
iii	Confidential Business Questionnaire Form. Completely filled ----- ----- 8 Partially filled ----- ----- 4 Not filled ----- ----- 0		8	
iv	Key Personnel (Attach evidence)			20
	Director of the firm <div><div><div>○ Holder of degree or diploma in relevant Engineering field-----5</div><div>○ Holder of certificate in relevant Engineering field---- -----3</div><div>○ Holder of trade test certificate in relevant Engineering field----2</div><div>○ No relevant certificate ----- -----0</div></div></div>		5	

	At least 1No. degree/diploma of key personnel in relevant Engineering field <ul style="list-style-type: none"> ○ With over 10 years relevant experience ----- -----5 ○ With over 5 years relevant experience ----- ----- 3 ○ With under 5 years relevant experience ----- ----- 1 		5	
	At least 1 No certificate holder of key personnel in relevant Engineering field <ul style="list-style-type: none"> ○ With over 10 years relevant experience ----- ----- 5 ○ With over 5 years relevant experience ----- ----- 3 ○ With under 5 years relevant experience ----- -----1 		5	
	At least 2 No artisan (trade test certificate in relevant Engineering field) <ul style="list-style-type: none"> ○ Artisan with over 10 years relevant experience ----- ----- 5 ○ Artisan with under 10 years relevant experience ----- ----- 3 ○ Non skilled worker with over 10 years relevant experience ----1 		5	

V	Contract completed in the last five (5) years (Max of 5 No. Projects) <ul style="list-style-type: none"> ○ Project of similar nature, complexity and magnitude --- -----3 ○ Project of similar nature but of lower value than the one in consideration----- ----- 2 ○ No completed project of similar nature ----- ----- 0 ○ 		15	30
Vi	On-going projects (Max of 5 No. Projects) <ul style="list-style-type: none"> ○ Project of similar nature, complexity and magnitude --- ----- 2 ○ Project of similar nature but of lower value than the one in consideration ----- -----1 ○ No ongoing project of similar nature - ----- -----0 ○ 		15	
vii	Schedule of contractors equipment and transport (proof or evidence of ownership) <ul style="list-style-type: none"> ○ Means of transport (Vehicle) ----- ----- 4 ○ No means of transport ----- ----- 0 		4	10
	For each specific equipment required in the installation of the Work being tendered for. (Maximum No. of equipment to be considered – 3 No.) ----- ----- 2		6	
viii	Financial report Audited financial report (last three (3) years) <ul style="list-style-type: none"> ○ Turn over greater or equal to 5 times the cost of the project --- 10 ○ Turn over greater or equal to 3 times the cost of the project ---- 6 ○ Turn over greater or equal to the cost of the project ---- ----- 4 ○ Turn over below the cost of the project ----- ----- 2 		6	
ix	Evidence of Financial Resources (cash in hand, lines of credit, over draft facility etc)		8	

	<ul style="list-style-type: none"> ○ Has financial resources equal or above the cost of the project-- 8 ○ Has financial resources below the cost of the project --- -----5 ○ Has not indicated sources of financial resources ----- -----0 		
x	Name, Address and Telephone of Banks (Contractor to provide) <ul style="list-style-type: none"> ○ Provided ----- ----- 4 ○ Not provided ----- ----- 0 		4
xi	Litigation History (Attach proof to get marks) <ul style="list-style-type: none"> ○ Filled (attach lawyers letter confirming no litigation.....2 ○ Not filled ----- -----0 		2
	TOTAL		100

Any bidder who scores 70 points and above shall be considered for further evaluation

The Technical score will be carried forward to **STAGE 4**

STAGE 3 FINANCIAL EVALUATION

This will be carried out only for those tenders that have passed BOTH the Mandatory Requirements and the Technical Evaluation.

The evaluation shall be in two sections

1. Preliminary examinations and
2. Tender sum Comparisons

PRELIMINARY EXAMINATIONS

The preliminary examination in the Financial Evaluation shall be in accordance with clause 26 of Instruction to Tenderers.

The parameter to be considered under this section includes:

- a) Arithmetic errors;
- b) Comparison of rates.

(1) Arithmetic Errors

The bid shall be checked for arithmetic errors based on the rates and the total sums indicated in the bills of quantities. Confirmation shall be sought in writing from the tenderers whose tender sums will be determined to have any arithmetic errors to confirm whether they accept the corrected tender sums or not. The error shall be treated as per **clause 24 of Instructions to Tenderers**. Noncompliance with the above requirement shall lead to **automatic disqualification of the bid from further evaluation**.

Discount, if any, shall be treated as an error pursuant to **clause 26.3** of Instructions to Tenderers.

(2) Comparison of rates

The Evaluation Committee will compare rates offered by different qualified bidders and note if there is inconsistency of rates or front loading. The Evaluation Committee will make a judgement and appropriate decision based on this comparison giving evidence for the decision made.

This will be carried out only for those tenders that have passed BOTH The Responsiveness Evaluation and The Technical Evaluation.

The single currency for the price conversion is KENYA SHILLINGS (KSHS). The formula in determining the financial score is as follows:-

$$SF = \frac{FM}{F} \times 100$$

$$SF = \text{Financial Score}$$

$$FM = \text{Lowest Financial Proposal}$$

$$F = \text{Financial Proposal under consideration.}$$

The weights given to the technical proposal (T) is 0.85 and for financial proposal (P) is 0.15. The lowest bid will be given maximum financial score.

COMBINED FINANCIAL AND TECHNICAL SCORE

The evaluation results will be ranked on Combined Financial and Technical Score which is given as

follows: -

$$S = S_t \times T\% + S_f \times P\%$$

Where

$$S_t = \text{Technical Score}$$

$$T = \text{Technical Weighting}$$

$$S_f = \text{Financial Score}$$

$$P = \text{Financial Weighting}$$

$$S = \text{Combined Financial and Technical Score}$$

STAGE 4 RECOMMENDATIONS FOR TENDER AWARD

After satisfying itself with Stage 3 of this evaluation process the Evaluation Committee will recommend the lowest evaluated tenderer for award of contract based on the combined Financial and Technical Score.

PART 3 - THE CONDITIONS OF CONTRACT AND CONTRACT

SECTION VIII
GENERAL CONDITIONS OF CONTRACT (GCC)

[Name of Procuring Entity] **County Assembly of Siaya**

[Name of Contract] **Proposed Power Upgrade**

[Architect Name and Address]

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.

“Day works” 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 may be) 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 a ref actual and interpretative about the surface and sub-surface condition sat 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.

1.2 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.

1.3 Communications

1.3.1 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 for 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.

1.3.2 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.

1.4 Law and Language

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

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

1.5 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.

1.6 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.

1.7 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.

1.8 Care and Supply of Documents

- 1.8.1 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.
- 1.8.2 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.
- 1.8.3 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.
- 1.8.4 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.

1.9 Timely provision of Drawings or Instructions

- 1.9.1 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.

2.2 Permits, Licenses or Approvals

- 2.2.1 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.

2.3 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 actions 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 Clause14 [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.

3.1.6 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.
- 3.1.7 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.

3.2 Delegation by the Engineer

- 3.2.1 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].
- 3.2.2 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.

3.3 Instructions of the Engineer

- 3.3.1 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.
- 3.3.2 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 agree mentor 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

- 42.1 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.
- 42.2 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.
- 42.3 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.
- 42.4 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.
- 42.5 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.
- 42.6 The Procuring Entity shall return the Performance Security to the Contractor within 14 days after receiving a copy of the Taking-Over Certificate.
- 42.7 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

43.1 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**.

43.2 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.

43.3 The Contractor shall not, without the prior consent of the Engineer, revoke the appointment of the Contractor's Representative or appoint a replacement.

43.4 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.

43.5 The Contractor's Representative shall, on behalf of the Contractor, receive instructions under Sub-Clause 3.3 [Instructions of the Engineer].

43.6 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.

43.7 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

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

44.2 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].
- 4.4.3 The Contractor shall ensure that the requirements imposed on the Contractor by Sub-Clause 1.12 [Confidential Details] apply equally to each Subcontractor.
- 4.4.4 Where practicable, the Contractor shall give fair and reasonable opportunity for contractors from Kenya to be appointed as Subcontractors.

4.5 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.

4.6 Co-operation

- 4.6.1 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.
- 4.6.2 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.
- 4.6.3 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.

4.7 Setting Out of the Works

- 4.7.1 The Contractor shall set out the Works in relation to original points, lines and levels of reference specified in the Contract 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.
- 4.7.2 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.
- 4.7.3 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 subparagraphs (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.

4.10 Site Data

4.10.1 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.

4.10.2 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.

4.11 Sufficiency of the Accepted Contract Amount

4.11.1 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].

4.11.2 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.

4.12 Unforeseeable Physical Conditions

4.12.1 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.

4.12.2 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.

4.12.3 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.

4.12.4 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.

4.12.5 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.

- 4.12.6 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.
- 4.12.7 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.

4.18 Protection of the Environment

- 4.18.1 The contractor shall comply with the applicable environmental laws, regulations and policies.
- 4.18.2 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.
- 4.18.3 The Contractors shall ensure that emissions, surfaced is charges and effluent from the Contractor's activities shall not exceed the values stated in the Specification or prescribed by applicable Laws.

4.19 Electricity, Water and Gas

- 4.19.1 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.
- 4.19.2 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.
- 4.19.3 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.

4.20 Procuring Entity's Equipment and Free-Issue Materials

- 4.20.1 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.
- 4.20.1 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.
- 4.20.2 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.
- 4.20.3 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.

4.21 Progress Reports

- 4.21.1 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.
- 4.21.2 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.

4.22 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.

4.23 Contractor's Operations on Site

- 4.23.1 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.
- 4.23.2 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.
- 4.23.3 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.

4.24 Fossils

- 4.24.1 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.
- 4.24.2 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

5.1 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].

5.2 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].

5.3 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 5.4 [Evidence of Payments].

5.4 Evidence of Payments

- 5.4.1 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

6.1 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.

6.2 Rates of Wages and Conditions of Labor

6.2.1 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.

6.2.2 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.

6.3 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.

6.4 Lab or 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.

6.5 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

- 67.1 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.
- 67.2 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.
- 67.3 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.
- 67.4 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

- 68.1 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.
- 68.2 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.

6.9 Contractor's Personnel

- 6.9.1 The Contractor's Personnel shall be appropriately qualified, skilled and experienced in their respective trades or occupations. The Contractor's 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 incompetently 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.
- 6.9.2 If appropriate, the Contractor shall then appoint (or cause to be appointed) a suitable replacement person.

6.10 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.

6.11 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.

6.12 Foreign Personnel

- 6.12.1 The Contractor shall not employ foreign personnel unless the contractor demonstrates that there are no Kenyans with the required skills.
- 6.12.2 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.

6.13 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.

6.14 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.

6.15 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.

6.16 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.

6.17 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.

6.18 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].

6.19 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.

6.20 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

7.1 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.

7.2 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.

7.3 Inspection

7.3.1 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.

7.3.2 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.

7.3.3 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.

7.4 Testing

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

7.4.2 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.

7.4.3 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.

7.4.4 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.

7.4.5 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

75.1 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.

75.2 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

76.1 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.

76.2 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).

76.3 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.

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

7.7 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

8.1 Commencement of Works

8.1.1 Except as otherwise specified in the Special Conditions of Contract, the Commencement Date shall be the date at which the following precedent condition shave 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.

8.1.2 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].

8.1.3 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.

8.2 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].

8.3 Programme

8.3.1 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.

8.3.2 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.

8.3.3 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.

8.3.4 If, at any time, 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.

8.4 Extension of Time for Completion

8.4.1 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.

8.4.2 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.

8.5 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].

8.6 Rate of Progress

861 If, at any time:

- 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.

8.7 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.

8.8 Suspension of Work

881 The Architect may at any time 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.

8.9 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].

8.10 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.

8.11 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].

8.12 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 subparagraph (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.

9.4 Failure to Pass Tests on Completion

- 9.4.1 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:
- Order further repetition of Tests on Completion under Sub-Clause 9.3; or
 - 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 subparagraph (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

- 103.1 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.
- 103.2 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.
- 103.3 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.
- 103.4 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

- 11.1.1 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).

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

11.2 Cost of Remedying Defects

11.2.1 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.

11.2.2 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.

11.3 Extension of Defects Notification Period

11.3.1 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.

11.3.2 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.

11.4 Failure to Remedy Defects

11.4.1 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.

11.4.2 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.

11.5 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.

11.6 Further Tests

11.6.1 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.

11.6.2 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.

11.7 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.

11.8 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.

11.9 Completion Certificate

11.9.1 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.

11.9.2 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.

11.9.3 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.
- 12.1.5 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.

12.2 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

13.3.1 The Contractor may, at any time, 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.

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

13.23 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 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.

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

137 Dayworks

- 13.71 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.
- 13.72 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.
- 13.73 Except for any items for which the Daywork Schedule specifies that payment is not due, the Contractor shall deliver each 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.
- 13.74 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

- 13.81 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.
- 13.82 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.
- 13.83 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.
- 13.84 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].

139 Adjustments for Changes in Cost

- 13.91 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.

- 1392 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.
- 1393 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:

$$P = A + B \text{ Im/Io}$$

where:

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

A and **B** are 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 **Ioc** 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.

- 1394 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.
- 1395 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.
- 1396 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.
- 1397 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.
- 1398 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

14.1 The Contract Price

- 14.1.1 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.
- 14.1.2 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.

14.2 Advance Payment

- 14.2.1 The Procuring Entity shall make an advance payment, as an interest-free loan for mobilization and cash flow 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**.
- 14.2.2 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.
- 14.2.3 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.
- 14.2.4 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.
- 14.2.5 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.

142.6 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.

14.3 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.

14.4 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 resatisfied:

- 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.

14.6 Issue of Interim Payment Certificates

- 14.6.1 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.
- 14.6.2 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.
- 14.6.3 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.

14.7 Payment

- 14.7.1 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].

- 14.7.2 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.

14.8 Delayed Payment

- 14.8.1 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.
- 14.8.2 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 interbank offered rate, and shall be paid in such currency.
- 14.8.3 The Contractor shall be entitled to this payment without formal notice and certification, and without prejudice to any other right or remedy.

14.9 Payment of Retention Money

- 14.9.1 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.
- 14.9.2 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.
- 14.9.3 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.
- 14.9.4 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].
- 14.9.5 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.
- 14.9.6 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 Contractor 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 30days 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 indemnification 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.

15.2 Termination by Procuring Entity

- 152.1 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.
- 152.2 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.

15.3 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.

15.4 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 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.

15.5 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].

15.6 Fraud and Corruption

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

15.7 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 thereof 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.

16.1.2 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].

16.1.3 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.

16.1.4 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 4.7 [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 outo for 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.

17.4 Consequences of Procuring Entity's Risks

17.4.1 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.

17.4.2 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 (e) and (g) of Sub-Clause 17.3 [Procuring Entity's Risks], Accrued Costs shall be payable.

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

17.5 Intellectual and Industrial Property Rights

17.5.1 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.

17.5.2 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.

- 1753 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.
- 1754 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.
- 1755 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 knowhow 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.

17.6 Limitation of Liability

- 17.6.1 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].
- 17.6.2 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.
- 17.6.3 This Sub-Clause shall not limit liability in any case of fraud, deliberate default or reckless misconduct by the defaulting Party.

17.7 Use of Procuring Entity's Accommodation/Facilities

- 17.7.1 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).
- 17.7.2 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.
- 18.1.5 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.
- 18.1.6 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].
- 18.1.7 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.

- 18.1.8 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.
- 18.1.9 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 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 Contract 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 in Clause 18) with insurers from any eligible source country.

18.2 Insurance for Works and Contractor's Equipment

- 18.2.1 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 sub-paragraph (a) of Sub-Clause 18.1 [General Requirements for Insurances], until the date of issue of the Taking-Over Certificate for the Works.
- 18.2.2 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]).
- 18.2.3 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].

18.3 Insurance against Injury to Persons and Damage to Property

1831 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.

1832 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.

1833 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.

18.4 Insurance for Contractor's Personnel

- 18.4.1 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.
- 18.4.2 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.
- 18.4.3 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].
- 19.4.2 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

19.5 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.

19.6 Optional Termination, Payment and Release

- 19.6.1 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].

- 19.6.2 Upon such termination, the Architect shall determine the value of the work done and issue a Payment Certificate which shall include:
- a) the amount 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.

19.7 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.

- 20.15 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.
- 20.16 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.
- 20.17 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.
- 20.18 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.
- 20.19 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.
- 20.10 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.

20.2 Procuring Entity's Claims

- 20.2.1 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.

- 2053 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.
- 2054 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 prior 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.

20.6 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
- 206.2 The institution written to first by the aggrieved party shall take precedence over all other institutions.

20.7 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.

- 20.7.2 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].

20.8 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.

20.9 Failure to Comply with Arbitrator's Decision

- 20.9.1 The award of such Arbitrator shall be final and binding upon the parties.
- 20.9.2 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.

20.10 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.

Part A - Contract Data

Conditions	Sub-Clause	Data
Procuring Entity's name and address	Heading	<i>Insert</i>
Name and Reference No. of the Contract	Heading and 3.1.1	<i>Insert</i>
Engineers Name and address	Heading and 3.1.1	<i>Insert</i>
Contractor's Representative's name	4.3.1	Insert name of contractors representatives
Key Personnel names	16.9.1	Insert names of key personnel
Time for Completion	1.1days
Defects notification period	1.1days
Sections	1.1	Refer to table: Summary of sections below
Electronic transmission system	1.3	
Time for parties entering into a contract agreement	1.6	30 Days
Commencement Date	8.1.1	
Time for access to the site	2.1	Not later than commencement date and not later thandays after commencement date
Architect Duties and Authority	3.1.6 (b) (ii)	Variations resulting in an increase of the Accepted Contract Amount in excess of ____% shall require approval of the Procuring Entity.
Performance Security	4.2.1	The performance security will be in the form of a ____ [<i>insert either one of "demand guarantee" or "performance bond"</i>] in the amount(s) of [<i>insert related figure(s)</i>] percent of the Accepted Contract Amount and in the same currency(ies) of the Accepted Contract Amount.
Normal working hours	6.5	Specify
Delay damages for the Works	8.7 & 14.15(b)	_____ % of the Contract Price per day. <i>If Sections are to be used, refer to Table: Summary of Sections below</i>
Maximum amount of delay damages	8.7	_____ % of the final Contract Price.

Conditions	Sub-Clause	Data
Provisional Sums	13.5. (b)(ii)	<i>[If there are Provisional Sums, insert a percentage for adjustment of Provisional Sums]</i> --- %
Adjustments for Changes in Cost	13.8	Period "n" applicable to the adjustment multiplier "Po": <i>[Insert the period if different from one (1) month; if period "n" is one (1) month, insert "not applicable"]</i>
Total advance payment	14.2.1	% Percentage of the Accepted Contract Amount payable in the currencies and proportions in which the Accepted Contract Amount is payable <i>[Insert number and timing of installments if applicable]</i>
Repayment amortization rate of advance payment	14.2.5 (b)	--- %
Percentage of Retention	14.3.2 (c)	--- %
Limit of Retention Money	14.3.2 (c)	_____ % of the Accepted Contract Amount
Plant and Materials	14.5(b)(i)	If Sub-Clause 14.5 applies: Plant and Materials for payment Free on Board _____ <i>[list]</i> .
	14.5(c)(i)	Plant and Materials for payment when delivered to the Site _____ <i>[list]</i> .
Minimum Amount of Interim Payment Certificates	14.6	% of the Accepted Contract Amount.
Publishing source of commercial interest rates for financial charges in case of delayed payment	14.8	Specify _____ % rate per month of delayed payment.
Maximum total liability of the Contractor to the Procuring Entity	17.6	<i>[Select one of the two options below as appropriate]</i> The product of _____ <i>[insert a multiplier less or greater than one]</i> times the Accepted Contract Amount, <i>or</i> _____ <i>[insert amount of the maximum total liability]</i>
Periods for submission of insurance: a. Evidence of insurance. b. Relevant policies	18.1	<i>[Insert period for submission of evidence of insurance and policy. Period may be from 14 days to 30 days.]</i> days _____ days
Maximum amount of deductibles for insurance of the Procuring Entity's risks	18.2.4 (d)	<i>[Insert maximum amount of deductibles]</i>
Minimum amount of third-party insurance	18.3	<i>[Insert amount of third-party insurance]</i>
The place of arbitration	20.7.2	<i>Insert city and Country</i>

PROPOSED ELECTRICAL POWER UPGRADE AT THE COUNTY ASSEMBLY BUILDING
ELECTRICAL INSTALLATIONS AND ASSOCIATED SERVICES
BILLS OF QUANTITIES - GENERAL ITEMS

BILL NO. 1 - PRELIMINARY ITEMS

ITEM No.	DESCRIPTION	QTY	UNIT	RATE (KShs Cts)	AMOUNT (KShs Cts)
1.01a)	Carry out comprehensive 24-hour power analysis, after installing main switchboard, but before switching on load, upgrading of switch-gear, with a digital power meter (with printer) to: i) Record and print all the power system parameters. ii) Submit 3 copies of the print-outs. (Note: Parameters must be satisfactory before building is switched on).		Item		
1.01b)	Carry out comprehensive 24-hour power analysis, after switching main switchboard on full load but AVR off, with a digital power meter (with printer) to: i) Record and print all the power system parameters. ii) Submit 3 copies of the print-outs.		Item		
1.01c)	With the AVR "on" repeat the above process but before the AVR (i.e. on the supply side of the AVR)		Item		
1.01d)	With the AVR "on" repeat the above process but after the AVR (i.e. on the load side of the AVR)		Item		
1.01e)	Carry out comprehensive 24-hour power analysis, after installation of UPS Units, Generator Unit, Solar PV System and their respective switch-gears, with a digital power meter (with printer) to: i) Record and print all the power system parameters. ii) Submit 3 copies of the printouts. (Note: Parameters must be satisfactory before the UPS Units are permanently switched on).		Item		
1.01f)	Carry out comprehensive structured cabling tests and analysis, after installations. i) Record and print all the structured cabling system parameters. ii) Submit 3 copies of the printouts.		Item		
1.01g)	Carry out comprehensive testing and analysis after installation of the fire alarm and detection, voice alarm system, Access Control, Security Alarm and CCTV Installations and present documentation.		Item		
1.01h)	Carry out comprehensive Audio Visual Equipment Installations tests and analysis, after installations.		Item		
1.01i)	Carry out comprehensive Intelligent Lighting Control and BMS system tests and analysis, after installations.		Item		
1.01j)	Carry out commissioning of all other services not listed in the Greenstar Specifications for Commissioning and Building Tuning. Prior to testing and commissioning conduct comprehensive programming of the entire system by approved respective manufacturers' representatives to perform as instructed by the Engineer. The testing and commissioning will be done as detailed below in addition to the CIBSE commissioning codes. i) Prior to commencement of the work the contractor shall submit a procedure for the inspection, testing and commissioning of the system. This procedure shall include for the visual and functional check/test of all components of the system - the visual check will cover the standard of workmanship, the functional quality of the equipment and general compliance with the system specification and the functional tests shall check the operation of the system as a whole. ii) Commissioning will be undertaken by a qualified person using the approved inspection, testing and commissioning procedure. iii) On successful commissioning of the system, in terms of the specified requirements, a Taking Over Certificate shall be completed. This is the written notification to the Service Provider/installer that the client has taken over the system in terms of the Agreement. Payment cannot be effected without this certificate				
Total C/F to Page 8B/3					0.00

PROPOSED ELECTRICAL POWER UPGRADE AT THE COUNTY ASSEMBLY BUILDING
ELECTRICAL INSTALLATIONS AND ASSOCIATED SERVICES
BILLS OF QUANTITIES - GENERAL ITEMS

BILL NO. 1 - PRELIMINARY ITEMS

ITEM	DESCRIPTION	QTY	UNIT	RATE (KShs Cts)	AMOUNT (KShs Cts)
	Total B/F from Page 8B/2				
	<p>iv) The Final Completion date for the system is determined from the Hand over Certificate. The taking over date is also that date on which the warranty period is deemed to have commenced.</p> <p>v) Each equipment in the installations shall be supplied with a complete installation manual and comprehensive operating instructions. In addition, cabling and wiring information, a list of all equipment with associated serial numbers, etc (as specified) and any other information that may be required by the client from time to time and a copy of the taking Over Certificate shall be provided in a A4 hard cover arch lever type file</p> <p>vi) The contractor shall provide basic operating training on the system, using the operating instructions, for client staff prior to the Taking over Certificate being issued. This training shall be sufficient to ensure correct operation of the system. The contractor shall issue certificates to certify that the operators are proficient in the operation of the system on successful completion of the system training. This training MUST be in the manufacturer's representative's presence.</p> <p>vii) The above documentation shall be handed to a selected client representative at the time of commissioning. The documentation to be as detailed below:-</p> <p>viii) System Documentation - all documentation relating to the installation shall be concise, complete and unambiguous. Information shall be provided sufficient to install, test and commission, operate and maintain the system. Operating instructions shall be designed to minimize the possibility of incorrect operation of the system.</p> <p>ix) Component documentation - documentation relating to the components of the installation system shall also be concise, complete and unambiguous. Sufficient information shall be provided to ensure the integration of the component with any other of the system's components. Component documentation shall include the following:-</p> <p>a) Name of manufacturer and / or supplier, including MANUFACTURER's certification of the installation and components, with a written 36-month performance warranty.</p> <p>b) Description of equipment.</p> <p>c) Standard to which component claims compliance.</p> <p>d) Name or mark of the certification body.</p>				
1.01k)	Carry out MANDATORY pre-commissioning, commissioning and quality monitoring of the various building services in exact accordance and as detailed in the Greenstar Specifications for Commissioning and Building Tuning.		Item		
1.01l)	Carry out MANDATORY Building Tuning of all the building services in exact accordance and as detailed in the Greenstar Specifications for Commissioning and Building Tuning.		Item		
1.02	Acquire and submit a Bank Guarantee for 10% of the sub-contract sum, as a Performance Guarantee.		Item		
1.03	Acquire and submit Insurance for the sub-contract work.		Item		
1.04	Allow for presentation of all the required samples as per specifications, Bills of Quantities and Drawings.		Item		
1.05	<p>Prepare and submit Working Drawings as follows:-</p> <p>i) Draft soft copy in Archicad® and Autocad® in CD-RW.</p> <p>ii) Amended soft copy in Archicad® and Autocad® in CD-RW.</p> <p>iii) 5 Final soft copies in Archicad® and Autocad® in CD-RW to Architect, Client, Quantity Surveyor, and Engineer (2 copies)</p> <p>iv) 3 Draft hard-copies of Working Drawings in Ao (Scales 1:50, 1:25) to Engineer, Architect and Main Contractor.</p> <p>v) 2 Amended hard copies of Working Drawings in Ao (Scales 1:50 and 1:25) to Engineer, Architect and Main Contractor.</p>				
Total C/F to Page 8B/4					

**PROPOSED ELECTRICAL POWER UPGRADE AT THE COUNTY ASSEMBLY BUILDING
ELECTRICAL INSTALLATIONS AND ASSOCIATED SERVICES
BILLS OF QUANTITIES - GENERAL ITEMS**

BILL NO. 1 - PRELIMINARY ITEMS

ITEM	DESCRIPTION	QTY	UNIT	RATE (KShs Cts)	AMOUNT (KShs Cts)
	Total B/F from Page 8B/3				
	vi) 11 No. Final hard copies of working drawings in Ao (Scales 1:50, 1:25) to Engineer (3 copies), Architect (1 copy), Quantity Surveyor (1 copy), Client (3 copies), Contractor (3 copies).		Item		
	(Note: Full set of drawings to be presented as per drawing list).				
1.06	As item no. 1.05, 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) System schematics and trunking diagrams showing all salient information relating to control and instrumentation. v) Grading charts vi) Wiring and piping diagrams of plant and apparatus. vii) Schematic diagram of individual plants and switch and control boards. viii) All the required operating instructions for all panels, boards, control panels etc.		Item		
1.07	Prepare and submit Operation and Maintenance Manuals for all items installed.		Item		
1.08	Provide Warranty after commissioning for the workmanship, materials and equipments installed . (Note: A minimum of 12 calendar months will be accepted. During warranty, all defective workmanship/materials will be replaced free of cost.		Item		
1.09	Provide a year's (12 months') initial maintenance upon expiry of the Defects Liability Period. The maintenance to be carried out every quarter (3 months) for a period of 12 months.		Item		
1.10	To ensure that equipment are provided to specifications allow for factory visit for 4 No. persons (Engineer, Project Manager and 2 Client representatives) to visit the manufacturing factory to verify the Generator specifications and witness all the relevant factory tests (in a test chamber) before approval of shipping is given. The cost of the visit to include:- i) Visa processing fees ii) Return air-tickets to and from the factory. iii) Any transfer fees iv) Local transport both in Nairobi and the city of destination. v) Accommodation for the four at a hotel/resort not less than 4 stars in rating. vi) Any other incidental costs for smooth facilitation of the trip. vii) Per diem payments for all the four.		Item		
1.11	<u>All other items</u> of general preliminary as described in section 5A to cover, but not limited to:- i) Attendance to the Independent Green Building Commissioning Agent and all other sub-contractors, such as for Mechanical Installations, Lift and Escalator 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		
Total C/F to Main Collection Page for Electrical Installations and Associated Services					

THE COUNTY ASSEMBLY OF SIAYA
PROPOSED POWER UPGRADE AT COUNTY ASSEMBLY BUILDING
ELECTRICAL INSTALLATIONS AND ASSOCIATED SERVICES

BILLS OF QUANTITIES - ELECTRICAL INSTALLATIONS

BILL NO. 2 – POWER SUPPLY AND DISTRIBUTION

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE	AMOUNT	
					KShs.	Cts.
	Supply, install, test, commission and set to work the following:- (Note The Tenderer MUST visit the site to assess and establish the nature of all the existing services)					
1.01	An automatic voltage regulator with the following characteristics: - i. Rating: 100 KVA ii. Power Supply: 3 Phase, 415V/240V iii. Input Voltage Tolerance: 20% i.e. from 365-505V 3 Phase from 192-288V 1 Phase iv. Operation: Independent correction for each Phase v Output: $\pm 1\%$ of 415V/240V vi. Frequency 50/60Hz $\pm 5\%$ vii. Rated Current: 150 Amps viii. Admitted Load Variation 0 to 100% ix. Admitted Load unbalance up to 100% x. Correction Speed:16ms/V xi. Waveform distortion <0.2% xii. Efficiency 98% xiii. Cooling: Natural air cooled (free convection without fans) xiv. Ambient temperature: -10° C to +40° C xv. Storage temperature: -20° C to +60° C xvi. Relative Humidity: 90% (without condensate) xvii Warranty: Not less than 2 Years xviii State Dimensions of the AVR (WxDxH) xviv State Weight of the AVR. xv v State Protection degree of the AVR. xvvi State Make, country of origin and model of the AVR. (The AVR to be complete with 7-position selector to read input/output (PH/PH), internal trimmer to adjust output voltage \pm, Pilot lamps for operating status, Input/Output terminals boards)	1	No			
1.02	200 A TPN Motorized MCCB with adjustable time-delay, enclosed in the Main switchboard Assembly and to be adjustable from 120A-200A	2	No			
1.03	200A TPN Manual by-pass system across the AVR to be complete with 3 No 200A TPN Manual change over switches and incorporated in the main switchboard assembly -provisional	1	No			
Total C/F to Page 5C-9						-

THE COUNTY ASSEMBLY OF SIAYA
PROPOSED POWER UPGRADE AT COUNTY ASSEMBLY BUILDING
ELECTRICAL INSTALLATIONS AND ASSOCIATED SERVICES

BILLS OF QUANTITIES - ELECTRICAL INSTALLATIONS

BILL NO. 2 – POWER SUPPLY AND DISTRIBUTION

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE	AMOUNT	
					KShs.	Cts.
	Total B/F from Page 5C-8					-
1.04a)	4C 120mm ² XLPE/SWA/PVC copper cable from AVR to LV Board complete with cable lugs and cable glands	30	m.			
1.05a)	40KVars automatic power factor correction capacitor bank switched in 3 steps of 10KVars, 2 steps of 5 KVars . The bank to be made from low-loss bio-degradable capacitive units, complete with earthed enclosure. All the contactors controls and indicator lamps, including a digital read-out screen to be included.	1	No.			
1.05b)	63A TPN Motorized MCCB for Capacitor bank	1	No			
1.05c)	4c 16mm ² XLPE/SWA/PVC cable, copper for the above complete with cable glands and lugs	10	m.			
1.06	Free-standing purpose made front access main LV switchboard inside the switch room manufactured in 14SWG galvanised mild steel sheet and finished in cream (or appropriate colour) powder coating as shown on the schematic (the other details as per Particular Specification). complete with the following:-					
	(a) Digital multimeter capable of measuring voltage in the range 0 – 1000V, 3-phase, current in the range 0-300A, 3-phase, and all power system parameters (KW, KVA, KWhr, KVAr, Frequency, P.F., harmonics and all the parameters). The multimeter to have an accessible terminal for connecting an external printer, and should be complete with selector switches for viewing/displaying the various parameters. The board to have sufficient space to house the KPLC meter and CT					
	(b) Set of neon phase presence indicator lamps					
	(c) 1 No. 200A TPN MCCB (adjustable in 120-200A range) main incomer. The MCCB to be motorized and have both electrical and mechanical inter-lock.					
	(d) 5 No. 300A TPN insulated copper bus bars of 80 x 10mm cross section.					
	(e) 1 No. 150A TPN motorized MCCBs as shown,					
	(f) 3 No. 100A TPN motorized MCCBs as shown,					
	(g) 2 No. 63A SPN motorized MCCBs as shown,					
	(h) 1No. 63A TPN motorized MCCBs as shown,					
	(i) 1No. 32A SPN motorized MCCBs as shown,					
	(i) 4 No. spare capacity for future development all fitted with 32A SPN MCCBs					
Total C/F to Page 5C-10						-

THE COUNTY ASSEMBLY OF SIAYA
PROPOSED POWER UPGRADE AT COUNTY ASSEMBLY BUILDING
ELECTRICAL INSTALLATIONS AND ASSOCIATED SERVICES

BILLS OF QUANTITIES - ELECTRICAL INSTALLATIONS

BILL NO. 2 – POWER SUPPLY AND DISTRIBUTION

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE	AMOUNT	
					KShs.	Cts.
	Total B/F from Page 5C-9					-
	(j) Sealable studs for all cover plate screws and all necessary accessories					
	(k) 6mm perspex viewing window					
	(l) Heavy duty rubber lining for all the abelli viewing windows					
	(m) 415V three-phase surge diverter as Furse ESP 415, wired as shown, complete with enclosure with viewing window.					
	(n) Carry out comprehensive labelling of all the bus bars. CT chambers, circuit breakers etc. of the above board, indicating the areas served, outgoing cable sizes etc.					
	(o) Comprehensive protective multiple earthing of the above board in 1500mm long 12mm diameter pure electrolytic copper earth rod deep driven to permanent moisture level, copper clamp. 70mm ² green earth lead complete with all accessories. (Note: Use parallel rods if effective earthing cannot be achieved with 1 No. rod).					
	(p) 200A TPN automatic change-over system, with electrical and mechanical interlock. The change-over contactors to be TELE-MECANIQUE, minimum rating 200A. A manual by-pass system, rated at 200A TPN should also be provided across the change-over system and it must be capable of by-passing both mains and generator supplies in alternation. All the delay timers for pre-ignition, time to load, and return to mains supply to be provided. An actual setting to be agreed upon before main switchboard is assembled. Clear indicator lamps for "mains available", "mains on load", "generator available", "generator on load", together with corresponding permanent labels should also be provided. The change-over and by-pass system to be incorporated in the main switchboard assembly.	1	No.			
1.07	Allow for comprehensive, phase sequency of these circuits with the generators	1	Item			
1.08	Allow for carrying out comprehensive testing of the installation as per IEE Wiring Regulation, 17 th Edition.	1	Item			
1.09	Carry out very concise and comprehensive load balancing to achieve a maximum imbalance not greater than $\pm 10\%$ between any two phases, measured at the respective main switchboards.	1	Item			
1.10	Allow for full load testing of the AVR with variable load	1	Item			
Total C/F to Page 5C-11						-

THE COUNTY ASSEMBLY OF SIAYA
PROPOSED POWER UPGRADE AT COUNTY ASSEMBLY BUILDING
ELECTRICAL INSTALLATIONS AND ASSOCIATED SERVICES

BILLS OF QUANTITIES - ELECTRICAL INSTALLATIONS

BILL NO. 2 – POWER SUPPLY AND DISTRIBUTION

ITEM NO.	DESCRIPTION	QTY	UNIT	RATE	AMOUNT	
					KShs.	Cts.
	Total B/F from Page I-10					-
1.11	8-way 250A TPN Wall-mounted purpose made front access Sub-board inside the Assembly building, clerks office and members lounge located on the Ground Floor, manufactured in 14SWG galvanised mild steel sheet and finished in cream (or appropriate colour) powder coating as shown on the schematic (the other details as per Particular Specification), complete with 150A TP/N MCCB, with MCBs, earthing and all accessories including lockable cover as MK, Schneider or Merlin Gerlin, or any other approved equivalent for Common Services	4	No.			-
a)	100A TP MCCB's for the above board.	16	No			-
b)	63A SP MCCB's for the above board.	12	No			-
c)	20A SP MCCB's for the above board.	0	No			-
d)	Blanking plates for unused spare ways for the above board.	1	Lot			-
e)	415V three-phase surge diverter as Furse ESP 415, wired as shown, complete with enclosure with viewing window.	3	No.			-
f)	Carry out comprehensive labeling of all the bus bars, circuit breakers etc. of the board above, indicating the areas served, outgoing cable sizes etc.	1	Item			-
g)	Comprehensive protective multiple earthing of the above board in 1200mm long 12mm diameter pure electrolytic copper earth rod deep driven to permanent moisture level, copper clamp. 35mm ² green earth lead complete with all accessories. (Note: Use parallel rods if effective earthing cannot be achieved with 1 No. rod).	1	Item			-
h)	4 core 70mm ² PVC/SWA/PVC copper cables to the DBs above complete with cable glands and lugs	200	m			-
1.12	Allow for the following provisional lengths of cables complete with glands and lugs to allow for extension of the existing cables to the new switchboard/sub-boards/DBs above:					-
(a)	4C 120mm sq. PVC/SWA/PVC copper cable	100	M			-
(b)	4C 35mm sq. PVC/SWA/PVC copper cable	100	M			-
(c)	4C 25mm sq. PVC/SWA/PVC copper cable	100	M			-
(d)	4C 16mm sq. PVC/SWA/PVC copper cable	100	M			-
(e)	4C 50mm sq. PVC/SWA/PVC copper cable	50	M			-
1.14	Allow for temporary connection of existing generator during phasing of the works	1	Item			-
Note: The following to be included with the bid:-						
1. Detailed shop drawing of the Main switchboard						
Total for Bill No. 2: Main Power Supply and Distribution, C/F to Summary page						-

THE COUNTY ASSEMBLY OF SIAYA
PROPOSED POWER UPGRADE AT COUNTY ASSEMBLY BUILDING
ELECTRICAL INSTALLATIONS AND ASSOCIATED SERVICES

SUMMARY PAGE

ITEM	DESCRIPTION	AMOUNT	
		KSHS.	CTS.
S.01	Bill No. 1: Preliminary Items B/F		-
S.02	Bill No. 2: Power Supply and Distribution B/F		-
S.03	Provisional sum for construction of a new switchroom to accommodate the generator, LV Board and AVR	5,000,000.00	
S.04	Allow for relocation of the existing generator set		-
S.05	Allow provisional sum for external civil works to create cable channels and make good	500,000.00	
S.06	Allow sum for supply and install of heavy duty steel metallic trunking inside the offices upto 100m length complete with corner bends and punched outlet plates, installation of upto 50no. Twin sockets and installation of upto 50no. 2D Led panel downlights in some offices complete with the associated wiring	1,000,000.00	
S.07	Allow sum for decommissioning of existings power supply systems and handing over to the client. Please conduct a survey before quoting		-
S.03.	Sub-Total		-
S.04	Contribution to Kenya Power for rerouting (Provisional to be confirmed upon lodging formal application)	1,000,000.00	
S.05	Contingency	3,000,000.00	
S.06	Allow sum for Consultancy Fee to undertake the works supervision and project management	2,000,000.00	
Total Amount Carried Forward to Form of Tender for Electrical Works			-

**THE COUNTY ASSEMBLY OF SIAYA
PROPOSED POWER UPGRADE AT COUNTY ASSEMBLY BUILDING
ELECTRICAL INSTALLATIONS AND ASSOCIATED SERVICES**

Summary Page Cont'd

Total Amount in Words _____

Name of Company Tendering _____

Address _____

Telephone: _____

PIN _____

VAT _____

Authorized Signatory _____

Signature _____

Stamp _____