



REPUBLIC OF KENYA

**MINISTRY OF LANDS, PUBLIC WORKS, HOUSING, AND URBAN
DEVELOPMENT**

STATE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

Tender Document

for

**PROPOSED CONSTRUCTION OF MERU NATIONAL POLYTECHNIC
STUDENT VILLAGE AND ACCOMMODATION IN MERU COUNTY
(WITH ASSOCIATED SOCIAL AMENITIES AND INFRASTRUCTURE)
TENDER NO.**

MLPWHUD/SHUD/475/2024-2025

Ministry of Lands, Public Works, Housing, and Urban Development,
State Department for Housing and Urban Development,
P.O Box 30119-00100
Nairobi, Kenya
Tel: +254-020-2713833

Closing Date: 16th April 2025 at 9.00 am

PROJECT DATA SHEET

PROPOSED CONSTRUCTION OF MERU NATIONAL POLYTECHNIC STUDENT VILLAGE AND ACCOMMODATION IN MERU COUNTY (WITH ASSOCIATED SOCIAL AMENITIES AND INFRASTRUCTURE)			
Item	Details of Site	Project Particulars	
1	Tender No	MLPWHUD/SDHUD/AHP/475/2024-2025	
2	Site location	Imenti North, Meru County.	
4	Land Size	Approximately 33 Acres	
5	Scope	580 PAX G+7 hostel block comprising 145 no. of quad bed units (580 PAX capacity) 2 no. of study rooms 2 no. of shops 1 no. office 2 no. of food stalls Minimart Laundromat	
		Note: <i>Bidders are notified that the Procuring Entity may make changes to the scope of works during evaluation of tenders</i>	
6	Amenities	Guardhouse, garbage receptacles and a powerhouse	
7	External works	Roads & Parking works, Sewer, Underground water tank, and a waste water treatment plant	
8	Built area	6,002.00 sm	

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TENDER DOCUMENTS FOR PROCUREMENT OF WORKS (BUILDING AND ASSOCIATED CIVIL ENGINEERING WORKS)

1) NAME AND CONTACT ADDRESSES OF PROCURING ENTITY

**Ministry of Lands, Public Works, Housing, and Urban Development,
State Department for Housing and Urban Development,
P.O Box 30119-00100
Nairobi, Kenya
Tel: +254-020-2713833**

2) Invitation to Tender (ITT) No: MLPWHUD/SDHUD/AHP/475/2024-2025

3) Tender Name: PROPOSED CONSTRUCTION OF MERU NATIONAL POLYTECHNIC STUDENT VILLAGE AND ACCOMMODATION IN MERU COUNTY (WITH ASSOCIATED SOCIAL AMENITIES AND INFRASTRUCTURE)

INVITATION TO TENDER

PROCURING ENTITY: STATE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

CONTRACT NAME AND DESCRIPTION: PROPOSED CONSTRUCTION OF MERU NATIONAL POLYTECHNIC STUDENT VILLAGE AND ACCOMMODATION IN MERU COUNTY (WITH ASSOCIATED SOCIAL AMENITIES AND INFRASTRUCTURE)

1. The **STATE DEPARTMENT FOR HOUSING AND URBAN DEVELOPMENT** invites sealed tenders for the construction of : **PROPOSED CONSTRUCTION OF MERU NATIONAL POLYTECHNIC STUDENT VILLAGE AND ACCOMMODATION IN MERU COUNTY (WITH ASSOCIATED SOCIAL AMENITIES AND INFRASTRUCTURE)**
2. Tendering will be conducted under open competitive method (National) using a standardized tender document. Tendering is open to Contractors Registered in the appropriate Category for Builders Works (**NCA category 3 and above**).The tender is open to those who meet the requirements of eligibility as contained in this invitation and the tender documents
3. Qualified and interested tenderers may obtain further information and inspect the Tender Documents during office hours at the address given below.
4. A complete set of tender documents may be obtained, downloaded and viewed by interested tenderers for free from the website www.housingandurban.go.ke. Tenderers who download the tender document must forward their particulars immediately to the Principal Secretary, State Department for Housing and Urban Development to facilitate any further clarifications or addendum that may be issued. Further clarifications and Addendum shall be posted at www.housingandurban.go.ke.
5. Tender documents may be viewed and downloaded for free from the website <https://housingandurban.go.ke/tenders/>. Tenderers who download the tender document must forward their particulars immediately to **the Principal Secretary, State Department for Housing and Urban Development, procurement@housingandurban.go.ke** to facilitate any further clarification or addendum that may be issued. Further clarifications and Addendum shall be posted at www.housingandurban.go.ke.
6. Tenders shall be quoted be in Kenya Shillings and shall include all taxes. Tenders shall remain valid for **120 days** from the date of opening of tenders.
7. All Tenders must be accompanied by a by a **Tender Security as specified in the Tender Data Sheet Clause ITT 19.1.**
8. The Tenderer **shall** chronologically serialize all pages of the tender documents submitted in the numerical format i.e., 1, 2, 3, 4 including the cover page. Tender Document must be tape bound and not Spiral bound. Spiral bound documents shall be automatically disqualified. In addition, bidders **MUST** submit a soft copy in PDF format during bid opening which is a replica of the original bid document. **This instruction is issued pursuant to Section 74(1)(j) of the Public Procurement and Assets Disposal Act, 2015.**
9. Completed tenders must be delivered to the address below on or before 16th April,2025 at 9.00am (**East African Time**). Electronic Tenders **will not** be permitted.
10. Tenders will be opened immediately after the deadline date and time specified above or any deadline date and times specified later. Tenders will be publicly opened in the presence of the Tenderers' designated representatives who choose to attend at the address below.
11. Late tenders will be rejected.
12. The addresses referred to above are:

A. **Address for obtaining further information**

**State Department for Housing and Urban Development
Room 606 B, 6th Floor, Ardhi House, 1st Ngong Avenue
P.O. Box 30119 -00100
NAIROBI.**

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

**State Department for Housing and Urban Development
Tender Box, 6th Floor, Ardhi House, 1st Ngong Avenue
P.O. Box 30119 -00100
NAIROBI.**

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

**State Department for Housing and Urban Development
Boardroom, 6th Floor, Ardhi House, 1st Ngong Avenue
P.O. Box 30119 -00100
NAIROBI.**

Head, Supply Chain Management Services
For: PRINCIPAL SECRETARY

PART1: TENDERING PROCEDURES

SECTION I - INSTRUCTIONS TO TENDERERS

A GENERAL PROVISIONS

10 Scope of tender

11 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.

12 Throughout this tendering document:

- a) The term “inwriting” 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.

20 Fraud and corruption

21 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.

22 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.

23 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.

24 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.

30 Eligible tenderers

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

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 an other tenderer.
 - b) Receives or has received any director indirect subsidy from another tenderer.
 - c) Has the same legal representative as an other 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 an other 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 enterprise to enable it compete with firms in the private sector on an equal basis.
- 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.

- 3.10** Foreign tenderers are required to source at least forty (40%) percent of their contract inputs (in supplies, local sub-contracts and labor) from citizen suppliers and contractors. To this end, a foreign tenderer shall provide in its tender documentary evidence that this requirement is met. Foreign tenderers not meeting this criterion will be automatically disqualified. Information required to enable the Procuring Entity determine if this condition is met shall be provided for this purpose in “*SECTION II - EVALUATION AND QUALIFICATION CRITERIA, Item 9*”.
- 3.11** Pursuant to the eligibility requirements of ITT 3.10, a tender is considered a foreign tenderer, If it is registered in Kenya and has less than 51 percent ownership by nationals of Kenya and if it does not subcontract to foreign firms or individuals more than 10 percent of the contract price, excluding provisional sums. JVs are considered as foreign tenderers if the individual member firms registered in Kenya have less 51 percent ownership by nationals of Kenya. The JV shall not subcontract to foreign firms more than 10 percent of the contract price, excluding provisional sums.
- 3.12** The National Construction Authority Act of Kenya requires that all local and foreign contractors be registered with the National Construction Authority and be issued with a Registration Certificate before they can undertake any construction works in Kenya. Registration shall not be a condition for tender, but it shall be a condition of contract award and signature. A selected tenderer shall be given opportunity to register before such award and signature of contract. Application for registration with National Construction Authority may be accessed from the website www.nca.go.ke.
- 3.13** The Competition Act of Kenya requires that firms wishing to tender as Joint Venture undertakings which may prevent, distort or lessen competition in provision of services are prohibited unless they are exempt in accordance with the provisions of Section 25 of the Competition Act, 2010. JVs will be required to seek for exemption from the Competition Authority. Exemption shall not be a condition for tender, but it shall be a condition of contract award and signature. A JV tenderer shall be given opportunity to seek such exemption as a condition of award and signature of contract. Application for exemption from the Competition Authority of Kenya may be accessed from the website www.cak.go.ke.
- 4.14** A kenyan tenderer shall be eligible to tender if it provides evidence of having fulfilled his/her tax obligations by producing valid tax compliance certificate or tax exemption certificate issued by the Kenya Revenue Authority.
- 40 Eligible goods, equipment, and services**
- 41** Goods, equipment and services to be supplied under the Contract may have their origin in any country that is not ineligible under ITT 3.9. At the Procuring Entity's request, Tenderers may be required to provide evidence of the origin of Goods, equipment and services.
- 42** Any goods, works and production processes with characteristics that have been declared by the relevant national environmental protection agency or by other competent authority as harmful to human beings and to the environment shall not be eligible for procurement.
- 50 Tenderer's responsibilities**
- 51** The tenderer shall bear all costs associated with the preparation and submission of his/her tender, and the Procuring Entity will in no case be responsible or liable for those costs.
- 52** The tenderer, at the tenderer's own responsibility and risk, is encouraged to visit and examine and inspect the Site of the Works and its surroundings and obtain all information that may be necessary for preparing the tender and entering into a contract for construction of the Works. The costs of visiting the Site shall be the tenderer's own expense.
- 53** The Tenderer and any of its personnel or agents will be granted permission by the Procuring Entity to enter upon its premises and lands for the purpose of such visit. The Tenderer shall indemnify the Procuring Entity against liability arising from death or personal injury, loss of or damage to property, and any other losses and expenses incurred as a result of the examination and inspection.

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

B. CONTENTS OF TENDER DOCUMENTS

60 Sections of Tender Document

- 61 The tender document consists of Parts 1, 2, and 3, which includes all the sections specified below, and which should be read in conjunction with any Addenda issued in accordance with ITT 10.

PART 1: Tendering Procedures

Section I – Instructions to Tenderers

Section II – Tender Data Sheet (TDS)

Section III- Evaluation and Qualification

Criteria Section IV – Tendering Forms

PART 2: Works' Requirements

Section V - Bills of Quantities

Section VI - Specifications

Section VII - Drawings

PART 3: Conditions of Contract and Contract Forms

Section VIII - General Conditions (GCC)

Section IX - Special Conditions of Contract

Section X- Contract Forms

- 62 The Invitation to Tender Notice issued by the Procuring Entity is not part of the Contract documents. Unless obtained directly from the Procuring Entity, the Procuring Entity is not responsible for the completeness of the Tender document, responses to requests for clarification, the minutes of a pre-arranged site visit and those of the pre-Tender meeting (if any), or Addenda to the Tender document in accordance with ITT 10. In case of any contradiction, documents obtained directly from the Procuring Entity shall prevail.
- 63 The Tenderer is expected to examine all instructions, forms, terms, and specifications in the Tender Document and to furnish with its Tender all information and documentation as is required by the Tender document.
- ### **70 Clarification of Tender Document, Site Visit, Pre-tender Meeting**
- 71 A Tenderer requiring any clarification of the Tender Document shall contact the Procuring Entity in writing at the Procuring Entity's address specified in the **TDS** or raise its enquiries during the pre-Tender meeting if provided for in accordance with ITT 7.2. The Procuring Entity will respond in writing to any request for clarification, provided that such request is received no later than the period specified in the **TDS** prior to the deadline for submission of tenders. The Procuring Entity shall forward copies of its response to all tenderers who have acquired the Tender documents in accordance with ITT 7.4, including a description of the inquiry but without identifying its source. If so specified in the **TDS**, the Procuring Entity shall also promptly publish its response at the web page identified in the **TDS**. Should the clarification result in changes to the essential elements of the Tender Documents, the Procuring Entity shall amend the Tender Documents following the procedure under ITT 8 and ITT 22.2.
- 72 The Tenderer, at the Tenderer's own responsibility and risk, is encouraged to visit and examine and inspect the site(s) of the required contracts and obtain all information that may be necessary for preparing a tender. The costs of visiting the Site shall be at the Tenderer's own expense. The Procuring Entity shall specify in the **TDS** if a pre-arranged Site visit and/or a pre-tender meeting will be held, when and where. The Tenderer's designated representative is invited to attend a pre-arranged site visit and a pre-tender meeting, as the case may be. The purpose of the site visit and the pre-tender meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.
- 73 The Tenderer is requested to submit any questions in writing, to reach the Procuring Entity not later than the period specified in the **TDS** before the meeting.
- 74 Minutes of a pre-arranged site visit and those of the pre-tender meeting, if applicable, including the text of the

questions asked by Tenderers and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Tenderers who have acquired the Tender Documents. Minutes shall not identify the source of the questions asked.

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

80 Amendment of Tender Documents

- 81 At any time prior to the deadline for submission of Tenders, the Procuring Entity may amend the Tender Documents by issuing addenda.
- 82 Any addendum issued shall be part of the Tender Documents and shall be communicated in writing to all who have obtained the Tender Documents from the Procuring Entity. The Procuring Entity shall also promptly publish the addendum on the Procuring Entity's website in accordance with ITT 7.5.
- 83 To give Tenderers reasonable time in which to take an addendum into account in preparing their Tenders, the Procuring Entity should extend the deadline for the submission of Tenders, pursuant to ITT 22.2.

C. PREPARATION OF TENDERS

9. Cost of Tendering

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

10.0 Language of Tender

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

11.0 Documents Comprising the Tender

- 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. Alternative Tenders

- 13.1 Unless otherwise specified in the TDS, alternative Tenders shall not be considered.
- 13.2 When alternative times for completion are explicitly invited, a statement to that effect will be included in the **TDS**, and the method of evaluating different alternative times for completion will be described in Section III, Evaluation and Qualification Criteria.
- 13.3 Except as provided under ITT 13.4 below, Tenderers wishing to offer technical alternatives to the requirements of the Tender Documents must first price the Procuring Entity's design as described in the Tender Documents and shall further provide all information necessary for a complete evaluation of the alternative by the Procuring Entity, including drawings, design calculations, technical specifications, breakdown of prices, and proposed construction methodology and other relevant details. Only the technical alternatives, if any, of the Tenderer with the Winning Tender conforming to the basic technical requirements shall be considered by the Procuring Entity.
- 13.4 When specified in the **TDS**, Tenderers are permitted to submit alternative technical solutions for specified parts of the Works, and such parts will be identified in the **TDS**, as will the method for their evaluating, and described in Section VII, Works' Requirements.

14.0 Tender Prices and Discounts

- 14.1 The prices and discounts (including any price reduction) quoted by the Tenderer in the Form of Tender and in the Bill of Quantities shall conform to the requirements specified below.
- 14.2 The Tenderer shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by the Tenderer shall be deemed covered by the rates for other items in the Bill of Quantities and will not be paid for separately by the Procuring Entity. An item not listed in the priced Bill of Quantities shall be assumed to be not included in the Tender, and provided that the Tender is determined substantially responsive notwithstanding this omission, the average price of the item quoted by substantially responsive Tenderers will be added to the Tender price and the equivalent total cost of the Tender so determined will be used for price comparison.
- 14.3 The price to be quoted in the Form of Tender, in accordance with ITT 12.1, shall be the total price of the Tender, including any discounts offered.
- 14.4 The Tenderer shall quote any discounts and the methodology for their application in the Form of Tender, in accordance with ITT 12.1.
- 14.5 It will be specified in the **TDS** if the rates and prices quoted by the Tenderer are or are not subject to adjustment during the performance of the Contract in accordance with the provisions of the Conditions of Contract, except in cases where the contract is subject to fluctuations and adjustments, not fixed price. In such a case, the Tenderer shall furnish the indices and weightings for the price adjustment formulae in the Schedule of Adjustment Data and the Procuring Entity may require the Tenderer to justify its proposed indices and weightings.
- 14.6 Where tenders are being invited for individual lots (contracts) or for any combination of lots (packages), tenderers wishing to offer discounts for the award of more than one Contract shall specify in their Tender the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Discounts shall be submitted in accordance with ITT 14.4, provided the Tenders for all lots (contracts) are opened at the same time.

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

150 Currencies of Tender and Payment

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

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

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

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

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

16.0 Documents Comprising the Technical Proposal

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

170 Documents Establishing the Eligibility and Qualifications of the Tenderer

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

172 In accordance with Section III, Evaluation and Qualification Criteria, to establish its qualifications to perform the Contract the Tenderer shall provide the information requested in the corresponding information sheets included in Section IV, Tender Forms.

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

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

175 The purpose of the information described in **ITT 17.4** above overrides any claims to confidentiality which a tenderer may have. There can be no circumstances in which it would be justified for a tenderer to keep information relating to its ownership and control confidential where it is tendering to undertake public sector work and receive public sector funds. Thus, confidentiality will not be accepted by the Procuring Entity as a justification for a Tenderer's failure to disclose, or failure to provide required information on its ownership and control.

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

177 All information provided by the tenderer pursuant to these requirements must be complete, current and accurate

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

- 178** If a tenderer fails to submit the information required by these requirements, its tender will be rejected. Similarly, if the Procuring Entity is unable, after taking reasonable steps, to verify to a reasonable degree the information submitted by a tenderer pursuant to these requirements, then the tender will be rejected.
- 179** If information submitted by a tenderer pursuant to these requirements, or obtained by the Procuring Entity (whether through its own enquiries, through notification by the public or otherwise), shows any conflict of interest which could materially and improperly benefit the tenderer in relation to the procurement or contract management process, then:
- i) If the procurement process is still ongoing, the tenderer will be disqualified from the procurement process,
 - ii) if the contract has been awarded to that tenderer, the contract award will be set aside depending on 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 has 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 tenderer.

18.0 Period of Validity of Tenders

- 18.1.** Tenders shall remain valid for the Tender Validity period specified in the **TDS**. The Tender Validity period starts from the date fixed for the Tender submission deadline (as prescribed by the Procuring Entity in accordance with ITT 22). A tender valid for a shorter period shall be rejected by the Procuring Entity as non-responsive.
- 18.2** In exceptional circumstances, prior to the expiration of the Tender validity period, the Procuring Entity may request Tenderers to extend the period of validity of their Tenders. The request and the responses shall be made in writing. If a Tender Security is requested in accordance with ITT 19, it shall also be extended for thirty (30) days beyond the deadline of the extended validity period. A Tenderer may refuse the request without forfeiting its Tender security. A Tenderer granting the request shall not be required or permitted to modify its Tender.

19.0 Tender Security

- 19.1** The Tenderer shall furnish as part of its Tender, either a Tender-Securing Declaration or a Tender Security as specified in the **TDS**, in original form and, in the case of a Tender Security, in the amount and currency **specified** in the **TDS**. A Tender-Securing Declaration shall use the form included in Section IV, Tender Forms.
- 19.2** If a Tender Security is specified pursuant to ITT 19.1, the Tender Security shall be a demand guarantee in any of the following forms at the Tenderer's option:
- i) cash;
 - ii) a bank guarantee;
 - iii) a guarantee by an insurance company registered and licensed by the Insurance Regulatory Authority listed by the Authority;
 - (iv) a guarantee issued by a financial institution approved and licensed by the Central Bank of Kenya, from a reputable source, and an eligible country.
- 19.3** If an unconditional bank guarantee is issued by a bank located outside Kenya, the issuing bank shall have a correspondent bank located in Kenya to make it enforceable. The Tender Security shall be valid for thirty (30) days beyond the original validity period of the Tender, or beyond any period of extension if requested under ITT 18.2.
- 19.4** If a Tender Security or Tender-Securing Declaration is specified pursuant to ITT 19.1, any Tender not accompanied by a substantially responsive Tender Security or Tender-Securing Declaration shall be rejected by the Procuring Entity as non-responsive.
- 19.5** If a Tender Security is specified pursuant to ITT 19.1, the Tender Security of unsuccessful Tenderers shall be returned as promptly as possible upon the successful Tenderer's signing the Contract and furnishing the Performance Security and any other documents required in the **TDS**. The Procuring Entity shall also promptly

return the tender security to the tenderers where the procurement proceedings are terminated, all tenders were determined non-responsive or a bidder declines to extend tender validity period.

- 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.
- 1910** A tenderer shall not issue a tender security to guarantee itself.

200 Format and Signing of Tender

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

D. SUBMISSION AND OPENING OF TENDERS

210 Sealing and Marking of Tenders

- 211** The Tenderer shall deliver the Tender in a single sealed envelope, or in a single sealed package, or in a single sealed container bearing the name and Reference number of the Tender, addressed to the Procuring Entity and a warning not to open before the time and date for Tender opening date. Within the single envelope, package or container, the Tenderer shall place the following separate, sealed envelopes:
- a) in an envelope or package or container marked "ORIGINAL", all documents comprising the Tender, as described in ITT 11; and
 - b) in an envelope or package or container marked "COPIES", all required copies of the Tender; and
 - c) if alternative Tenders are permitted in accordance with ITT 13, and if relevant:

- i) in an envelope or package or container marked “ORIGINAL –ALTERNATIVE TENDER”, the alternative Tender; and
- ii) in the envelope or package or container marked “COPIES- ALTERNATIVE TENDER”, all required copies of the alternative Tender.

The inner envelopes or packages or containers shall:

- a) bear the name and address of the Procuring Entity,
- b) bear the name and address of the Tenderer; and
- c) bear the name and Reference number of the Tender.

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

220 Deadline for Submission of Tenders

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

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

23.0 Late Tenders

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

240 Withdrawal, Substitution, and Modification of Tenders

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

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

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

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

25. Tender Opening

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

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

253 Next, envelopes marked “SUBSTITUTION” shall be opened and read out and exchanged with the corresponding Tender being substituted, and the substituted Tender shall not be opened, but returned to the

Tenderer. No Tender substitution shall be permitted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out at Tender opening.

- 254 Next, envelopes marked "MODIFICATION" shall be opened and read out with the corresponding Tender. No Tender modification shall be permitted unless the corresponding modification notice contains a valid authorization to request the modification and is read out at Tender opening.
- 255 Next, all remaining envelopes shall be opened one at a time, reading out: the name of the Tenderer and whether there is a modification; the total Tender Price, per lot (contract) if applicable, including any discounts and alternative Tenders; the presence or absence of a Tender Security or Tender-Securing Declaration, if required; and any other details as the Procuring Entity may consider appropriate.
- 256 Only Tenders, alternative Tenders and discounts that are opened and read out at Tender opening shall be considered further for evaluation. The Form of Tender and pages of the Bill of Quantities (to be decided on by the tender opening committee) are to be initialed by the members of the tender opening committee attending the opening.
- 257 At the Tender Opening, the Procuring Entity shall neither discuss the merits of any Tender nor reject any Tender (except for late Tenders, in accordance with ITT 23.1).
- 258 The Procuring Entity shall prepare minutes of the Tender Opening that shall include, as a minimum: -
- a) the name of the Tenderer and whether there is a withdrawal, substitution, or modification;
 - b) the Tender Price, per lot (contract) if applicable, including any discounts;
 - c) any alternative Tenders;
 - d) the presence or absence of a Tender Security, if new as required;
 - e) number of pages of each tender document submitted.
- 259 The Tenderers' representatives who are present shall be requested to sign the minutes. The omission of a Tenderer's signature on the minutes shall not invalidate the contents and effect of the minutes. A copy of the tender opening register shall be distributed to all Tenderers.

E. EVALUATION AND COMPARISON OF TENDERS

26. Confidentiality

- 261 Information relating to the evaluation of Tenders and recommendation of contract award shall not be disclosed to Tenderers or any other persons not officially concerned with the Tender process until information on Intention to Award the Contract is transmitted to all Tenderers in accordance with ITT 43.
- 262 Any effort by a Tenderer to influence the Procuring Entity in the evaluation of the Tenders or Contract award decisions may result in the rejection of its tender.
- 263 Notwithstanding ITT 26.2, from the time of tender opening to the time of contract award, if a tenderer wishes to contact the Procuring Entity on any matter related to the tendering process, it shall do so in writing.

27.0 Clarification of Tenders

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

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) Affecting 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**.

330 Margin of Preference and Reservations

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

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

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

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

340 Nominated Subcontractors

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

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

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

35. Evaluation of Tenders

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

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

- a) Price adjustment in accordance with ITT 31.1 (iii); excluding provisional sums and contingencies, if any, but including Daywork items, where priced competitively;
- b) price adjustment due to discounts offered in accordance with ITT 14.4;
- c) converting the amount resulting from applying (a) and (b) above, if relevant, to a single currency in accordance with ITT 32;
- d) price adjustment due to quantifiable non material non-conformities in accordance with ITT 30.3; and
- e) any additional evaluation factors specified in the **TDS** and Section III, Evaluation and Qualification Criteria.

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

35.4 Where the tender involves multiple lots or contracts, the tenderer will be allowed to tender for one or more lots (contracts). Each lot or contract will be evaluated in accordance with ITT 35.2. The methodology to determine the lowest evaluated tenderer or tenderers 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 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

- 371** 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 regard to the Tenderer's ability to perform the Contract for the offered Tender Price or that genuine competition between Tenderers is compromised.
- 372** 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.
- 373** 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

- 374** 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.
- 375** In case of an abnormally high price, the Procuring Entity shall make a survey of the market prices, check if the estimated cost of the contract is correct and review the Tender Documents to check if the specifications, scope of work and conditions of contract are contributory to the abnormally high tenders. The Procuring Entity may also seek written clarification from the tenderer on the reason for the high tender price. The Procuring Entity shall proceed as follows:
- i) If the tender price is abnormally high based on wrong estimated cost of the contract, the Procuring Entity may accept or not accept the tender depending on the Procuring Entity's budget considerations.
 - ii) If specifications, scope of work and/or conditions of contract are contributory to the abnormally high tender prices, the Procuring Entity shall reject all tenders and may retender for the contract based on revised estimates, specifications, scope of work and conditions of contract, as the case may be.
- 376** 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

- 381** 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.
- 382** 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 on 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 Complaints and Administrative Review

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

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

Section II - Tender Data Sheet (TDS)

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

Reference to ITC Clause	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
A. General	
ITT 1.1	The name of the contract is : PROPOSED CONSTRUCTION OF MERU NATIONAL POLYTECHNIC STUDENT VILLAGE AND ACCOMMODATION IN MERU COUNTY (WITH ASSOCIATED SOCIAL AMENITIES AND INFRASTRUCTURE) The reference number of the Contract is: TENDER No MLPWHUD/SDHUD/AHP/475/2024-2025
ITT 2.4	The Information made available on competing firms is as follows: N/A
ITT 2.4	The firms that provided consulting services for the contract being tendered for are: N/A
ITT 3.1	Maximum number of members in the Joint Venture (JV) shall be: Two
B. Contents of Tender Document	
ITT 7.1	The Tenderer will submit any request for clarifications in writing at the Address: (1) Name of Procuring Entity: State Department of Housing and Urban Development (2) Physical address for hand Courier Delivery to an office: 1st Ngong avenue, Ardhi House, 6th Floor, Wing B, Room 606 (3) Postal Address; P.O. Box 30119-00100 Nairobi (4) Officer to be contacted: Head, Supply Chain Management Services Email: procurement@housingandurban.go.ke
ITT 7.2	A pre-arranged meeting / pretender site visit shall not take place at the following date, time and place: Date: <u> </u> N/A Time: N/A Place: N/A Pre-Tender meeting shall not take place at the following date, time and place: Date: <u> </u> N/A Time: N/A Place: N/A
ITT 7.3	The Tenderer will submit any questions in writing, to reach the Procuring Entity not later than 2 Days before the meeting.
ITT 7.5	The Procuring Entity's website where Minutes of the pre-Tender meeting and the pre-arranged pretender will be published is https://housingandurban.go.ke/tenders/

Reference to ITC Clause	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
ITT 9.1	For Clarification of Tender purposes, for obtaining further information and for purchasing tender documents, the Procuring Entity's address is: (1) Name of Procuring Entity: State Department of Housing and Urban Development (2) Physical address for hand Courier Delivery to an office: 1st Ngong avenue, Ardhi House, 6th Floor, Wing B, Room 606 (3) Postal Address; P.O. Box 30119-00100 Nairobi (4) Officer to be contacted: Head, Supply Chain Management Services Email: <i>procurement@housingandurban.go.ke</i>
C. Preparation of Tenders	
ITT 11.1 (h)	The Tenderer shall submit the following additional documents in its Tender (In addition to those described under ITT 11.1 (a) to (g)): 1. Certified copy of Registration certificate from National Construction Authority, Category 3 and above in Building works (General Building Contractor), and the current Practising License. (For Kenyan Contractors, the required level of registration is NCA, Category 3, Building Works with Kenyan National Construction Authority. All other (main/ prime contractors) outside Kenya must have a registration or certification, in their respective country that is demonstrably equivalent to Kenya's NCA, Category 3 Contractors must visit the NCA website to self-assess their registration level and provide sufficient detail to demonstrate the equivalence of their registration/certification to NCA, Category 3 The documents should be submitted in/ translated to the English language and notarized by a notaries public. 2. Bank statements for the last six months to be provided. Statements to be certified by the bank 3. Certified Copy of Company Registration/Incorporation Certificates and certified by commissioner for oaths. (For Main Contractor and Domestic Sub-Contractors) 4. Certified copy of Valid Tax Compliance Certificate. (For Main Contractor Only) 5. A copy of company's list of directors, beneficial owners, name of proprietor or names of partners (Copy of CR12 / CR13) issued within the last one year and showing the list of directors and certified by commissioner for oaths (For Main Contractor Only)
	The Bidder is required to be registered by the authorities listed below and provide the relevant documentation. If not, the bidder shall provide the listed Domestic Sub-Contractors and provide the relevant applicable documents showing their qualification: i) Builders Works a) Valid NCA category 3 Registration and Practising Licence ii.) Electrical Installations Sub-contractor b) Company Certificate of Incorporation c) Valid NCA Category 6 Registration and Practising Licence d) EPRA Electrical Contractor License Class A-1 iii.) Mechanical Plumbing, Drainage Installations Sub-contractor a) Company Certificate of Incorporation b) Valid NCA Category 8 Registration and Practising Licence c) Plumber's License d) Drain-Layer's License
ITT 13.1	Alternative Tenders shall not be considered.

Reference to ITC Clause	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
ITT 13.2	Alternative times for completion shall not be permitted. (For Alternative Tenders)
ITT 13.4	Alternative technical solutions shall not be permitted for the following parts of the Works.
ITT 14.5	The prices quoted by the Tenderer shall be Fixed
ITT 15.2 (a)	Foreign currency requirements not allowed
ITT 18.1	The Tender validity period shall be 150 days
ITT 18.3	(a) The Number of days beyond the expiry of the initial tender validity period will be 30 days. (b) The Tender price shall be adjusted by the following percentages of the tender price: (i) By <u> N/A </u> % of the local currency portion of the Contract price adjusted to reflect local inflation during the period of extension, and (ii) By <u> N/A </u> % the foreign currency portion of the Contract price adjusted to reflect the international inflation during the period of extension.
ITT 19.1	Tenderer shall provide a Tender Security Tender Security shall be required, the amount and currency of the Tender Security shall be Kenya Shillings One Million Shillings (Ksh1,000,000.00) issued by a Reputable Financial Institution Valid for a period of 180 days from the tender opening date. The format to match the provided Form; “FORM OF TENDER SECURITY- [Option 1–Demand Bank Guarantee]”
ITT 20.1	In addition to the original of the Tender, the number of copies is: <u>One soft copy in PDF which is a replica of the original bid document submitted. This instruction is issued pursuant to Section 74(i)(j) of the Public Procurement and Assets Disposal Act, 2015.</u> The tenderer shall return a priced copy of the Bills of Quantities in scanned PDF format as provided in a compact disc or Flash disk together with the scanned PDF. The PDF must be a true copy original and the priced part of the PDF bidding document. No alterations should be made to the descriptions and quantities in the PDF BQ.
ITT 20.3	The written confirmation of authorization to sign on behalf of the Tenderer shall consist of: Notarized or Certified Power of Attorney and Board Resolution/s allowing the signatory to submit the bid, negotiate, and possibly execute the Project Agreement on behalf of the Bidder’s Company
D. Submission and Opening of Tenders	
ITT 22.1	(A) For <u>Tender submission purposes</u> only, the Procuring Entity’s address is: Name of Procuring Entity: State Department of Housing and Urban Development Postal Address: Principal Secretary, State Department of Housing and Urban Development P.O. Box 30119-00100 Nairobi Attention: Head, Supply Chain Management Services Physical address for hand Courier Delivery: 1st Ngong avenue, Ardhi House, 6th Floor, Tender Box Date and time for submission of Tenders: 16th April 2025 at 9.00am. Tenders shall not submit tenders electronically.

Reference to ITC Clause	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
ITT 25.1	The Tender opening shall take place at the time and the address for Opening of Tenders provided below: Name of Procuring Entity: State Department of Housing and Urban Development Physical address for the location: 1st Ngong avenue, Ardhi House, 6th Floor State date and time of tender opening: 16th April 2025 at 9.00am.
ITT 25.1	If Tenderers are allowed to submit Tenders electronically, they shall follow the electronic tender submission procedures specified below <i>[insert a description of the electronic Tender opening procedures]</i>: _____ N/A _____ _____
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.
TT 32.1	The currency that shall be used for Tender evaluation and comparison purposes only to convert at the selling exchange rate all Tender prices expressed in various currencies into a single currency is: Kenya Shillings The source of exchange rate shall be: The Central bank of Kenya (mean rate) The date for the exchange rate shall be: the deadline date for Submission of the Tenders.
ITT 33.2	A margin of preference shall not apply.
ITT 33.4	The invitation to tender is extended to the following group that qualify for Reservations _____ N/A _____ _____
ITT 34.1	At this time, the Procuring Entity intends to execute certain specific parts of the Works by subcontractors selected in advance. 1. Lift Installations works 2. Supply and Delivery of Doors and Windows 3. Civil Works 4. Carpentry and Joinery 5. Painting 6. Landscaping 7. Tiling
ITT 34.2	Contractor's may propose subcontracting: Maximum percentage of subcontracting permitted is: 25% <i>of the total contract amount</i> . Tenderers planning to subcontract more than 10% of total volume of work shall specify, in the Form of Tender, the activity(ies) or parts of the Works to be subcontracted along with complete details of the subcontractors and their qualification and experience.
ITT 34.3	The parts of the Works for which the Procuring Entity permits Tenderers to propose Specialized Subcontractors are designated as follows: 1. Electrical Works 2. Plumbing and Mechanical Works

Reference to ITC Clause	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
ITT 35.2 (e)	Additional requirements apply; 1) Additional requirements 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; 1) Works Programme 2) Cash Flow Projections
ITT 50.1	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. 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: Director General, Public Procurement Regulatory Authority, KISM Towers, 6th Floor, Ngong Road, P.O BOX 58535-00200 Nairobi Kenya. Procuring Entity: State Department of Housing and Urban Development Email address: procurement@housingandurban.go.ke In summary, a Procurement-related Complaint may challenge any of the following (among others): (i) the terms of the Tender Documents; and (ii) the Procuring Entity’s decision to award the contract.

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.

2.0 PRELIMINARY EXAMINATION FOR DETERMINATION OF RESPONSIVENESS

Preliminary examination for Determination of Responsiveness

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

The following mandatory requirements shall be used for determination of Responsiveness at the preliminary evaluation.

A. Preliminary and Mandatory Requirements Checklist

S/No	PRELIMINARY EVALUATION CRITERIA / MANDATORY REQUIREMENTS FOR MAIN CONTRACTOR
MR1	Original Tender document must be Tape bound / Permanently bound (Such binding shall permanently hold together all pages along the long edge of the tender document) and submitted alongside a Soft Copy (PDF) as per TDS 20.1. Tender documents submitted as spiral bound or in a box file shall automatically be disqualified . In addition, the documents must be chronologically serialized on all pages and attachments.
MR2	Form of Tender in the company Letter head duly Completed, Signed and Stamped by the Tenderer in the format provided, and prepared in accordance with ITT 12 and ITT 14
MR3	A Tender Security shall be required. The said Tender Security shall be Kenya Shillings One Million Shillings (Kshs 1,000,000.00) issued by a Reputable Financial Institution Valid for a period of 180 days from the tender opening date. The format to match the provided Form; “FORM OF TENDER SECURITY- [Option 1–Demand Bank Guarantee]”
MR4	Certified copy of Registration certificate from National Construction Authority, Category NCA 3 and above in Building works (General Building Contractor), and the current Practicing License. (For

	Kenyan Contractors, the required level of registration is NCA, Category 3, Building Works with Kenyan National Construction Authority. All other (main/ prime contractors) outside Kenya must have a registration or certification, in their respective country that is demonstrably equivalent to Kenya's NCA, Category 3 Contractors must visit the NCA website to self-assess their registration level and provide sufficient detail to demonstrate the equivalence of their registration/certification to NCA, Category 3 The documents should be submitted in/ translated to the English language and notarized by a notaries public.
MR5	Provide Written Form of Power Attorney for authorizing signatory of the bidder, signed by Commissioner for Oaths.
MR6	Certified Copy of Company Registration / Incorporation Certificates certified by Commissioner of oaths. (For Main Contractor)
MR7	Certified copy of Valid Tax Compliance Certificate, (For Main Contractor Only). Tax Compliance Certificates with “Invalid” or “Withdrawn” status shall result to automatic disqualification.
MR8	Duly filled, signed and stamped Confidential Business Questionnaire as per enclosed format. In case of a joint venture all parties must submit a valid confidential business questionnaire as per attached format; (Main Contractor Only)
MR9	A copy of company’s list of directors, beneficial owners, National Identity Card(s) for Sole Proprietorship/Partnership; (Copy of CR12 / CR13) issued within the last 12 months and showing the list of directors certified by commissioner for oaths. (Main Contractor Only)
MR10	All Documents must be in English. Documents in Foreign Language must be translated and notarized
MR11	NB: Bidders who do not meet all of the above requirements shall be considered non-responsive and their tenders will not be evaluated further. In case of Joint Ventures (JVs), Parties must provide the documents. Joint Ventures to provide Power of Attorney and intent letter to enter Joint Venture. For copies of Original Documents to be accepted as valid, they must be certified by a commissioner of oath. The Bidder must attach a valid annual practicing license and active email address for commissioner of oaths.

STAGE 2: TECHNICAL EVALUATION CRITERIA FOR THE BIDDERS

B. Detailed Technical Examination

After the Preliminary Examination, the Procuring Entity shall conduct a Detailed Technical Evaluation on the responsive tenders to ensure they meet the technical requirements provided for in the Detailed Technical Evaluation criteria outlined below. Points shall be awarded as follows: -

No	Parameter	Maximum Points
1	Key Personnel	10
2	General Experience	5
3	Specific Construction Experience	15
4	Schedules of Contractor's equipment	10
5	Audited Financial Report for the last 3 years	15
6	Evidence of Financial Resources	25
7	Provision of calculations for Debt Profile: EBITDA / Interest (x times) from the audited financial states for the last three (3) years	5
8	Detailed Works Program and Methodology	5
9	Subcontractor's documentation and experience	10
Total		100

Tenders that do not meet the minimum required points of **70 points** in the Detailed Technical Evaluation will be considered non- responsive and will not be considered further.

Item	Description	Points Scored	Max. Points
1	Key Personnel as detailed here under NB: Attach Curriculum Vitae and certificates		10
	Project Manager for the firm - With relevant qualifications; qualification (1 mk) and registration (1 mk) - Total (2 mks) - With over 5 years' experience in similar works (2 mks) - With over 10 years' general experience (2 mk) - With experience below the requirements (0 mks)		6
	Site Agent with the relevant Qualifications - With relevant qualifications; - Total (1 mk) - With over 5 years' experience in similar works (2 mk) - With over 10 years' general experience (1 mk) - With experience below the requirements (0 mks)		4
2.	General Experience Has been practicing as a Contractor for the last 10 years. (0.5 mk per year)		5
3.	The specific experience comprises 3No projects undertaken/completed within the last 5 Years with a cumulative value equal to the project pretender estimate (Kshs 231,000,000.00) Attach Letter of Award/Contract and Certificates of Completion for EACH project. A bidder who fails to provide this requirement shall NOT be scored. Cumulative value equal or above estimate (Kshs 231,000,000.00) - 15 marks Cumulative Project value of between 50% to 100% of the Project Estimate (Between Kshs 115,000,000.00 And Kshs 231,000,000.00) - (7 Marks) Has not demonstrated/given evidence of specific experience or has cumulative project value of below 50% of the project Estimate (Kshs115,000,00) - (0 points)		15

Item	Description	Points Scored	Max. Points
4.	Schedules of Contractor's equipment For each specific equipment required in the construction work being tendered for. The awarding of marks for the categories will be as follows: - Batching Plant 1No (2 Marks) - 45M Crane 1No (2 Marks) - Excavator 2No (2 Marks) - Tipper Truck 15 ton 5No (2 Marks) - 10-ton Roller 1No (1 Mark) - 20-ton Roller 1No (1 Mark)		10
5.	Financial report: Audited financial report for the last Three [3] years (2021, 2022 and 2023) • Annual Turnover greater or equal to Ksh.115,000,000.00(Max Points) • Annual Turnover below Ksh.115,000,000.00 (Points prorated) • Has not demonstrated/given evidence for turnover - (zero points) <i>NB: Bidders may provide consolidated financial statements if cash and cash equivalents are in separate project companies</i>		15
6.	Evidence of financial resources: Cash in hand, Lines of Credit, overdraft facility, e.t.c (attach evidence) • Has financial resources equal or above Ksh 38,000,000.00 (Max Points) • Has financial resources below Kshs.38,000,000.00 (Points prorated) • Has not demonstrated/given evidence for the financial resources (zero points) <i>NB: Bidders may provide consolidated financial statements if cash and cash equivalents are in separate project companies</i>		25
7.	Provision of calculations for Debt Profile: EBITDA / Interest (x times) from the audited financial states for the last three (3) years • Debt profile greater than or equal to 2x (5 mks) • Debt profile between 1.5x and 2x (3 mks) • Debt profile between 1x and 1.5x (1 mk) • Debt profile below 1x (Zero mks) <i>NB: Bidders may provide consolidated financial statements if cash and cash equivalents are in separate project companies</i>		5
8.	Detailed works program outlining the methodology of implementing the project to completion including the defects liability period.		5
	Adequacy of the proposed Works program: • Has attached a clear and legible Works Program (1mk) • Program captures all elements specific to the proposed works (1mk) • Program covers the required timeline and all elements are reasonably scheduled. (0.5 mk)		2.5

Item	Description	Points Scored	Max. Points
	Adequacy of the proposed methodology: • Captures the Contractor's Organization structure. (1mk) • Captures all elements specific to the proposed works. (1mk) • Captures the inclusion of all statutory requirements specific to the works (OSHA, NCA, NEMA, Stakeholder engagement, e.t.c.) (0.5 mk)		2.5
9	Sub-contractors: a) Electrical Subcontractor NCA category 6 .valid practicing license for Electrical Works Project – 1 Marks Specific Experience in Highrise Residential & Commercial Developments (2 No. Projects) • Project value of Kshs 20,000,000.00. Million and above) – 2 marks per project • Project value of below Kshs. 20,000,000.00 (Points prorated) • Has not demonstrated/given evidence of specific experience (zero points) b) Mechanical Subcontractor NCA category 8 valid practicing license for Electrical Works Project – 1 Marks Specific Experience in Highrise Residential & Commercial Developments (2 No. Projects) • Project value of Kshs. 7,000,000.00 and above – 2 marks per project • Project value of below Kshs. 7,000,000.00 - (Points prorated) • Has not demonstrated/given evidence of specific experience (zero points)		10
	TOTAL POINTS		100
	MINIMUM POINTS		70

NB: Tenders attaining the minimum score of 70 points in the detailed technical evaluation shall be subjected to financial evaluation and comparison to determine the lowest evaluated price of the tender.

C. Financial Evaluation:

Financial Evaluation shall comprise of the following:

- a) Completeness of the Bills of Quantities: The Bills of Quantities section of the submitted Tender Document must be complete as issued, with no alteration, addition or qualification of any kind whatsoever made by the Tenderer to the text of the document. Any alterations, additions or qualifications shall be considered as material deviations as per ITT 31 and shall lead to Disqualification.
- b) Examination of unit rates: Each bid shall be subjected to an evaluation of unit rates. Bids shall be

assessed to confirm uniformity and consistency in rates of similar individual line items. Bids not meeting this criterion shall be disqualified and error checks shall not be undertaken.

- c) Error checks: Successful bids from the examination of unit rates shall be evaluated for arithmetic errors. All arbitrary additions to the tender document shall be considered as arithmetic errors. An assessment of the bids taking into consideration the Tender Sum, corrections relating to arithmetic errors and any discounts offered shall be done to determine the bids' Evaluated Tender Sum.
- d) **Conformance with the estimated cost: The estimate for the project is Kshs 240,000,000.00 with a plinth area 6,002 Sqm . The development cost (all-inclusive for the built-up structures and all the external works) shall be up to Ksh. 40,000 per square metre based on the plinth areas.**
- e) Ranking of the bids: Ranking of the bids using their Evaluated Tender Sums shall be undertaken. The ranking shall be used to determine the bid with the Lowest Evaluated Tender sum, which shall be considered for award

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.

OPTION 2

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

5.0 ALTERNATIVE TENDERS (ITT 13.1) N/A

Alternative Tenders (ITT 13.1)

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

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

60 MARGIN OF PREFERENCE – NOT APPLICABLE

- 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.

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

- a) In case the tender was subject to post-qualification, the contract shall be awarded to the lowest evaluated tenderer, subject to confirmation of pre-qualification data, if so required.
- b) In case the tender was not subject to post-qualification, the tender that has been determined to be the lowest evaluated tenderer shall be considered for contract award, subject to meeting each of the following conditions.
- 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 Kshs. 38,000,000.00**
 - ii) Minimum average annual construction turnover of **Kshs. 115,000,000.00** equivalent calculated as total certified payments received for contracts in progress and/or completed within the last **three (3) years**.
 - iii) At least **Three (3) no.** of contract(s) of a similar nature executed **within Kenya**, or the East African Community or abroad, that have been satisfactorily and substantially completed as a prime contractor, or joint venture member or sub-contractor cumulative value **Kshs. 231,000,000.00** or equivalent.
 - iv) Contractor's Representative and Key Personnel, which are specified as

No.	Position	Total Work Experience (years)	Experience in Similar Works (years)
1	Project Manager (Bachelor of Architecture OR Bachelor of Quantity Surveying OR Civil Engineering OR Construction Management. all registered with relevant professional bodies).	10	5
2	Site Agent (Bachelor in Architecture OR Quantity Surveying OR Civil Engineering. all registered with relevant professional bodies).	10	5

- v) Contractors key equipment listed on the table “Contractor's Equipment” below and more specifically listed as

Item No.	Equipment Type and Characteristics	No. required
1	Batching Plant	1
2	45M Crane/Hoist	1
3	Excavator	2
4	Tipper Truck 15 ton.	5
5	Mobile Concrete Mixer Truck Complete with pump	1
6	20-ton Roller	1

vi) Other Conditions depending on their seriousness

f) 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. The required information shall be furnished in the appropriate form.

g) 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.

h) Litigation History

There shall be no consistent history of court/arbitral award decisions against the Tenderer, in the last **Three 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.

i) Letter of Authority

The bidder shall provide letter of Authority to seek references from bidder's bank (letter addressed to the specific bank(s) and account(s) giving authority to Client to verify the bank statements for the Main Contractor).

j) Current Engagement/Commitments

The procuring entity shall make enquiries or shall require the bidders to provide contact persons to their current commitments/projects for verification of the project details as well as their performance.

QUALIFICATION FORM*

1	2	3	4	5
Item No.	Qualification Subject	Qualification Requirement	Document To be Completed by Tenderer	For Procuring Entity's Use (Qualification met or Not Met)
1	Nationality	Nationality in accordance with ITT 3.6	Forms ELI – 1.1 and 1.2, with attachments	
2	Tax Obligations for Kenyan Tenderers	Has produced a current tax clearance certificate or tax exemption certificate issued by Kenya Revenue Authority in accordance with ITT 3.14.	Attachment	
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 1st January 2021	Form CON-2	
8	Suspension Based on Execution of Tender/Proposal Securing Declaration by the Procuring Entity	Not under suspension based on-execution of a Tender/Proposal Securing Declaration pursuant to ITT 19.9	Form of Tender	
9	Pending Litigation	Tender's financial position and prospective long-term profitability still sound according to criteria established in 3.1 and assuming that all pending litigation will NOT be resolved against the Tenderer.	Form CON – 2	
10	Litigation History	No consistent history of court/arbitral award decisions against the Tenderer since 1st January 2021	Form CON – 2	
11	Financial Capabilities	(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 Kshs.38,000,000.00 equivalent for the subject contract(s) net of the Tenderer's other commitments. (ii) The Tenderers shall also demonstrate, to the satisfaction	Form FIN – 3.1, with attachments	

1	2	3	4	5
Item No.	Qualification Subject	Qualification Requirement	Document To be Completed by Tenderer	For Procuring Entity's Use (Qualification met or Not Met)
		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. (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 3 years shall be submitted and must demonstrate the current soundness of the Tenderer's financial position and indicate its prospective long-term profitability.		
12	Average Annual Construction Turnover	Minimum average annual construction turnover of Ksh 115,000,000.00 equivalent calculated as total certified payments received for contracts in progress and/or completed within the last Three years , divided Three 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 Ten (10) years , starting 1st January 2014 .	Form EXP – 4.1	
14	Specific Construction & Contract Management Experience	A minimum number of 3 (Three) similar contracts specified below that have been satisfactorily and substantially completed as a prime contractor, joint venture member, management contractor or sub-contractor between 1st January 2019 and tender submission deadline i.e. (number) contracts, cumulative value Kshs.240,000,000.00 <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> 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>	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	Local materials			
1				
2				
3				
4				
5				
D	Use of Local Plant and Equipment			
1				
2				
3				
4				
5				
E	Add any other items			
1				
2				
3				
4				
5				
6				
	TOTAL COST LOCAL CONTENT		XXXXX	

2. FORM: EQUIPMENT

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

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

Omit the following information for equipment owned by the Tenderer.

Owner	Name of owner	
	Address of owner	
	Telephone	Contact name and title
	Fax	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:	[insert the whole period (start and end dates) for which this position will be engaged]
	Time commitment: for this position:	[insert the number of days/week/months/ that has been scheduled for this position]
	Expected time schedule for this position:	[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]
2.	Title of position: [_____]	
	Name of candidate:	
	Duration of appointment:	[insert the whole period (start and end dates) for which this position will be engaged]
	Time commitment: for this position:	[insert the number of days/week/months/ that has been scheduled for this position]
	Expected time schedule for this position:	[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]
3.	Title of position: [_____]	
	Name of candidate:	
	Duration of appointment:	[insert the whole period (start and end dates) for which this position will be engaged]
	Time commitment: for this position:	[insert the number of days/week/months/ that has been scheduled for this position]
	Expected time schedule for this position:	[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]
4.	Title of position: [_____]	
	Name of candidate:	
	Duration of appointment:	[insert the whole period (start and end dates) for which this position will be engaged]
	Time commitment: for this position:	[insert the number of days/week/months/ that has been scheduled for this position]
	Expected time schedule for this position:	[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]
5.	Title of position: [insert title]	
	Name of candidate:	
	Duration of appointment:	[insert the whole period (start and end dates) for which this position will be engaged]
	Time commitment: for this position:	[insert the number of days/week/months/ that has been scheduled for this position]
	Expected time schedule for this position:	[insert the expected time schedule for this position (e.g. attach high level Gantt chart)]

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:	
	Job title:	Years with present Procuring Entity:

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

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

Declaration

I, the undersigned *[insert either “Contractor’s Representative” or “Key Personnel” as applicable]*, certify that to the best of my knowledge and belief, the information contained in this Form PER-2 correctly describes myself, my qualifications and my experience.

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

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

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

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

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

Signature: _____

Date: (day month year): _____

Countersignature of authorized representative of the Tenderer:

Signature: _____

Date: (day month year): _____

5. TENDERERS QUALIFICATION WITHOUT PREQUALIFICATION

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

51 FORM ELI -1.1

Tenderer Information

Form

Date: _____

ITT No. and title: _____

Tenderer's name
In case of Joint Venture (JV), name of each member:
Tenderer's actual or intended country of registration: <i>[indicate country of Constitution]</i>
Tenderer's actual or intended year of incorporation:
Tenderer's legal address [in country of registration]:
Tenderer's authorized representative information Name: _____ Address: _____ Telephone/Fax numbers: _____ E-mail address: _____
1. Attached are copies of original documents of ☐ 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 ☐ In case of JV, letter of intent to form JV or JV agreement, in accordance with ITT 3.5 ☐ In case of state-owned enterprise or institution, in accordance with ITT 3.8, documents establishing: • Legal and financial autonomy • Operation under commercial law 1. Establishing that the Tenderer is not under the supervision of the Procuring Entity 2. Included are the organizational chart and a list of Board of Directors

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

Date: _____

ITT No. and title: _____

Tenderer's JV name:
JV member's name:
JV member's country of registration:
JV member's year of constitution:
JV member's legal address in country of constitution:
JV member's authorized representative information Name: _____ Address: _____ Telephone/Fax numbers: _____ E-mail address: _____
1. Attached are copies of original documents of ☐ 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. ☐ In case of a state-owned enterprise or institution, documents establishing legal and financial autonomy, operation in accordance with commercial law, and that they are not under the supervision of the Procuring Entity, in accordance with ITT 3.5. 2. Included are the organizational chart and a list of Board of Directors.

Historical Contract Non-Performance, Pending Litigation and Litigation History

Tenderer's Name: _____

Date: _____

JV Member's Name _____

ITT No. and title: _____

Non-Performed Contracts in accordance with Section III, Evaluation and Qualification Criteria

☐ Contract non-performance did not occur since 1st January [insert year] specified in Section III, Evaluation and Qualification Criteria, Sub-Factor 2.1.

☐ Contract(s) not performed since 1st January [insert year] specified in Section III, Evaluation and Qualification Criteria, requirement 2.1

☐ Contract(s) withdrawn since 1st January [insert year] 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)
[insert year]	[insert amount and percentage]	Contract Identification: [indicate complete contract name/ number, and any other identification] Name of Procuring Entity: [insert full name] Address of Procuring Entity: [insert street/city/country] Reason(s) for nonperformance: [indicate main reason(s)]	[insert amount]

Pending Litigation, in accordance with Section III, Evaluation and Qualification Criteria

☐ No pending litigation in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.3.

☐ Pending litigation in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.3 as indicated below.

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

☐ No Litigation History in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.4.

☐ Litigation History in accordance with Section III, Evaluation and Qualification Criteria, Sub-Factor 2.4 as indicated below.

Year of dispute	Amount in dispute (currency)	Contract Identification	Total Contract Amount (currency), Kenya Shilling Equivalent (exchange rate)
<i>[insert year]</i>	<i>[insert percentage]</i>	Contract Identification: [indicate complete contract name, number, and any other identification] 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)				
	Year 1	Year 2	Year 3	Year 4	Year 5
Statement of Financial Position (Information from Balance Sheet)					
Total Assets (TA)					
Total Liabilities (TL)					
Total Equity/Net Worth (NW)					
Current Assets (CA)					
Current Liabilities (CL)					
Working Capital (WC)					
Information from Income Statement					
Total Revenue (TR)					
Profits Before Taxes (PBT)					
Cash Flow Information					
Cash Flow from Operating Activities					

*Refer to ITT 15 for the exchange rate

5.4.2 Sources of Finance

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

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

5.4.3 Financial documents

The Tenderer and its parties shall provide copies of financial statements for _____ years pursuant Section III, Evaluation and Qualifications Criteria, Sub-factor 3.1. The financial statements shall:

- (a) reflect the financial situation of the Tenderer or in case of JV member, and not an affiliated entity (such as parent company or group member).
- (b) be independently audited or certified in accordance with local legislation.
- (c) be complete, including all notes to the financial statements.
- (d) correspond to accounting periods already completed and audited.

☐ Attached are copies of financial statements¹ for the _____ years required above; and complying with the requirements

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

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.

5.6 **FORM FIN – 3.3:**

Financial Resources

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

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

5.7 **FORM FIN – 3.4:**

Current Contract Commitments / Works in Progress

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

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					

5.8 **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: _____	

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

Specific Construction and Contract Management Experience

Tenderer's Name: _____

Date: _____

JV Member's Name _____

ITT No. and title: _____

Similar Contract No.	Information			
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor ☐	Member in JV ☐	Management Contractor ☐	Sub-contractor ☐
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:				

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

Specific Construction and Contract Management Experience

Tenderer's Name: _____

Date: _____

JV Member's Name _____

ITT No. and title: _____

Similar Contract No.	Information			
Contract Identification				
Award date				
Completion date				
Role in Contract	Prime Contractor ☐	Member in JV ☐	Management Contractor ☐	Sub-contractor ☐
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:				

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

Specific Construction and Contract Management Experience (cont.)

Similar Contract No.	Information
Description of the similarity in accordance with Sub-Factor 4.2(a) of Section III:	
1. Amount	
2. Physical size of required works items	
3. Complexity	
4. Methods/Technology	
5. Construction rate for key activities	
6. Other Characteristics	

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

Construction Experience in Key Activities

Tenderer's Name: _____

Date: _____

Tenderer's JV Member Name: _____

Sub-contractor's Name² (as per ITT 34): _____

ITT No. and title: _____

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

1. Key Activity No One: _

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

² If applicable

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

- 2. Activity No. Two
- 3.

OTHER FORMS

6. FORM OF TENDER

INSTRUCTIONS TO TENDERERS

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

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

To: [Insert complete name of Procuring Entity]

Date of this Tender submission: [insert date (as day, month and year) of Tender submission] **Request for Tender No.:** [insert identification] **Name and description of Tender** [Insert as per ITT] **Alternative No.:** [insert identification No if this is a Tender for an alternative]

To: [insert complete name of Procuring Entity]

Dear Sirs,

1. In accordance with the Conditions of Contract, Specifications, Drawings and Bills of Quantities for the execution of the above named Works, we, the undersigned offer to construct and complete the Works and remedy any defects therein for the sum³ of Kenya Shillings [[Amount in figures] _____ Kenya Shillings [amount in words] _____]

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

2. We undertake, if our tender is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Architect notice to commence, and to complete the whole of the Works comprised in the Contract within the time stated in the Special Conditions of Contract.
3. We agree to adhere by this tender until _____ [Insert date], and it shall remain binding upon us and may be accepted at any time before that date.
4. We understand that you are not bound to accept the lowest or any tender you may receive.
5. We, the undersigned, further declare that:
 - i) No reservations: We have examined and have no reservations to the tender document, including Addenda issued in accordance with ITT 28;

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

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

- ii) Eligibility: We meet the eligibility requirements and have no conflict of interest in accordance with ITT 3 and 4;
- iii) Tender - Securing Declaration: We have not been suspended nor declared ineligible by the Procuring Entity based on execution of a Tender-Securing or Proposal-Securing Declaration in the Procuring Entity's Country in accordance with ITT 19.8;
- iv) Conformity: We offer to execute in conformity with the tendering documents and in accordance with the implementation and completion specified in the construction schedule, the following Works: *[insert a brief description of the Works]*;
- v) Tender Price: The total price of our Tender, excluding any discounts offered in item 1 above is: *[Insert one of the options below as appropriate]*
- vi) Option 1, incase of one lot: Total price is: *[insert the total price of the Tender in words and figures, indicating the various amounts and the respective currencies]*; or
- Option2, in case of multiple lots:
- (a) Total price of each lot *[insert the total price of each lot in words and figures, indicating the various amounts and the respective currencies]*; and
- (b) Total price of all lots (sum of all lots) *[insert the total price of all lots in words and figures, indicating the various amounts and the respective currencies]*;
- vii) Discounts: The discounts offered and the methodology for their application are:
- viii) The discounts offered are: *[Specify in detail each discount offered.]*
- ix) The exact method of calculations to determine the net price after application of discounts is shown below: *[Specify in detail the method that shall be used to apply the discounts]*;
- x) Tender Validity Period: Our Tender shall be valid for the period specified in TDS 18.1 (as amended, if applicable) from the date fixed for the Tender submission deadline specified in TDS 22.1 (as amended, if applicable), and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
- xi) Performance Security: If our Tender is accepted, we commit to obtain a Performance Security in accordance with the Tendering document;
- xii) One Tender Per Tender: We are not submitting any other Tender(s) as an individual Tender, and we are not participating in any other Tender(s) as a Joint Venture member or as a sub-contractor, and meet the requirements of ITT 3.4, other than alternative Tenders submitted in accordance with ITT 13.3;
- xiii) Suspension and Debarment: We, along with any of our subcontractors, suppliers, Engineer, manufacturers, or service providers for any part of the contract, are not subject to, and not controlled by any entity or individual that is subject to, a temporary suspension or a debarment imposed by the Public Procurement Regulatory Authority or any other entity of the Government of Kenya, or any international organization.
- xiv) State-owned enterprise or institution: *[select the appropriate option and delete the other]* *[We are not a state- owned enterprise or institution]/[We are a state-owned enterprise or institution but meet the requirements of ITT3.8]*;
- xv) Commissions, gratuities, fees: We have paid, or will pay the following commissions, gratuities, or fees with respect to the tender process or execution of the Contract: *[insert complete name of each Recipient, its full address, the reason for which each commission or gratuity was paid and the amount and currency of each such commission or gratuity]*.

Name of Recipient	Address	Reason	Amount

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

- xvi) **Binding Contract:** We understand that this Tender, together with your written acceptance there of included in your Letter of Acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed;
- xvii) **Not Bound to Accept:** We understand that you are not bound to accept the lowest evaluated cost Tender, the Most Advantageous Tender or any other Tender that you may receive;
- xviii) **Fraud and Corruption:** We here by certify that we have taken steps to ensure that no person acting for us or on our behalf engages in any type of Fraud and Corruption; and
- xix) **Collusive practices:** We hereby certify and confirm that the tender is genuine, non-collusive and made with the intention of accepting the contract if awarded. To this effect we have signed the “Certificate of Independent Tender Determination” attached below.
- xx) We undertake to adhere by the Code of Ethics for Persons Participating in Public Procurement and Asset Disposal, copy available from _____ (*specify website*) during the procurement process and the execution of any resulting contract.
- xxi) **Beneficial Ownership Information:** We commit to provide to the procuring entity the Beneficial Ownership Information in conformity with the Beneficial Ownership Disclosure Form upon receipt of notification of intention to enter into a contract in the event we are the successful tenderer in this subject procurement proceeding.
- xxii) We, the Tenderer, have duly completed, signed and stamped the following Forms as part of our Tender:
- Tenderer's Eligibility; Confidential Business Questionnaire - to establish we are not in any conflict of interest.
 - Certificate of Independent Tender Determination - to declare that we completed the tender without colluding with other tenderers.
 - Self-Declaration of the Tenderer - to declare that we will, if awarded a contract, not engage in any form of fraud and corruption.
 - 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.

FORM OF ALTERNATIVE TENDER (ALTERNATIVE TECHNOLOGY) - N/A

INSTRUCTIONS TO TENDERERS

- i) *The Tenderers who wish to offer Alternative Tender shall complete this Form of Alternative Tender (Alternative Technology). Tenderers who fill this Form of Alternative tender and does not complete Form No. 6: Form of Tender shall be disqualified.*
- ii) *The Tenderer must prepare this Form of Alternative Tender – Alternative Technology on stationery with its letterhead clearly showing the Tenderer's complete name and business address.*
- iii) *Alternative Tender shall be prepared in accordance with TDS ITT 13.1 – 13.4*
- iv) *All italicized text is to help the Tenderer in preparing this form.*
- v) *The Tenderer must prepare this Form of Tender on stationery with its letterhead clearly showing the Tenderer's complete name and business address. Tenderers are reminded that this is a mandatory requirement.*
- vi) *Tenderer must complete and sign CERTIFICATE OF INDEPENDENT TENDER DETERMINATION and the SELF DECLARATION FORMS OF THE TENDERER as listed under (xxii) below.*

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

Name **and** **Identification:**.....[insert identification] **Alternative**

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

To: [Insert complete name of Procuring Entity]

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

for Tender No.: [insert identification] **Name and description of Tender** [Insert as per ITT] **Alternative No.:**

[insert identification No if this is a Tender for an alternative]

To: [insert complete name of Procuring Entity]

Dear Sirs,

1. In accordance with the Conditions of Contract, Specifications, Drawings and Bills of Quantities for the execution of the above named Works, we, the undersigned offer to construct and complete the Works and remedy any defects therein for the sum⁵ of Kenya Shillings [[Amount in figures] _____ Kenya Shillings [amount in words] _____]

The above amount includes foreign currency⁶ amount (s) of [state figure or a percentage and currency] [figures] _____ [words] _____

2. We undertake, if our tender is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Architect notice to commence, and to complete the whole of the Works comprised in the Contract within the time stated in the Special Conditions of Contract.
3. We agree to adhere by this tender until _____ [Insert date], and it shall remain binding upon us and may be accepted at any time before that date.
4. We understand that you are not bound to accept the lowest or any tender you may receive.
5. We, the undersigned, further declare that:

⁵ This sum should be carried forward from the Summary of the Bills of Quantities.

⁶ The percentage quoted above should not include provisional sums, and not more than two foreign currencies are allowed.

- 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, incase 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:

- (c) 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
- (d) 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]*;
- xxiii) Discounts: The discounts offered and the methodology for their application are:
- xxiv) The discounts offered are: *[Specify in detail each discount offered.]*
- xxv) 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]*;
- xxvi) 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;
- xxvii) Performance Security: If our Tender is accepted, we commit to obtain a Performance Security in accordance with the Tendering document;
- xxviii) 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;
- xxix) 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.
- xxx) 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]*;
- xxxi) 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.”)

- xxxii) **Binding Contract:** We understand that this Tender, together with your written acceptance there of included in your Letter of Acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed;
- xxxiii) **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;
- xxxiv) **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
- xxxv) **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.
- xxxvi) 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.
- xxxvii) **Beneficial Ownership Information:** We commit to provide to the procuring entity the Beneficial Ownership Information in conformity with the Beneficial Ownership Disclosure Form upon receipt of notification of intention to enter into a contract in the event we are the successful tenderer in this subject procurement proceeding.
- xxxviii) We, the Tenderer, have duly completed, signed and stamped the following Forms as part of our Tender:
- a) Tenderer's Eligibility; Confidential Business Questionnaire - to establish we are not in any conflict of interest.
 - (b) Certificate of Independent Tender Determination - to declare that we completed the tender without colluding with other tenderers.
 - (a) Self-Declaration of the Tenderer - to declare that we will, if awarded a contract, not engage in any form of fraud and corruption.
 - (d) Declaration and commitment to the Code of Ethics for Persons Participating in Public Procurement and Asset Disposal.

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

Name of the Tenderer: *[insert complete name of person signing the Tender]

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

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

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

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

Date signed _____ day of _____, _____

Notes

* In the case of the Tender submitted by joint venture specify the name of the Joint Venture as Tenderer.

**Person signing the Tender shall have the power of attorney given by the Tenderer to be attached with the Tender.

(a) TENDERER'S ELIGIBILITY- CONFIDENTIAL BUSINESS QUESTIONNAIRE

Instruction to Tenderer

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

(a) Tenderer's details

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

General and Specific Details

(b) Sole Proprietor, provide the following details.

Name in full _____ Age _____
Nationality _____ Country of Origin _____
Citizenship _____

(c) Partnership, provide the following details.

	Names of Partners	Nationality	Citizenship	% Shares owned
1				
2				
3				

(d) Registered Company, provide the following details.

- i) Private or public Company _____
- ii) State the nominal and issued capital of the Company _____

Nominal Kenya Shillings (Equivalent).....

Issued Kenya Shillings (Equivalent).....

iii) Give details of Directors as follows.

	Names of Director	Nationality	Citizenship	% Shares owned
1				
2				
3				

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

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

If yes, provide details as follows.

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

(iii) Conflict of interest disclosure

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

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

a) 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 ever 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/Direct or 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 theafore said Bidder, its servants and/oragents/subcontractorswillnotengageinanycorruptorfraudulent
practice and has not been requested to pay any inducement to any member of the Board, Management, Staff
and/or employees and/or agents of (*insert name of the Procuring entity*) which is the
procuring entity.
3. THAT the aforesaid Bidder, its servants and/or agents /subcontractors have not offered any inducement to any
member of the Board, Management, Staff and/or employees and/or agents of (*name of the
procuring entity*).
4. THAT the aforesaid Bidder will not engage /has not engaged in any corrosive practice with other bidders
participating in the subject tender
5. THAT what is deponed to here in above is true to the best of my knowledge information and belief.

.....
(Title)

.....
(Signature)

.....
(Date)

Bidder's Official Stamp

DECLARATION AND COMMITMENT TO THE CODE OF ETHICS

I (person) on behalf of (*Name of the Business/ Company/Firm*)
..... declare that I have read and fully understood the contents of the
Public Procurement & Asset Disposal Act, 2015, Regulations and the Code of Ethics for persons participating in
Public Procurement and Asset Disposal and my responsibilities under the Code.

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

Name of Authorized signatory.....

Sign.....

Position.....

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

E-mail.....

Name of the Firm/Company.....

Date.....

(Company Seal/ Rubber Stamp where applicable)

Witness

Name.....

Sign.....

Date.....

(d) APPENDIX 1 - FRAUD AND CORRUPTION

(Appendix 1 shall not be modified)

1. Purpose

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

2. Requirements

- 2.1 The Government of Kenya requires that all parties including Procuring Entities, Tenderers, (applicants/proposers), Consultants, Contractors and Suppliers; any Sub-contractors, Sub-consultants, Service providers or Suppliers; any Agents (whether declared or not); and any of their Personnel, involved and engaged in procurement under Kenya's Laws and Regulation, observe the highest standard of ethics during the procurement process, selection and contract execution of all contracts, and refrain from Fraud and Corruption and fully comply with Kenya's laws and Regulations as per paragraphs 1.1 above.
- 2.2 Kenya's public procurement and asset disposal act (*no. 33 of 2015*) under Section 66 describes rules to be followed and actions to be taken in dealing with Corrupt, Coercive, Obstructive, Collusive or Fraudulent practices, and Conflicts of Interest in procurement including consequences for offences committed. A few of the provisions noted below highlight Kenya's policy of no tolerance for such practices and behavior:
- 1) A person to whom this Act applies shall not be involved in any corrupt, coercive, obstructive, collusive or fraudulent practice; or conflicts of interest in any procurement or as set disposal proceeding;
 - 2) A person referred to under subsection (1) who contravenes the provisions of that sub-section commits an offence;
 - 3) Without limiting the generality of the subsection (1) and (2), the person shall be: -
 - a) disqualified from entering into a contract for a procurement or asset disposal proceeding; or
 - b) if a contract has already been entered into with the person, the contract shall be voidable;
 - 4) The voiding of a contract by the procuring entity under subsection (7) does not limit any legal remedy the procuring entity may have;
 - 5) An employee or agent of the procuring entity or a member of the Board or committee of the procuring entity who has a conflict of interest with respect to a procurement: -
 - a) Shall not take part in the procurement proceedings;
 - b) shall not, after a procurement contract has been entered in to, take part in any decision relating to the procurement or contract; and
 - c) shall not be a subcontract or for the tender to whom was awarded contract, or a member of the group of tenderers to whom the contract was awarded, but the subcontractor appointed shall meet all the requirements of this Act.
 - 6) An employee, agent or member described in subsection (1) who refrains from doing anything prohibited under that subsection, but for that subsection, would have been within his or her duties shall disclose the conflict of interest to the procuring entity;
 - 7) If a person contravenes subsection (1) with respect to a conflict of interest described in subsection (5)(a) and the contract is awarded to the person or his relative or to another person in whom one of them had a direct or indirect pecuniary interest, the contract shall be terminated and all costs incurred by the public entity shall be made good by the awarding officer. Etc.

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

- a) Defines broadly, for the purposes of the above provisions, the terms set forth below as follows:
- i) “Corrupt practice” is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;
 - ii) “Fraudulent practice” is any act or omission, including misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain financial or other benefit or to avoid an obligation;
 - iii) “collusive practice” is an arrangement between two or more parties designed to achieve an improper purpose, including to influence improperly the actions of another party; “coercive practice” is impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;
 - iv) “Obstructive practice” is:
 - Deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede investigation by Public Procurement Regulatory Authority (PPRA) or any other appropriate authority appointed by Government of Kenya into allegations of a corrupt, fraudulent, coercive, or collusive practice; and/or threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or
 - acts intended to materially impede the exercise of the PPRA's or the appointed authority's inspection and audit rights provided for under paragraph 2.3 e. below.
- b) Defines more specifically, in accordance with the above procurement Act provisions set forth for fraudulent and collusive practices as follows:
- "Fraudulent practice" includes a misrepresentation of fact in order to influence a procurement or disposal processor 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.

FORM OF TENDER SECURITY-[Option 1–Demand Bank Guarantee]

Beneficiary: _____

Request for Tenders No: _____

Date: _____

TENDER GUARANTEE No.: _____

Guarantor: _____

1. We have been informed that _____ (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)]

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

FORMAT OF TENDER SECURITY [Option 2–Insurance Guarantee]

TENDER GUARANTEE No.: _____

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

Sealed with the Common Seal of the said Guarantor this ____ day of _____ 20 ____.

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

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

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

[Date]

[Witness]

[Signature of the Guarantor]

[Seal]

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

FORM OF TENDER - SECURING DECLARATION

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

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

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

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

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

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

Name:..... Duly authorized to sign the bid for and on behalf of: *[insert complete name of Tenderer]*

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

Appendix to Tender

Schedule of Currency requirements

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

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

DECLARATION TO ENGAGEMENT OF SPECIAL GROUPS

The procuring entity is desirous of implementing the affordable housing program by rolling out construction projects across the country with a view of providing housing as a basic need as well as promoting economic recovery through creating employment within the construction sites the partnerships by the private sector, MSME's and various special groups. These special groups shall include the Youth and Women groups as registered by AGPO and registered Jua Kali Artisans.

The following works shall be subcontracted to the special groups

1. Supply of doors
2. Supply of Windows
3. Supply of Carpentry and Joinery Fittings
4. Wall & Ceiling Painting
5. Floor & Wall Tiling
6. Landscaping

The Procuring Entity and the Contractor agree as follows:

1. The contractor shall identify the persons/groups that shall undertake the specified works. The list including the qualifications of the persons/groups shall be submitted to the procuring entity for approval before formal engagement.
2. The contractor shall agree with the persons/groups on the scope and expected quality of works, delivery times, acceptance criteria and mode of payments.
3. The contractor shall effect payments to the persons/groups once the works have been satisfactorily completed or as per the agreed payment schedule.

IN WITNESS where of the parties here to have caused this Agreement to be executed in accordance with the Laws of Kenya on the day, month and year specified above.

Signed by _____ (for the Contractor)

Date _____

PART II - WORKS REQUIREMENTS

SECTION V - BILLS OF QUANTITIES

Provided as an Annex

Instructions to Bidders

The Bills of Quantities section of the submitted Tender Document must be complete as issued, with no alteration, addition or qualification of any kind whatsoever made by the Tenderer to the text of the document. Any alterations, additions or qualifications shall be considered as material deviations as per ITT 31.

SECTION VI – SPECIFICATIONS

As detailed in the Bills of Quantities

SECTION VII – DRAWINGS

Provided as an Annex

PART III - THE CONDITIONS OF CONTRACT AND CONTRACT

SECTION VIII - GENERAL CONDITIONS OF CONTRACT (GCC)

STATE DEPARTMENT FOR HOUSING AND URBAN DEVELOPMENT

PROPOSED CONSTRUCTION OF BUFFALO MALL PHASE 1 AHP PROJECT(WITH SOCIAL AMENITIES AND INFRASTRUCTURE) IN NAIVASHA CONSTITUENCY , NAKURU COUNTY WITH ASSOCIATED INFRASTRUCTURE

1 GENERAL PROVISIONS

1.1 Definitions

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

“Defects Notification Period” means the period for notifying defects in the Works or a Section (as the case 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

“Consultant” means the person named in the special conditions of contract appointed by the procuring entity and the design and/or supervision of the works

“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

1.31 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.

1.32 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

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

1.42 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

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

1.9 Timely provision of Drawings or Instructions

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

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

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

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

1.10 Procuring Entity's Use of Contractor's Documents

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

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

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

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

1.11 Contractor's Use of Procuring Entity's Documents

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

1.12 Confidential Details

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

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

1.13 Compliance with Laws

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

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

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

1.14 Joint and Several Liability

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

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

1.15 Inspections and Audit by the Procuring Entity

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

2 THE PROCURING ENTITY

21 Right of Access to the Site

- 21.1 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.
- 21.2 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].
- 21.3 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.
- 21.4 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.
- 21.5 However, if and to the extent that the Procuring Entity's failure was caused by any error or delay by the Contractor, including an error in, or delay in the submission of, any of the Contractor's Documents, the Contractor shall not be entitled to such extension of time, Cost or profit.

22 Permits, Licenses or Approvals

22.1 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.

23 Procuring Entity's Personnel

The Procuring Entity shall be responsible for ensuring that the Procuring Entity's Personnel and the Procuring Entity's other contractors on 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 Clause 14 [Contract Price and Payment].

3 THE ENGINEER

3.1 Architect Duties and Authority

3.1.1 The Procuring Entity shall appoint the Architect who shall carry out the duties as assigned 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.

316 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.

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

32 Delegation by the Engineer

321 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].

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

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

33 Instructions of the Engineer

331 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.

332 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

41 Contractor's General Obligations

41.1 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.

41.2 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.

41.3 All equipment, material, and services to be incorporated in or required for the Works shall have their origin in any eligible source country.

41.4 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.

41.5 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.

41.6 If the Contract specifies that the Contractor shall design any part of the Permanent Works, then unless otherwise stated in the Special Conditions:

- a) The Contractor shall submit to the Architect the Contractor's Documents for this part in accordance with the procedures specified in the Contract;
- b) these Contractor's Documents shall be in accordance with the Specification and Drawings, shall be written in the language for communications defined in Sub-Clause 1.4 [Law and Language], and shall include additional information required by the Architect to add to the Drawings for co-ordination of each Party's designs;
- c) the Contractor shall be responsible for this part and it shall, when the Works are completed, befit for such purposes for which the part is intended as are specified in the Contract; and
- d) prior to the commencement of the Tests on Completion, the Contractor shall submit to the Architect the "as-built" documents and, if applicable, operation and maintenance manuals in accordance with the Specification and in sufficient detail for the Procuring Entity to operate, maintain, dismantle, reassemble, adjust and repair this part of the Works. Such part shall not be considered to be completed for the purposes of taking-over under Sub-Clause 10.1 [Taking Over of the Works and Sections] until these documents and manuals have been submitted to the Engineer.

42 Performance Security

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

43 Contractor's Representative

- 431 The Contractor shall appoint the Contractor's Representative and shall give him all authority necessary to act on the Contractor's behalf under the Contract. The Contractor's Representative's Name and Address shall be provided in the **Special Conditions of Contract**.
- 432 Unless the Contractor's Representative **is named in the Contract**, the Contractor shall, prior to the Commencement Date, submit to the Architect for consent the name and particulars of the person the Contractor proposes to appoint as Contractor's Representative. If consent is withheld or subsequently revoked in terms of Sub-Clause 6.9 [Contractor's Personnel], or if the appointed person fails to act as Contractor's Representative, the Contractor shall similarly submit the name and particulars of another suitable person for such appointment.
- 433 The Contractor shall not, without the prior consent of the Engineer, revoke the appointment of the Contractor's Representative or appoint a replacement.
- 434 The whole time of the Contractor's Representative shall be given to directing the Contractor's performance of the Contract. If the Contractor's Representative is to be temporarily absent from the Site during the execution of the Works, a suitable replacement person shall be appointed, subject to the Architect prior consent, and the Architect shall be notified accordingly.
- 435 The Contractor's Representative shall, on behalf of the Contractor, receive instructions under Sub-Clause 3.3 [Instructions of the Engineer].
- 436 The Contractor's Representative may delegate any powers, functions and authority to any competent person, and may at any time revoke the delegation. Any delegation or revocation shall not take effect until the Architect has received prior notice signed by the Contractor's Representative, naming the person and specifying the powers, functions and authority being delegated or revoked.
- 437 The Contractor's Representative shall be fluent in the language for communications defined in Sub-Clause 1.4

[Law and Language]. If the Contractor's Representative's delegates are not fluent in the said language, the Contractor shall make competent interpreters available during all working hours in a number deemed sufficient by the Engineer.

44 Sub-contractors

- 441 The Contractor shall not subcontract the whole of the Works. The contractor may however subcontract the works as provided in Clause 34.2.
- 442 The Contractor shall be responsible for the acts or defaults of any Subcontractor, his agents or employees, as if they were the acts or defaults of the Contractor. Unless otherwise stated in the Special Conditions:
- a) The Contractor shall not be required to obtain consent to suppliers solely of Materials, or to a subcontract for which the Subcontractor is named in the Contract;
 - b) The prior consent of the Procuring Entity shall be obtained to other proposed Subcontractors;
 - c) the Contractor shall give the Procuring Entity not less than 14 days' notice of the intended date of the commencement of each Subcontractor's work, and of the commencement of such work on the Site; and
 - d) each subcontract shall include provisions which would entitle the Procuring Entity to require the subcontract to be assigned to the Procuring Entity under Sub-Clause 4.5 [Assignment of Benefit of Subcontract] (if or when applicable) or in the event of termination under Sub-Clause 15.2 [Termination by Procuring Entity].
- 443 The Contractor shall ensure that the requirements imposed on the Contractor by Sub-Clause 1.12 [Confidential Details] apply equally to each Subcontractor.
- 444 Where practicable, the Contractor shall give fair and reasonable opportunity for contractors from Kenya to be appointed as Subcontractors.

45 Assignment of Benefit of Subcontract

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

46 Co-operation

- 461 The Contractor shall, as specified in the Contract or as instructed by the Engineer, allow appropriate opportunities for carrying out work to:
- a) The Procuring Entity's Personnel,
 - b) Any other contractors employed by the Procuring Entity, and
 - c) The personnel of any legally constituted public authorities, who may be employed in the execution on or near the Site of any work not included in the Contract.
- 462 Any such instruction shall constitute a Variation if and to the extent that it causes the Contractor to suffer delays and/or to incur Unforeseeable Cost. Services for these personnel and other contractors may include the use of Contractor's Equipment, Temporary Works or access arrangements which are the responsibility of the Contractor.
- 463 If, under the Contract, the Procuring Entity is required to give to the Contractor possession of any foundation, structure, plant or means of access in accordance with Contractor's Documents, the Contractor shall submit such documents to the Architect in the time and manner stated in the Specification.

47 Setting Out of the Works

- 471 The Contractor shall set out the Works in relation to original points, lines and levels of reference specified in the 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.
- 472 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 sub-paragraphs (a) and (b) above related to this.

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

- 4.9.1 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.
- 4.9.2 Details of all procedures and compliance documents shall be submitted to the Architect 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

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

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

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

4.24 Fossils

424.1 All fossils, coins, articles of value or antiquity, and structures and other remains or items of geological or archaeological interest found on the Site shall be placed under the care and authority of the Procuring Entity. The Contractor shall take reasonable precautions to prevent Contractor's Personnel or other persons from removing or damaging any of these findings.

424.2 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].

52 Objection to Nomination

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

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

53 Payments to nominated Subcontractors

The Contractor shall pay to the nominated Subcontractor the amounts shown on the nominated Subcontractor's invoices approved by the Contractor which the Architect certifies to be due in accordance with the subcontract. These amounts plus other charges shall be included in the Contract Price in accordance with sub-paragraph (b) of Sub-Clause 13.5 [Provisional Sums], except as stated in Sub-Clause 5.4 [Evidence of Payments].

54 Evidence of Payments

54.1 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, directly 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

62.1 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.

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

63 Persons in the Service of Procuring Entity

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

64 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.

65 Working Hours

Nowork 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.

- 6.82 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

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

- 6.92 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 or 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 in 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.

- 732 The Contractor shall give the Procuring Entity's Personnel full opportunity to carry out these activities, including providing access, facilities, permissions and safety equipment. No such activity shall relieve the Contractor from any obligation or responsibility.
- 733 The Contractor shall give notice to the Architect whenever any work is ready and before it is covered up, put out of sight, or packaged for storage or transport. The Architect shall then either carry out the examination, inspection, measurement or testing without unreasonable delay, or promptly give notice to the Contractor that the Architect does not require to do so. If the Contractor fails to give the notice, he shall, if and when required by the Engineer, uncover the work and there after reinstate and make good, all at the Contractor's cost.

74 Testing

- 741 This Sub-Clause shall apply to all tests specified in the Contract.
- 742 Except as otherwise specified in the Contract, the Contractor shall provide all apparatus, assistance, documents and other information, electricity, equipment, fuel, consumables, instruments, labor, materials, and suitably qualified and experienced staff, as are necessary to carry out the specified tests efficiently. The Contractor shall agree, with the Engineer, the time and place for the specified testing of any Plant, Materials and other parts of the Works.
- 743 The Architect may, under Clause 13 [Variations and Adjustments], vary the location or details of specified tests, or instruct the Contractor to carry out additional tests. If these varied or additional tests show that the tested Plant, Materials or workmanship is not in accordance with the Contract, the cost of carrying out this Variation shall be borne by the Contractor, notwithstanding other provisions of the Contract.
- 744 The Architect shall give the Contractor not less than 24 hours' notice of the Architect intention to attend the tests. If the Architect does not attend at the time and place agreed, the Contractor may proceed with the tests, unless otherwise instructed by the Engineer, and the tests shall then be deemed to have been made in the Architect presence.
- 745 If the Contractor suffers delay and/ or incurs Cost from complying with these instructions or as a result of a delay for which the Procuring Entity is responsible, the Contractor shall give notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
 - b) payment of any such Cost-plus profit, which shall be included in the Contract Price.
- 746 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.
- 747 The Contractor shall promptly forward to the Architect duly certified reports of the tests. When the specified tests have been completed, the Architect shall endorse the Contractor's test certificate, or issue a certificate to him, to that effect. If the Architect has not attended the tests, he shall be deemed to have accepted the readings as accurate.

75 Rejection

- 751 If, as a result of an examination, inspection, measurement or testing, any Plant, Materials or workmanship is found to be defective or otherwise not in accordance with the Contract, the Architect may reject the Plant, Materials or workmanship by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the defect and ensure that the rejected item complies with the Contract.
- 752 If the Architect requires this Plant, Materials or workmanship to be retested, the tests shall be repeated under the same terms and conditions. If the rejection and retesting cause the Procuring Entity to incur additional costs, the Contractor shall subject to Sub-Clause 2.5 [Procuring Entity's Claims] pay these costs to the Procuring Entity.

76 Remedial Work

- 761 Notwithstanding any previous test or certification, the Architect may instruct the Contractor to:
- a) Remove from the Site and replace any Plant or Materials which is not in accordance with the Contract,
 - b) remove and re-execute any other work which is not in accordance with the Contract, and
 - c) execute any work which is urgently required for the safety of the Works, whether because of an accident, unforeseen event or otherwise.

- 762 The Contractor shall comply with the instruction within a reasonable time, which shall be the time (if any) specified in the instruction, or immediately if urgency is specified under sub-paragraph (c).
- 763 If the Contractor fails to comply with the instruction, the Procuring Entity shall be entitled to employ and pay other persons to carry out the work. Except to the extent that the Contractor would have been entitled to payment for the work, the Contractor shall subject to Sub-Clause 2.5 [Procuring Entity's Claims] pay to the Procuring Entity all costs arising from this failure.
- 764 If the contractor repeatedly delivers defective work, the Procuring Entity may consider termination in accordance with Clause 15.

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].

7.8 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

- 831 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 a general description of the methods which the Contractor intends to adopt, and of the major stages, in the execution of the Works, and 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.
- 832 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.
- 833 The Contractor shall promptly give notice to the Architect of specific probable future events or circumstances which may adversely affect the work, increase the Contract Price or delay the execution of the Works.
- 834 If, at anytime, the Architect gives notice to the Contractor that a programme fails (to the extent stated) to comply with the Contractor to be consistent with actual progress and the Contractor's stated intentions, the Contractor shall submit a revised programme to the Architect in accordance with this Sub-Clause.

8.4 Extension of Time for Completion

- 841 The Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to an extension of the Time for Completion if and to the extent that completion for the purposes of Sub-Clause 10.1 [Taking Over of the Works and Sections] is or will be delayed by any of the following causes:
- a) a Variation (unless an adjustment to the Time for Completion has been agreed under Sub-Clause 13.3 [Variation Procedure]) or other substantial change in the quantity of an item of work included in the Contract,
 - b) a cause of delay giving an entitlement to extension of time under a Sub-Clause of these Conditions,
 - c) exceptionally adverse climatic conditions,
 - d) Unforeseeable shortages in the availability of personnel or Goods caused by epidemic or governmental actions, or
 - e) any delay, impediment or prevention caused by or attributable to the Procuring Entity, the Procuring Entity's Personnel, or the Procuring Entity's other contractors.
- 842 If the Contractor considers itself to be entitled to an extension of the Time for Completion, the Contractor shall give notice to the Architect in accordance with Sub-Clause 20.1 [Contractor's Claims]. When determining each extension of time under Sub-Clause 20.1, the Architect shall review previous determinations and may increase, but shall not decrease, the total extension of time.

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 anytime:

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

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

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

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

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

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 sub-paragraph (d) of Sub-Clause 4.1 [Contractor's General Obligations].

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

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

9.2 Delayed Tests

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

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

9.2.3 If the Contractor fails to carry out the Tests on Completion within the period of 21 days, the Procuring Entity's Personnel may proceed with the Tests 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:

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

10. PROCURING ENTITY'S TAKING OVER

10.1 Taking Over of the Works and Sections

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

10.2 Taking Over of Parts of the Works

- 10.2.1 The Architect may, at the sole discretion of the Procuring Entity, issue a Taking-Over Certificate for any part of the Permanent Works.
- 10.2.2 The Procuring Entity shall not use any part of the Works (other than as a temporary measure which is either specified in the Contract or agreed by both Parties) unless and until the Architect has issued a Taking-Over Certificate for this part. However, if the Procuring Entity does use any part of the Works before the Taking-Over Certificate is issued:
- a) The part which is used shall be deemed to have been taken over as from the date on which it is used,
 - b) the Contractor shall cease to be liable for the care of such part as from this date, when responsibility shall pass to the Procuring Entity, and
 - c) if requested by the Contractor, the Architect shall issue a Taking-Over Certificate for this part.
- 10.2.3 After the Architect has issued a Taking-Over Certificate for a part of the Works, the Contractor shall be given the earliest opportunity to take such steps as may be necessary to carry out any outstanding Tests on Completion. The Contractor shall carry out these Tests on Completion as soon as practicable before the expiry date of the relevant Defects Notification Period.
- 10.2.4 If the Contractor incurs Cost as a result of the Procuring Entity taking over and/or using a part of the Works, other than such use as is specified in the Contract agreed by the Contractor, the Contractor shall (i) give notice to the Architect and (ii) be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to payment of any such accrued costs, which shall be included in the Contract Price. After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine this accrued cost.
- 10.2.5 If a Taking-Over Certificate has been issued for a part of the Works (other than a Section), the delay damages there after 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.

10.3 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 there after, 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 defect or 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 defect or 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 or 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 her 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.

12.3 Evaluation

12.3.1 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.

- 1232 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.
- 1233 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.
- 1234 However, for a new item of work, a new rate or price shall be appropriate for such item of work if:
- The work is instructed under Clause 13 [Variations and Adjustments],
 - no rate or price is specified in the Contract for this item, and
 - 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.
- 1235 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.
- 1236 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.
- 1237 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:

- 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;
- The omission of the work will result (or has resulted) in this sum not forming part of the Contract Price; and
- 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

131 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:
- changes to the quantities of any item of work included in the Contract (however, such changes do not necessarily constitute a Variation),
 - changes to the quality and other characteristics of any item of work,
 - changes to the levels, positions and/ or dimensions of any part of the Works,
 - omission of any work unless it is to be carried out by others,
 - 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.

132 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 Architect are 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 Materials or Schedule of Daywork Prices. If the rates contained in the Bills of Materials or Daywork 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 Daywork 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 Work 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.

13.2.3 Contractor to Proceed

On receipt of a Variation Order, the Contractor shall forthwith 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 13.3.

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].

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

- a) The Contractor shall design this part,

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

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

134 Variation Procedure for Value Engineering proposal

- 134.1 If the Architect requests a proposal, prior to instructing a Variation, the Contractor shall respond in writing as soon as practicable, either by giving reasons why he cannot comply (if this is the case) or by submitting:
- a) A description of the proposed work to be performed and a programme for its execution,
 - b) the Contractor's proposal for any necessary modifications to the programme according to Sub-Clause 8.3 [Programme] and to the Time for Completion, and
 - c) the Contractor's proposal for evaluation of the Variation.
- 134.2 The Architect shall, as soon as practicable after receiving such proposal (under Sub-Clause 13.2 [Value Project Engineering] or otherwise), respond with approval, disapproval or comments. The Contractor shall not delay any work whilst waiting a response.
- 134.3 Each instruction to execute a Variation, with any requirements for the recording of Costs, shall be issued by the Architect to the Contractor, who shall acknowledge receipt.
- 134.4 Each Variation shall be evaluated in accordance with Clause 12 [Measurement and Evaluation], unless the Architect instructs or approves otherwise in accordance with this Clause.

135 Payment in Applicable Currencies

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

136 Provisional Sums

- 136.1 Each Provisional Sum shall only be used, in whole or in part, in accordance with the Architect instructions, and the Contract Price shall be adjusted accordingly. The total sum paid to the Contractor shall include only such amounts, for the work, supplies or services to which the Provisional Sum relates, as the Architect shall have instructed. For each Provisional Sum, the Architect may instruct:
- a) Work to be executed (including Plant, Materials or services to be supplied) by the Contractor and valued under Sub-Clause 13.3 [Variation Procedure]; and/or
 - b) Plant, Materials or services to be purchased by the Contractor, from a nominated Subcontractor (as defined in Clause 5 [Nominated Subcontractors]) or otherwise; and for which there shall be included in the Contract Price:
 - i) The actual amounts paid (or due to be paid) by the Contractor, and
 - ii) a sum for overhead charges and profit, calculated as a percentage of these actual amounts by applying the relevant percentage rate (if any) stated in the appropriate Schedule. If there is no such rate, the percentage rate stated in **the Special Conditions of Contract** shall be applied.
- 136.2 The Contractor shall, when required by the Engineer, produce quotations, invoices, vouchers and accounts or receipts in substantiation.

137 Dayworks

- 13.7.1 For work of a minor or incidental nature, the Architect may instruct that a Variation shall be executed on a daywork basis. The work shall then be valued in accordance with the Daywork Schedule included in the Contract, and the following procedure shall apply. If a Daywork Schedule is not included in the Contract, this Sub-Clause shall not apply.
- 13.7.2 Before ordering Goods for the work, the Contractor shall submit quotations to the Engineer. When applying for payment, the Contractor shall submit invoices, vouchers and accounts or receipts for any Goods.
- 13.7.3 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 in duplicate 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.
- 13.7.4 One copy of each statement will, if correct, or when agreed, be signed by the Architect and returned to the Contractor. The Contractor shall then submit priced statements of these resources to the Engineer, prior to their inclusion in the next Statement under Sub-Clause 14.3 [Application for Interim Payment Certificates].

13.8 Adjustments for Changes in Legislation

- 13.8.1 The Contract Price shall be adjusted to take account of any increase or decrease in Cost resulting from a change in the Laws of Kenya (including the introduction of new Laws and the repeal or modification of existing Laws) or in the judicial or official governmental interpretation of such Laws, made after the Base Date, which affect the Contractor in the performance of obligations under the Contract.
- 13.8.2 If the Contractor suffers (or will suffer) delay and/or incurs (or will incur) additional Cost as a result of these changes in the Laws or in such interpretations, made after the Base Date, the Contractor shall give notice to the Architect and shall be entitled subject to Sub-Clause 20.1 [Contractor's Claims] to:
- a) an extension of time for any such delay, if completion is or will be delayed, under Sub-Clause 8.4 [Extension of Time for Completion], and
 - b) payment of any such Cost, which shall be included in the Contract Price.
- 13.8.3 After receiving this notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.
- 13.8.4 Notwithstanding the foregoing, the Contractor shall not be entitled to an extension of time if the relevant delay has already been taken into account in the determination of a previous extension of time and such Cost shall not be separately paid if the same shall already have been taken into account in the indexing of any inputs to the table of adjustment data in accordance with the provisions of Sub-Clause 13.8 [Adjustments for Changes in Cost].

13.9 Adjustments for Changes in Cost

- 13.9.1 In this Sub-Clause, "table of adjustment data" means the completed table of adjustment data for local and foreign currencies included in the Schedules. If there is no such table of adjustment data, this Sub-Clause shall not apply.
- 13.9.2 If this Sub-Clause applies, the amounts payable to the Contractor shall be adjusted for rises or falls in the cost of labor, Goods and other inputs to the Works, by the addition or deduction of the amounts determined by the formulae prescribed in this Sub-Clause. To the extent that full compensation for any rise or fall in Costs is not covered by the provisions of this or other Clauses, the Accepted Contract Amount shall be deemed to have included amounts to cover the contingency of other rises and falls in costs.
- 13.9.3 The adjustment to be applied to the amount otherwise payable to the Contractor, as valued in accordance with the appropriate Schedule and certified in Payment Certificates, shall be determined from formulae for each of the currencies in which the Contract Price is payable. No adjustment is to be applied to work valued on the basis of Cost or current prices. The formulae shall be of the following general type:

Price Adjustment Formula

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

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

where:

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

A and **B** 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 **I_o** 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 Incases 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

141 The Contract Price

141.1 Unless otherwise stated in the Special Conditions:

- a) The value of the payment certificate shall be agreed or determined under Sub-Clause 12.3 [Evaluation] and be subject to adjustments in accordance with the Contract;
- b) the Contractor shall pay all taxes, duties and fees required to be paid by him under the Contract, and the Contract Price shall not be adjusted for any of these costs except as stated in Sub-Clause 13.7 [Adjustments for Changes in Legislation];
- c) any quantities which may be set out in the Bill of Quantities or other Schedule are estimated quantities and are not to be taken as the actual and correct quantities:
 - i) of the Works which the Contractor is required to execute, or
 - ii) for the purposes of Clause 12 [Measurement and Evaluation]; and

- d) the Contractor shall submit to the Engineer, within 30 days after the Commencement Date, a proposed breakdown of each lump sum price in the Schedules. The Architect may take account of the break down when preparing Payment Certificates but shall not be bound by it.

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 cashflow support, when the Contractor submits a guarantee in accordance with this Clause. The total advance payment, the number and timing of instalments (if more than one), and the applicable currencies and proportions, shall be as stated in the **Special Conditions of Contract**.

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.

14.2.6 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

14.3.1 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 there portion the progress during this month in accordance with Sub-Clause 4.21 [Progress Reports].

- 1432 The Statement shall include the following items, as applicable, which shall be expressed in the various currencies in which the Contract Price is payable, in the sequence listed:
- a) the estimated contract value of the Works executed and the Contractor's Documents produced up to the end of the month (including Variations but excluding items described in sub-paragraphs (b) to (g) below);
 - b) any amounts to be added and deducted for changes in legislation and changes in cost, in accordance with Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost];
 - c) any amount to be deducted for retention, calculated by applying the percentage of retention stated in **the Special Conditions of Contract** to the total of the above amounts, until the amount so retained by the Procuring Entity reaches the limit of Retention Money (if any) stated **in the Special Conditions of Contract**;
 - d) any amounts to be added for the advance payment and (if more than one instalment) and to be deducted for its repayments in accordance with Sub-Clause 14.2 [Advance Payment];
 - e) any amounts to be added and deducted for Plant and Materials in accordance with Sub-Clause 14.5 [Plant and Materials intended for the Works];
 - f) any other additions or deductions which may have become due under the Contractor otherwise, including those under Clause 20 [Claims, Disputes and Arbitration]; and
 - g) the deduction of amounts certified in all previous Payment Certificates.

144 Schedule of Payments

- 144.1 If the Contract includes a schedule of payments specifying the instalments in which the Contract Price will be paid, then unless otherwise stated in this schedule:
- a) The instalments quoted in this schedule of payments shall be the estimated contract values for the purposes of sub-paragraph (a) of Sub-Clause 14.3 [Application for Interim Payment Certificates];
 - b) Sub-Clause 14.5 [Plant and Materials intended for the Works] shall not apply; and
 - c) If these instalments are not defined by reference to the actual progress achieved in executing the Works, and if actual progress is found to be less or more than that on which this schedule of payments was based, then the Architect may proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine revised instalments, which shall take account of the extent to which progress is less or more than that on which the instalments were previously based.
- 144.2 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].
- 145.2 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.
- 145.3 The Architect shall determine and certify each addition if the following conditions are satisfied:
- a) The Contractor has:
 - i) kept satisfactory records (including the orders, receipts, Costs and use of Plant and Materials) which are available for inspection, and
 - ii) submitted statement of the Cost of acquiring and delivering the Plant and Materials to the Site, supported by satisfactory evidence;and either:
 - b) the relevant Plant and Materials:
 - i) are those listed in the Schedules for payment when shipped,
 - ii) have been shipped to Kenya, enroute to the Site, in accordance with the Contract; and
 - iii) are described in a clean shipped bill of lading or other evidence of shipment, which has been

submitted to the Architect together with evidence of payment of freight and insurance, any other documents reasonably required, and a bank guarantee in a form and issued by an entity approved by the Procuring Entity in amounts and currencies equal to the amount due under this Sub-Clause: this guarantee may be in a similar form to the form referred to in Sub-Clause 14.2 [Advance Payment] and shall be valid until the Plant and Materials are properly stored on Site and protected against loss, damage or deterioration; or

- c) the relevant Plant and Materials:
 - i) are those listed in the Schedules for payment when delivered to the Site, and
 - ii) have been delivered to and are properly stored on the Site, are protected against loss, damage or deterioration and appear to be in accordance with the Contract.

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

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

146 Issue of Interim Payment Certificates

1461 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.

1462 However, prior to issuing the Taking-Over Certificate for the Works, the Architect shall not be bound to issue an Interim Payment Certificate in an amount which would (after retention and other deductions) be less than the minimum amount of Interim Payment Certificates (if any) stated **in the Special Conditions of Contract**. In this event, the Architect shall give notice to the Contractor accordingly.

1463 An Interim Payment Certificate shall not be withheld for any other reason, although:

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

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

14.7 Payment

1471 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].

1472 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

- 1481 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.
- 1482 These financing charges shall be calculated at the annual rate of three percentage points above the mean rate of the Central Bank in Kenya of the currency of payment, or if not available, the inter bank offered rate, and shall be paid in such currency.
- 1483 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

- 1491 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 be half (50%) of the proportion calculated by dividing the estimated contract value of the Section or part, by the estimated final Contract Price.
- 1492 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 be half (50%) of the proportion calculated by dividing the estimated contract value of the Section by the estimated final Contract Price.
- 1493 However, if any work remains to be executed under Clause 11 [Defects Liability], the Architects shall be entitled to withhold certification of the estimated cost of this work until it has been executed.
- 1494 When calculating these proportions, no account shall be taken of any adjustments under Sub-Clause 13.7 [Adjustments for Changes in Legislation] and Sub-Clause 13.8 [Adjustments for Changes in Cost].
- 1495 Unless otherwise stated in the Special Conditions, when the Taking-Over Certificate has been issued for the Works and the first half of the Retention Money has been certified for payment by the Engineer, the Contractor shall be entitled to substitute a Retention Money Security guarantee, in the form annexed to the Special Conditions or in another form approved by the Procuring Entity and issued by a reputable bank or financial institution selected by the Contractor, for the second half of the Retention Money.
- 1496 The Procuring Entity shall return the Retention Money Security guarantee to the Contractor within 14 days after receiving a copy of the Completion Certificate.

14.10 Statement at Completion

- 1410.1 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.
- 1410.2 The Architect shall then certify in accordance with Sub-Clause 14.6 [Issue of Interim Payment Certificates].

14.11 Application for Final Payment Certificate

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

14.12 Discharge

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

14.13 Issue of Final Payment Certificate

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

14.14 Cessation of Procuring Entity's Liability

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

- 15.2.1 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, incompeting for or in executing the Contract.
- 15.2.2 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.

153 Valuation at Date of Termination

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

154 Payment after Termination

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

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

155 Procuring Entity's Entitlement to Termination for Convenience

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

156 Fraud and Corruption

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

157 Corrupt gifts and payments of commission

- 157.1 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 do or for having done or for borne to do any act in relation to the obtaining or execution of this or any other Contract for the

Procuring Entity or for showing or for bearing to show favor or disfavor to any person in relation to this or any other contract for the Procuring Entity.

- b) Enter into this or any other contract with the Procuring Entity in connection with which commission has been paid or agreed to be paid by him or on his behalf or to his knowledge, unless before the Contract is made particulars of any such commission and of the terms and conditions of any agreement for the payment there of have been disclosed in writing to the Procuring Entity.

15.7.2 Any breach of this Condition by the Contractor or by anyone employed by him or acting on his behalf (whether with or without the knowledge of the Contractor) shall be an offence under the provisions of the Public Procurement and Asset Disposal Act (2015) and the Anti-Corruption and Economic Crimes Act (2003) of the Laws of Kenya.

16 SUSPENSION AND TERMINATION BY CONTRACTOR

16.1 Contractor's Entitlement to Suspend Work

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

16.1.2 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 14.7 [Payment] within which payment is to be made (except for deductions in accordance with Sub-Clause 2.5 [Procuring Entity's Claims]),
- c) the Procuring Entity substantially fails to perform his obligations under the Contract in such manner as to materially and adversely affect the economic balance of the Contract and/or the ability of the Contractor to perform the Contract,
- d) a prolonged suspension affects the whole of the Works as described in Sub-Clause 8.11 [Prolonged Suspension], or
- e) the Procuring Entity becomes bankrupt or insolvent, goes into liquidation, has a receiving or administration order made against him, compounds with his creditors, or carries on business under a receiver, trustee or manager for the benefit of his creditors, or if any act is done or event occurs which (under applicable Laws) has a similar effect to any of these acts or events.
- f) the Contractor does not receive the Architect instruction recording the agreement of both Parties on the fulfilment of the conditions for the Commencement of Works under Sub-Clause 8.1 [Commencement of Works].

16.3.2 In any of these events or circumstances, the Contractor may, upon giving 14 days' notice to the Procuring Entity, terminate the Contract. However, in the case of sub-paragraph (f) or (g), the Contractor may by notice

terminate the Contract immediately.

- 1633 The Contractor's election to terminate the Contract shall not prejudice any other rights of the Contractor, under the Contract otherwise.

164 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.

165 Payment on Termination

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

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

17. RISK AND RESPONSIBILITY

17.1 Indemnities

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

- a) Bodily injury, sickness, disease or death, of any person what so ever arising out of or in the course of or by reason of the Contractor's design (if any), the execution and completion of the Works and the remedying of any defects, unless attributable to any negligence, willful act or 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 act or 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.

- 1722 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.
- 1723 If any loss or damage happens to the Works, Goods or Contractor's Documents during the period when the Contract or 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.
- 1724 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.

173 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 gradiation or contamination by radio-activity, except as may be attributable to the Contractor's use of such explosives, radiation or radio-activity,
- d) pressure waves caused by aircraft or other aerial devices traveling at sonic or supersonic speeds,
- e) use or occupation by the Procuring Entity of any part of the Permanent Works, except as may be specified in the Contract,
- f) design of any part of the Works by the Procuring Entity's Personnel or by others for whom the Procuring Entity is responsible, and
- g) any operation of the forces of nature which is Unforeseeable or against which an experienced contractor could not reasonably have been expected to have taken adequate preventive precautions.

174 Consequences of Procuring Entity's Risks

- 1741 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.
- 1742 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.
- 1743 After receiving this further notice, the Architect shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine these matters.

175 Intellectual and Industrial Property Rights

- 1751 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.
- 1752 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 know-how and other technical information disclosed to the contract or under the contract. Nothing contained here-in shall be construed as transferring ownership of any patent, utility model, trademark, design, copy right, know-how or other intellectual rights from the contractor or any other third party to the Procuring Entity.

176 Limitation of Liability

176.1 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].

176.2 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.

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

177 Use of Procuring Entity's Accommodation/Facilities

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

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

18 INSURANCE

18.1 General Requirements for Insurances

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

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

of this Clause.

- 18.1.3 Wherever the Procuring Entity is the insuring Party, each insurance shall be effected with insurers and in terms acceptable to the Contractor. These terms shall be consistent with any terms agreed by both Parties before the date of the Letter of Acceptance. This agreement of terms shall take precedence over the provisions of this Clause.
- 18.1.4 If a policy is required to indemnify joint insured, the cover shall apply separately to each insured as though a separate policy had been issued for each of the joint insured. If a policy indemnifies additional joint insured, namely in addition to the insured specified in this Clause, (i) the Contractor shall act under the policy on behalf of these additional joint insured except that the Procuring Entity shall act for Procuring Entity's Personnel, (ii) additional joint insured shall not be entitled to receive payments directly from the insurer or to have any other direct dealings with the insurer, and (iii) the insuring Party shall require all additional joint insured to comply with the conditions stipulated in the policy.
- 18.1.5 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 Clause 18) with insurers from any eligible source country.

18.2 Insurance for Works and Contractor's Equipment

- 1821 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.
- 1822 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]).
- 1823 The insuring Party shall insure the Contractor's Equipment for not less than the full replacement value, including delivery to Site. For each item of Contractor's Equipment, the insurance shall be effective while it is being transported to the Site and until it is no longer required as Contractor's Equipment.
- 1824 Unless otherwise stated in the Special Conditions, insurances under this Sub-Clause:
- a) Shall be effected and maintained by the Contractor as insuring Party,
 - b) shall be in the joint names of the Parties, who shall be jointly entitled to receive payments from the insurers, payments being held or allocated to the Party actually bearing the costs of rectifying the loss or damage,
 - c) shall cover all loss and damage from any cause not listed in Sub-Clause 17.3 [Procuring Entity's Risks],
 - d) shall also cover, to the extent specifically required in the tendering documents of the Contract, loss or damage to a part of the Works which is attributable to the use or occupation by the Procuring Entity of another part of the Works, and loss or damage from the risks listed in sub-paragraphs (c), (g) and (h) of Sub-Clause 17.3 [Procuring Entity's Risks], excluding (in each case) risks which are not insurable at commercially reasonable terms, with deductibles per occurrence of not more than the amount stated **in the Special Conditions** of Contract (if an amount is not so stated, this sub-paragraph (d) shall not apply), and
 - e) may however exclude loss of, damage to, and reinstatement of:
 - i) a part of the Works which is in a defective condition due to a defect in its design, materials or workmanship (but cover shall include any other parts which are lost or damaged as a direct result of this defective condition and not as described in sub-paragraph (ii) below),
 - ii) a part of the Works which is lost or damaged in order to reinstate any other part of the Works if this other part is in a defective condition due to a defect in its design, materials or workmanship,
 - iii) a part of the Works which has been taken over by the Procuring Entity, except to the extent that the Contractor is liable for the loss or damage, and
 - iv) Goods while they are not in Kenya, subject to Sub-Clause 14.5 [Plant and Materials intended for the Works].
- 1825 If, more than one year after the Base Date, the cover described in sub-paragraph (d) above ceases to be available at commercially reasonable terms, the Contractor shall (as insuring Party) give notice to the Procuring Entity, with supporting particulars. The Procuring Entity shall then (i) be entitled subject to Sub-Clause 2.5 [Procuring Entity's Claims] to payment of an amount equivalent to such commercially reasonable terms as the Contractor should have expected to have paid for such cover, and (ii) be deemed, unless he obtains the cover at commercially reasonable terms, to have approved the omission under Sub-Clause 18.1 [General Requirements for Insurances].

183 Insurance against Injury to Persons and Damage to Property

- 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.

184 Insurance for Contractor's Personnel

- 184.1 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.
- 184.2 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.
- 184.3 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.

194 Consequences of Force Majeure

194.1 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].

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

195 Force Majeure Affecting Subcontractor

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

196 Optional Termination, Payment and Release

196.1 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].

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

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

197 Release from Performance

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

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

20 SETTLEMENT OF CLAIMS AND DISPUTES

20.1 Contractor's Claims

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

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.

205.3 Notwithstanding the issue of a notice as stated above, the arbitration of such a claim or dispute shall not commence unless an attempt has in the first instance been made by the parties to settle such claim or dispute amicably with or without the assistance of third parties. Proof of such attempt shall be required.

205.4 The Arbitrator shall, without prejudice to the generality of his powers, have powers to direct such measurements, computations, tests or valuations as may in his opinion be desirable in order to determine the rights of the parties and assess and award any sums which ought to have been the subject of or included in any certificate.

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

205.6 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.

- 205.7 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.
- 205.7 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.
- 205.8 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.
- 207.2 The place of arbitration shall be a location specified in the **SCC**; and the arbitration shall be conducted in the language for communications defined in Sub-Clause 1.4 [Law and Language].

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

- 209.1 The award of such Arbitrator shall be final and binding up on the parties.
- 209.2 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.

Conditions	Sub-Clause	Data
Part A - Contract Data		
Procuring Entity's name and address	Heading	State Department of Housing and Urban Development
Name and Reference No. of the Contract	Heading and 1.1	PROPOSED CONSTRUCTION OF MERU NATIONAL POLYTECHNIC STUDENT VILLAGE AND ACCOMMODATION IN MERU COUNTY (WITH ASSOCIATED SOCIAL AMENITIES AND INFRASTRUCTURE) TENDER NO. MLPWHUD/SDHUD/AHP/475/2024-2025
Time for Completion	1.1.	18 Months
Defects Liability Period		12 Months
Defects Notification Period	1.1	14 days
Time for the Parties entering into a Contract Agreement	1.6	Within 30days
Time for access to the Site	2.1.1	No later than the Commencement Date, and not later than 14 days after Commencement Date
Engineers Name and address	Heading and 3.1.1	Project Consultant : <i>To be agreed by the Procuring Entity prior to Contract signature</i> Name : P.O Box
Architect Duties and Authority	3.1.6 (b) (ii)	Variations resulting in an increase of the Accepted Contract Amount shall be as guided by the Public Procurement and Asset Disposal Act, 2015 and all amendments thereafter and attendant Regulations.
Contractor's Representative's name	4.3.1	<i>[insert the name of the Contractor's Representative agreed by the Procuring Entity prior to Contract signature]</i>
Performance Security	4.2.1	The performance security will be in the form of a Bank Demand Guarantee (From banks categorized as "Large and Medium " by the Central Bank of Kenya which can be obtained from the Central Bank website via this link : https://www.centralbank.go.ke/bank-supervision/directory-of-licensed-commercial-banks-mortgage-finance-institutions-and-non-operating-holding-companies/) in the amount(s) of 10% percent of the Accepted Contract Amount and in the same currency(ies) of the Accepted Contract Amount.
Normal working hours	6.5	24 hours a day, 7 Days a Week unless otherwise specified or agreed.
Commencement Date	8.1.1	14 day after site hand over Clause 8.1.1 (c) is not applicable
Damages for Delayed works	8.7 & 14.15(b)	0.05% of the Contract Price per week. <i>If Sections are to be used, refer to Table: Summary of Sections below</i>
Maximum amount of delay damages	8.7.1	10% of the final Contract Price.
Provisional Sums	13.6. (b)(ii)	<i>[If there are Provisional Sums, insert a percentage for adjustment of Provisional Sums]</i> _____%
Adjustments for Changes in Cost	13.9	N/A

Conditions	Sub- Clause	Data																									
Total advance payment	14.2.1	Up to 20% of the Accepted Contract Amount secured by an advance Bank guarantee (From banks categorized as “Large and Medium ” by the Central Bank of Kenya which can be obtained from the central bank website via this link : https://www.centralbank.go.ke/bank-supervision/directory-of-licensed-commercial-banks-mortgage-finance-institutions-and-non-operating-holding-companies/) payable in the currencies and proportions in which the Accepted Contract Amount maybe be payable ADVANCE PAYMENT DISBURSEMENT AGREEMENT <i>This is issued Pursuant to provisions of Section 45(1) and 148 of PPADA, 2015 and Regulation 136 (4) and (5) of PPADR,2020</i> <i>The advance payment of Kshs. in respect to the Contract Number</i> <i>..... for Contract Sum of Kshs.being the amount approved as advance payment will be paid in a bank account approved and regulated by the Central Bank of Kenya. This shall be processed as provided below and shall be administered by the Bank as per the Schedule below.</i> <i>This is a pre-condition prior to access of the Advance Payment that the Contractor shall mobilize early works on the site prior to making an application for an advance payment. Early works are as follows;</i> <i>1. Mobilization on site</i> <i>• General and particular preliminaries</i> <i>• Security and hoarding</i> <i>• Site Office</i> <i>• Sanitation/storage</i> <i>• Access Roads</i> <i>2. Setting out</i> <i>3. Site clearance</i> <i>In addition, the Contractor shall be required to submit this signed completed agreement accompanied by an advance payment guarantee in support therefore before payment is disbursed.</i> <i>Disbursement Schedule Submitted by Contractor</i> <table><tr><th>S/ No</th><th>% of payment</th><th>Amount</th><th>Purpose</th><th>Supplier</th></tr><tr><td>1.</td><td></td><td></td><td>....</td><td></td></tr><tr><td>2.</td><td></td><td></td><td>.....</td><td></td></tr><tr><td>3.</td><td></td><td></td><td>.....</td><td></td></tr><tr><td>4.</td><td></td><td></td><td>Cash related items eg (labour ...)</td><td>Contractor</td></tr></table> <i>I, [CONTRACTOR NAME], commit that the Funds shall be used in line with the above disbursement schedule and hereby authorize the bank to make payment to the suppliers on my behalf.</i> <i>Yours sincerely,</i> <i>FOR PRINCIPAL SECRETARY</i> <i>FOR CONTRACTOR</i> <i>N/B Advance payment shall only be paid upon full site mobilization and evidence that the works have already started.</i> <i>The Architect shall carry out an inspection and submit a report before any approval is granted by the Accounting Officer.</i>	S/ No	% of payment	Amount	Purpose	Supplier	1.					2.					3.					4.			Cash related items eg (labour ...)	Contractor
S/ No	% of payment	Amount	Purpose	Supplier																							
1.																											
2.																											
3.																											
4.			Cash related items eg (labour ...)	Contractor																							

Conditions	Sub-Clause	Data
Repayment amortization rate of advance payment	14.2.5 (b)	The amounts to be recovered in each payment certificate shall be computed using the following formula: $R = \frac{A(x^1 - x^{11})}{80 - 20}$ Where; A - Amount of the advance which has been granted. x¹ - The amount of proposed cumulative payments as a percentage of the original amount of the Contract. This figure will exceed 20% but not exceed 80%. x¹¹ - The amount of the previous cumulative payments as a percentage of the original amount of the Contract. This figure will be below 80% but not less than 20%. R - Amount to be reimbursed in current valuation.
Percentage of Retention	14.3.2 (c)	10% of the certified amounts The 10% retention monies can be released at upon application by the Contractor and provision of a security in the form of a Retention Money Security (Form No.8) payable in the currencies and proportions in which the Accepted Contract Amount maybe be payable. A Retention Money Security from Banks categorized as "Large " by the Central Bank of Kenya under the Directory of Commercial Banks which can be obtained from the Central Bank Website in the following Link under Bank Supervision: https://www.centralbank.go.ke/bank-supervision/directory-of-licensed-commercial-banks-mortgage-finance-institutions-and-non-operating-holding-companies/)
Limit of Retention Money	14.3.2 (c)	Not Applicable
Plant and Materials	14.5.3(b)(i)	Not applicable
	14.5.3(c)(i)	Not applicable
Minimum Amount of Interim Payment Certificates	14.6.2	2.5 % of the Accepted Contract Amount.
Publishing source of commercial interest rates for financial charges in case of delayed payment	14.8	Shall be in accordance with the prevailing mean Commercial lending rate as determined by the Central Bank of Kenya.
Key Personnel names	16.9.1	<i>[insert the name of each Key Personnel agreed by the Procuring Entity prior to Contract signature]</i>
Maximum total liability of the Contractor to the Procuring Entity	17.6.2	The product of 1.1 times the Accepted Contract Amount.
Periods for submission of insurance: a. evidence of insurance. b. relevant policies	18.1.6	14 days after execution of contract 14 days after execution of contract
Maximum amount of deductibles for insurance of the Procuring Entity's risks	18.2.4 (d)	The minimum insurance deductible shall be : a) For loss or damage of Works, plant and material; 110%of the cost of the works, plant and material b) For the loss or damage of equipment: 110% of the cost of equipment c) For the loss or damage to property (except the works , plant , material and equipment) in connection with the contract ; 110% of the cost of property d) For personal Injury or death <i>i. Of the contractors employee: as per applicable by Kenyan Law</i> <i>ii. Of other people: as applicable by Kenyan law</i>

Conditions	Sub-Clause	Data
Minimum amount of third-party insurance	18.3.2	As per applicable Kenyan Law
The place of arbitration	20.7.2	Nairobi, Kenya

SPECIAL CONDITIONS – PART B - PARTICULAR CONDITIONS OF CONTRACT

The Conditions of Contract consist of two main components: the "General Conditions of Contract (GCC)" and the "Special Conditions of Contract (SCC)." The "General Conditions" are provided under Section VIII of the Tender Document, while the "Special Conditions" are provided under Section IX of the Tender Document. The Special Conditions of Contract (SCC) are further divided into two parts; -

1. Special Conditions – Part A - Contract Data, and
2. Special Conditions – Part B - Particular Conditions of Contract

The Clause numbers in Part B - Particular Conditions of Contract correspond to, or are in addition to those used in the General Conditions of Contract (GCC). These Particular Conditions supplement, make explicit, amend or derogate the conditions set out in the General Conditions of Contract (GCC). Under Clause 1.5 of the General Conditions (Priority of Documents), the Special Conditions – Part B (Particular Conditions) shall take precedence over and have priority over the General Conditions in order of interpretation.

The Particular Conditions complement the General Conditions to specify data and contractual requirements linked to the special circumstances of the Procuring Entity, the overall project, and the Works.

Whenever there is a conflict, the provisions herein shall prevail over those in the General Conditions and the Contractor shall be deemed to have allowed for consequential costs and charges necessary for the carrying out and the observance of the provisions of the Clauses as modified and /or amended.

The Clause numbers in the Particular Conditions correspond to those in the General Conditions.

Clause / Sub-Clause	Amendment
5 5.1	NOMINATED SUBCONTRACTORS <i>Add the following Paragraphs at the end of Sub-clause 5.1:</i> 5.1.1 The provisions governing Provisional Sums under Clause 13.6 shall similarly apply, with necessary modifications, to the Prime Cost Sums included in the contract Bills of Quantities. 5.1.2 The nominated sub-contractor shall carry out and complete the sub-contract works in every respect to the reasonable satisfaction of the Contractor and of the Architect and in conformity with all the reasonable directions and requirement of the Contractor. 5.1.4 The Contractor and the nominated sub-contractor shall enter into a sub-contract agreement which provides (inter alia): 5.1.4.1 That the nominated sub-contractor shall observe, perform and comply with all the provisions of this contract on the part of the Contractor to be observed, performed and complied with so far as they relate and apply to the sub-contract works or to any portion of the same. 5.1.4.2 That the nominated sub-contractor shall indemnify the Contractor against the same liabilities in respect of the sub-contract works as those for which the Contractor is liable to indemnify the Procuring Entity under this contract. 5.1.4.3 That the nominated sub-contractor shall indemnify the Contractor against claims in respect of any negligence, omission or default of such subcontractor, his servants or agents or any misuse by him or them of any scaffolding or other equipment, and shall insure himself against any such claims and produce the policy or policies and receipts in respect of premiums paid as and when required by either the Architect or the Contractor. 5.1.4.4 That the sub-contract works shall be completed within the period or (where they are to be completed in parts) periods therein specified. 5.1.4.5 That the Contractor shall not without the written consent of the Architect, grant any extension of time for the completion of the sub-contract works or any section thereof, and that the Contractor shall inform the Architect of any representation made by the nominated sub-contractor as to the cause of any delay in the progress or completion of the sub-contract works or any section thereof.

5 5.1	5.1.4.6 That if the nominated sub-contractor shall fail to complete the sub-contract works or (where the sub-contract works are to be completed in sections) any section thereof, within the period therein specified or within any extended time granted by the Contractor with the written consent of the Architect and the Architect certifies in writing to the Contractor that the same ought reasonable so to have been completed, the nominated sub-contractor shall pay or allow to the Contractor either a sum calculated at the rate therein agreed as liquidated damages for the period during which the said works or any section thereof, as the case may be, shall so remain or have remained incomplete or (where no such rate is therein agree), a sum equivalent to any loss or damage suffered or incurred by the Contractor and caused by the failure of the nominated sub-contractor as aforesaid. 5.1.4.8 That the Contractor shall retain from the sum directed by the Architect as having been included in the calculation of the amount stated as due in any certificate issued under Clause 14.0 of these conditions in respect of the total value of work, materials or goods executed or supplied by the nominated sub- contractor the percentage of such value named in the Special Conditions (Part A) as the Percentage of Retention. 5.1.4.9 That the Procuring Entity, the Architect, and other agents of the Procuring Entity, shall have a right of access to the workshops and other places of the nominated sub-contractor where work is being prepared as provided for in Clause 7.3 of these conditions. 5.1.5 The Architect shall direct the Contractor as to the total value of the work, materials or goods executed or supplied by a nominated sub-contractor included in the calculation of the amount stated as due in any certificate issued under clause 14.0 of these conditions and shall forthwith inform the nominated sub-contractor in writing of the amount of the said total value. The sum representing such total value shall be paid by the Contractor within seven days after receipt by the Contractor of the sum to which the Contractor shall be entitled by virtue of the certificate less only; 5.1.5.1 Any retention money which the Contract may be entitled to deduct under the terms of the sub-contract, and 5.1.5.2 Any sum to which the Contractor may be entitled in respect of delay in the completion of the sub-contract works or any section thereof, and 5.1.5.3 Amounts already paid under previous certificates. 5.1.6 Where applicable, the Architect may, with the consent of the Procuring Entity, certify and authorize payments to Nominated Subcontractors that diverge from the milestones outlined in the Schedule of Payments. Subsequent Certificates shall be adjusted to account for amounts previously certified in the preceding or divergent Certificates. 5.1.7 Prior to issuing any Certificate as per Clause 14.0 of these conditions, the Architect may require the Contractor to provide reasonable evidence that all amounts included in previous certificates as due to any nominated subcontractor have been appropriately paid. If the Contractor fails to fulfill such a request, the Architect may advise the Procuring Entity to directly pay the owed amount to the relevant nominated subcontractor and deduct it from any sums due or to become due to the Contractor. 5.1.8 Should any nominated subcontractor fail to complete the subcontract works within the stipulated period, or within any extended time granted by the Contractor with the written consent of the Architect, the Architect shall certify in writing if completion could reasonably have been expected. Upon issuance, the Architect shall promptly provide a copy of such certification to both the nominated subcontractor and the Procuring Entity. 5.1.9 The Contractor may be permitted to tender any of the works for which Prime Cost Sums are included in the contract Bills of Quantities but without prejudice to the Procuring Entity's right to reject the lowest or any tender.
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Clause / Sub-Clause	Amendment
	5.1.10 If a nominated sub-contractor terminates the sub-contract or the Contractor terminates the sub-contract on the advice of the Architect, the Procuring Entity shall make a further nomination of a sub-contractor as may be necessary to carry out and complete the work left incomplete by the sub-contractor whose employment has been terminated. Any additional costs arising therefrom shall be borne by the Procuring Entity. 5.1.11 Notwithstanding the above, the Architect may instruct, with the consent of the Procuring Entity and the Contractor, that the incomplete work shall be executed by the Contractor and such instruction shall be deemed to be a variation to the contract. 5.1.12 Provided that where a nominated sub-contractor terminates the sub-contract as a result of a default by the Contractor, or the Contractor terminates the sub-contract without the written advice of the Architect, the Contractor shall be liable to the Procuring Entity for any additional costs arising therefrom. 5.1.13 Where a nominated sub-contract provides a defect liability period which extends beyond the Contractor's defects liability period, the Contractor's obligations and liabilities in connection with the defects of the nominated sub-contract shall nevertheless terminate at the end of the Contractor's defects liability period. The remaining portion of the nominated sub-contractor's defects liability period shall be subject to a direct agreement between the Procuring Entity and the nominated sub-contractor and shall not form part of this agreement. 5.1.14 Where a sub-contractor is required to give a guarantee or warranty relating to the sub-contract works such guarantee or warranty shall be assigned by the sub-contractor to the Procuring Entity. 5.1.15 The employment of a nominated sub-contractor under these conditions shall terminate forthwith upon the termination (for any reason) of the Contractor's employment under the contract. 5.1.16 Neither the existence nor the exercise of the foregoing powers nor anything else contained in these conditions shall render the Procuring Entity in any way liable to any nominated sub-contractor

SECTION X - CONTRACT FORMS

FORM No. 1 - NOTIFICATION OF INTENTION TO AWARD

FORM NO. 2 – REQUEST FOR REVIEW

FORM No. 3-LETTEROF AWARD

FORM No. 4 - CONTRACT AGREEMENT

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

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

FORM No. 7 - ADVANCE PAYMENT SECURITY

FORM No. 8 - RETENTION MONEY SECURITY

FORM No 1: NOTIFICATION OF INTENTION TO AWARD OF CONTRACT

This Notification of Award shall be sent to each Tenderer that submitted a Tender and was not successful. Send this Notification to the Tenderer's Authorized Representative named in the Tender Information Form on the format below.

FORMAT

1. For the attention of Tenderer's Authorized Representative

- i) Name: *[insert Authorized Representative's name]*
- ii) Address: *[insert Authorized Representative's Address]*
- iii) Telephone: *[insert Authorized Representative's telephone/fax numbers]*
- iv) Email Address: *[insert Authorized Representative's email address]*

[IMPORTANT: insert the date that this Notification is transmitted to Tenderers. The Notification must be sent to all Tenderers simultaneously. This means on the same date and as close to the same time as possible.]

2. Date of transmission: *[email]* on *[date]* (local time)

This Notification is sent by *(Name and designation)* _____

3. Notification of Award

- i) Procuring Entity: *[insert the name of the ProcuringEntity]*
- ii) Project: *[insert name ofproject]*
- iii) Contract title: *[insert the name of thecontract]*
- iv) ITT No: *[insert ITT reference number from ProcurementPlan]*

This Notification of Intention to Award (Notification) notifies you of our decision to award the above contract. The transmission of this Notification begins the Standstill Period. During the Standstill Period, you may:

4. Request a debriefing in relation to the evaluation of your tender by submitting a Procurement-related Complaint in relation to the decision to award the contracts.

a) The successful tenderers

i) Name of successful Tender _____

ii) Address of the successful Tender _____

iii) Contract price of the successful Tender Kenya Shillings _____
(in words _____)

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

c) OtherTenderers

Names of all Tenderers that submitted a Tender. If the Tender's price was evaluated include the evaluated price as well as the Tender price as read out.

SNo	Name of Tender	Tender Price as read out	Tender's evaluated price (Note a)	One Reason Why Not Evaluated
1				
2				
3				
4				
5				

(Note a) State NE if not evaluated

5. How to request a debriefing

- a) DEADLINE: The dead line to request a debriefing expires at midnight on *[insert date]* (local time).
- b) You may request a debriefing in relation to the results of the evaluation of your Tender. If you decide to request a debriefing your written request must be made within three (5) Business Days of receipt of this Notification of Intention to Award.
- c) Provide the contract name, reference number, name of the Tenderer, contact details; and address the request for debriefing as follows:
 - i) Attention: *[insert full name of person, if applicable]*
 - ii) Title/position: *[insert title/position]*
 - iii) Agency: *[insert name of Procuring Entity]*
 - iv) Email address: *[insert email address]*
- d) If your request for a debriefing is received within the 3 Days deadline, we will provide the debriefing within five (3) Business Days of receipt of your request. If we are unable to provide the debriefing within this period, the Standstill Period shall be extended by five (3) Days after the date that the debriefing is provided. If this happens, we will notify you and confirm the date that the extended Standstill Period will end.
- e) The debriefing may be in writing, by phone, video conference call or in person. We shall promptly advise you in writing how the debriefing will take place and confirm the date and time.
- f) If the deadline to request a debriefing has expired, you may still request a debriefing. In this case, we will provide the debriefing as soon as practicable, and normally no later than fifteen (15) Days from the date of publication of the Contract Award Notice.

6. How to make a complaint

- a) Period: Procurement-related Complaint challenging the decision to award shall be submitted by midnight, *[insert date]* (local time).
- b) Provide the contract name, reference number, name of the Tenderer, contact details; and address the Procurement-related Complaint as follows:
 - i) Attention: *[insert full name of person, if applicable]*
 - ii) Title/position: *[insert title/ position]*
 - iii) Agency: *[insert name of Procuring Entity]*
 - iv) Email address: *[insert email address]*
- c) At this point in the procurement process, you may submit a Procurement-related Complaint challenging the decision to award the contract. You do not need to have requested, or received, a debriefing before making this complaint. Your complaint must be submitted within the Standstill Period and received by us before the Standstill Period ends.
- d) Further information: For more information refer to the Public Procurement and Disposals Act 2015 and its Regulations available from the Website www.ppra.go.ke.

You should read these documents before preparing and submitting your complaint.

- e) There are four essential requirements:
 - i) You must be an 'interested party'. In this case, that means a Tenderer who submitted a Tender in this tendering process and is the recipient of a Notification of Intention to Award.
 - ii) The complaint can only challenge the decision to award the contract.
 - iii) You must submit the complaint within the period stated above.
 - iv) You must include, in your complaint, all of the information required to support your complaint.

7. Standstill Period

- i) DEADLINE: The Standstill Period is due to end at midnight on [*insert date*] (local time).
- ii) The Standstill Period lasts ten (14) Days after the date of transmission of this Notification of Intention to Award.
- iii) The Standstill Period may be extended as stated in paragraph Section 5(d) above.

If you have any questions regarding this Notification please do not hesitate to contact us. On behalf of the Procuring Entity:

Signature: _____

Name: _____

Title/position: _____

Telephone: _____

FORM NO. 2- REQUEST FOR REVIEW

FORM FOR REVIEW (r.203(1))

PUBLIC PROCUREMENT ADMINISTRATIVE REVIEW BOARD

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

BETWEEN

.....APPLICANT

AND

.....RESPONDENT (Procuring Entity)

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

REQUEST FOR REVIEW

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

- 1.
- 2.

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

- 1.
- 2.

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

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

SIGNED

Board Secretary

FORM NO 3: LETTER OF AWARD

letterhead paper of the Procuring Entity]

[date]

To: *[name and address of the Contractor]*

This is to notify you that your Tender dated *[date]* for execution of the *[name of the Contract and identification number, as given in the Contract Data]* for the Accepted Contract Amount *[amoun tin numbers and words]* *[name of currency]*, as corrected and modified in accordance with the Instructions to Tenderers, is here by accepted by..... *(name of Procuring Entity)*.

You are requested to furnish the Performance Security within in accordance with the Conditions of Contract, using, for that purpose, one of the Performance Security Forms included in Section VIII, Contract Forms, of the Tender Document.

Authorized Signature:

Name and Title of Signatory:

Name of Procuring Entity:

Attachment: *Contract Agreement*:

FORM NO 4: CONTRACT AGREEMENT

THIS AGREEMENT made the day of..... 20....., between.....
.....of..... (hereinafter “the Procuring
Entity”), of the one part, and..... of..... (hereinafter
“the Contractor”), of the other part:

WHEREAS the Procuring Entity desires that the Work known as..... should be
executed by the Contractor, and has accepted a Tender by the Contractor for the execution and completion of these
Works and the remedying of any defects there in,

The Procuring Entity and the Contractor agree as follows:

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

IN WITNESS where of the parties here to have caused this Agreement to be executed in accordance with the
Laws of Kenya on the day, month and year specified above.

Signed and sealed by..... (for the Procuring Entity)

Signed and sealed by..... (for the Contractor).

FORM NO. 5 - PERFORMANCE SECURITY

[Option 1 - Unconditional Demand Bank Guarantee]

[Guarantor letterhead]

Beneficiary: [insert name and Address of Procuring Entity]

Date: _____[Insert date of issue]

Guarantor: [Insert name and address of place of issue, unless indicated in the letterhead]

1. We have been informed that _____ (hereinafter called "the Contractor") has entered into Contract No. _____ dated _____ with (name of Procuring Entity) _____ (the Procuring Entity as the Beneficiary), for the execution of _____ (hereinafter called "the Contract").
2. Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.
3. At the request of the Contractor, we as Guarantor, here by irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (in words),¹ such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Applicant is in breach of its obligation(s) under the Contract, without the Beneficiary needing to prove or to show grounds for your demand or the sum specified therein.
4. This guarantee shall expire, no later than the Day of², and any demand for payment under it must be received by us at the office indicated above on or before that date.
5. The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months] [one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

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

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

¹The Guarantor shall insert an amount representing the percentage of the Accepted Contract Amount specified in the Letter of Acceptance, less provisional sums, if any, and denominated either in the currency of the Contract or a freely convertible currency acceptable to the Beneficiary.

²Insert the date twenty-eight days after the expected completion date as described in GC Clause 11.9. The Procuring Entity should note that in the event of an extension of this date for completion of the Contract, the Procuring Entity would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee.

FORM No. 6- PERFORMANCE SECURITY

[Option 2– Performance Bond]

[Note: Procuring Entities are advised to use Performance Security – Unconditional Demand Bank Guarantee in stead of Performance Bond due to difficulties involved in calling Bond holder to action]

[Guarantor letterhead or SWIFT identifier code]

Beneficiary: *[insert name and Address of Procuring Entity]*

Date: _____ *[Insert date of issue]*

PERFORMANCE BOND No.: _____

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

1. By this Bond _____ as Principal (hereinafter called “the Contractor”) and _____] as Surety (hereinafter called “the Surety”), are held and firmly bound unto _____] as Oblige (hereinafter called “the Procuring Entity”) in the amount of _____ for the payment of which sum well and truly to be made in the types and proportions of currencies in which the Contract Price is payable, the Contractor and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.
2. WHEREAS the Contractor has entered into a written Agreement with the Procuring Entity dated the _____ day of _____, 20_____, for _____ in accordance with the documents, plans, specifications, and amendments there to, which to the extent here in provided for, are by reference made part here of and are here in after referred to as the Contract.
3. NOW, THEREFORE, the Condition of this Obligation is such that, if the Contractor shall promptly and faithfully perform the said Contract (including any amendments thereto), then this obligation shall be null and void; otherwise, it shall remain in full force and effect. Whenever the Contractor shall be, and declared by the Procuring Entity to be, in default under the Contract, the Procuring Entity having performed the Procuring Entity's obligations there under, the Surety may promptly remedy the default, or shall promptly:
 - a) Complete the Contract in accordance with its terms and conditions; or
 - b) Obtain a tender or tenders from qualified tenderers for submission to the Procuring Entity for completing the Contract in accordance with its terms and conditions, and upon determination by the Procuring Entity and the Surety of the lowest responsive Tenderers, arrange for a Contract between such Tenderer, and Procuring Entity and make a vailable as work progresses (even though there should be a default or a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the Balance of the Contract Price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term “Balance of the Contract Price,” as used in this paragraph, shall mean the total amount payable by Procuring Entity to Contractor under the Contract, less the amount properly paid by Procuring Entity to Contractor; or
 - c) Pay the Procuring Entity the amount required by Procuring Entity to complete the Contract in accordance with its terms and conditions upto a total not exceeding the amount of this Bond.
4. The Surety shall not be liable for a greater sum than the specified penalty of this Bond.
5. Any suit under this Bond must be instituted before the expiration of one year from the date of the issuing of the Taking-Over Certificate. No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Procuring Entity named here in or the heirs, executors, administrators, successors, and assigns of the Procuring Entity.
6. In testimony whereof, the Contractor has here unto set his hand and affixed his seal, and the Surety has caused these presents to be sealed with his corporate seal duly at tested by the signature of his legal representative, this day _____ of _____ 20_____.

SIGNED ON _____ on behalf of _____

By _____ in the capacity of _____

In the presence of _____

SIGNED ON _____ on behalf of _____

By _____ in the capacity of _____

In the presence of _____

FORM NO. 7 - ADVANCE PAYMENT SECURITY

[Demand Bank Guarantee]

[Guarantor letterhead]

Beneficiary: _____ [Insert name and Address of Procuring Entity]

Date: _____ [Insert date of issue]

ADVANCE PAYMENT GUARANTEE No.: [Insert guarantee reference number]

Guarantor: [Insert name and address of place of issue, unless indicated in the letterhead]

1. We have been informed that _____ (hereinafter called "the Contractor") has entered into Contract No. _____ dated _____ with the Beneficiary, for the execution of _____ (hereinafter called "the Contract").
2. Furthermore, we understand that, according to the conditions of the Contract, an advance payment in the sum _____ (in words _____) is to be made against an advance payment guarantee.
3. At the request of the Contractor, we as Guarantor, here by irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (in words _____)¹ upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating either that the Applicant:
 - a) Has used the advance payment for purposes other than the costs of mobilization in respect of the Works; or
 - b) Has failed to repay the advance payment in accordance with the Contract conditions, specifying the amount which the Applicant has failed to repay.
4. A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the advance payment referred to above has been credited to the Contractor on its account number _____ at _____.
5. The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as specified in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that ninety (90) percent of the Accepted Contract Amount, less provisional sums, has been certified for payment, or on the _____ day of _____, 20____, ² _____, ² whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.
6. The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed [six months] [one year], in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee.

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

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

¹The Guarantor shall insert an amount representing the amount of the advance payment and denominated either in the currency of the advance payment as specified in the Contract.

²Insert the expected expiration date of the Time for Completion. The Procuring Entity should note that in the event of an extension of the time for completion of the Contract, the Procuring Entity would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee.

FORM NO. 8 – RETENTION MONEY SECURITY

[Demand Bank Guarantee]

[Guarantor letterhead]

Beneficiary: _____ *[Insert name and Address of Procuring Entity]*

Date: _____ *[Insert date of issue]*

Advance payment guarantee no. *[Insert guarantee reference number]*

Guarantor: *[Insert name and address of place of issue, unless indicated in the letterhead]*

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

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

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

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

²Insert a date that is twenty-eight days after the expiry of retention period after the actual completion date of the contract. The Procuring Entity should note that in the event of an extension of this date for completion of the Contract, the Procuring Entity would need to request an extension of this guarantee from the Guarantor. Such request must be in writing and must be made prior to the expiration date established in the guarantee.

FORM NO. 9 BENEFICIAL OWNERSHIP DISCLOSURE FORM**(Amended and issued pursuant to PPRA CIRCULAR No. 02/2022)****INSTRUCTIONS TO TENDERERS: DELETE THIS BOX ONCE YOU HAVE COMPLETED THE FORM**

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

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

Tender Reference No.: _____ [insert identification no]

 Name of the Tender Title/Description: _____ [insert name of the assignment] to:
 _____ [insert complete name of Procuring Entity]

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

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

Details of Beneficial ownership

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

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

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

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

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

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

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

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

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

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

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

Bidder Official Stamp

REPUBLIC OF KENYA



**MINISTRY OF LANDS, PUBLIC WORKS, HOUSING, AND URBAN
DEVELOPMENT**

STATE DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

BILLS OF QUANTITIES

For

**PROPOSED CONSTRUCTION OF MERU NATIONAL POLYTECHNIC STUDENT
VILLAGE AND ACCOMMODATION IN MERU COUNTY (WITH ASSOCIATED
SOCIAL AMENITIES AND INFRASTRUCTURE)**

TENDER NO.

MLPWHUD/SDHUD/AHP/475/2024-2025

Ministry of Lands, Public Works, Housing, and Urban Development,
State Department for Housing and Urban Development,
P.O Box 30119-00100
Nairobi, Kenya
Tel: +254-020-2713833

**PROPOSED CONSTRUCTION OF MERU NATIONAL POLYTECHNIC STUDENT VILLAGE AND
ACCOMMODATION IN MERU COUNTY (WITH ASSOCIATED SOCIAL AMENITIES AND
INFRASTRUCTURE)**

ITEM	DETAILS OF SITE	PROJECT PARTICULARS
1	Tender No	MLPWHUD/SDHUD/AHP/475/2024-2025
2	Site location	Imenti North, Meru County.
3	Site conditions	
4	Land Size	Approximately 33 Acres
5	Scope	1 no. of hostel block (G+7); 145 no. of quad bed units (580 PAX capacity) 2 no. of study rooms 2 no. of shops 1 no. office 2 no. of food stalls Minimart Laundromat Booths
6	Auxiliary Facilities	Guardhouse, garbage receptacles and a powerhouse
7	External works	Roads & parking, Civil works (sewer & Storm water reticulation), Underground water tank
8	Built area in Square meters	6,002

GENERAL SPECIFICATIONS

SPECIFICATIONS

Reference is made to the General Specifications for Building Works (1976) by the Ministry of Works, Housing and Physical Planning.

A copy is available for perusing at the request of the procuring entity.

Contractors are required to adhere to the latest industry standards as outlined in the most recent version of KS (Kenyan Standards). Failure to comply may result in project delays or financial penalties. It is the responsibility of the Contractor to stay informed about and apply the current industry standards throughout the construction process. Any disputes arising from non-compliance with updated standards will be subject to resolution through dispute resolution mechanism outlined in the contract.

PREAMBLES

BILL NO. 1: PREAMBLES

EXCAVATION AND EARTHWORK

Nature of Excavation

- A. The Contractor must ascertain for himself the nature of the materials to be excavated and price the work accordingly as no allowance will be made beyond the Contract Sum for any alleged ignorance in this respect.

Site Clearance

- B. The Contractor shall clear the construction areas within the site of all bushes, roots, brush, boulders, natural obstructions, rubbish and any other natural or artificial obstructions which would interfere with construction of buildings, roads, paths and drains.
- C. Clear away all anti/termite hills and nests over the area of the site, excavate for, locate and destroy queens.
- D. Treat the cavity formed by the removal of the nest as described hereinafter under "Soil Sterilization" and backfill with approved material well rammed and consolidated in layers not exceeding 300 mm thick.
- E. All areas of the site must be thoroughly proofed against rodents and special care must be taken to ensure that no unconsolidated areas are left near banks and ditches.

Commencing Levels

- F. Unless specifically stated otherwise the commencing levels for excavation shall be deemed to be existing ground level or underside of reduced level excavation.
- G. All measurements are based upon reduced level excavation being executed first and no adjustment will be made should a differing sequence of operations be adopted, unless specifically ordered by the Architect in writing.

Excavations

- H. Excavations shall be to the widths and depths indicated the drawings or to such lesser or greater depths as the Architect may deem necessary and so instruct the Contractor in order to obtain satisfactory foundations.
- J. Any difference in the quantity of works actually executed under such instructions and that provided in the Bills of Quantities shall be measured and valued by the Quantity Surveyor as a variation under the relevant Conditions of Contract.

- A. If, however, the Contractor excavates to any greater depth or widths than are shown on the drawings or directed by the Architect, then the Contractor shall at his own expense fill in such extra depths and widths with concrete similar to that described for foundations to the satisfaction of the Architect.

Bottoms to Excavation

- B. The Contractor shall report to the Architect as and when a secure bottom to the excavations has been obtained and the same is ready to receive concrete. Any excess depth unnecessarily excavated below the formation level shall be backfilled with and compacted as directed by the Architect and no payment shall be made for excess excavation or for the fillings & compaction

- C. Any concrete or other work put in before excavations have been inspected and approved shall, if so directed, be removed and new work substituted after excavations have been approved all at the Contractor's expense.

- D. If so directed, the Contractor shall water and well ram the bottoms of excavations to the satisfaction of the architect.

Measurement of Excavation Work

- E. Excavation work is measured net as before digging and the Contractor must allow for increase in bulk after digging.

Trenches for pipes, cables kerbs, etc., other than drain pipes

- F. Prices for excavation of trenches for pipes, cables, kerbs, etc., shall include for grading and ramming bottoms to the levels required, all necessary planking and strutting, carefully returning, filling and ramming selected excavated materials and for carting away any surplus materials.

Rock

- G. Any rock or other hard materials encountered in excavating to the required depth which, in the opinion of the Architect, can only be removed by wedges or compressor plant shall be paid for as an extra and the price shall include for trimming and levelling. No blasting will be allowed. Hard compacted murram which can be removed by pick will not be classed as rock notwithstanding that the Contractor may decide to remove it by wedges or compressor plant.

- H. The Contractor must give notification to the Architect or his representative when such material is encountered and its extent must be agreed with Architect or Quantity Surveyor or their authorised representative before the work is carried out. No allowance will be made for rock excavation unless the foregoing procedure has been followed.

Rates for Excavation

- I. The rates for excavation shall include for excavating by hand or machine in all types of materials except rock, as previously specified.

- A. Excavations for plain concrete foundations have been measured to the **net sizes** required by concrete dimensions.
- B. An allowance for working space and formwork has been measured to reinforced concrete foundation, but if the Architect's approval is given to pouring concrete against the face of the excavations these items will be measured and adjusted in the Final Account.
- C. The rates for excavation must include for such excavating in all types of ground encountered including sand, murram, hard murram, tree roots and loose boulders.

Levelling

- D. No item is measured for levelling and consolidating ground and rates for excavations must include for levelling and preparing the ground for concrete or other works including ramming or rolling.

Disposal of Water

- E. The Contractor shall keep the excavations free from standing water and silt (or excavated materials softened by water) and he shall include for the cost of pumping, construction of temporary drains, soakaway pits, etc., as deemed necessary to achieve this. An item has been included for this in the Bills of Quantities in each relevant section. The cost of pumping to dispose of any spring or running water has been covered by Provisional Sum. If spring or running water is encountered, the cost of any pumping ordered by the Architect will be paid for in accordance with the Dayworks Schedule.

Planking and Strutting

- F. Sides of all excavations must be supported in order to prevent falls from or collapse of the earth face. The term "planking and strutting" is deemed to include any method or methods which the Contractor elects to adopt, uphold, protect and maintain the sides of excavations. The Contractor will be responsible for any consequences of his failure in this respect including clearing away fallen materials and any extra concrete or other works including formwork ordered by the Architect due to such failure. An item has been included in these Bills of Quantities in each relevant section.

Return, Fill in and Ram

- G. Material returned around foundations externally shall be selected hard, dry excavated materials arising from the excavations free from vegetable soil, roots and rubbish carefully filled in, spread, watered and compacted in layers not exceeding 200 mm thick. Backfilling internally shall be hardcore, or selected hard dry granular materials as above to approval.

- H. No excavations or foundation work shall be filled in or covered up until all measurements necessary for the adjustment of variations have been made. Walling shall not be built upon the foundations until four days after deposition of concrete.

Cart Away

- A. All surplus excavated material, where so directed, and all rubbish is to be removed from the site and the Contractor is to find his own dump and pay all charges.

Approval Before Filling

- B. No fill materials shall be placed before approval has been given by the Architect for filling to begin.

Measurement of Filling Generally

- C. Filling is measured net as after consolidation.

Earth Filling

- D. Levels specified to be made up with surplus soil, etc., are to be filled in with selected soil free from vegetable growth to the approval of the Architect and is to be laid in layers not exceeding 200 mm thick, each layer to be levelled, well rammed and consolidated and watered if necessary.

Hardcore Filling

- E. Hardcore shall consist of clean hard broken stone or rubble graded to pass in all directions a 100 mm ring with sufficient sand added to fill the interstices. The hardcore shall be well packed, rammed and where possible, rolled with a heavy roller. Where rolling is impossible compaction shall be by hand or by mechanical tampers. Before any concrete is laid on hardcore, the hardcore shall be levelled and blinded with sand, rolled and well watered through a sprinkler rose.

Borrow Pits

- F. No borrow pits will be allowed to be opened on the site

Soil Sterilization

- G. Anti-termite treatment is to be carried out using one of the chemicals below and the Contractor will be required, upon completion of the soil sterilization, to furnish a written guarantee certifying the following:-

- (a) That the chemicals applied comply with the requirements specified herein for chemical concentration and rates of application.
- (b) That the treatment will remain effective against termite infestation for a period of five years.
- (c) Application shall not be done whilst its raining or to surface of filling which are wet, and strictly in accordance to manufacturer's instructions

Soil Sterilization

- A. The chemicals used shall be one of the following:-

- 5 Termicide A; 1 part to 45 parts water
- 7 Pentachlorophenol; 5% in oil solution
- 8 Trichlorobenzene; 1 part to 3 parts oil

- B. Some of the chemicals listed above are toxic to animals and plant life and must, therefore, be applied only with caution by an experienced person. Where individual water supply systems are proposed, precautions must be taken to prevent infiltrating and endangering the water supply. Treatment shall not be made when soils or fill is excessively wet or immediately after heavy rains.

- C. Precautions must also be taken to prevent disturbance of the treatment by animals or human contact with the treated soil. The treated areas are to be covered as quickly as possible after treatment.

- D. The rate of applications is to be 7 litres per square meter and the areas measured include those under floor and around wall and column foundations.

CONCRETE WORK

Code of Practice for Reinforced Concrete Work

- A. All workmanship, materials and tests in connection with reinforced concrete work are to be conformity with B.S. Code of Practice B S 8110 : 1985 - The Structural Use of Concrete.

Generally

- B. A competent person shall be employed whose first duty it will be to supervise all stages in the preparation and placing of concrete. All cubes shall be made and site tests carried out under his direct supervision.
- C. All materials which have been damaged, contaminated or have deteriorated. or which do not comply in any way with the requirements of the specification, shall be rejected and shall be immediately removed from the site.
- D. No materials shall be stored or stacked on suspended floors without the Engineer's prior approval.

Samples

- E. Samples of all materials are to be submitted for approval of the Engineer at least one week before it is desired to commence deliveries. All condemned materials are to be removed from the site within 24 hours.

Cement

- F. Cement used shall be ordinary Portland cement and shall be obtained only from manufacturers approved by the Engineer, and shall comply in every respect with B.S. 197-1. The Contractor at his own expense may use rapid hardening Portland Cement (to B.S. 197-1) in order to speed up progress of the Works. If rapid hardening Portland Cement is used, the prior approval of the Engineer shall be obtained in writing.
- G. Each consignment of cement shall be accompanied by the manufacturer's certificate showing that a representative sample of the consignment has been tested and complies with the appropriate specification. From time to time as requested by the Engineer, copies of the cement manufacturer's test certificates shall be delivered to the Engineer or his representative on the site promptly, but such documents shall not preclude the Engineer from rejecting any cement which does not in every way comply with the specification.

Cement Storage

- H. The cement must be delivered in the manufacturer's sealed and branded bags and stored separately in dry, water-tight stores with their floors raised above ground level and shall be at all times carefully protected from moisture.
- J. The cement shall be stored in such a way that each consignment may be identified and used in the order of its delivery. Cement may be delivered in bulk containers provided additional suitable arrangements are made for bulk storage on site to the approval of the Engineer.

Inferior Cement

- A. Any cement which has failed to pass the tests or has been damaged by water or contaminated in any way on site shall immediately be put into bags and removed from the site.

Aggregate

- B. Aggregates shall be granite or other equal and approved obtained from an approved source and shall comply with B.S. 1260. They must be chemically inert, strong, hard, durable, free from adhering coating, salts, organic or other impurities and shall be washed or screened as directed.

Fine Aggregate and Sand

- C. Fine aggregate and sand shall be clean, sharp, coarse, hard siliceous materials and equal at all times to the samples which shall be deposited with and approved by the Architect or Engineer. It shall comply with the requirements of B.S. 1260, Table 2, Zones 1,2 or 3. The caustic soda tests for organic impurities shall show a colour not deeper than that of the standard solution. The settling test for natural sand shall be made and after being allowed to settle for three hours the layer of silt deposit on the coarse materials shall not exceed 10% for crushed stone and 3% for natural sand or crushed gravel.
- D. The Contractor shall supply all necessary equipment for testing of fine aggregate and sand for use of the Clerk of Works.

Coarse Aggregates

- E. Coarse aggregates shall be granite from approved quarries, clean, free from earth and extraneous matter, and shall conform to B.S. 1260. The amount of fine particles occurring in a free state or as loose adherent shall not exceed 1% when determined by the laboratory sedimentation test.
- F. After twenty-four hours in water, a previously dried sample shall not gain more than 1`0% in weight for crushed stone or 3% for natural sand or crushed gravel
- G. The four nominal aggregate sizes shall be 40 mm (1.5"): 20 mm (.75"): 10 mm (3/8"): 6 mm (1/4") : and the grading when analyzed as described in B.S. 812 shall be within the limits given in B.S. 1260.

Aggregate Storage

- A. Each grade of aggregate shall be stored in the works in separate heaps so that there shall be no possibility of any inter-mixing. Any materials which have become inter-mixed shall be removed from the site forthwith by the Contractor.
- B. The materials shall be stored on a timber or concrete floor and the piles shall be as large as possible, flat topped and drained.

Water

- C. All water used on the Works shall be clean, free from earthy vegetable and organic matter and from acidic and alkaline substances in suspension or solution. It shall preferably be obtained from the water mains of the Ministry of Water and Energy Department or Water Authority and shall be stored in proper water storage tanks to the approval of the Architect or Engineer. Any approved water shall be tested in accordance with B.S. EN 1008.

Admixtures

- D. Admixtures of any kind for accelerating the setting of cement, plasticiser, hardeners, water proof etc., shall be used only if approved or specified by the Architect or Engineer.

Proportion of Concrete Mix

- E. The quantity of cement shall be measured by weight and each batch of concrete is to use one or more whole bags. The quantity of fine aggregate and coarse aggregate shall be measured separately by weight in an approved weight batching plant. Volume mixing will not be permitted. The weight of damp aggregates must be adjusted to take into account the weight of water in the aggregates, and must be adjusted to take into account the weight of water in the aggregates, and this in turn will affect the amount of water to be added into the mix.

- F. Throughout the carrying out of the Contract "Work Tests" are to be made from concrete drawn from newly laid concrete or concrete about to be placed in position, such cubes being made when directed by the Clerk of Works and in his presence. Such cubes shall be made in 150 mm or six inch cube steel or cast from mould and shall be marked and cured strictly in accordance with Appendices of the Code of Practice, and shall be forwarded carriage paid in time for testing at the required age to a testing laboratory to be nominated by the Architect or Engineer.

- G. Six cubes shall be made on each occasion, and cured in compliance with B.S. 1881 Part 3, 1983 concrete for each cube being from a different batch. Three cubes shall be forwarded in time for testing at the age of seven days from casting and three cubes in time to testing in twenty-eight days. Each cube shall be marked with the date of casting and a distinctive reference number in accordance with a system agreed by the Engineer. A record shall be kept of the position from which the concrete for each set of cube was drawn, or to which it was about to be placed.

Concrete Work Cont'd

- A. At least three sets of six cubes shall be cast during each week concrete is being cast including sets of cubes for each quality of concrete used during the period.
- B. Concrete is required to have the properties and give the strength in Newtons per square millimetre as set out in the table below which is to be considered as the minimum standard that will be accepted in the finished Works.
- C. The workability of the fresh concrete should be such that concrete is suitable for handling, placing and compaction so that it surrounds the reinforcement, tendons and ducts and completely fills the formwork.

Grade	Quality	Maximum size of coarse aggregate	Maximum Water Cement Ratio by weight of Aggregate	Minimum Crushing Strength of Works Test Cubes	
				7 days	28 days
30	1:1:2	20	0.45	30	36
25	1:1.5:3	20	0.55	21	26
25	1:1.5:3	10	0.55	21	26
20	1:2:4	20	0.60	14	21
20	1:2:4	10	0.60	14	21
15	1:3:6	10	0.60	-	12
10	1:3:6	10	0.60	8	10
7	1:4:8	40	0.60	-	7
-	1:10	All in Aggregate		-	-

- If the strengths required in the table are not attained and maintained throughout the carrying out of the Contract, the Contractor will be required to increase the proportion of cement or substitute better aggregate at his own cost so as to give concrete which does comply with the requirements of this Clause. The Contractor may be required to remove and replace at his own cost any concrete which fails to attain the required strength as ascertained by the Works Cube Tests.
- D.

Unsatisfactory Concrete Work

- Should in the opinion of the Engineer any of the results of the specified tests of concrete or materials be unsatisfactory, the Engineer may order the work to be stopped pending his further instructions. Executed work for which test cubes are unsatisfactory shall be liable to rejection and, if so directed by the Engineer, the work represented by the tests shall be cut out and re-executed at the Contractor's expense.
- E.

- A. In the case of seven day Works Cube Tests proving unsatisfactory, the work may be stopped, but shall not be liable to rejection until the result of the twenty-eight day test is known.

- B. In the event of the results of the twenty-eight day Works Cube Tests proving unsatisfactory, the work represented shall be immediately liable to rejection. The Contractor may, however, be given the option of cutting three specimens from the completed work subject to the direction of the Engineer, and preparing therefrom test cubes or cores Tests in accordance with the requirements of Part 4 of B.S. 1881 Part 3, 1983, which shall be sent to the Testing Laboratory for testing as for Works Cube

- C. Should the average strength of these specimens attain the specified minimum twenty-eight day strength, the work will, subject to the Engineer's discretion be accepted. Alternatively, the Engineer may instruct the Contractor to make a loading test as described hereinafter. The cost of all cutting, preparation of specimens, testing and making good the portions of the structure affected, shall be borne by the Contractor. The cost of all delays on site due to concrete not attaining the desired strength, or caused by investigation of defects, cutting away and making good, shall be entirely the Contractor's responsibility.

Structural Test

- D. If, in the Engineer's opinion, there is a doubt as to the strength of a structure, solely or in part, for the reason that the site-made concrete cubes fail to attain the specified fail, the Contractor shall be reimbursed for the cost of the test. If the result of the test is not satisfactory, the Contractor shall bear the cost of the test and the cost of correcting any defects in accordance with the instructions of the Engineer, strength, or because of one or more circumstances attributable to alleged negligence on the part of the Contractor to make a loading test on the Works or any part thereof. The nature of the test and the loading shall be in accordance with Clause 605 of C.P. 114. If the result of the test is satisfactory, except where the test has been made because test cubes

Formwork

- E. The formwork shall be so constructed as to remain sufficiently rigid during the placing compaction of the concrete and shall be sufficiently tight to prevent loss of liquid from the concrete. Vertical strutting shall be carried down to such construction as is sufficiently strong to afford the required support without injury. All rubbish, chippings, shavings and sawdust shall be removed from the interior of the forms before the concrete is placed, and suitable washout holes shall be provided to facilitate this, and the formwork in contact with the concrete shall be clean and thoroughly wetted and treated with the approved mould oil. Care shall be taken that such oil is kept out of contact with the reinforcement and shall be used sparingly as possible. In no circumstances shall forms be struck until the concrete reaches a cube strength of at least twice the stress to which the concrete may be subjected at the time of striking, and in any case the minimum permissible times shall be as follows:-

Vertical sides of wall and columns	2 days
Sides of beams and lintels	2 days
Soffits of slabs (Subject to retention of props until 21 days	14 days
Soffits of beams and lintels (Subject to retention of props until 21 days)	14 days

- No formwork is to be removed if, in the opinion of the Engineer, the concrete has not hardened sufficiently. Approval of the Engineer shall not relieve the Contractor of his liability to make good any concrete which may be damaged by premature removal or collapse of forms. Notwithstanding any other clauses in this specification the responsibility for the safe removal of the formwork rests with the Contractor.
- A.
- B. All formwork shall be removed without such shock or vibration as would damage the reinforced concrete.
- C. Forms shall be true to lines and levels and braced and strutted to prevent deformation.
- D. Before placing of the concrete, bolts and fixings shall be in position and cores and other devices used for forming openings, holes pockets, recesses, ducts or other cavities shall be fixed to the shuttering.
- E. Concrete shall not be poured in horizontal layers to a depth exceeding 1500 mm in formwork, except where prior approval of the Engineer has been obtained.
- F. Formwork is measured to the actual net surface of the concrete to be supported and the Contractor shall allow in his prices for any waste, fixing at the various levels, straight cuttings, splayed edges, notchings, fillets to form chamfered arises, extra materials, joints, overleaves for angles, extra labour for narrow widths and small quantities, props, stays, struts, hangers, brackets, edges, wiring, bolts, and everything necessary to keep all quite firm and rigid, and any other labour and materials necessary to fix, ease, adjust and remove the formwork as described.

Normal Finish to Faces of Structural Concrete

- After removal of shuttering, unless instructed to the contrary, the face of exposed concrete is to be rubbed down immediately to remove fins or other irregularities. In the event of parts of the concrete being honeycombed, such portions are to be cut to a depth and shape required by the Engineer and made up with fine concrete of equal quality in such a manner as shall be directed. The face of concrete for which shuttering is not provided, other than slab, is to be smoothed with a wooden float to give a finish equal to that of the rubbed-down surface where shuttering is provided. The top face of a slab which is to not intended to cover with other materials is to be levelled and floated before setting to a smooth finish at the level or falls shown on the drawings or elsewhere. The floating must be carried out in such a way as will prevent an excess of mortar being brought to the surface of the concrete. The top face of a slab intended to be surfaced with mortar, granolithic, or similar materials is to be brushed with a stiff broom while still green to remove any laitance © and to provide a roughened surface.
- G.

Fairfaced Concrete

- A. Where so described or measured, faced of concrete shall be finished fair by means of formwork lined with approved waterproof plywood so as to produce a perfectly true surface and shall have all imperfections in the concrete face cut out, made good in cement mortar and rubbed down with carborundum stone and finally bag rubbed with cement slurry to finish to a high standard without trace of shuttering marks, joints or other disfigurements.

Wrought Boarded Face Formwork to give a Board Mark Finish

- B. Where so described or measured, faces of concrete shall be finished fair by means of 100 mm or 150 mm (nominal) width tongued and grooved boarding of 25 mm (minimum) thickness. The edges of all boards shall be nominal 2 mm chamfer to form controlled fins.
- C. Such formwork to column faces shall be of continuous length boards between construction joints.
- D. End joints will be permitted to beams faces, etc., and shall be tongued, staggered and well distributed.
- E. All imperfections shall be cut out and made good in concrete of equal quality.
- F. The resulting concrete shall show grain and individual board marks, be free from honeycombing and excessive air holes, of uniform colour and to the entire satisfaction of the Engineer.

Wall Ties

- G. Where blockwalls abut columns or solid concrete walls two 6 mm diameter steel reinforcing bar ties are to be cast into the concrete at vertical intervals of 400 mm. Ties to be 300 mm long and project 150 mm into blockwork.

Holes, Pipes Etc.

- H. The Contractor shall be responsible for the co-ordination with sub-contactors for incorporating any electrical conduits pipes, fixing blocks, chases, holes, etc., in the concrete members as required. The Contractor shall submit full details of these items to the Engineer for approval before the work is put in hand. Concrete fixing blocks may be embedded in the concrete provided that the strength or effective cover of any part of the structure is not adversely affected nor the finished work damaged by any movement of the blocks. All fixing blocks, chases, holes etc., to be left in concrete shall be accurately set out and cast with the concrete. No openings, chases, holes or other voids shall be cut or formed in concrete without the approval of the Engineer.

Blinding Concrete

- A. No casting of any concrete on the ground shall take place until the ground has been passed as satisfactory by the Engineer. All ground to carry reinforced concrete shall be covered with a 50 mm minimum blinding layer of concrete 1:4:8. The cover for concrete under reinforcement shall be entirely above the blinding layer.

Mixing

- B. Concrete is to be mixed in a batch mixer of approved type having a drum rotating about a horizontal or inclined axis. The speed of the drum is to be not more than twenty and not less than fourteen revolutions per minute. Each mixer is to be fitted with a water measuring device capable of accurate measurement to one gallon for one cubic yard mixers and pro rate for smaller sizes and so arranged that the accuracy is not affected by variations in the pressure of the water supply line.

- C. The fine and coarse aggregate and the cement are to be mixed for at least four turns of the drum, after which the required amount of water is to be added gradually while the drum is in motion and the concrete then mixed for at least one and a half minutes and until a mix of uniform colour and consistency is attained.

- D. The volume of concrete mixed in any one batch is not to exceed the rated capacity of the mixer.

- E. The whole of the mixed batch is to be removed before materials for a fresh batch enter the drum.

- F. On cessation of work, including all stoppages exceeding twenty minutes, the mixers and all handling plant are to be washed out with clean water.

- G. Concrete mixed as above is not to be modified by the addition of water or otherwise in order to facilitate handling, or for any other purpose.

- H. At least one slump test shall be made each day concreting is in progress under the supervision of the Clerk of Works. The slump shall not exceed 75 mm but at 25 mm slump may be allowed by the Engineer in certain structural members.

Transporting

- J. Concrete is to be handled from the place of mixing to the place of final deposit as rapidly as practicable by the methods which will prevent segregation or loss of ingredients and maintain the required workability. It should be deposited as nearly as practicable in its final position to avoid rehandling.

- K. Concrete shall be placed into the forms from as small a height as possible and shall in no case be dropped from a height of more than 1500 mm except with the approval of the Engineer.

- A. When chuting is used, the inclination of the chute must be such as to allow the concrete to flow without the use of excessive water and without segregation or loss of the ingredients. Details of any proposed chuting plant must be approved by the Engineer before the plant is delivered to the site.
- B. If the Contractor wishes to distribute concrete by means of pumps, full details of the system must be made available to the Engineer for approval.

Placing and Consolidation

- C. The concrete shall be placed before setting has commenced and in any case within thirty minutes from the time the water is added, and must not be subsequently disturbed. Concrete shall be thoroughly compacted during the operation of placing, and thoroughly worked around the reinforcement, around embedded fixtures, and into corners of the formwork. Mechanical vibration with an approved type insertion vibrator shall be used.
- D. The use of mechanical vibration will not relive the Contractor of his responsibility for making good work which may be damaged by excessive or ill-applied vibration.
- E. All methods of placing and consolidation of the concrete are to be such as not to cause any disturbance or movement to the formwork or reinforcement. After being placed in position, the concrete is to be left absolutely undisturbed by any movements or thrusts while setting.

- F. An accurate record is to be kept by the Contractor showing dates and times when various portions of the work were concreted. The concreting foreman must not vary the approved mix or water content without the permission of the representative of the Engineer. it may occasionally be found that in constructed structural members or where the proportion of reinforcement to concrete is high, the workability of the concrete must be increased locally in order to effect full compaction. Such increase in workability shall be achieved by an increase in the cement content of not more than 10% of the concrete by weight in any single batch and must be made only with the approval of the representative of the Engineer.
- G. The workability of the concrete must never be altered by the use of additional water or sand alone.

Construction Joint

- H. The form and location of all construction joints shall be approved by the Engineer before commencement of work.

- A The Centering to form the stop shall be fitted with splay fillets on the concrete face and will be firmly fixed and scribed around the reinforcing steel. If any concrete shall flow past the stop, it shall be hacked off as soon as the concrete has set. Before any new concrete is placed up against the stopped face, the concrete previously placed shall be hacked and scoured with a wire brush to remove the scum. The joint shall then be soaked with water and covered with a sand cement mortar of proportions in the same ratio in the concrete used. In all cases of application of mortar the punning must be adequate to incorporate the mortar in the body of the concrete. In no circumstances shall the concrete be allowed to finish at a break running down a rough slope. Such cases, if found, will be treated as contrary to the specification and the Contractor will be required to cut out the member and re-cast. In the case of horizontal joints, any excess water and laitence shall be removed from the surface after the concrete is deposited and before it has set.

- B Before casting slabs the haunchings or seatings for the slab shall be thoroughly hacked, scoured and washed and covered with at least 5 mm of mortar immediately before the slab is cast.

- C Slabs to be cast using alternate bay construction, maximum size of single panel 40 square meters.

Column Plinths

- D Column kicker plinths 75 mm high not cast monolithically with the beam or slab will be allowed only at the discretion of the Engineer and special precautions must be taken if permission is granted, especially in regard to the quality of the mix used and the curing of concrete.

Curing

- E The curing of the concrete must receive particularly careful attention. The concrete shall be covered with a layer of a sacking, canvas, hessian or suitable absorbent materials, and concrete, formwork and covering kept constantly wet for the first seven days after casting. Foundation concrete must be protected from falling earth and kept free from deleterious substances.

Dimensions of Finished Concrete

- F Except where specially noted, dimensions, levels, sizes, positions, and covers are to be exactly as dimensioned or specified with the following tolerances for concrete cast in situ.

- (a) For sizes of beams or columns, slab or wall thicknesses, not less than specified, nor more than 5 mm above. Dimensions between column faces not to have a greater tolerance than 10 mm.
- (b) For layout positions or dimensions horizontal or vertical 5 mm plus or minus.
- (c) Levels of floor, ceilings, beams, lintels, etc., (top and bottom), 5 mm plus or minus and no surface intended to be horizontal must slope more than 2 mm in 1 meter.
- (d) Errors in plumbing 5 mm plus or minus, and no line or surface intended to be vertical must slope more than 2 mm in 1 meter.
- (e) For cover of concrete around reinforcement 3 mm plus or minus.

Permissible tolerance shall not be cumulative.

Steel Reinforcement

- A. Mild steel rod reinforcement shall comply with B.S. 4449.
- B. High tensile steel rod reinforcement shall be hot rolled deformed steel complying with B.S. 4661 grade 460.
- C. Welded steel fabric reinforcement shall comply with B.S. 4483.
- D. The steel shall be stored so that it is kept clean and reasonably free from rust.
- E. All metal for reinforcement is to be free from loose mill scale, loose rust, oil and grease, or other harmful matter immediately before placing of the concrete.

All reinforcement is to be placed and maintained in the positions shown on the drawings. Some definite method of ensuring the amount of cover required by the designer must be agreed between the Contractor and the Engineer.
- F.
- G. Reinforcement must be bent or straightened in a manner that will not injure the materials, and in accordance with B.S. 4466.
- H. All bars are to be bent cold.
- J. Starter bars are to be positioned accurately.
- K. All crossings of bars are to be securely wired.
- L. Bars at the top of slabs are to have substantial support.
- M. The prices of all rod reinforcement are to include for cutting to lengths and for all bending, hooked ends, etc., and for placing in position with distance pieces where necessary to ensure the rigidity of the bars and for tying together with approved wire in order to prevent displacement during concreting.

The placing of all reinforcement shall be checked by the Engineer and in no circumstances is concrete to be deposited around any steel that has not been passed. At least forty eight (48) hours notice shall be given to the Engineer that reinforcement will be ready for inspection.
- N.
- O. Where bending schedules are provided, the measured weight of reinforcement for purposes of payment will be taken from the bending schedules and the Contractor must make due allowance in his rates for rolling margins and all the foregoing items and labour including cutting to waste from random lengths.

Cover to Reinforcement

- A. The thickness of the concrete cover to reinforcement shall conform in all respects to the B.S. Code of Practice B. S. 8110 : 1995 unless specifically shown on the drawings. Some approved method of ensuring the correct amount of cover shall be used.

Spacing Blocks and Chairs etc.

- B. Properly formed spacing blocks of concrete with wire ties or other approved means shall be securely wired or attached to the reinforcing bars to ensure the maintenance of the proper cover of concrete.

- C. These shall be dense concrete left with a wire brushed surface or dipped in grout before fixing. These blocks are particularly important where the surface of the concrete is exposed to the weather or dampness. The Contractor must ensure that the bars are securely fixed so as to maintain their indicated positions during the progress or pouring, tamping or vibration of concrete. Four chairs per drop are to be provided around columns to hold steel in positions and chairs are to be made up of 12 mm diameter mild steel bars. The cost of all such fixing steel must be allowed for the Contractor in his rates for reinforcement generally.

Precast Concrete

- D. Concrete shall all be cast in properly made strong mould to form shapes required. For work described as "finished fair" the mould shall be lined with sheet iron or other approved material.

- E. The coarse aggregate for precast concrete shall be 10 mm gauge where 1:1.5:3 mix concrete is specified.

- F. The concrete shall be of the mixes described and shall be thoroughly tamped in the mould and shall not be removed from them until seven days after placing the concrete, but the sides may be removed after three days providing the mould are such that the sides are easily removable without damaging the concrete.

- G. The precast work shall be cast under sheds and shall remain under same for seven days in the mould and a further seven days after removal from the moulds. During the whole of this period the concrete shall be shield by sacking or other approved materials and kept wet. It shall then be removed from the sheds and stacked in the open for at least seven days to season.

- H. All precast work shall be in lengths convenient for handling, unless otherwise described.

- J. Prices for precast concrete shall include for all moulds, hoisting and fixing to the levels required, bedding and pointing in cement mortar (1:3) and for finishing exposed faces fair and smooth where so described.

WALLING

Setting out Walling

- A. The Contractor shall provide proper setting out rods and set out all work on same for courses, openings, heights, etc., and shall build the walls and piers etc., to the widths, depths and heights indicated on the drawings and as directed and approved by the Architect.

Cement

- B. Cement shall be described in Concrete Work.

Fine Aggregate

- C. Fine aggregate for concrete blocks shall be as described for fine aggregate in Concrete Work.

Coarse Aggregate

- D. Coarse Aggregate for concrete blocks shall be good, hard, clean aggregates from approved quarries. It shall be free from all decomposed materials and shall be graded up to 10 mm all as described for coarse aggregate in Concrete Work.

Concrete Block

- E. Concrete blocks for walling shall be provided by the Contractor complying with B.S. 2028 Type A, and made in approved block making machines or a composition as follows:-

Portland Cement; 1 Cubic Meter
Fine Aggregate (graded up to 5 mm); 3 Cubic Meters
Coarse Aggregate (graded up to 10 mm); 6 Cubic Meters

- F. Blocks shall be solid or hollow two-hole type as specified and are to be made under sheds erected by the Contractor to the directions and approval of the Architect. In hollow blocks of the volume of the cavities shall be not less than 45% and not more than 50% of the gross

- G. The compressive strength Type A blocks shall be not less than:-

Average of 13 hollow blocks; 5.75 N/mm² gross area
Lowest individual hollow block; 4.0 N/mm² gross area

- The concrete is to be put into the machine's moulds in thin layers and all properly tamped therein. On removal from the machines the blocks are to be carefully deposited on wet the whole time, after which they shall be put out in the open on racks and protected with the approved matting, sacking or straw and kept wet for a further five days, then kept in the same position and under the same mat cover, but without wetting, for a further two days and then left in the open without matting or wetting for a further seven wet the whole time, after which they shall be put out in the open on racks and protected with the approved matting, sacking or straw and kept wet for a further five days, then kept in the same position and under the same mat cover, but without wetting, for a further two days and then left in the open without matting or wetting for a further seven days to season. All blocks must be left with good sharp edges. The blocks for use in the Works shall be 190 mm high and may vary in length from 300 mm to 400 mm and no variation above or below these lengths will be allowed except where required to form proper bonding at corners, round openings, sills, lintels, beams, etc., and the like positions and the Contractor must make or cut blocks to all the varying sizes required for these purposes and include this in his price. days to season. All blocks must be left with good sharp edges. The blocks for use in the Works shall be 190 mm high and may vary in length from 300 mm to 400 mm and no variation above or below these lengths will be allowed except where required to form proper bonding at corners, round openings, sills, lintels, beams, etc., and the like positions and the Contractor must make or cut blocks to all the varying sizes required for these purposes and include this in his price. racks under sheds erected by the Contractor to the direction and approval of the Architect and there left for three days and kept thoroughly
- A.

Bonding Walling

- The blocks shall be properly bonded together in such manner that no vertical joint in any one course shall be within 100 mm of a similar joint in the courses immediately above or below. Sufficient through bonders shall be provided as directed by the Architect. Alternate courses of walling at all angles and intersections shall be carried through the full thickness of the adjoining walls. All walling shall be built up entirely solid in blocks without void, allowance being made for joints 10 mm thick only. All perpend, reveals and other angles of the walling shall be built strictly true and square
- B.

Wall Reinforcement

- Where so specified hollow block walls shall be reinforced vertically with 10 mm diameter mild steel bars built into the cavities of the blocks at 400 mm centres, unless otherwise specified, all bars in walls to have a minimum lap of 350 mm.
- C.
- D. Prices for walling described as reinforced must include for all extra costs involved in slotting blocks over the vertical reinforcement.

Filling of Hollow Blockwork

- All cavities where specified and shown above ground and all cavities below ground level shall be filled in solid with concrete of the mix described and placed and consolidated in sections not exceeding 1190 mm in height.
- E.
- F. In reinforced walls the filling shall be carefully compacted around the reinforcement.

Blocks to be Wetted

- A All concrete blocks and stone walling shall be well wetted before being laid and the top of walling where left off shall be wetted before re-commencing building. Walls to be kept wet three days after building.

Mortar

- B Mortar to be used for all walling work shall be composed of 1 part of Portland Cement to 1 part lime to 6 parts of fine aggregate measured by volume in specially prepared dry on clean and watertight mixing platforms, with water added afterwards from a can with a fine rose until all parts are completely incorporated and brought to a proper consistency and then used within thirty minutes of mixing. gauge boxes and thoroughly mixed
- C No partially or wholly set mortar will be allowed to be used or re-mixed.

Fair Face Walling

- D Where walling is to be finished with a fair face, the concrete blocks are to be selected for freedom from defects and the joints raked out as the Works proceed and flush pointed with a neat joint in cement mortar.

Joints for Walling

- E The blocks shall be bedded and jointed in cement mortar as described with beds and joints 10 mm thick, full flushed up and grouted solid as the work proceeds. Joints shall be raked out where the surfaces or walling are to be plastered.
- F All walling shall be properly protected while mortar is setting as the Architect shall direct.

Building Walling

- G All walls throughout the Works shall be carried up evenly in 12 mm course, no part being allowed to be carried up more than 800 mm higher at one time than any other part and in such cases the jointing shall

Putlog Holes

- H Putlog holes shall be carefully, properly and completely filled up on completion of walling work.

Rough Cutting etc.

- H. The Contractor shall allow in his prices for the walling which is measured net herein, for all ordinary rough cutting, bonding, plumbing angles, forming reveals and fitting up to under side of concrete beams, slabs and lintels etc.

Stone Pitching

- A The ground to receive pitching shall be well compacted and the stones, which shall be flat bedded and not less than 230 mm either way along the bearing surface, shall be punned to the required falls and inclinations so that neither wedges nor spalls are required to keep the pitching rigidly in place. The joints shall be no more than 13 mm thick and shall be solidly filled with 1:3 cement mortar.
- B Stone for pitching shall be coral obtained from approved quarries. It shall be hard, sound, durable and clean.

Stone for Walling

- C Stone for walling shall be from an approved quarry, roughly square and built random and uncoursed in mortar as described. The stone shall be well bonded with a minimum of one good bond or through stone evenly spaced to each square meter. All cavities and joints in stonework are to be filled in and flushed up solid with mortar.
- D Jointing and pointing is as detailed or instructed.

Precast Screen and Louvre Block Walling

- E Precast concrete screen blocks shall be manufactured in concrete of 30.0 N/mm² strength using 10 mm aggregate, the blocks shall be 390 mm and 190 mm long x 190 mm high and 150 mm on bed in accordance with detailed drawings and finished fair on all surfaces and bedded, jointed and pointed in cement mortar with a neat flush joint.
- F Precast concrete louvre blocks shall be of similar concrete, similarly jointed and pointed and constructed to detail drawing.

Damp Proof Course

- G Damp proof courses shall be hessian based bituminous felt to B.S. 743 Type 5A laid on and including a levelling screed of cement and sand and lapped 230 mm at joints.

ROOFING - ASPHALT WORKS

APPROVED SUPPLIER

- A. All materials shall be supplied by a firm approved in writing by the Architect and the works executed by workmen approved by the supplier.

Guarantee

- B. The Contractor shall deposit with the Architect, a written guarantee and undertaking to the effect that during a period of not less than twelve calendar months from and after the certified date of completion of the whole of the works the contractor shall at his own expense make good to the satisfaction of the Architect all and any defects in the asphalt work which shall be attributed to improper materials or faulty workmanship and shall bear the cost of any consequential damage as shall be provided for in such guarantee.

Samples

- C. The Contractor shall when required by the Architect submit samples of any material for testing.

MATERIALS

Asphalt for roofing

- D. Asphalt for roofing shall comply with B.S. 1162 tropicalised mastic asphalt for roofing purposes.

Felt underlay

- E. The underlay shall be saturated "Cabro" sheathing felt complying with B.S. 1162 (or equivalent).

Insulating screeds

- F. Insulating screeds shall consist of lightweight concrete composed of one part Portland Cement and eight parts vermiculite aggregate and shall be covered with 10 mm cement and sand (1:4) screed wood floated to receive asphalt coverings.

WORKMANSHIP

Preparation of surfaces

- A. All surfaces to receive asphalt and other roof coverings are to be dry, wood floated and finished to suppliers specifications.

Laying

- B. Asphalt and other roof coverings shall be laid in bays generally not exceeding 2 m wide and succeeding coats shall be laid at breaking joint. Junctions between bays and fillets shall be properly married the whole being worked so that the joints are neatly made.

- C. Horizontal asphalt for roof coverings shall be 20 mm thick built up into two layers each 10 mm thick. The first layer shall be applied to sheathing felt and the final coat shall be left ready to receive roofing tiles.

Air pockets and stains

- D. Air pockets and stains on the asphalt and other roof coverings will not be permitted and the finished work shall not ring hollow over any parts of its surface.

Joints and fillets

- E. Joints in all asphalt work and other roof coverings shall be carefully made and complete fusion obtained to make them watertight. Fillets shall be run at all internal angles and in at least two operations. Perfectly watertight joints shall be made around pipes passing through walls and floors etc.

Felt underlay

- F. The felt underlay shall be fixed and laid loose or partially bonded in hot bitumen with but joints.

Testing for falls

- G. To ensure that asphalt and other roof coverings have been truly laid to falls, the contractor is to arrange for the roof areas and gutters to be flushed with water in the presence of the Architect. Any defects or depressions in the asphalt or other roof coverings are to be rectified and retested for approval.

CARPENTRY

Terminology

- A. All technical terms shall be as defined in the "Timber Act (amended 2012)".

Timber Generally

- B. The timber for carpentry and joinery shall be specified and obtained from an approved sawmill.
- C. The timber for carpentry shall be Second or Select Grade for strength.
- D. The timber shall be reasonably straight grained.
- E. All timber for the Works is to be purchased immediately the Contract is signed and is to be open-stacked for as long as possible before use or kiln drying.
- F. All timber as it arrives on the site shall be inspected by the Architect, and any timber brought on to the site and not approved must be removed forthwith.
- G. All timber and assembled woodwork shall be protected from the weather and stored in such a way as to prevent attack by termites, insects or fungi.

Species of Timber for Structural Work

- H. The following softwoods shall be used for structural work;

Standard Common Name	Botanical Name
Podo	Podocarpus
Cypress	Cuppressues Lusitanica

- J. Both to be second strength Grade P5 or equivalent. Whilst either timber is suitable, intermixing of species will not be accepted.

- K. The Contractor is permitted to propose substitute species but these shall not be used without the written approval of the Architect and no adjustment shall be made to the basic rates for softwood trusses in the event of a substitute species being accepted.

Insect Damage

- L. All timber shall be free from live borer beetle or other insect attack when brought upon the Site. The Contractor shall be responsible up to the end of the maintenance period for executing at his own cost all work necessary to eradicate insect attack of timber which becomes evident, including the replacement of timber attacked or suspected of being attacked, notwithstanding that the timber concerned may have already been inspected and passed as fit for use.

Seasoning of Timber

- A. All timber shall be seasoned to a moisture content of not more than 18% for carpentry and 15% for joinery. The Contractor's price must include for any kiln drying that may be necessary to achieve these figures.

Pressure Impregnation

- B. The softwood described as pressure impregnated shall be treated with the "Celcure A" "Tanalith C" full cell process. Timber must be seasoned to a moisture content not exceeding 25% before being treated. The treatment shall be to the minimum standard of:-

Solution concentration; 2%

Absorption of preservative; 520 Litres per cubic meter

Net dry salt retention; 10.4 Kg per cubic meter

- C. After treatment, the timber shall be seasoned to the specified moisture content.

- D. Cut ends and faces of timber sawn, drilled and cut after treatment are to be swabbed liberally with approved preservatives until saturated, allowed to dry and then treated with a second coat and rates for timber must include for this. Approved preservatives are: Atlas A; Brunophan Nr 2; Cuprinol Clear or Water Repellant Clear; Ensele Woodtreat 55.

Inspection and Testing

- E. The Architect shall be given facilities for inspection of all works in progress whether in workshops or on site. All timber as it arrives on the site must be inspected by the Architect and any timber brought onto the site and not approved by him must be removed forthwith, failing which he may arrange for the removal of the rejects and dispose of them as he may consider advisable at the Contractor's expense.

- F. Notwithstanding approval having been given above, any timber incorporated in the Works found to be in any way defective before the expiry of the maintenance period shall be removed and renewed at the Contractor's expense. The Contractor is to allow for testing of prototypes of special construction units and the Architect shall be at liberty to select any samples he may require for the purpose of testing, i.e. for moisture content, or identification of species, strength, etc.

- G. Where timbers need to be extended into a wall, they shall be thoroughly "brush treated" with Ensele in addition to preservative treatment as already described above, and as much clear air space maintained around the timber where it adjoins the wall as possible.

Clearing Up

- H. The Contractor is to clear out and destroy or remove all cut ends, shavings and other woodwaste from all parts of the building and the site generally, as the work progresses and at the conclusion of the Work.

Workmanship

- A. All carpentry shall be executed with workmanship of the best quality. Scantlings and boardings shall be accurately sawn and shall be of uniform width and thickness throughout. All carpenter's work shall be left with sawn surfaces except where particularly specified to be wrought.
- B. All carpentry shall be accurately set out in strict accordance with the drawings.
- C. All structural timbers shall be frame or jointed together as is most appropriate in the circumstances in accordance with the rules of good practice. Joints must be executed in strict conformity with the drawings.
- D. All joints shall be secured with a sufficient number of nails disposed as shown on the drawings and rates must include for the jointing of timbers. Surfaces must be in good contact over the whole area of the joint before securing. Holes for nails must be pre-drilled undersize; holes for bolts must be bored slightly over size from both sides of the timber and washers must be used under the nut which must be tightened sufficiently to permanently secure the joint but not to crush the timber.
- E. Actual dimensions of scantlings for carpentry shall not vary from the specified dimensions by more than 3 mm in deficiency or excess but must be uniform throughout. Boards 25 mm thick or less shall hold up to the specified size. All timbers shall be as long as possible and practicable, in order to eliminate joints.

Joints

- F. All nails, screws, bolts, connectors, etc., are to be as specified under "Metalwork" and as shown on the drawings.

General

- A. The provisions contained in the "Carpentry" section shall apply also to the Joinery Section where applicable.

Species of Timber

- B. The following timber of First or Prime Grade for appearance shall be used for Joinery Work in conjunction with the term "softwood" or "approved softwood":-

Standard Name; Botanical Name

Podo (for grounds, etc., only); Podocarpus spp.

African Mahogany; Khaya Nyasica

Mninga, Pterocarpus Angolensis

Iroko (Mvula); Chlorophora excelsa

- C. The following may also be used as "local hardwood" (referred to hereafter) with the Architect's approval:-
Adina; East African Afrormosia; East African Afzelia

Generally

- D. All joinery work shall be accurately set out on boards to full size for the information and guidance of the artisans before commencing the respective works, with all joints, iron work and other work connected therewith full delineated. Such setting out must be submitted to the Architect and approved before such respective works are commenced.

- E. **All joinery work shall be cut and framed together as soon after the commencement of the building as is practicable**, but not to be wedged up or glued until the building is ready for fixing same. Any portions that warp, wind or develop shakes or other defects within six months after completion of the Works shall be removed and new fixed in their place together with all other work which may be affected thereby, all at the Contractor's own expense.

- F. All work shall be properly morticed, tenoned, housed, shouldered, dovetailed, notched, wedged, pinned, bradded, etc., as directed and to the satisfaction of the Architect and all properly glued up with the best quality approved glue.

- A. Joints in joinery must be as specified or detailed, and so designed and secured so as to resist or compensate for any stresses to which they may be subjected. All nails, springs, etc., are to be punched and puttied. Loose joints are to be made where provision must be made for shrinkage; with glued joints where shrinkage need not be considered and where sealed joints are required. Glue for load-bearing joints or where conditions may be damp must be of the resin type. For non-load-bearing joints or where dry conditions may be guaranteed casein or organic glues may be used. All exposed surface of joinery work shall be wrought and all arises "eased-off" by planning and sand-papering to an approved finish suitable to the specified treatment.

Dimensions

- B 3 mm reduction off specified sizes will be allowed for each wrought face except where described as (f) i.e. **finished** size in which case joinery shall hold up to the full dimensions. Dimensions of 25 mm or less shall hold up to the specified sizes.

Fixing Joinery

- C All beads, fillets and small members shall be fixed with round or oval brads or nails well punched in and stopped. All large members shall be fixed with brass screws, the heads let in and pelted to march the grain where natural finish timber is specified.

Mastic

- D Mastic where specified for bedding, joinery, sills, water bars, etc., is to be approved non-hardening plastic, phylsulphide synthetic rubber or butyl composition filler or sealer.

Fiberboard

- E Fiberboard shall be "Celotex" or equal and approved.

Plywood

- F Plywood shall be from an approved source and comply with B.S. 1455, first or second grade, as required and unless otherwise stated shall be "interior" quality. Where veneered plywood is specified, samples must be submitted for prior approval. Where stated to be "exterior" quality, this shall be waterproof (Bonding W.B.P.).

- G Routine tests will be required from time to time to check the quality of manufacture. Plywood used in structural members shall be bonded with a suitable adhesive.

Chipboard

- H Chipboard shall be approved medium density resin bonded wood chipboard equivalent to B.S. 2604 with sanded finish or thickness stated. Where faced with plastic sheeting the chipboard shall be counterbalanced.

Blockboard

- J Blockboard shall be laminated board to B.S. 3444. Where faced with plastic sheeting the blockboard shall be counterbalanced.

Flush Doors

- A. Flush doors shall be from an approved source and manufacture, be hollow / semi-solid core constructed generally in accordance with B.S. 459-2 finished with 6 mm veneer plywood (to Architect's approval) and lipped all round with softwood 12 mm thick.
- B. The thickness stated is the overall finished thickness.

Plastic Sheeting

- C. Plastic sheeting shall be Formica or equal and approved laminated sheeting 1.5mm thick fixed with an approved adhesive. All colours are to be selected by the Architect.

Plugging Walls

- D. All work described as plugged shall be fixed with brass screws to plugs formed by drilling concrete, walls, etc., with a proper tool of suitable size at 500 mm spacings and filling the holes completely with an approved proprietary plugging compound used in accordance with the manufacturer's instructions.

Protect Joinery

- E. All fixed joinery which, in the opinion of the Architect, is liable to become bruised or damaged in any way shall be completely cased and protected by the Contractor until the completion of the Works.

Bottom Edges

- F. Bottom edges of doors shall be painted with one coat of approved primer before fixing .

Mosquito Screening

- G. Mosquito screening shall be "Alcad" or equal and approved aluminium fine wire mesh screening.

Bird Screening

- H. Bird screening shall be approved galvanized coffee tray wire.

Ironmongery

- J. All ironmongery shall be fixed with screws to match. Before the woodwork is painted, handles shall be removed, carefully stored and refixed after completion of painting, and locks oiled and left in perfect working order. Prices for fixing locks must include for organizing masterkeying systems if required and all keys shall be labelled with door references marked on approved labels before handing to the Architect on completion.

STRUCTURAL STEELWORK

Standard of Construction

- A. The whole of the structural steelwork and testing shall comply with the relevant clauses of B.S. 449, B.S 4360; 1980 and B.S. 5940 grade 43.

Fabrication by Specialist Firm.

- B. The steelwork shall be fabricated by a specialist firm or under proper factory conditions to be approved by the Architect.

Contractor to Submit Drawings

- C. The Contractor shall include for the preparation of all shop details from the drawing supplied by the Architect. All such details shall be approved in writing, by the Architect, before the work is put in hand. Every drawing shall show the number and sizes of all rivets and bolts, complete details of welds, type of electrodes, welding procedure, whether the welds are to be made in the shop or elsewhere and any other relevant information.

Accuracy of Drawings.

- D. The Contractor shall be responsible for the correctness of his shop details and for shop fittings and site connections.

Erection Scheme

- E. The Contractor shall submit to the Architect for approval, drawings showing the proposed erection scheme, together with all calculations for erection stresses, etc. The approval by the Architect will not absolve the Contractor in any way from his responsibility.

Dimensions to be Verified

- F. The Contractor shall take the dimensions from the site or buildings and he shall verify all dimensions given on the drawings before the work is put in hand.

Copies of Orders

- G. A copy of all orders for materials shall be supplied by the Contractor to the Architect at the time of ordering, for identification purposes.

Damage

- H. Any damage to materials on the site due to inadequate precautions being taken during the erection of the steelwork shall be made good to the satisfaction of the Architect at the Contractor's expense.

Materials

Quality of Steel

- A. (i) All structural and rivet mild steel shall comply with B.S 4360 Part 2
- (ii) Nil
- (iii) Nil
- (iv) All structural steel tubes shall comply with B.S. 1775 and B.S. 449
- (v) Mild steel and medium tensile steel electrodes for metal-arc welding shall comply with the requirements of B.S 2549.
- (vi) High tensile steel electrodes for metal-arc welding shall comply with the requirements of B.S. 2549.
- (vii) All mild steel bolts and nuts shall have a tensile strength of not less than 432 N per Square Millimetre (28 tons per square inch) and a minimum elongation of 17 percent as defined in Clause 2 of B.S. 916 or in B.S. 2708.
- (viii) All high tensile steel bolts, nuts and washers shall have a minimum tensile strength of 570 N per square millimetre (37 tones per square inch).
- (ix) High strength friction grip bolts and washers shall comply with B.S. 3139, Part 1.
- (x) All plan washers shall be of steel. Tapered or other specially shaped washers shall be made of steel or malleable case iron complying with B.S. 3410. shall be made of steel or malleable case iron complying with B.S. 3410.

Marking of Steel

- B. Each piece of steel shall be legibly marked with the maker's name or trade mark and with cast numbers or identification marks by which the steel can be traced to the cast from which it was made.
- C. For rivet bars and small pieces securely bundled, a metal tag marked with the cast number will be sufficient.

Standard Dimensions

- D. The dimensions and allied requirements of all structural rolled sections shall comply with B.S. 4. The dimensions, weight, tolerances etc., of all rivets, bolts, nuts, studs, etc., shall conform to the following standards. Rivets shall comply with the requirements of B.S. 275 for dimensions
- E. Black bolts, nuts, studs, lock nuts and washers shall comply with the requirements of B.S. 916 for dimensions and with B.S. 1580 for unified black bolts etc.

- A. Turned bolts shall have the shank turned to the specified diameter allowing only a minus tolerance up to 0.13mm (0.005 inch).

Weight of Steel

- B. For the purpose of measurement, the weight of mild steel shall be as given in B.S. 648 which will be the basis for measurement of variations. The weights per meter given on the drawings do not include the shelf angles riveted to webs, nor the plates riveted to the flanges of R.S. Js or other sections.

Conditions of Surfaces

- C. All surfaces of steel work shall be clean, free from loose millscale and loose rust.

Tests and Inspection

- D. Manufacturer's Mill Test Certificates for all structural steel shall be supplied to the Architect as and when required. Where and when directed by the Architect, the Contractor shall take and deliver samples of structural steel for testing to the Employer's Highways and Transportation Testing Station. Should the results of either test be unsatisfactory the whole consignment of steel which the sample represents shall be rejected and shall be replaced by other material of proper quality at the expense of the Contractor.

- E. The Architect or his representative shall at all reasonable times, be given free access to the Works.

Metallic Coatings

- F. Galvanized steelwork shall comply with B.S. 729 Part 1 entirely coated with zincafter fabrication by complete immersion in a zinc bath in one operation and excess carefully removed. The finished surfaces shall be clean and uniform.

- ii) Zinc sprayed steelwork shall comply with B.S. 2569 Part 1. The nominal thickness of zinc coating shall be not less than 0.102 mm (0.004 inches) and at no point less than 0.076mm (0.003 inches).

Generally

- G. The whole of the fabrication and erection of the steelwork shall be carried out in accordance with B.S. 449

Materials (Cont'd)

- A. The welding of steel to B.S. 1962 must conform to: B.S. 1856 - "General requirements for the metal-arc welding of mild steel" or B.S. 2642 - "General requirements for the arc welding of steel to B.S. 968 and similar steel"
- B. For welding any particular type of joint the Contractor shall provide evidence acceptable to the Architect that the welder has satisfactorily completed the appropriate tests as described in B.S. 5950 - 7
- C. Any welder's tests shall be made at the Contractor's expense and shall include the cost of any fees incurred by the Employer for witnessing of, or making such tests.
- D. The right is reserved to make non-destructive tests on the welding to determine if the welding conforms to the standards laid down in either B.S. 1856 or B.S. 2642 as applicable. This will normally consist of radiography on butt welds, ultrasonic examination of fillet welds or other tests as appropriate to the actual configuration of the weld in question.

Rejection

- E. Any portion of the work which, in the opinion of the Architect, is not in accordance with the drawings, or specification shall be rejected whether before or after delivery and must be removed from the site if delivered within 24 hours from receipt of such notice or rejection at the Contractor's expense. Any delay caused by such rejection will not in any way relieve the Contractor from his responsibility with regard to the provisions of the Contract. If any welding is found to be defective the cost of all remedial measures shall be borne by the Contractor, including the cost of re-testing the subsequent inspection of welds as referred to in the P.C. Sum hereafter.
- F. The Contractor is responsible for the good quality of all welding work and no exceptions will be made on the grounds that the Architect or his representative have inspected any part or parts of the work at some stage during production.

Fabrication

- G. As much of the work of fabrication of the steelwork as is reasonably practicable shall be completed in the manufacturer's works. Field connections shall be made in accordance with the approved drawings. The Contractor shall give four day's clear notice of steelwork ready for inspection at the manufacturer's works, to facilitate inspection before delivery.

Cast of Temporary Erection, etc.

- A. Trial erection of principal or other units may be called for at the discretion of the Architect or his representative.
- B. The cost of any necessary temporary erection, testing, packing, marking, carriage and delivery is deemed to be included by the Contractor in the Tender price.

Joints and Connections

- No variation of the number, type or position of the joints or connections shown on the drawings shall be made without the consent of the Architect. If such consent is desired the Contractor shall submit detailed drawings of the proposed joints for the approval of the Architect and no extra cost incurred by reason of such additions or alterations will be allowed to the Contractor.
- C.

Painting at Works

- D. Where described as primed at works, steelwork shall be freed of rust, millscale, welding slag and flux residue and shall be dry immediately prior to painting with primer as Clause Q 14 a.
- E. For joints with high strength friction grip bolts the contact surfaces shall be left unpainted but special care shall be taken after assembly to paint all edges and corners near the joints together with bolt head, nuts and washers to prevent the ingress of moisture.
- F. For joints made with other bolts and rivets the contact surfaces shall each be given a coat of priming paint and for shop connections the contact surfaces shall be brought together while the paint is still wet.
- G. For welded connections where the contact surfaces are not completely sealed the contact surfaces shall be painted to within 50mm of the edges that are to be welded.
- H. The primer shall be touched up with similar primer if damaged by subsequent handling.

METALWORK

Mild Steel

- A. Mild steel shall comply with B.S. 4360 Grade 1 and the sizes of all small sections shall be in accordance with B.S. 4 and 4A.

Galvanized Work

- B. Iron and steel, where galvanized, shall comply with B.S.1461 Part 1 entirely coated with zinc after fabrication by complete immersion in a zinc bath in one operation and all excess carefully removed. The finished surface shall be clean and uniform.

Aluminium

- C. Aluminium shall be of the alloys described in and shall comply with B.S. 485. Aluminium sheet for flashings shall be soft-temper, super purity (S1 or S1A) and not less than 20 s.w.g. (0.9mm) in thickness.

Smithying, Shearing and Cutting

- D. All smithying, welding, cutting and bending shall be soundly and neatly executed, care being taken not to overheat. All flame cut edges and welds shall be neatly ground off on completion.

Bolts

- E. Mild steel bolts, nuts and washers shall comply with B.S. 916 for black bolts with hexagonal heads and nuts. High tensile steel bolts and nuts shall be in accordance with B.S. 3139 Part 1.

Anchor Bolts

- F. Anchor bolts in concrete for steel works etc., are to be self drilling anchor bolts of one of the following types:-

Phillips redhead concrete anchors

Rawlplug super drill anchor

Spit self-drilling anchors

- G. Rates are to include for fixing complete with washer. Mortices in concrete have not been measured for this item.

Shop Inspection

- The Architect shall be granted full facilities and any necessary assistance for inspection of materials and assembled parts in the Contractor's (or his Sub-Contractor's) workshops. At least two weeks notice shall be given to the Architect in writing prior to the despatch of finished components to the site to enable the Architect to inspect and approve the materials and workmanship at the workshops.
- A. Approval of work at the workshop does not relieve the Contractor of this obligations to carry out the work complete at the site to the Architect's satisfaction in accordance with the Contract.

Marking

- B. All components delivered to the site are to be marked in paint with the Mark number in accordance with any shop and erection drawings.

Storage

- C. All components are to be stored at the site in proper racks provided for the purpose which provide full support to each member to obviate any deflection and distortion. Steelwork is to be stored at least 25cm clear of the ground and temporary protection is to be provided for protection against water and damage from any other source.

Erection

- D. Rates for all metalwork are to include for the complete for the complete erection including any temporary supports required and any necessary templates and wedges.

Painting

- E. All steel is to be thoroughly de-rusted and degreased prior to despatch to the site and is to be given one coat zinc chromate primer at the works. Further painting treatment will be carried out at the site. Painting is measured separately and the cost thereof is not to be included in the rates for metalwork.

PLUMBING AND ENGINEERING INSTALLATION

Execution of the Works

- A. The work shall be carried out strictly in accordance with:-
- (a) "British Standard Code of Practice" C.P. 310: 1965: Water Supply
 - (b) "British Standard Code of Practice" C.P. 404: 1968: Sanitary Pipework above ground
 - (c) All other relevant British Standard Specifications and Codes of Practice
 - (d) Bye-laws of the Local Authority
 - (e) The working drawings

Extent of Work

- B. The Contractor will be responsible for all below ground plumbing and drainage work and the installation of the Sanitary Fittings only, the remainder of the Plumbing and Engineering Installation will be executed by a Nominated Sub-Contractor.

Quality of Materials and Workmanship

- C. All materials, equipment and accessories are to be new and in accordance with the requirements of the current rules and regulations where such exist, or in their absence with the relevant British Standard Specification.
- D. Uniformity of type and manufacture of equipment or accessories is to be preserved as far as practicable throughout the whole work.
- E. The Contractor shall, if required by the Architect, submit samples of materials to the Architect for his approval before placing an order.
- F. If in these Preambles the practice is adopted of specifying a particular item as "similar" to that of a particular firm's product, it is to be clearly understood that this is to indicate the type and quality of the equipment required. No attempt is being made to give preference to the equipment supplied by the firm whose name or product is quoted.
- G. Where particular manufacturers are specified herein, no alternative makes will be considered and the Architect shall be allowed to reject any other makes.
- H. The Contractor will be entirely responsible for all materials, apparatus, equipment, etc., furnished by him in connection with his work, and shall take all special care to protect all parts of finished work from damage until handed over.
- J. The work shall be carried out by competent workmen under skilled supervision. The Architect shall have the authority to have any of the work taken down or changed which is executed in an unsatisfactory manner.

Galvanized Steel Tubes and Fittings

- A. Galvanized steel tubing shall comply with B.S. 1387 with plain galvanized malleable fittings complying with B.S. 143/1256.
- B. Tubes and fittings shall be jointed by means of screwed threads to B.S. 21, by means of P.T.F.E., tape or hemp and "Bosswhite". All joints shall be perfectly smooth inside without excrescences.
- C. Where sleeves are required for pipework passing through concrete, blockwork or below concrete slabs, they shall be galvanized steel tube or drain pipes of sufficient diameter to give at least 25mm clearance all round the water main.
- D. Galvanized water mains below ground level or below slabs shall be double wrapped in "Denso" tape.

Brasswork

- E. Stop valves shall comply with B.S. 1010 and shall be with crutch handles or loose keys where so described on the drawings. Draincocks shall comply with B.S. 2879.

Testing

- F. Upon completion the whole of the water main shall be tested to a pressure not less than twice times the working pressure for a period of thirty minutes.
- G. Notwithstanding the foregoing clauses, all water mains and fittings and installation thereof shall comply fully with the requirements of the Water Supply Authority.

Sanitary and Other Appliances

- H. The appliances shall be fixed in the positions shown on the drawings or as described by the Architect.
- J. The Contractor shall include in his rates for providing all necessary screws, bolts, etc., together with all jointing materials required and also for temporarily erecting and securing fittings in the required position or service and discharge pipes, taking down, storing and fixing after completion of wall finishings permanently fixing and connecting to service and discharge.
- K. Care shall be taken at all times and particularly after fixing, to protect appliances from damage.
- L. Upon completion of the work, all appliances shall be cleaned of plaster, paint, etc., and carefully examined for defects.

Fire Fighting Equipment

- A. The specified fire fighting equipment shall be supplied and installed by the Contractor in the positions shown on the drawings
- B. Portable fire extinguishers shall comply with the following British Standards:-
 - (a) Water type (soda acid); B.S. 138: 1948
 - (b) Foam type (chemicals); B.S. 740: Part 1: 1948
 - (c) Foam type (gas pressure); B.S. 740: Part 2: 1952
 - (d) Water type (gas pressure); B.S. 1382: 1948
 - (e) Carbon tetrachloride and chlorobromethane; B.S. 1721: 1960
 - (f) Carbon dioxide type; B.S. 3326: 1960
 - (g) Dry powder type; B.S. 3465: 1962
 - (h) Water type (store pressure); B.S. 3709: 1964
- C. Fire hose couplings and ancillary equipment shall comply with B.S. 336: 1965; rubber reel hose shall comply with B.S. 3169: 1959.
- D. Underground fire hydrants and surface box openings for same shall comply with B.S. 750: 1964.
- E. The installation of hydrants and fire extinguishers shall be in accordance with C.P. 402:101: 1952 and C.P. 402 part 3: 1964 respectively.
- F. If nothing else is specified, fire extinguishers and hose reels shall be supplied in the colour "fire red" and be similar to manufacture "ANGUS".

FLOOR WALL AND CEILING FINISHINGS

Sand

- A. Sand for backing, floor and wall finishes is to comply with B.S. 13139, Table 1.

Cement

- B. Cement is to be as described for "Concrete Work:.

Lime

- C. Lime is to be no-hydraulic hydrated lime to B.S. 459 Class "A" obtained from an approved source and run into putty at least 24 hours before use.

Workmanship

- D. All concrete beds or slabs shall be thoroughly brushed clean, hacked if necessary and well wetted and flushed over with a cement sand (1:1) grout immediately before screeds or pavings are laid.

- E. Screeds and cement pavings shall be laid in accordance with the relevant B.S. Code of Practice. Working joints between bays of the floor finish should be placed in accordance with the Architect's instructions and will be plain butt joints placed over joints in the concrete bed under. Pavings shall be damp cured with sand or sawdust and kept damp for at least 7 days after laying.

- F. All surfaces to be plastered or rendered must be brushed clean and well wetted before plaster is applied. Joints of walling shall be raked out and concrete hacked to form a key. Care shall be taken to see that paving and plastering do not dry out prematurely.

- G. Adequate time intervals must be left between successive coats in two-coat work in order that the drying shrinkage of the undercoat may be substantially complete. All internal and external angles shall be pencil rounded.

In-Situ Pavings Generally

- H. Before laying in-situ floor finishes, the concrete beds are to be thoroughly hacked for key, cleaned off, thoroughly wetted with clean water and coated with a stiff cement slurry and rates for screed, granolithic and terrazzo paving are to include for this. They are also to include for all necessary curing and protecting until the building is handed over.

Cement and Sand Paving

- J. The cement and sand paving shall be in proportions of 1:4 by volume and incorporating or treated with an approved hardener.

Polished Granolithic Paving

- A. The aggregate for granolithic paving shall be in accordance with B.S. 1201 and shall be mixed in the proportions of 1:1:1.50 cement, fine and coarse aggregate respectively. The mix shall incorporate an approved hardener suitable for incorporation and not for surface treatment. The water cement ratio shall be kept as low as possible and shall not in any case exceed 0.45. The paving is to be laid to the full thickness described and to be finished with a wood float and with no extra cement trowelled into the surface which is to be laid true and level. The paving is to be thoroughly cured after laying by covering with polythene sheeting and periodically watered to keep it moist for at least one week after laying. The surface is to be polished with approved rotary carborundum discs mechanically operated coarse and fine grain and with cement and sand slurry to produce a blemish-free surface.

- B. The granolithic shall be laid in bays not exceeding 3.50 square meters with ebonite dividing strips for the full depth of the paving and shall be executed by Specialist who have a thorough knowledge of the work.

Polished Terrazzo Paving

- C. The ins-Situ terrazzo shall consist of white or coloured cement and marble aggregate; the colours of the cement and aggregate shall be selected by the Architect. The mix shall comprise three parts of 6mm nominal aggregate to one part coloured cement by volume. The aggregate shall be clean and granular and shall not contain flaky particles or dust. The underbed shall be cement and sand 1:4 by volume.

- D. The terrazzo shall be laid in bays not exceeding 3.5 square meters with ebonite dividing strips for the full depth of the terrazzo and underbed, and shall be executed by Specialist who have a thorough knowledge of the work.

- E. The terrazzo topping shall be laid to a minimum of 12mm thickness in a plastic condition while the underbed is still green and this should be watered to minimise absorption from the topping. The terrazzo must be well tamped into position and rolled with a suitable hand roller. The topping should be allowed to take an initial set and then any surface voids must be grouted up with neat cement of the same colour used in the mix. The surface should be cured by keeping moist by covering with damp sacking for at least 72 hours. When dry and hard the surface shall be machine polished by grinding with carborundum or other stone discs of suitable grade and with rotary polishing pads.

- F. Rates must include for all necessary protection until the building is handed over to the Architect. The depths stated are for the full depth including topping and underbed.

P.V.C. Flooring and Skirting

- G. P.V.C. floor tiles shall comply with B.S. 10595. The tiles and accessories shall be supplied in the sizes and thickness specified in colours selected by the Architect and are to be fixed to the screed base with a suitable adhesive supplied (or recommended) by the Manufacturer and used in accordance with his instructions. Rates for floor tiles shall include for thoroughly washing and cleaning on completion and for the application of one coat of water based wax polish.

Brushed Terrazzo Rendering

- Brushed terrazzo rendering is to comprise two coats as described. The undercoat shall consist of cement and sand mixed in the proportion of (1:4) by volume and applied to a minimum thickness of 10mm finished with a wood float and scratched to provide key for top coat. The finishing coat shall consist of one part white cement to two parts marble chippings or approved size applied to a minimum thickness of 10mm and the final surface wet brushed to expose the aggregate.
- A.
- B. The Contractor will be required to produce a sample panel of rendering on site for the approval of the Architect.

Internal Plaster

- Internal plaster shall be applied in two coats and adequate time intervals must be allowed between successive coats in order that the drying shrinkage of the undercoat may be substantially complete. The first coat must be well scratched, keyed and wetted to receive the finishing coat. The finishing coat shall be finished smooth with a steel float but care must be taken not to overwork the surface in order to minimize the incidence of shrinkage cracks. All internal and external angles shall be pencil rounded.
- C.
- D. Internal plaster, unless otherwise described, shall be lime plaster of 12mm minimum overall finished thickness applied in two coats, the first coat consisting of cement, lime putty and sand mixed in the proportion of 1:2:9. The finishing coat shall be a skim coat comprising cement and lime putty in the proportion of 1:10.
- E. Cement plaster is to be employed where specified on the drawings and is to be applied in two coats of approximately equal thickness to a total of 12mm minimum overall finished thickness. The composition of both coats shall be the same and shall comprise cement and sand (1:3) but a small percentage addition (not more than 10%) lime putty may be permitted if the Architect considers that this will reduce the incidence of shrinkage cracks.
- F. The Contractor shall cut out and make good all cracks, blisters and other defects and leave the whole of the plastering and rendering perfect at completion. When making good defects the plaster shall be cut out to a rectangular shape with edges undercut to form dovetailed key, and all finished flush with the face of surrounding plaster.

Marmoran Finishings

- Prepare and prime surface, apply one coat 3 mm thick PVC Resin Bonded plaster with trowel, apply 3.2 mm thick stone chips with low pressure spray gun or by hand, roll flat by roller immediately after application. Colours and texture of the plaster and stone chips are subject to specifier's approval. Specifications must be strictly in accordance with manufacturer's instructions.
- G.

Wall Tiles

- Glazed wall tiles shall be from an approved manufacturer and shall conform with the requirements of B.S. 1281. Tiles shall be white with slightly rounded or "cushion" edges and unless otherwise specifically described shall be size 150 x 150 x 6mm thick. Tiles shall be laid with continuous straight joint and internal angles shall be butt jointed. Rounded on edge tiles shall be used at all external angles and at edges of panels. Tiles shall be bedded in approved tiles adhesive and pointed in white cement.
- A.
- Backing to tiles is to be cement and sand in the proportion of 1:4 rendering in one coat to a minimum thickness of 12mm trowelled smooth. Backings have been measured separately.
- B.

Carpet Tiles

- Carpet floor tiles shall be from an approved manufacturer and shall conform to specification as per M/s Protex of South Africa. Graveltex Protex Carpet tiles shall be of heavy duty grade, 100% stain proof miracle fibre with density of 920, g/sq.m (fibre) and 4500 g/sq.m (total) with fire resistance (S.A.B.S) of 3, lavender colour. The size shall be 500 x 500 x 9.50mm thick. Tiles shall be laid with continuous straight joint. Tiles shall be bedded in approved tiles adhesive.
- C.
- Beds to tiles are to be cement and sand in the proportion of 1:4 rendering in one coat to a minimum thickness of 30mm trowelled smooth. Backings have been measured separately.
- D.

Floor tiles

Porcelain tiles

- Porcelain floor tiles shall be from an approved manufacturer and shall be of black polished, cocowhite-polished or gardenia green matt. The size shall be size 400 x 400 x 10 x thick. Tiles shall be laid with continuous straight joint. Tiles shall be bedded in approved tiles adhesive.
- E.
- Beds and backings to tiles is to be cement and sand in the proportion of 1:4 rendering in one coat to a minimum thickness of 30mm trowelled smooth. Beds and backings have been measured separately.
- F.

Laying of Marble, Granite, Porcelain or Ceramic Floor Tiles

- G. Before laying the tiles, level the flooring area, ensure the surface is rough and clean.

Laying Floor tiles with Traditional Mortar

- The cement thickness needed to lay tiles should be around 40 mm. The mixture for indoor is 1 volume of Portland cement and 3 volumes of sand. The mixture must be made with appropriate quantity of water in order to dampen the materials. Clean and wet the flooring area, making sure to leave completely clean. Spread the mixture and level with a ruler, in order to reach the 40 mm of thickness. Spread dry cement over the mixture, until the water that remains over the surface has been completely absorbed. Lay the tiles, already mixed from different boxes, with a wide joint and in the desired way. Wet tiles, then cover to achieve a perfect level.
- H.

Laying Floor tiles with Adhesive

- A. The bed needed for this kind of laying, should be around 30 mm. The flooring area should be steel or wood trowelled and levelled. Spread the adhesive with a spatula with ridges. It is very important to lay a good quantity of adhesive so that there is no free space between the tiles.

Mixing the Colour Shades of Floor tiles

- B. Before laying the tiles at least 5 to 6 boxes must be laid over a dry surface in order to ensure that the different shades have a uniform look. The best result is obtained this way.

The Joints of Floor tiles

- C. The tiles have to be laid with a minimum of at least a joint separation between tiles of 3 to 10 mm.

Setting the Joints of Floor tiles

- D. The cord or wire system can be used in the 4 or 5 joints, ensuring they are all parallel with the reference joint. Plastic crosses used for this purpose, in different sizes, can be obtained in specialized shops, giving a much better finishing and final result.

Filling the Joints of Floor tiles

- E. Apply a mixture composed of 2 volumes of Portland cement and 1 of fine washed sand, with enough water in order to amplify the handling. There are suitable preparations for different uses and in different colours now available, so as to achieve the desired effects. Spread the substance by use of a rubber or plastic spatula. Clean the tiles before the mixture dries. After the joints are completely dry, wash with plenty of water several times.

Concrete Tiles

- F. Concrete tile for finishing the roofs shall be 25mm thick of natural colour with bevelled top arises on all sides and shall comply with B.S. 1197. The tiles shall be laid to regular pattern with open joints. Care should be taken to ensure that the surface level is even and follows accurately the levels of the roof finish. All cement stains shall be carefully removed.

Precast Concrete Paving Slabs and Kerbs

- A. Precast concrete paving slabs shall comply with B.S. 368. precast concrete kerbs shall comply with B.S. 340 figure 5 and shall be finished true and smooth on all exposed faces.
- B. Precast paving shall be bedded on a compacted sand bed with 6mm wide joints filled and pointed with cement mortar coloured to match the colour of the slabs. The pavings shall be finished true and even and to the falls shown with no surface irregularities.

GLAZING

Method of Glazing

- C. Notwithstanding reference in the descriptions of glazing method to glazing beads, or the like with associated fixings, and insulating strips, such components will be measured separately in accordance with the appropriate rules of the S.M.M.
- D. The provision of glazing compounds and putties and springs, clips and other sundry fixings shall be deemed to be included with all items of glazing.
- E. Distance pieces and setting blocks, in appropriate materials, shall be provided in accordance with good glazing practice and they shall be deemed to be included with all items of glazing.

MATERIALS

Glass generally

- F. All glass shall comply in all respects with the appropriate section of B.S. 952. Plain sheet clear glass shall be O.Q.; plate glass shall be GG. All glass shall comply in all respects with the latest British Standards including the British Codes of Safety.

Putting for glazing to wood

- G. Putty for glazing to wood shall comply with B.S. 544.

Samples

- H. Samples not less than 150 mm square, are to be submitted to the Architect for approval before any glass is cut.

WORKMANSHIP

Glass to be kept free from moisture

- J. All glass surfaces shall be kept dry during transit and storage. Glass becoming moist from condensation or other causes, shall be thoroughly dried and aired.

Rebates and beads

- A. All glazing beads in wood shall be primed, (as measured in Painting and Decorating), before glazing is commenced.

Edges of glass

- B. All glass shall have clean cut edges. The edges of louvres shall be rounded and polished.

Bead glazing

- C. Glazing fixed by beads shall have both glass and beads bedded and back puttied, and the putty trimmed off flush. Where sealing strip is used, it shall pass round both faces of the glass and be trimmed off flush on both sides. Metal surfaces to receive sealing strip shall be treated with mineral oil before glazing.

Method of measurement

- D. Beads and sealing strips have been measured separately. Prices for glazing with beads are to include for taking out and re-fixing beads as required, which shall be deemed to be bradded unless otherwise described.

PAINTING

Execution by a Specialist Firm

- E. All work under this section must be executed by a Specialist Firm, approved by the Architect.

Approved Paints

- G. All paints shall be obtained from the same manufacturer and shall be approved by the Architect.
- H. The Contractor must allow for providing the Architect with colour charts from the approved firm and for executing sample panels as required.

Generally

- I. All materials shall be delivered on site intact in the original drums or tins and shall be mixed and applied strictly in accordance with the manufacturer's instruction and to the approval of the Architect.
- J. The only addition which will be allowed to be made locally will be liquid thinners and driers supplied or recommended by the manufacturers and none shall be thinned more than approved by the Architect.

Preparation

- K. All surfaces to receive treatment are to be clean and dry before paint application and surface irregularities are to be removed by filling or the use of suitable abrasives.

External Rendered Surfaces

- A External cement slurry finished wall which are to be painted must be clean and must be thoroughly brushed and washed to remove any dust, loose flakes or other foreign matter and must be well wetted prior to the application of finish.

Plastered Surfaces

- B Internal plastered surfaces which are to be painted are to be allowed to dry out thoroughly prior to paint application. All cracks and surface imperfections are to be cut back and filled with a patent filler in accordance with the manufacturer's instructions and rubbed down to a true and even surface.

Woodwork Preparations

- C Large knots in woodwork are to be cut and replace with sound wood or scorched back and after priming the surface made good with stopping. All knots are to be treated with two thin coats of patent knotting free from resin. After priming, all nails holes and other imperfections shall be filled with stopping and the whole surface rubbed down to a smooth even finish. The stopping must be "Sadofill" or other approved make.

Woodwork - Fittings

- D Unless otherwise specified, fittings are to be treated with two coats of linseed oil.

Metalwork

- E All rust and loose scale on steel and iron work must be removed by wire brushing and rubbing with emery paper. Where patches of ingrained rust cannot be removed they are to be thoroughly rubbed down and treated with one coat of "Galvafroid" or other zinc rich paint in accordance with the manufacturer's instructions. One coat of zinc chromate primer will then be applied followed by two undercoat and one finishing coat of gloss paint as described for Woodwork above. The Contractor is tonote that where mild steel burglar bars are housed into wood frames, the full length or the bar is to be treated before fixing.

- F Galvanized metalwork is to receive one coat of white spirit or mordant degreasing solution washed off prior to the application of calcium plumbate primer followed by two undercoats and one finishing coat of gloss as previously described.

- G Galvanized metal work is to be painted only where instructions are given by the Architect as in some cases galvanized metalwork is to be left untreated.

DRAINAGE

Generally

Preambles to Other Sections

- A The preambles contained in other sections of this document shall apply equally hereto where applicable, so far as is consistent with the clauses following.

Notices

- B The Contractor shall give all requisite notices. Uncoloured plans will be supplied by the Architect at the Contractor's request.

Drainage Bye-Laws

- C All of the works shall comply with the requirements of the drainage bye-laws made by the Local Authority and shall be executed to the satisfaction of the Architect and Local Authority.

Inspections

- D The Contractor shall give written notice to the Architect for the purpose of inspections and measurements, whenever section of:-

- (a) excavations are completed
- (b) concrete beds are laid
- (c) drains are completed

and no further work shall be executed until each stage of the work has been inspected.

Levels of Existing Drains

- E The Contractor shall check the invert levels of existing drains, sewer and manholes before laying new drains, and shall notify the Architect immediately if the declared invert levels are found to be inaccurate

Pitch Impregnated Fibre Drain Pipes, Couplings and Fittings

- F Pitch impregnated fibre drain couplings and fittings shall comply with B.S. 2760.

UPVC Pipes and Fittings

- G UPVC pipe and fittings shall comply with B.S. 3506 Class O to be obtained from a manufacturing source approved by the Architect in writing.

Spun Cast Iron Drain Pipes and Cast Iron Fittings, Gullies etc.

- H Spun cast iron drain pipes shall be coated centrifugally cast (spun) iron pipes complying with B.S.1211 Class B.

- A Fittings, gullies, etc., shall be of coated cast iron and shall comply with B.S. 1130.

Concrete Pipes and Fittings

- B Concrete pipes and fittings shall comply with B.S. 556. They shall be reinforced, and of sulphate resisting cement if specified.

Manhole Covers and Road Gratings

- C Manhole covers and road gratings and frames shall comply with B.S. 497.

Step Irons

- D Step irons shall be galvanized malleable cast iron complying with B.S. 1247.

Mesh Reinforcement

- E Mesh reinforcement shall be steel fabric complying with B.S. 1221 Part A or B.S. 4483.

Setting Out

- F The Contractor shall set out all drains in accordance with the drawings, and provide all profiles, etc., necessary for the execution of the work.

Excavation

- G The bottoms of all excavations shall be trimmed and consolidated to the correct levels. Unauthorized excavations below the required levels shall be filled with concrete of the same composition as for drain beds, at the Contractor's expense.

- H Where the bottom is insufficiently firm, the Contractor shall excavate until, in the Architect's opinion, a firm bottom is obtained and the level shall be made up with concrete of the same composition as for drain beds. Particulars of such additional work shall be agreed with the Architect's representative before the work is covered up, otherwise no claim in this respect will be entertained.

Planking and Strutting

- I Care shall be taken not to undermine the foundations of the buildings and, if so directed by the Architect, planking and strutting shall be left in, or other means adopted to protect the foundations. Details of such additional items shall be agreed with the Architect's representative before the work is covered up, otherwise no claim in this respect will be entertained.

Backfilling

- J Trenches for pitch impregnated fibre of UPVC pipes shall first be filled with selected screened excavated materials carefully hand-tamped between the pipe and sides of the trench, followed by 150mm - 200mm of similar materials before the general filling is carried out.

A Trenches for concrete or cast iron drains shall first be filled to a depth of 300mm with selected fine materials carefully hand-packed around the pipe. On no account shall materials be tipped into the trench until first 300mm has been completed.

B Filling shall be continued in layers not exceeding 300mm thick, well rammed and, if necessary, watered.

Laying Drains

C Drains shall be laid truly straight on line and gradient with sockets upstream and the full bore shall be unobstructed.

Pitch Impregnated Fibre Drains

D All hard obstructions shall be removed from trench bottoms before laying pitch impregnated fibre pipes. The pipes shall be bedded in sand and laid and jointed in accordance with Appendix "C" to B.S. 2760.

UPVC Drains

E UPVC drain pipes shall be laid and jointed with solvent welded joints entirely in accordance with the manufacturer's instructions.

F Pipes shall be bedded in sand after all hard obstructions have been removed from trench bottoms.

Cast Iron Drains

G Cast iron drains shall be laid on concrete beds where specified or shown on the drawings and shall be jointed with gasket of hemp, well caulked, to a depth of 30mm for 100mm pipes and 40mm for large pipes, and remainder of the socket shall be filled with molten lead or lead fibre solidly caulked.

H Connection of iron to concrete drains shall be jointed as described for concrete drains.

I Cast iron drains fixed to walls or beams shall be supported on brackets at 1,350mm centres.

J Gullies, outlets, etc., on drains under concrete floors shall be set in position at correct levels before the floors are laid.

Concrete Drains

K Concrete drains shall be jointed with one turn of tarred gaskin, well caulked and the remainder of the socket filled with cement and sand (1:3), finished with an angle fillet around the pipe. All surplus mortar shall be removed from the inside of the pipe with a badger. Where pipes are sulphate resisting, the jointing mortar shall contain sulphate resisting cement.

Concrete Beds, Haunches and Coverings

- A Where specified or shown on drawings, drains shall be laid on concrete, (105kg/sq.cm - 40mm aggregate), beds 100mm thick, 400mm wide for 100mm diameter drains and 450mm wide diameter drains. The concrete shall be haunched up both sides of the barrel to give lateral support.

- B Where drains, other than cast iron drains, are laid under buildings or pavings carrying vehicular traffic, they shall be completely surrounded in concrete, (105kg/sq.cm - 40mm aggregate), 150mm thick, (i.e. 400mm x 400mm overall for 100mm pipes and 450 x 450mm overall for 150mm pipes). Where directed, drain beds shall be reinforced.

- C Gullies shall be bedded and surrounded in concrete 105kg/sq.cm - 40mm aggregate minimum 150mm thick all round.

Sleeves

- D All drains passing through walls or foundations shall have sleeves of cast iron pipe of sufficient size to allow a clearance round the drain.

Benching

- E Benching in bottom of manholes shall be concrete (105kg/sq.cm - 40mm aggregate) to falls of not less than 10 degrees to channels finished with cement and sand (1:2), 25mm thick, trowelled hard and smooth with all angles rounded.

Bedding and Sealing Covers and Frames

- F Frames to manhole covers shall be bedded in cement mortar (1:3), and the covers in grease and sand.

Testing

- G All drains and manholes shall be tested for water tightness and straightness to the satisfaction, and in the present of, the Architects and the Local Authority. Drains shall be filled with water to a head of 1.50 meters and are to be tested in sections agreed with the Architect:-

- (i) after jointing
- (ii) after haunching and backfilling
- (iii) after completion of the works

- H The Contractor shall provide all necessary testing apparatus and shall carry out such other tests as are required by the Architect and the Local Authority.

Clean and Flush all Drains

- I All drains, gullies, manholes, etc., shall be cored, cleaned and flushed on completion.

Method of Measurement

- A Where not otherwise stated, the starting level for trench manhole excavation shall be:-
- (i) the formation level in areas where the site is excavated to reduce levels.
 - (ii) existing ground level in areas where no excavation is required, or where filling is required.
- B The depths of all the trenches in the following description lie within the same 1.5m stages as the average depths stated.
- C Prices for excavating pipes trenches shall be deemed to include keeping them free from general water (i.e. all water except spring or running water).
- D Notwithstanding the provisions of SMM Clause V.7 (a) to (c) the descriptions of excavating manholes, yard gullies, septic tanks and soakpits shall be deemed to include grading bottoms, planking and strutting, return filling and compacting, disposal of surplus soil and keeping excavation free from water.
- E Prices for building pipes into manholes shall include for building in on rake where necessary.
- F Prices for concrete beds, benchings and covering for pipes laid in trenches, shall be deemed to include for any necessary formwork. Formwork required for beds, etc., for pipes above ground, and for casing to vertical pipes, is referred to in the descriptions of such items.
- G Prices for all gullies shall be deemed to include for all necessary excavation, return filling, disposal of surplus excavated materials, planking and strutting, and trimming and ramming bottoms.

EXTERNAL PAVINGS

Generally

- A. The Preambles contained in other sections of the document shall apply equally to this sections so far as is consistent with the following clauses.

Materials

Soil for Planted Areas

- B. Soil for planted areas shall be vegetable soil free from roots and rubbish and treated with weed killer to prevent the growth of weeds.

Sand for Filling under Footpaths

- C. Sand for filing under footpaths shall be clean, dry, pit or river sand, free from vegetable soil, roots and rubbish.

Crusher Dust for Sub-Base Course of Macadam Paving

- D. Crusher dust shall be from an approved source and shall be free from clay or other deleterious matter.

Stone for Base Course to Macadam Paving.

- E. Stone for base course to macadam paving shall be 40mm gauge, clean and hard and free from clay or other deleterious matter.

Blinding For Stone Base Course

- F. Blinding for stone base course shall be 4mm gauge hard stone chippings, free from clay, dust or other deleterious matter.

Precast Paving Slabs

- G. Precast paving slabs shall comply with B.S. 368 except for sizes.

Kerbs

- H. Precast concrete kerbs shall comply with B.S. 340, and shall be finished true and smooth on all exposed faces.

Prime Coat for Macadam Paving

- J. The prime coat for macadam paving shall be bitumen grade M.C.I.

Bitumen for surfacing

- A. The bitumen for surfacing shall be made 500/700 grade bitumen.

Workmanship

Generally

- B. The sub-grade, sub-base and base courses for roads and parking area shall be prepared and laid at a convenient time before completion of the contract, as shall be agreed between the Architect and the Contractor, together with their kerbs and foundations.

- C. The wiring course shall be applied at a later date, and prior to laying, the base course shall be made good in accordance with the requirements specified herein. The Contractor shall make good at his own expense any damage to kerbs.

Surveying

- D. The Contractor shall verify all dimensions and levels prior to the commencement of work.

- E. All surveying necessary for the accomplishment of the works shall be done by the Contractor at his own expense and he shall give notice of his intention to carry out such work in order that the arrangements can be made for supervision and checking. The Contractor shall also provide, without extra charge, all necessary instruments, appliances, labour and any other materials required for checking the survey work.

- F. The Contractor shall make all necessary surveys using given bench marks as reference points. These bench marks he shall carefully preserve.

- G. The Contractor shall draft, in accordance with these surveys, all plans and drawings which are necessary for the completion of the work, and shall submit these plans and drawings to the Architect for approval in writing.

Levels, Falls, Crossfalls and Cambers

- H. The works shall be executed to the levels, falls, crossfalls and cambers shown on the drawings

Accuracy

- J. The Contractor shall be responsible for ensuring that the works are carried out to the line, levels and dimensions shown on the drawings, and shall provide camber gauges and straight edges for checking to ensure that the surfaces are within the following tolerances:-

(a) **Sub-Grade**

The camber or crossfall shall not vary more than 20mm from that shown on the drawings. In the longitudinal direction the variations from a 3 meter straight edge placed parallel to the centre line of the road shall not exceed 12mm.

(b) **Base**

The camber or crossfall shall not vary more than 12mm from that shown on the drawings. The variation on the longitudinal section shall be as above for sub-grade

Sub-Grade

- A. The sub-grade shall be shaped to the required falls and cambers and any depressions filled with approved materials having a minimum C.B.R. of 8 percent. This value shall be obtained at optimum moisture content and compacted to 100 percent of the maximum dry density as determined by B.S. 1377. The Contractor shall carry out standard compacting tests on the sub-grade in accordance with Test Nr 10 of B.S. 1377. Such tests shall be taken at 30metre intervals. The standard of compaction required shall be 98 percent of the maximum dry density as determined by Test No. 9 of B.S. 1377.
- B. The sub-grade shall be approved by the Architect before any materials to be used in construction of the carriageway are deposited or laid.

Sub-Base Course

- C. The sub-base shall consist of a layer of crusher dust finishing to the thickness specified after compaction. The bed shall be watered as necessary and rolled to produce a smooth and uniform surface with no irregularities.

Base Course

- D. The base course shall consist of a layer of stone in which the interstices shall be filled by application of crusher fines after the stone is in place, to finish to the thickness specified after compaction. The base course shall not be blinded with crusher fines, but with 4mm gauge stone chippings to provide a clean hard surface. If any irregularities develop, they should be corrected by loosening the material at these places and adding or removing material and recompaction until the surface is smooth and uniform with no irregularities.

Application of Bitumen

- E. The plant used by the Contractor for transporting, heating and spraying bitumen shall be in suitable rubber-tyred units and shall ensure adequate and uniform heating without the introduction of steam or moisture, and giving rise to the cooking or burning of the bitumen, and shall be fitted with a thermometer and heating control. Distributors shall be equipped to provide a constant rate of application per square meter of surface and there shall be visible speedometer indicating the speed of the vehicle in meters per minute.

- A. Spray bars shall be capable of spreading the bitumen evenly to the full width of the work. The bitumen shall be heated to the temperature specified below and sprayed on the clean surface of the base at the rates specified.
- B. Application temperatures shall be in accordance with those recommended by the manufacturer, or where this information is not available, they shall be as follows:-

Bitumen Grade	Sprayed Temperature (Degree Celcius)
N.C.I	54-80
500/700	124-149

Prime Coat

- C. Prior to the application of the prime coat, the surface of the base shall be swept clean of dust and foreign materials to the satisfaction of the Architect. Approximately 30 minutes before applying the bitumen the surface of the base shall be lightly sprayed with water.
- D. The prime coat shall be applied at the rate of 0.70 litres per square meter.

Wearing Course

- E. After the application of the priming coat, and where directed and approved by the Architect, the Contractor shall lay bitumen type 500/700 spread at the rate of 3 square meters per 5 litres immediately followed by spreading dry, clean approved 12mm chippings at the rate of 130 square meters per cubic meter, rolled six to eight passes of a six to eight tonne roller. A second and similar surfacing layer shall be laid at the end of the defects liability period.

- F. Alternatively, where specified, the wearing course shall consist of a premix macadam carpet of 500/700 grade bitumen and approved quality aggregate graded and mixed together prior to laying in the proportions and by the methods given in B.S. 1621 table 4, laid to finish to the thicknesses shown after compaction. The compaction shall be achieved with six to eight passes of a six to eight tonne roller.

Wet Weather

- G. No bitumen spraying shall be carried out when either the carriageway surface of the aggregate are wet, without the prior approval, in writing, of the Architect who may allow such work to proceed by the use of an approved adhesive agent at the Contractor's expense

Murram Roads

- H. Murram roads shall be laid in layers not exceeding 150mm compacted thickness, to finish compacted to the thicknesses shown on the drawings.
- J. Each layer shall be watered, rolled and compacted as previously described herein to produce a smooth dense surface free of all irregularities.

Laying Precast Paving Slabs

- A. Precast paving slabs shall be bedded on a sandbed compacted to the thickness specified with 6mm wide joints, filled and pointed with cement mortar coloured to match the colour of the slabs and recessed 5mm deep. The paving shall be finished true and even to the falls shown on the drawings with no surface irregularities.

Grassing

- B. Grassing shall be carried out by a Specialist using approved local grass. Prices for grass shall include for tending, watering, cutting and keeping weed free for a period of twelve months, to produce a dense and healthy weed free grass carpet.

Note:

The Contractor shall include here for any cost they may consider necessary and over and above costs which they believe they cannot recover in any other section of these Bills of Quantities.

PRELIMINARIES

ITEM	DESCRIPTION	AMOUNT
	<u>BILL NO. 1</u> <u>PARTICULAR PRELIMINARIES</u> A <u>PARTIES</u> The Employer is: Principal Secretary, Ministry of Lands, Public works,Housing and Urban Development, State Department of Housing and Urban Development P.O Box 30119 -00100 NAIROBI, KENYA The Engineer is: The term "Engineer" wherever used in these Bills of Quantities shall be deemed to imply the Engineer as defined in Condition 1 of the Conditions of Contract or such person or persons as may be duly authorised to represent him on behalf of the Government . The Architect is: Ministry of Lands, Public works,Housing and Urban Development, State Department of Housing and Urban Development P.O Box 30119 -00100 NAIROBI, KENYA	

ITEM	DESCRIPTION	AMOUNT
A	<u>LOCATION OF SITE</u> The site of the proposed works is located in Meru North Constituency, Meru County The Contractor shall be deemed to have visited the site and satisfied himself as to:- a) The nature, position, topography and access of the site b) The amount of the rubbish or debris to be cleared away before commencement. c) The nature, current usage, proximity and size of adjoining property and buildings d) The availability of land for the erection and positioning of all temporary structures, plant and materials necessary for the execution of the works. The Contractor shall obtain approval from the relevant Local Authority in adherence to site access and erection of temporary structures and must ensure all matters relating to the requirements of these authorities. No claim will be allowed for travelling or other expenses which may be incurred by the Contractor in visiting the site or preparing the tender for the works. B <u>EXISTING SITE CONDITIONS</u> The Contractor is advised that the site is in a predominantly residential area and all measures should be taken to avoid nuisance to neighbours. All occupation health and safety requirements must be met as required by law. This includes prevention and or minimizing noise, dust, fumes e.t.c. Notices should be given prior to disruption of services C <u>SCOPE OF CONTRACT</u> The Works under this contract comprises of the structures as detailed in the project data sheet	

ITEM	DESCRIPTION	AMOUNT
	Carried to collection	
A	<u>DESCRIPTION OF THE WORKS</u> The construction comprises reinforced concrete foundations, masonry walling, reinforced concrete beams, column , staircases and suspended solid slabs, roof construction. The exterior facade consists of steel casement windows, steel and timber doors , render and paint finish, clay and stone facing finish to walls The interior works includes timber doors and finishes which are generally plaster and paint to walls, ceramic and non slip ceramic tiles to floors and walls. External works generally comprise of foul water drainage, storm water drainage, pathway, dryline area, septic tank, underground water tank. All mechanical / electrical services and other specialist works associated with the above works shall be executed by domestic/nominated sub contractors approved by the Engineer <u>CONTRACT PARTICULARS</u>	
B	<u>FORM OF CONTRACT</u> The Contractor will be required to enter into a contract with the Employer under the Terms and Conditions of Contract as "Standard Tender Document for Procurement of Works (Building and Associated Civil Engineering Works) Issued by the Public Procurement Regulatory Authority in February 2021 (updated 2022) and in association with the latest applicable version of the Public Procurement and Asset Disposal Act. The Contractor's attention is called to the appendix of the conditions of Contract and additions and amendments thereto, which shall be read as incorporated herein and he shall allow any sums which he considers necessary for the observance of such conditions, together with sub clauses used in application. The priority of such documents shall be as stated in the conditions of agreement.	

ITEM	DESCRIPTION	AMOUNT
	Carried to collection	
A	<u>LIABILITY AGAINST INJURY TO PERSONS AND PROPERTY</u> Insurance against injury to persons and property NOTES In addition to the conditions of the contract and the requirement contained herein the contractor's all risk policy shall cover the full value of the following and allow for all costs thereof:- i) The works and temporary works erected in performance of this contract. ii) The materials on site, plant and tools iii) The cost and expense of removing debris of the property insured, destroyed or damaged by any peril insured. iv) Professional fees (to be allowed at 15% of the contract sum) v) Employer's liability (workman's compensation) ii) Third party (Public liability for an indemnity of not less than shs 15,000,000 for any accident or series of accidents arising from the same event (unlimited in aggregate) The contractor shall ensure that all sub-contractors effect and maintain such insurances as are necessary to cover their liabilities in respect of injury to persons and property and workman,s compensation. Should the contractor already hold annual insurances covering the whole of his activities, and the indemnity required under the existing policy/ies then further insurances shall be effected and maintained to cover such excess, the policies of insurances being suitably endorsed to cover this project	
B	<u>Insurance of the works (contractors liability)</u>	

ITEM	DESCRIPTION	AMOUNT
	The Contractor shall insure as required in the Conditions of Contract. No payment on account of the work executed will be made to the Contractor until he has satisfied the Engineer either by production of an Insurance Policy or and Insurance Certificate that the provision of the foregoing Insurance Clauses have been complied with in all respects. Thereafter the Engineer shall from time to time ascertain that premiums are duly paid up by the Contractor who shall if called upon to do so, produce the receipted premium renewals for the Engineer's inspection. Carried to collection	
A	<u>PERFORMANCE BOND</u> Performance bond for the works The Contractor shall submit on the Form of Tender an approved bank or approved (By PPRA) Insurance Company and who will be willing to be bound to the Employer in an amount(as defined in the bidding documents)..... for the due performances of the Contract up to the date of completion as certified by the Engineer and who will when and if called upon, sign a Bond to that effect on the relevant standard form as seen in the CONTRACT STANDARD FORMS (without the addition of any limitations) And should the surety fail to be approved, the Contractor shall furnish within seven days another Surety to the approval of the Employer. Note that no payments on account of works executed will be made to the Contractor until he has submitted the Performance bond, duly stamped signed and sealed by an approved bank or insurance company. B <u>POSSESSION AND COMMENCEMENT</u> The Contractor shall take possession of the site on the date indicated in the acceptance letter. The date of commencement of the works shall also be communicated to the Contractor and the contract period shall run from the commencement date.	

ITEM	DESCRIPTION	AMOUNT
	The Contractor is expected to utilize the period between possession and commencement to mobilise his resources to ensure smooth running of the works from the commencement date. Carried to collection	
	<u>PROJECT SUPERVISION</u> A The said works shall be executed under the direction and to the entire satisfaction of the Engineer and Clerk of works who shall have the Engineer's specifically delegated authority and shall at all times have access to the works, to the yards and workshops of the contractor or other places where goods are being prepared for the building. <u>LABOUR CAMPS</u> B The contractor will generally be permitted to house labour on site subject to approval by Architect <u>DOWNTAKINGS</u> C All materials arising from demolitions and downtakings are deemed to be the property of the employer. No claim will be entertained on account of employer excising this right to retain the materials	

ITEM	DESCRIPTION	AMOUNT
	All downtakings shall be carefully removed, taken down, dismantled and stored on site until instructed by the Engineer to remove from the site. Such materials shall only be incorporated in the new works if required by the Engineer in which case appropriate adjustments will be made in the final account for the cost of labour, screws etc for fixing such downtakings in the new works. <u>BIOMETRIC INSTALLATIONS</u> D Supply, Deliver to site, Install, test and commission a biometric and RFID card reader that supports RS485 and TCP/IP. supports both 125kHz & 13.56MHz, finger, card and pin authentication complete with Wiegand Interface, 12-digit Keypad, Power Supply unit c/w batteries, RFID Proximity ID Cards, Workstation and all necessary cabling and infrastructure required for a complete installation to Engineers approval. Allow for full graphic customization and programming of the installed system into the existing access control system Carried to collection	
A	<u>CCTV INSTALLATION</u> Deliver to site, Install, test and commission the following as described below:	

ITEM	DESCRIPTION	AMOUNT
	Supply, Deliver to site, Install, test and commission a CCTV installation during the construction period for monitoring and socio-economic data collection as per engineer's specifications. System should include but not limited to remote monitoring capabilities and atleast 30 days cloud storage, IP66, IK10 Bullet Network Camera 4MP resolution, H.265, H.264, MJPEG codec supported, Multiple streaming, Motion detection, Tampering, Defocus detection, micro SD/SDHC/SDXC memory slot (Max. 128GB), PoE / 12V DC, IR viewable length 20m (QNO-7010R), 25m (QNO-7020R) 30m (QNO-7030R), Warranty 3 years, 8 Channel Network Video Recorder, Maximum 12-megapixel camera supported complete with storage and all neccessary active and passive devices, cabling, back up power and accessories required for a complete installation.	
B	<u>DAMAGES</u> Damages for delay in completion shall be levied at the rate of Kshs(Refer to the special Conditions of Contract).....	
C	<u>OTHER PRELIMINARIES</u> Allow for any other item necessary to execute the works and state them below; 	
	Carried to collection	

ITEM	DESCRIPTION	AMOUNT
	<u>BILL NO. 2</u> <u>GENERAL PRELIMINARIES</u> <u>PRICING OF ITEMS OF PRELIMINARIES AND PREAMBLES</u> A Whenever in the Contractor's priced Bills of Quantities no price appears against an item of Preliminaries or Preambles or work items , the value of such item shall be deemed to be included in his prices for other items in the Bills of Quantities. <u>SUFFICIENCY OF TENDER</u> B The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the rates and prices stated in the priced Bills of Quantities. Rates and prices quoted shall cover all his obligations under the contract and all the matters and maintenance of the works <u>RECORDS</u> C The Contractor shall ensure proper records are kept and maintained for : Daily Reports on Personnel and Machinery; tracked programme; weather charts/reports; site instruction book and query book,a digital camera shall be provided for taking progress photos The contractor shall be required to provide equipment for taking ground and aerial photos or videos in relation to the progress of works when called upon to do so. <u>DEFINITIONS AND ABBREVIATIONS</u> D Throughout these Bills, units of measurements and terms are abbreviated and shall be interpreted as follows: mm shall mean millimeter lm shall mean linear meter sm shall mean square meter m² shall mean square meter cm shall mean cubic meter kg shall mean kilogramme N shall mean Newton KN shall mean KiloNewton	

ITEM	DESCRIPTION	AMOUNT
	Carried to collection	
	in/" shall mean inches L f shall mean linear foot s f shall mean square foot c f shall mean cubic foot L b shall mean pound avoirdupois No. shall mean number B.S.M shall mean both sides measured K.S. shall mean current Kenya Standard specification published by the Kenya Bureau of Standard, P.O. Box 54974. NAIROBI, Kenya. 'As described' shall mean as described in these Bills of Quantities. 'As before described' shall mean the whole of the previous description except as qualified in the current one.	

ITEM	DESCRIPTION	AMOUNT
	Carried to collection	
	<u>SITE LEVELS</u> A Before commencing work the Contractor must arrange for and agree with the Architect, Engineer and Quantity Surveyor the existing site levels and similarly establish and agree on a bench mark. The Contractor shall provide a surveyor to ensure all levels are achieved as per the drawings and Architects/Structural Engineer's instructions <u>SETTING OUT</u> B The contractor shall set out works in accordance with the dimensions and levels shown on the drawings and shall be responsible for the correctness of all dimensions and levels set out by him and he will be required to amend all errors arising from inaccurate setting out at his own cost and expenses. In the event of any error or discrepancy in the dimensions or levels marked on the drawings being discovered, such errors or discrepancies must be reported by the Contractor to the Engineer for his immediate attention. No work shall be commenced by the Contractor until he has received written instructions from the Engineer to adjust such discrepancies which may be proved, upon receipt of such instructions and no claim for extra expenses or relief from the provisions of Clause 5 of the Conditions of the Contract , any discrepancy or error in the dimensions or levels shown on the drawings may be made thereafter. The Contractor shall give the Engineer reasonable notice of the intention to set out or take levels for any part of the Works so that arrangements may be made for checking the work. The accuracy of setting out and leveling shall be within the tolerances specified in the Specifications or on the Drawings. The checking of setting out or leveling by the Engineer shall not relieve the Contractor of his duties or responsibilities under the Contract. <u>MEASUREMENTS</u> C Measurements are based on Standard Methods of Measurement of Building Works and Associated Civil Works For Eastern Africa (SMM) Second Edition 2008. In the event of any discrepancies arising between the Bills of Quantities and the actual works, the site measurements shall generally take precedence. D <u>GENERAL SPECIFICATIONS</u>	

ITEM	DESCRIPTION	AMOUNT
	All works to be carried out in accordance with the Ministry of Roads, public Works and Housing General Specifications for Building Works issued in 1976 or as qualified and amended.	
	Carried to collection	
	<u>SAMPLES</u> A The contractor shall furnish at the earliest possible opportunity before work commences and at his own cost any samples of materials or workmanship that may be called for by the Engineer for his approval or rejection until such samples are approved to be the acceptable standard for the work to which they apply. The samples shall be maintained and displayed on a designated section within the site for the duration of the project where practical and possible. <u>PROTECTION OF EXISTING PROPERTY</u> B The contractor shall take every precaution to avoid damage to all existing property including boundary wall, carpark, roads, cables, drains, staircases, lift etc including other services and he will be held responsible for all damages hereto arising from the execution of his contract and he shall make good all such damages when directed at his own expense. Any damage or disturbances caused to any element shall be reported immediately to the Engineer and the relevant Authority and shall be made good to their satisfaction at the Contractor's expense. C <u>PROTECTION / RELOCATION OF EXISTING SERVICES</u> Prior to commencement of any work the Contractor is to ascertain from the relevant Authorities the exact position, depth and level of all existing electric cables, water pipes and all other services in the area and he shall make whatever provisions may be required by the authorities concerned for the support and protection and/or relocation of such services as will be necessitated. The contractor is also expected to generate a utility management plan to the approval of the Engineer . Any damage or disturbances caused to any service shall be reported immediately to the Engineer and the relevant Authority and shall be made good to their satisfaction at the Contractor's expense.	

ITEM	DESCRIPTION	AMOUNT
	Carried to collection	
A	<u>MATERIALS, TOOLS, PLANT AND SCAFFOLDINGS</u> All materials and workmanship used in the execution of the works shall be of the best quality and description. Any materials for the works condemned by the Engineer shall immediately be removed from the site at the Contractor's expense. The Contractor shall be responsible for the provision of all materials, scaffolding, tools, plant, transport and workmen required for the works except in so far as may be stated otherwise herein and he shall allow for the provision of the foregoing except for such items specifically and only required for the use of Nominated Sub-contractors as described herein. No timber used for scaffolding, formwork or similar purpose shall be used afterwards in the permanent works. All such plant, tools and scaffolding shall comply with all regulations whether general or local in force including Environmental, Social, Health and Safety (ESHS) policies throughout the period of the contract and shall be required as may be necessary to comply with any amendments in or additions to such regulations The Contractor shall keep on the site and maintain in good condition one dumpy or quickset level, metric leveling staff and one 30 metre steel tape for the use of the Architect, Surveyor and Engineer. The contractor may be required to provide an appropriate tower crane as required during the project life. Where a crane is provided, it should meet all regulatory and technical standards, all licences in connection with erection, usage shall be at the Contractors expense. The contractor may be required to provide an appropriate tower crane as required during the project life. Where a crane is provided, it should meet all regulatory and technical standards, all licences in connection with erection, usage shall be at the contractors expense.	

ITEM	DESCRIPTION	AMOUNT
	Carried to collection	
A	<u>LOCAL REGULATIONS AND BY-LAWS</u> The contractor is to comply with all local regulations and by-laws of the Local Authority including serving notices and paying of fees where applicable. These include, but not limited to: National Environmental Management Authority (NEMA), National Contruction Authority (NCA), Water Resources Authority (WRA) The Contractor will be held responsible for serving on the Chief Inspector of Factories a written notice not later than seven days after the beginning of the building operations included in this contract stating the particulars required. <u>TRANSPORT TO AND FROM THE SITE</u>	
B	The Contractor shall include in his prices for the transport of materials, workmen etc to and from the site of the proposed works at such hours and by such routes as are permitted by the Authorities. All unit rates for local or imported goods are to include freight, insurance, handling and delivery costs to the project site together with import duties, sale tax, port charges etc and all other charges of whatever nature.	

ITEM	DESCRIPTION	AMOUNT
	Carried to collection	
A	<u>FAIR WAGES</u> The Contractor shall pay rates of wages and observe hours and conditions of labour not less favourable than the minimum conditions of employment applicable in the area in which the work is carried out. The relevant notice must be posted up and kept posted upon the site where it can be conveniently read by the employees concerned in languages they can understand. The Contractor is to comply with the regulations of Wages and Conditions of Employment Act, Building and Construction Industry Wages Council and is to be responsible for compliance of the sub-contractors employed in the execution of the contract. If required he is to notify the Engineer of the names and addresses of all such Sub-contractors. Any Contractor or Sub-contractors not complying will not be permitted to tender for other work for such a period as the Engineer may determine Should a claim be made to the Engineer alleging the Contractor's default in payment of fair wages to any workman employed on the contract and if proof thereof satisfactory to the Engineer, may failing payment by the Contractor, pay the claim out of any monies due or which may become due to the contractor under this contract. The Contractor is to furnish to the Engineer, if called upon to do so, such particulars of the rates of wages, hours and conditions of labour referred to above as the Engineer may direct	
B	<u>SECURITY OF WORKS</u>	

ITEM	DESCRIPTION	AMOUNT
	The Contractor shall be entirely responsible and shall pay security of all works, stores, materials, plant, personnel etc both his own and sub-contractors and shall also provide all necessary watching, lighting, and other precautions as necessary to ensure the security, the safety and protection of the public. He is to ensure that there is no informal business settlement near the establishment. Carried to collection	
A	<u>OCCUPATIONAL HEALTH AND SAFETY MEASURES</u> The Contractor shall be required to adhere to strict safety measures. In this regard the Contractor should ensure that all his workers, the Consultants and his sub-Contractors workmen are wearing Personal Protective Equipment (PPE) before commencement of any work where applicable including overalls with the “BOMA YANGU, AFFORDABLE HOUSING PROGRAMME” clearly printed on the back each with clearly marked Identification Numbers stitched or imprinted on. The Artwork to be provided for by the State Department of Housing and Urban Development. The Contractor shall allow for providing all watching, lighting, green netting, barriers, signs, covering open trenches and protection of the works, including Sub-Contract works, as may be necessary for the safety of the works and for the protection of the public and his own and Sub-Contractors' employees. He shall also ensure provision of a certified and qualified safety, health and environmental officer, access to ambulance services at all worksites and arrangement to access a local hospital/dispensary with qualified medical staff.	

ITEM	DESCRIPTION	AMOUNT
	The contractor shall take cognisance and shall fully adhere to the regulations of the Occupational Safety and Health Act of 2007 including all the associated revisions The Engineer shall expect full compliance to this regulation and no excuses will be entertained for non-compliance which may lead to suspension of works until the issue is addressed satisfactorily. B <u>PUBLIC, PRIVATE ROADS AND PAVEMENTS ETC</u> The contractor will be required to make good at his own expense any damages he may cause to the present approach and surrounding road surfaces during the period of the works C <u>POLICE REGULATIONS</u> The contractor is to allow for complying with all Government Acts, orders or regulations in connection with employment of labour and other matters related to the execution of the works. The Contractor must acquit himself duly with current acts and regulations, including police regulations regarding the movement, housing, security and control of labour, labour camps, passes for transport, etc.. Carried to collection	
	A <u>AREA TO BE OCCUPIED BY CONTRACTOR</u> The area of the site which may be occupied by the Contractor for use as storage and for the purpose of erecting workshops etc shall be defined on the site by the Engineer B <u>PROGRESS SCHEDULE</u> Immediately after signing the contract the Contractor is to prepare a Time Progress Chart showing the time and order in which he proposes to carry out the works within the total construction time stated in the contract. The chart will show in detail the construction time and order in which each section of the work is to be carried out and be sub-divided into trades and tasks. If the contractor proposes sectional completion of the project he must plan this in detail including access roads, and services and this shall be reflected on the chart	

ITEM	DESCRIPTION	AMOUNT
	Upon the letting of the Sub-Contractors work the Contractor is to incorporate times and details of each separate Sub-Contractor work which information is to be agreed by the Sub-Contractor and the chart will be so designed to accommodate this infantine. At the end of each week the Contractor is to mark on the chart in a different colour the actual time taken to complete the respective stages and sections of the work. The contractor shall obtain the Engineer's approval on the chart and then shall supply copies to the Engineer and Quantity Surveyor If at any time it should appear to the Engineer that the actual progress of the works does not conform to the approved programme progress schedule the Contractor shall produce at the request of the Engineer a revised programme showing the modifications and accelerations to the approved programme necessary to ensure completion of the works within the agreed contract period. The submission of and approval by the Engineer of such revisions and accelerations shall not entitle the Contractor to any extra payment or extension of time and shall not relieve the Contractor of any duties or obligations or responsibilities under the contract Carried to collection	
A	<u>WORKING HOURS AND OVERTIME</u> The contractor shall allow for 24 hour working shifts if required to adhere to the predetermined contract period. The work shall not be carried unless under direct permission of NEMA as allowed for in the NEMA By Laws. All working hours must conform to the requests of the statutory authorities	

ITEM	DESCRIPTION	AMOUNT
	The Contractor shall be responsible for any extra costs for overtime working he considers will be necessary in order to complete the works within the contract period or time for completion apart from overtime working which may be authorised by the Engineer If overtime is worked out in accordance with a written instruction issued by the Engineer the contractor will be reimbursed in respect of such overtime to the unproductive time payable over and above the basic hourly rates as laid down by the Regulation of wages and Conditions of employment Act, Building and Construction Industry Wages Council and excluding any bonuses, profits and overheads. B <u>WATER</u> The contractor shall provide at his own risk and cost all water for use in connection with the works including the work of sub-contractors make arrangements with the local authority for the installation of a separate meter where applicable and possible for all water used by him throughout the contract and pay all costs and fees in connection therewith. He shall also provide temporary storage tanks and tubing etc as he may consider necessary and clear away at completion. The contractor is to provide clean drinking water at the construction site for his workers at all times. All water shall be fresh, clean and pure, free from earthly vegetable or organic matter, acid or alkaline substance in solution or suspension. C <u>TELEPHONE</u> The contractor shall provide in the office, from the commencement to the completion of the works, a wireless or mobile phone and shall pay all charges or airtime necessary for its use D <u>LIGHTING AND POWER</u> The contractor shall provide at his own risk and cost all temporary artificial lighting and power for use on the works including all sub-contractors and specialists requirements and including all temporary connections, wiring, fittings etc and clearing away on completion. The Contractor shall pay all fees and obtain all permits in connection therewith. Carried to Collection	
A	<u>TESTING</u>	

ITEM	DESCRIPTION	AMOUNT
	Allow for all expenses in connection with the testing of materials as specified hereunder including the supply and preparation of materials to be tested, the cost of materials and their packing and conveyance to the nearest approved Testing Laboratory, laboratory charges, etc. The following items of tests will be measured according to the number of tests actually called for by the Engineer but unsuccessful tests will not be included in the remeasurement. Allow for executing the following tests as detailed in the Appendices to these Bills of Quantities (PROVISIONAL)) Water Test(litres) Sand Test(m3) Aggregate Test(m3) Reinforcement test (1m of mild steel rod or high tensile steel bar of various sizes) Concrete Test (each test comprising cubes as described hereinafter) Testing of concrete or stone blocks of various strengths in accordance with Kenya Standard Specification (one test comprising blocks)	
B	<u>PRICING RATES</u> The tenderer shall include for all costs in executing the whole of the works, including transport, replacing damaged items, fixing, all to comply with the said Conditions of Contract.	
C	<u>RESOURCE ALLOCATION PLAN</u> The Contractor shall prepare a resource allocation schedule in line with the progress schedule. This shall include a breakdown of labour, equipment and materials among others. The labour shall be broken down to include the number of skilled, unskilled and supervising teams that shall be required per task. The contractor shall incorporate the resources required by the subcontractors including but not limited to labour, equipment and materials. The Contractor shall continuously track the resources allocation plan and issue reports on the same. If at any time it should appear to the Architect that the actual progress of the works does not conform to the approved resource allocation plan and the progress schedule, the Contractor shall produce at the instructions of the Architect a revised resource allocation plan showing modifications and accelerations to the plan to ensure completion of the works within agreed contract period and within the agreed contract period and cost.	
	Carried to collection	

ITEM	DESCRIPTION	AMOUNT
A	<u>TEMPORARY STRUCTURES</u> a) The Contractor shall allow for providing and clearing away on completion of the works such temporary hoarding , rubbish chutes, gates, planked walkways, guard rails etc. as may be necessary for the protection of the workers, the general public, and for the proper execution of the works. b) As such, temporary structures shall be constructed with the approval of the Engineer and to his full satisfaction and in such a manner as to cause minimum intrusiveness and disturbance to occupants of adjacent developments and users of the adjacent roads. c) All such temporary structures shall comply in all aspects with the national laws, rules, and regulations currently in force and applicable to such structures. d) All temporary structures shall be erected in a manner so that the unloading of materials causes minimum obstruction to the use of adjacent roads and other facilities e) All temporary structures shall be kept properly lighted throughout the periods of darkness and any corners or projections shall be painted white. g) Temporary structures shall not be used or permitted to be used for advertisement purposes except with the written consent of the Engineer h) All temporary structures shall be maintained at all times in good order and good condition to the satisfaction of the Engineer. i) All temporary structures shall be removed when so required by the Engineer or at the end of the period for which it is required. j) The Contractor shall indemnify and shall keep the employer idemnified against any expenses, loss, claim or suits arising out of or in connection with the temporary structures.	

ITEM	DESCRIPTION	AMOUNT
	Carried to collection	
	<u>SITE OFFICE</u> A The contractor shall supply, maintain, service, clean and light a fully furnished, suitable office having an approximate floor area of not less than 200sqm. The office shall have a sample room suitable dimensions with clean running water and electricity connected to the approval of the Engineer. The Contractor shall provide offices, messrooms and all other buildings required by the Contractor for his own use and the use of by Clerk of Works and Nominated SubContractors as required by the items or attendance The site office shall be equipped with a table and chairs of sufficient size and number for site meetings and plan chests for drawings shall also be provided by the contractor The Contractor shall allow for the cost of providing light refreshment for the consultants at site meetings. <u>TEMPORARY DISPOSAL OF RAIN WATER</u> B The Contractor shall provide and maintain all necessary temporary gutters, downpipes, chutes, drains etc. for conveying rainwater from the buildings and storage tanks for rainwater harvesting. The Contractor shall allow for temporary drainage plumbing and piping for keeping the premises and site free from accumulation of water. He shall also allow for construction and maintaining any necessary storm water drainage structures as directed. <u>CLEARING AWAY</u> C The Contractor shall remove all temporary works, rubbish, debris and surplus materials from the site as they accumulate, on intervals as instructed by the Engineer and upon completion of the works, remove and clear away all plant, equipment, rubbish, unused materials and stains and leave in a clean and tidy state to the reasonable satisfaction of the Engineer. The whole of the works shall be delivered up clean, complete and in perfect condition in every respect to the satisfaction of the Engineer.	

ITEM	DESCRIPTION	AMOUNT
	Carried to collection	
A	<u>SITE ACCOMODATION & STORAGE</u> The Contractor shall provide sheds for storage accommodation for all goods and materials liable to suffer damage from exposure to sunlight or inclement weather. The Contractor shall provide offices, mess rooms and all the buildings required by the Contractor for his own use and the use of Nominated Sub-Contractors as required by the items of attendance only. The Contractor shall provide at his own risk and cost where directed on the site weather proof lock-up sheds and make good damaged or disturbed surfaces upon completion to proof lock-up sheds and make good damaged or disturbed surfaces upon completion to the satisfaction of the Engineer Upon completion all temporary buildings are to be removed and cleared away	
B	<u>SANITATION OF THE WORKS</u> The sanitation of the works shall be provided, maintained and removed on completion by the Contractor to the satisfaction of the Engineers and local Authorities. The sanitary facilities shall be of generally acceptable standard regardless of the material being used to ensure ease of cleaning and maintain general well being of the users. Their location shall be agreed with the Engineers and the works shall not be commenced before the sanitary accommodation has been approved by the above mentioned authorities. The contractor shall ensure clear separation of sanitation facilities for both male and female workers clearly labelled "Gents" and "Ladies" and these further ensure that the facilities are sufficient/proportional to the population on site. The Contractor will be required to pay all conservancy charges and shall ensure clean daily maintenance and disinfecting of the sanitary facilities, and not less than once per week, the whole area shall be sprayed with disinfectant and insecticides and any temporary drains shall be removed and all works and surfaces disturbed made good and then the whole area disinfected and left clean and free from pollution to the satisfaction of the Engineer and local authorities.	
C	<u>HOARDINGS</u>	

ITEM	DESCRIPTION	AMOUNT
	The Contractor shall provide, erect and maintain throughout the course of the Contract and thereafter clear away and make good disturbed areas, temporary hoarding; approximate length of 300 metres: 2400mm high above ground consisting of: 100mm diameter timber poles at 1200mm centres firmly founded and secured, 75x50mm horizontal timber rails at 900mm centres, painted GCI sheets, proper timber gates with suitable locks to Engineers approval.	
	Carried to collection	
A	<u>DEMOLITIONS AND DOWNTAKINGS</u> The Contractor is to allow for all temporary protection required during the works including ordinary and special dust screens, hoardings, barriers, warning signs etc. as directed by the Engineer and as necessary for the adequate protection of adjacent property and finishes, workmen employed upon the site and the public. Any damage or loss incurred due to the insufficiency of such protection must be made good by the Contractor. All protective devices are to be removed on completion of the work and any necessary making good consequent upon this is to be executed to the satisfaction of the Engineer All materials arising from demolitions and downtakings are deemed to be the property of the employer. No claim will be entertained on account of employer excising this right to retain the materials unless otherwise stated. The Contractor shall allow in his rates the cost of handling and disposal of debris arising out of the demolition works All downtakings shall be carefully removed, taken down, dismantled and stored on site until instructed by the Engineer to remove from the site. Such materials shall only be incorporated in the new works if required by the Engineer in which case appropriate adjustments will be made in the final account for the cost of labour, screws etc for fixing such downtakings in the new works. The Contractor shall be entirely responsible for any breakage or damage which may occur to materials required for re-use, during their removal, unless it is certified by the Engineer that such damage or breakage was inevitable as a result of the condition of the item concerned.	
B	<u>ACCESS TO SITE AND TEMPORARY ROADS</u>	

ITEM	DESCRIPTION	AMOUNT
	Means of access to the site shall be agreed with the Engineer prior to commencement of the works and the Contractor must allow for building and maintaining any temporary access roads for the transport of materials, plant and workmen as may be required for the complete execution of the works including the provision of temporary culverts, crossings, bridges or any other means of gaining access. Upon the completion the works the Contractor shall remove such temporary roads, temporary culverts bridges etc and make good and reinstate all works and services disturbed to the satisfaction of the Engineer. Carried to collection	
A	<u>SIGN BOARD</u> The Contractor shall provide and erect where directed and maintain during the whole period of the building operation and remove at completion, one approved sign board of approximately 3000x3000mm and approximately 5800mm overall height to the Architect's later design giving a brief description of the works, a 3D perspective image of the project, and showing the names of the employer and the consultants, with sufficient space to append the names of the sub-contractors and suppliers when known. The lettering concerning the Architect, Quantity Surveyor and Engineer is not to be more than 50mm high.	
B	<u>PRIME COST SUMS</u> i) The words "Prime Cost" (or the initials "P.C") appearing in the contract documents shall mean net costs exclusive of any trade, cash or other discount whatsoever but inclusive of the costs of the packing, carriage and delivery. Such costs shall be the same due to the sub-contract or supplier after adjustments where applicable in respect of measurements of rates. ii) Any increase or decrease in the prime costs sums resulting from the adjustments and properly paid by the contractor shall be added or deducted from the contract sum in the final account. In substantiation the contractor will require to produce to the Quantity Surveyor all quotations, invoices and receipted accounts as shall be necessary to show the details of the sums actually paid.	

ITEM	DESCRIPTION	AMOUNT
	iii) Any sum added by the contractor in these Bills of Quantities in respect of profits upon any prime costs will be deducted at the final settlement of accounts and the sum will be added to the amount of which will bear the same proportion to the sum added as the net amount properly expended to the original P.C sum. The profit is a management fee for arranging and taking responsibility of the sub-contract works or arranging for and checking the supply of materials and goods from nominated suppliers. Carried to collection	
A	<u>NOMINATED SUB-CONTRACTORS</u> The contractor shall accept responsibility for providing the following services for nominated sub-contractors. i) GENERAL ATTENDANCE: The following services are described as "allow for general attendance" . This shall mean: a) Use for the purpose of the sub-contract works of any scaffolding belonging to or provided by the contractor while it remains so erected upon site, provided that no warranty or other liability on the part of the contractor or of his other sub-contractors shall be created or implied in regard to the fitness, condition or suitability of the said scaffolding b) Provision of water, lighting, watching and attendance for the purpose of the sub-contract works. c) Use of sanitary accommodation, mess rooms and welfare facilities.	

ITEM	DESCRIPTION	AMOUNT
	d) Provision of space for erecting of offices or stores or space for storage of plant and materials. ii) SPECIAL ATTENDANCE: The following services are described as "allow for special attendance" . This shall mean: a) Taking delivery and including the provision of unskilled labour necessary to attend upon the sub-contractors workmen for the purpose of unloading plants/equipment and materials of significant weight and/or size, when received upon the site and placing in position within the sub-contractor's storage space or store. b) Special Scaffolding, scaffolding additional to the Contractors scaffolding or Reassembling of contractor's scaffolding. c) Facilitating special power requirements during the course of the works. Carried to collection	
	CLAIMS A It shall be a condition of this contract that upon it becoming reasonably apparent to the Contractor that he has incurred losses and / or expenses due to any of the contract conditions, or by any other reason whatsoever, he shall present such a claim or intent to claim notice to the Engineer within the contract period. No claim shall be entertained upon the expiry of the said contract period. PAYMENTS B The tenderer's attention is drawn to the fact that the payments shall be made in accordance with Clause 14 of the Conditions of Contract Agreement. In order to facilitate this, a list of the general component elements for the works is given at the summary page of these specifications and the tenderer is requested to break down his tender sum commensurate to the said elements.	

ITEM	DESCRIPTION	AMOUNT
C	PREVENTION OF ACCIDENT, DAMAGE OR LOSS The Contractor is thus instructed to take reasonable care in the execution of the works as to prevent accidents, damage or loss and disruption of activities being carried out. The Contractor shall allow in his rates any expense he deemed necessary by taking such care within the site.	
	Carried to collection	
A	<u>NOMINATED SUPPLIERS</u> The contractor shall take delivery all materials or goods supplied by the Nominated suppliers and shall sign a receipt as having received them in good order and condition. He shall offload, transport to site, unload, hoist, provide safe storage and thereafter be responsible for any loss or damage or replacement of any such lost or damaged articles at his own expense and shall return case if so required. Provision is made herein following each appropriate P.C sums for the costs of the foregoing services against items reading "take delivery of and fix only"	

ITEM	DESCRIPTION	AMOUNT
	<u>Fix Only:-</u> "Fix Only" shall mean take delivery on site, unload, store, unpack, assemble as necessary, distribute to position, hoist and fix only. B <u>DIRECT CONTRACTS</u> Notwithstanding the foregoing conditions, the Government reserves the right to place a "Direct Contract" for any goods or services required in the works which are covered by a P.C. Sum in the Bills of Quantities and to pay for the same direct. In any such instances, profit relative to the P.C. Sum in the priced Bills of Quantities will be adjusted as described for P.C. Sums is allowed. C <u>PROTECTION OF THE WORK</u> The Contractor shall cover up and protect all finished work liable to damage including provision of temporary roof, gutters, drains etc until the completion of the works. In the event of any damages occurring to the works, materials, sewers, drains, gullies, paths or other works on site in temporary possession of the contractor for the purpose of this contract either from weather, want of proper protection, defects, or insufficiency of the works or any other causes or whatsoever during the progress of the works, the contractor shall be responsible and without extra charge, make good all damage and pay all costs which may be levied. BLASTING OPERATIONS D Blasting will only be allowed with the express permission of the Engineer in writing. All blasting operations shall be carried out at the Contractor's sole risk and cost in accordance with any Government regulations in force for the time being, and any special regulations laid down by the Engineer governing the use and storage of explosives. Carried to collection	
	<u>PREVENTION OF NUISANCE</u>	

ITEM	DESCRIPTION	AMOUNT
A	The works and such sections of the site necessary thereafter shall be under the entire care and control of the contractor during the whole period of the contract and shall take all possible precautions to prevent any nuisance, inconvenience or injury to the holder or occupiers of the existing or surrounding properties and to the public generally, and shall at all times keep all paths and roads affected by the works in a safe and clear state, and shall use proper precautions to ensure the safety of all wheeled traffic and pedestrians. The contractor shall provide appropriate screens to seal off the working area. <u>REMOVAL OF PLANT AND RUBBISH ETC</u>	
B	The Contractor shall upon completion of the works remove and clear away all temporary buildings, plant, rubbish and unused materials, and shall leave the whole of the site of the works in a clean and tidy state to the satisfaction of the Engineer. He shall also remove all rubbish and dirt from the site at intervals or as directed by the Engineer. Particular care shall be taken in leaving windows, floors and fittings clean and the removal of all paint and cement stains therefrom. The contractor is expected to have established a well planned method of solid disposal of debris/garbage on and off the camp site <u>CONTRACTOR'S SUPERINTENDENCE/SITE AGENT</u>	
C	The Contractor shall constantly keep on the works a literate English speaking Agent or Representative, competent and experienced in the kind of work involved who shall give his whole experience in the kind of work involved and shall give his whole time to the superintendence of the works. Such Agent or Representative shall receive on behalf of the Contractor all directions and instructions from the Engineer and such directions shall be deemed to have been given to the Contractor in accordance with the Conditions of Contract.	
	Carried to collection	

ITEM	DESCRIPTION	AMOUNT
	<u>TRAINING LEVY</u> A The Contractor's attention is drawn to legal notice No. 237 of 2007 which requires payment by the Contractor for a training levy and the contractor shall allow in the preliminaries of this contract (basic rates column) for all costs arising or resulting therefrom. Proof of payment of this Levy should be provided at the request of the Engineer <u>STANDARDS LEVY</u> B The Contractor is required to make payments to the Kenya Bureau of Standards as Standard Levy inline with the current current and prevailing regulations. <u>VALUE ADDED TAX (V.A.T.)</u> C The Contractor's attention is drawn to V.A.T PUBLIC NOTICE NO. 6 of 5th August, 1993 regarding the Finance Bill 1993 which expanded the V.A.T base to cover construction services amongst other items. The Contractor's attention is also drawn to all other notices issued by the government in relation to taxation. The Contractor shall familiarise himself with the said notices and allow in all his Bills of Quantities rates (Excluding P.C and Provisional Sums) for the net tax. (i.e less input tax where applicable) as required by law. Please note that allowing a lump sum tax either in preliminaries or in summary page shall not be acceptable. Any additional information and assistance concerning the application of the said notice should be directed to the office of the Commissioner of Value Added Tax	

ITEM	DESCRIPTION	AMOUNT
	Carried to collection	
	<u>BILL NO. 1</u> <u>GENERAL PRELIMINARIES</u> <u>COLLECTION</u> Carried from page 1/1 Carried from page 1/2 Carried from page 1/3 Carried from page 1/4 Carried from page 1/5 Carried from page 1/6 Carried from page 1/7 Carried from page 1/8 Carried from page 1/9 Carried from page 1/10 Carried from page 1/11 Carried from page 1/12 Carried from page 1/13 Carried from page 1/14 Carried from page 1/15 Carried from page 1/16 Carried from page 1/17 Carried from page 1/18 Carried from page 1/19 Carried from page 1/20 Carried from page 1/21	

ITEM	DESCRIPTION	AMOUNT
	Total for General Preliminaries Carried to Summary of Bill No. 1	

PROJECT MANAGEMENT EXPENSES

Item	Description	Unit	Qty	Rate	
	<u>PROJECT PROVISIONS</u>				
	Project Manager's Project Provisions. Contractor is advised to price for other preliminaries under the section of particular and General Preliminaries in the tender document				
	Project Manager's staff and Supervision				
A	Provide and maintain equipment for the Project Manager's site office for the duration of the project	Lump Sum	1	1,000,000	
B	Provide for supervision as follows: 1 No. Clerks of works, (Building and services) for the duration of project and 1 no. Work Inspectors, and 1 No Surveyor to be engaged on need basis.	Lump Sum	1	1,500,000	
C	Allow a provisional sum of Kshs. One Million (1,000,000) for Project Management Team and other stakeholders facilitation allowances during project implementation, as and whenever it is necessary.	Lump Sum	1	1,000,000	
D	Allow a P.C. Sum of KShs. Two Million (Kshs.2,00,00,000) (shared among the projects in the same region) for supply of 1 Nr. (one)Toyota Hiace Diesel 4X2 12 seater Japan, or approved equivalent, including road licenses, number plates, insurances, etc. The vehicles to revert to Employer after completion of Contract. Minimum specifications include but not limited to the following: • Engine - 2.5 litres Turbo Diesel • Rear Differential Gear Lock • Braking System to include ABS (Anti-Lock Brake System) • Power Steering with adjustable Steering Column • Electronic Fuel Injection System. • 5 Speed Semi-Auto Transmission • Power Windows • Immobilizer and Alarm System • Fuel tank capacity between 80 litres and 100 litres	Lump Sum	1	2,000,000	
E	Provide for the driver, fuels, maintenance, lubricants and servicing of the vehicle for kilometrage over 1000 km per vehicle month.	Km	8,650	75	
	Total Carried to Collection				

Item	Description	Unit	Qty	Rate	
F	Provide and erect publicity signboards for the whole of the project including defects liability period as will be instructed by the Project Manager and in accordance with the designs and specifications to be issued.	No.	2	50,000	
G	Provide a Prime-cost sum of Kshs Five Hundred Thousand, (500,000.00) only for carrying out environmental impact assessment before the commencement of works and and undertaking environmental mitigation measures as the work progresses.	No.	1	500,000	
H	Provide a Prime-cost sum of Kshs Six Hundred Thousand, (600,000.00) only for carrying out Geotechnical survey before the commencement of works and preparation of the reports	Lump Sum	Item	600,000	
I	Allow a provisional sum of Kshs. Two Hundred and Fifty Thousand (250,000.00) for stationery, documentation, model making, review and preparation of as built drawings Manager.	Lump Sum	1	250,000	
J	Allow a provisional sum of kshs Three hundred and fifty thousand (kshs 350,000) for provision of laptop computer for the Engineers team	Item	1	350,000	
	Contractor's profits and overheads				
K	Allow for the Contractor's overheads and profits on items A,B.C D, E, F G, H, I J and K .	%			
	Total Carried to Collection				
	Collection				
	Brought forward from page 1				
	Brought forward from above				
	Total for Project Expenses Carried to Summary of Bill No. 3				

BUILDER'S WORK HOSTEL BLOCK

Item	Description	Unit	Qty	Rate	Amount
	<u>PROPOSED APARTMENTS FOR STUDENT HOUSING PROGRAM (HOSTEL BLOCK G+7)</u> BILL NO.1-BUILDERS WORKS ELEMENT NO 1 - SUBSTRUCTURES (ALL PROVISIONAL) <u>Site Clearance</u> A Clear site of all grass, hedges, shrubs, bushes grub up roots, load and remove from site and dispose at designated local authority areas. B Excavate for reducing levels commencing from existing ground level C Excavate strip footing depth not exceeding 1.5 metres from reduced level D Depth exceeding 1.5 metres but not exceeding 3.0 metres ditto E Excavate column bases depth not exceeding 1.5 metres from reduced level F Depth exceeding 1.5 metres but not exceeding 3.0 metres ditto G Mass excavation for lift bases depth not exceeding 1.5 metres from reduced level H Extra over all type of excavation for excavating in soft rock I Ditto excavation in hard rock class I Disposal of water J Allow for keeping the whole of the excavation free from all spring and running water by pumping or any other such means as may be necessary Planking and strutting K Allow for maintaining and upholding the sides of excavations and keeping excavations clear of all fallen materials, rubbish etc	SM	720		
		Cm	324		
		Cm	653		
		Cm	239		
		Cm	250		
		Cm	92		
		Cm	18		
		Cm	78		
		Cm	78		
		Item	1		
		Item	1		
	Carried to collection				

Item	Description	Unit	Qty	Rate	Amount
	<u>Disposal of excavated material</u>				
A	Load, wheel and cart away surplus excavated material to a Local Authority designated dumping site or fill soil heaps as away from site instructed by the Project Engineer.	CM	436		
B	Return, fill and ram selected excavated material around sides of foundations.	CM	706		
	Fillings				
C	Make up levels using approved imported materials: compacted in layers not exceeding 300mm thick with a 10 tonne roller: to the satisfaction of the Structural Engineer.	CM	324		
D	300mm thick hardcore bed: hand packed : compacted in layers not exceeding 150mm thick: to the satisfaction of the Structural Engineer	SM	720		
E	50 mm Stone dust/ Murram blinding to surfaces of hardcore	SM	720		
	Anti - termite to treatment				
F	Approved anti-termite treatment, with ten-year guarantee, sprayed to surfaces of hardcore strictly in accordance with manufacturer's instructions.	SM	720		
	Damp-proof membrane				
G	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (measured separately) with 300mm side and end laps (measured nett-allow for laps); 1 No. layer: bedded in and including cement and sand (1:3) mortar	SM	720		
	Concrete Blinding				
	In situ concrete Class 15MPa: vibrated:				
H	50 mm thick blinding under strip footing	SM	481		
I	Column bases ditto	SM	121		
J	Lift shaft base diito	SM	12		
	In- situ vibrated reinforced concrete Class 25MPa: in:				
K	Strip footing	CM	192		
L	Column bases	CM	48		
K	Lift shaft base	CM	5		
M	Columns	CM	13		
N	150mm thick surface bed	SM	720		
O	175mm thick ramp	SM	13		
K	200 mm thick Lift shaft walls	SM	14		
	Carried to collection				

Item	Description	Unit	Qty	Rate	Amount
	Ribbed reinforcement steel bars to KS 573:2014 : Grade 500 high tensile strength including bends, hooks, tying wire and distance blocks; to S.E's detail (Provisional)				
A	Assorted reinforcement	KGS	28,425		
	Mesh fabric reinforcement to K/EAS 412;2 (2019) BRC A142;200 x 200mm, weighing 2.22kg/m² (measured net - no allowance) for laps; in two layers - top & bottom; including bends, tying wire and spacer blocks)				
B	In ground floor slab	SM	733		
	<u>Modular steel frame with steel plates covering formwork and/or marine board formwork; to:</u>				
C	Sides of the strip footing	SM	177		
D	Sides of column bases	SM	125		
E	Sides of lift bases	SM	14		
F	Vertical sides to columns	SM	253		
G	Vertical sides to lift shaft walls	SM	28		
H	Edge of slab not exceeding 150mm girth	LM	163		
	Foundation Walling				
	Natural quarry stone walling with a minimum of 7.0 N/mm² bedded and jointed in cement and sand (1:4) mortar, reinforced with and including 25 x 3 mm thick hoop iron strips at every alternate course as described in;				
I	200mm thick walls in foundations	SM	763		
	<u>Pavings</u>				
J	Supply and lay 600 x 600 x 50mm reinforced concrete precast paving slabs around the building including laying, spreading and compacting 100mm thick approved sand bed blinding, on and including 150mm thick compacted hardcore to Engineer's approval.	SM	98		
	Carried to collection				

Item	Description	Unit	Qty	Rate	Amount
	<u>Plinth</u>				
	<u>25mm Thick cement and sand (1:3) rendering on concrete or masonry ; wood float finished; to</u>				
A	Plinths externally	SM	49		
	Two coats black bitumastic paint on:				
B	Rendered surfaces	SM	49		
	Expansion joint				
C	25mm Thick; styrofoam or any equal or approved flexel material	SM	2		
D	25 x 50mm Mastic joint sealant	LM	12		
	<u>Cement/sand (1:3) screed with approved waterproofing admixture, steel trowelled hard and smooth to receive waterproofing (m/s)</u>				
E	20mm thick water proof cement/sand (1:3) screed to lift pit floor prepared to receive water proofing	SM	12		
F	12mm thick water proof cement/sand (1:3) render to wall prepared to receive water proofing	SM	14		
	<u>Waterproofing</u>				
	<u>CRYSTALLINE WATERPROOFING</u>				
	<u>All areas indicated shall be waterproofed by approved cementitious system , provide 10 year guarantee, all to manufacturer's specifications and instructions as described:</u>				
	<u>Two coat slurry application: waterproofing powder: 1kg per m2 per coat, minimum 2 coats to seal all expansion joints, holes, repaired areas and angle fillet or as per manufacturers instructions</u>				
	<u>Application of render coat: waterproofing powder: 1kg per m2 at 4.5mm thick on slabs. Rate shall allow for hacking and preparing all concrete surfaces or as per manufacturers instructions</u>				
G	Horizontal surfaces of lift base	SM	12		
H	Vertical surfaces of Lift shaft walls	SM	14		
	Carried to collection				

Item	Description	Unit	Qty	Rate	Amount
	<u>PROPOSED APARTMENTS FOR STUDENT HOUSING</u> <u>PROGRAM (HOSTEL BLOCK G+7)</u> BILL NO.1-BUILDERS WORKS ELEMENT No 2 - R.C FRAME <u>Insitu concrete class 25 MPa: vibrated: reinforced</u>				
A	Columns	CM	146		
B	Beams	CM	244		
C	Upper Roof Beams	CM	4		
D	130mm thick suspended slab	SM	3,722		
E	150mm thick suspended slab	SM	1,766		
F	150mm thick Tank Slab over stairwell	SM	91		
G	150 mm thick landing	SM	94		
H	Staircases	CM	59		
I	200 mm thick lift shaft walls	SM	94		
	Ribbed reinforcement steel bars to KS 573:2014 : Grade 500 high tensile strength including bends, hooks, tying wire and distance blocks; to S.E's detail (Provisional)				
J	Assorted reinforcement	Kg	132,639		
	<u>Modular steel frame with steel plates covering formwork and/or marine board formwork; to</u>				
K	Sides of columns	Sm	1,750		
L	Sides and soffits of beams	Sm	3,254		
M	Soffits of suspended slabs	Sm	5,579		
N	Edges of slab over 150mm but not exceeding 225mm girth	Lm	1,114		
O	To sloping soffits of staircases	Sm	183		
P	Soffits of landings	Sm	94		
Q	Riser of steps over 150 mm but not exceeding 225 mm girth	Lm	638		
R	Staircase string 300mm extreme girth and cut to profile of steps	Lm	153		
S	Edges of landing over 150 but ot exceeding 225mm high	Lm	220		
T	Sides of lift walls	Sm	188		
U	Edges of lift shaft openings 150-225mm high	Lm	50		
	Expansion joint				
V	25mm Thick; styrofoam or any equal or approved flexel material	Sm	25		
W	25 x 50mm Mastic joint sealant	Lm	93		
	<u>ELEMENT NO. 2</u>				
	<u>R.C FRAME</u>				
	Carried to Main summary				

Item	Description	Unit	Qty	Rate	Amount
	<u>PROPOSED APARTMENTS FOR STUDENT HOUSING PROGRAM (HOSTEL BLOCK G+7)</u> BILL NO.1-BUILDERS WORKS ELEMENT No 3-WALLING <u>WALLING</u> <u>External Walling</u> <u>Locally available and approved quarry stone walling with a minimum of 7.0 N/mm2 average compressive strength ;bedded and jointed in cement and sand (1:4) mortar, reinforced with and including 25 x 3 mm thick hoop iron strips at every alternate course as described in;</u> A 200mm thick walling Externally Sm 2,928 B 200mm thick parapet walling Sm 196 <u>Internal Walling</u> <u>Locally available and approved quarry stone walling with a minimum of 7.0 N/mm2 average compressive strength ;bedded and jointed in cement and sand (1:4) mortar, reinforced with and including 25 x 3 mm thick hoop iron strips at every alternate course as described in;</u> C 200mm thick walling Internally Sm 4,350 D 100mm thick walling Internally Sm 479 E Ditto perforated (For staircase) Sm 138 F Approved hessian based damp proof course to 200mm thick walling in cement/sand mortar Lm 360 G Ditto but to 100 mm thick Lm 36 <u>Precast Concrete Breeze Ventilation Blocks</u> G 150 x 150mm wide x 50mm thick Pre Cast Concrete flower 3D breeze ventilation blocks bedded and jointed in cement and sand (1:4) mortar Sm 149 COPING H 600 x 350 wide x 100mm thick insitu reinforced concrete class 20Mpa coping, throated and weathered and jointing to columns with cement sand 1:4 mortar Lm 201 Lintols I 200mm x 200mm Deep lintols in reinforced concrete class 20MPa with and including 4No T10 and T8 stirups at 200mm centres; complete with formwork Lm 492				
	<u>ELEMENT NO. 3</u> <u>WALLING</u> Carried to Main summary				

Item	Description	Unit	Qty	Rate	Amount
	<u>PROPOSED APARTMENTS FOR STUDENT HOUSING PROGRAM (HOSTEL BLOCK G+7)</u> BILL NO.1-BUILDERS WORKS ELEMENT NO 4-WINDOWS <u>MILD STEEL WINDOWS</u> Supply, fabricate and fix the following purpose made small pane mild steel casement windows to be fabricated from approved mild steel sections (atleast 14g 2mm thick) comprising of frame and casement incorporating permanent hooded high level ventilation panels infilled with mosquito gauze : window supplied complete with and including 12mm solid square burglar proofing bars fixed at 200mm centres both ways and metal fixing lugs including building into wall and making good, and all necessary iron mongery viz hinges, fasteners, and hasp including shop priming window with red oxide primer before delivery to site:- A prime cost sum of Kshs 6,000 per Sqm has been allowed for fabrication of the above specified Steel casement Windows by AHP juakali artisans as approved by the Project Manager/Architect. The contractor's unit rate shall include the cost of transport, storage, fixing and all associated accesories in addition to the PC Rate.				
A	Ditto size 3000 X 1800mm high	NO	7		
B	Ditto Size 1800 x 1800mm high	NO	8		
C	Ditto Size 1800 x 1200mm high	NO	9		
D	Window overall size 1500 X 1800mm high	NO	157		
E	Ditto Size 1200 x 1200mm high	NO	8		
F	Ditto size 2100 X 600mm high	NO	31		
G	Ditto Size 1600 x 600mm high	NO	16		
	<u>Glazing</u>				
H	4mm Thick clear sheet glass panes over 0.1 but not exceeding 0.5 square meters; fixing with premium putty	SM	473		
I	Ditto; obscure	SM	100		
	Carried to collection				
	<u>Painting and Decorations</u>				

Item	Description	Unit	Qty	Rate	Amount
	<u>On Metal work</u>				
	<u>Prepare and apply aerosol spray painting in two finishing coats of first grade paint as per the manufacturer's printed instructions to: -</u>				
A	General window and grille surfaces; over 300mm girth internal	SM	1,146		
	<u>Precast concrete window cill finishing fair on all exposed surfaces and hoisting and placing in position, bedding, jointing and pointing in pigmented cement and sand (1:3) mortar</u>				
B	150 x 25mm thick Precast concrete window sill	LM	435		
	<u>Curtain rods;</u>				
C	1.5mm thick, 20mm thick diameter twin powdercoated mild steel rod complete accessories to approval	LM	353		
	Carried to collection				
	COLLECTION				
	Total brought forward from page no:				
	Total brought forward from page no:				
	<u>ELEMENT NO. 4</u>	Carried to the			
	<u>WINDOWS</u>	Main summary			
	<u>PROPOSED APARTMENTS FOR STUDENT HOUSING PROGRAM (HOSTEL BLOCK G+7)</u>				

Item	Description	Unit	Qty	Rate	Amount
	BILL NO.1-BUILDERS WORKS ELEMENT NO 5-DOORS External Doors <u>Glazed mild steel casement doors</u> Purpose made mild steel door comprising of 25 x 25 x3mm stiles tees to support the glass all in 40 x 40 x 2mm main frame all round , and including 50 x 50 x 3mm RHS fish tailed lugged to the wall on top and on the sides,including 4 mm clear glass fixed on to the metal tees with metal putty, all primed with one coat red oxide rime and spray painted with 2 coats of first quality gloss oil paint; complete with 180 degrees steel hinges, 2 lever mortice lock , keyed entry handle and stainless steel door sign with door number ,and all necessary seremetals assembled and fixed to opening including cutting and pinning lugs to concrete or block work surround and bedding frame in cement and sand mortar (1:3). A prime cost sum at the rate indicated below has been allowed for fabrication of the above specified Hardwood panelled door leaves by AHP juakali artisans as approved by the Project Manager/Architect. The contractor's unit rate shall include the cost of transport, storage, fixing and all associated accesories in addition to the PC Rate.				
A	Double leaf door (overall size 1800 x 2400 mm high, comprising of 2 No 800 X 2100 mm high opennable leafs and 1800 x 300 mm high fixed fanlight in 4 mm clear glass.(PC Rate Kshs 41,000)	NO	3		
B	Ditto overall size 1500 x 2400 mm high.(PC Rate Kshs 34,100)	NO	1		
C	Single leaf door overall size 1000 x 2400 mm high, comprising of 1 No 900 X 2100 mm high single leaf and 900 x 300 mm high fixed fanligh in 4 mm clear glass.(PC Rate Kshs 21,600)	NO	2		
D	Dittor overall size 900 x 2400 mm high, comprising of 1 No 800 X 2100 mm high single leaf and 800 x 300 mm high fixed fanligh in 4 mm clear glass.(PC Rate Kshs 20,500)	NO	2		
	Carried to collection				
	Roller Shutter				

Item	Description	Unit	Qty	Rate	Amount
A	Supply, assemble and fix the following purpose made motorized roller shutter with manual override: powder coated slats: 3 mm thick galvanized steel guide rails: rolling gear housing in powder coated steel sheets: building in lugs on jambs and plugging and screwing to head: complete with purpose made ironmongery: as described to Roller Shutter ; size 2400 x 2400 mm high to Architect's door schedule <u>Fire Doors</u> <u>Double leaf fire rated steel door with 30 minutes minimum fire resistance ,made from grade 304 stainless steel sheets and infilled with structural honey comb with vertical restraints ,complete with ,fire resistant door frames, itumescent seals,panic bar and handle lever, fire resistant hinges, automatic door closer and all other necessary door accessories</u>	NO	6		
B	Door size 1500 x2400 mm high Internal Doors <u>Flush timber doors</u> 50mm thick solid cored flush door Ply wood facing finished for painting (m/s) both sides; with 15 mm thick wood liping on edges:all to Architects specifications and approval <u>A prime cost sum at the rate indicated below for fabrication of the above specified Timber Flush door leaves by AHP juakali artisans as approved by the Project Manager/Architect.</u> <u>(Contractor shall allow for transport and fixing in their rates)</u>	NO	19		
C	Single leaf door overall size 900mm x 2400mm high comprising of 1 No Opennable leaf size 800 x 2100mm high including fixed fanlight size 800 x 300mm high in 4mm clear glass (measured separately)(PC Rate Kshs 6480)	NO	138		
	Carried to collection				

Item	Description	Unit	Qty	Rate	Amount
	<u>A prime cost sum at the rate indicated below for fabrication of the above specified Timber Flush door leaves by AHP juakali artisans as approved by the Project Manager/Architect. (Contractor shall allow for transport and fixing in their rates)</u>				
A	Single leaf door overall size 1000 mm x 2400mm high comprising of 1 No Opennable leaf size 900 x 2100mm high including fixed fanlight size 900 x 300mm high in 4mm clear glass (measured separetely)(PC Rate Kshs 7200)	NO	49		
B	Single leaf door size 800 x 1850mm high comprising of 1No. Opennable leaf size 700 x 1850mm high(PC Rate Kshs 4440)	NO	140		
C	Double leaf door overall size 900 x 2400mm high (D.06) comprising of 2No. Opennable leaf size 400 x 2350mm high(PC Rate Kshs 6480)	NO	28		
	Frames and frame finishes in wrot softwood				
D	25 x 25mm quadrant(PC Rate Kshs 75)	LM	1,860		
E	25 x 50mm architrave with two labours, plugged(PC Rate Kshs 150)	LM	1,860		
F	150mm x 50mm transome with three labours; chamfered edges; plugged (PC Rate Kshs 800)	LM	173		
G	50 x 150mm frame with three labours; chamfered edges; plugged (PC Rate Kshs 800)	LM	1,860		
H	10 x 20 mm Glazing beads (PC Rate Kshs 75)	LM	917		
	<u>Glazing</u>				
	4mm Thick clear sheet glass fixing with timber glazing beads to timber casements.				
I	In panes exceeding 0.1 sqm but not exceeding 0.5 square metres.	SM	58		
	Carried to collection				

Item	Description	Unit	Qty	Rate	Amount
	<u>Painting and decorating</u> <u>Prepare surfaces and apply one coat of first grade quality aluminium wood primer to:-</u>				
A	Surfaces not exceeding 100mm girth	LM	4,638		
B	Surfaces over 100mm but not exceeding 200mm girth	LM	2,034		
	<u>Prepare surfaces and apply one undercoat and one coat first grade quality ity gloss oil paint from Crown Solo Paints or equal and approved on;</u>				
C	General timber surfaces	SM	1,354		
D	Surfaces not exceeding 100mm girth	LM	4,638		
E	Surfaces over 100 mm girth but not exceeding 200mm girth	LM	2,034		
	<u>Ironmongery</u> <u>Supply and Fix the following stainless steel ronmongery,complete with matching screws and keys to the approval of the Architect</u>				
F	100mm pressed steel Butt Hinges	Pairs	575		
G	2 Lever Door mortice Lock complete with handles	NO	355		
H	Door fixing cramps	NO	2,130		
	<u>Supply and fix the following purpose-made signage in printed vinyl panels in approved background and text colours in accordance to the architects later signage design fixed to finished surfaces in the approved adhesive and matching screws as applicable to;</u>				
I	200 x 50mm Main door signage	NO	142		
J	150x450mm Floor Level Indicator Sign	NO	24		
K	500x100 Floor Wayfinding/Directional Sign	NO	16		
L	200x200mm Duct door Signage	NO	28		
M	450x200 mm Fire Exit Signage	NO	18		
N	1000x300 mm Block Identification Signage	NO	1		
	Carried to collection				

Item	Description	Unit	Qty	Rate	Amount
	<u>PROPOSED APARTMENTS FOR STUDENT HOUSING PROGRAM (HOSTEL BLOCK G+7)</u> BILL NO.1-BUILDERS WORKS ELEMENT NO 6 - EXTERNAL FINISHES EXTERNAL WALL FINISHES External Render <u>Cement and sand (1:3) render:wood floated: on concrete or blockwork: to</u> A 15mm thick to beams, Columns, Slab Moulds and walling externally SM 6,700 B Extra over horizontal and vertical pointing in 10mm thick rod in cement and sand mix (1:3) mortar including one coat Bituminous paint SM 10 External Painting <u>Prepare and apply one coat Alkali Resistant primer followed by two finishing coats of silicon exterior Emulsion paint in accordance with the manufacturers written instructions and to the satisfaction of the architect to</u> C Concrete/masonry surfaces externally-Beam, Column and Slab Moulds SM 6,700 ROOF FINISHES Cement and sand (1:3) screeded beds: on concrete: complete with coloured pigmentation additives and hardener to: D 50mm average waterproofed lightweight screed laid to falls and crossfalls to roof slabs -upper roof including gutter bases SM 245 <u>Prepare and apply to vertical/horizontal surfaces 4mm thick APP/EPDM water proofing or other equal and approved membrane with surface finish weighing 4kg/ sm; laid on primer with torch-on process ;by an approved specialist all in accordance with the manufacturers instructions including provision of a written ten (10) year anti leak guarantee.</u> E 4mm thick APP membrane applied to roof slabs SM 245 F Ditto to skirting 200mm high LM 186 G Dress membrane around 100mm rainwater outlet No. 10 <u>The Following Flat roof concrete tiles fixed with approved adhesive, laid and jointed with waterproofing bituminous compound</u> H 20mm thick interlocking Concrete tiles of size 225 x 225mm with and including cement sand (1:4) backing to falls SM 245				
	<u>ELEMENT NO. 6</u> EXTERNAL FINISHES	Carried to Main summary			

Item	Description	Unit	Qty	Rate	Amount
	<u>PROPOSED APARTMENTS FOR STUDENT HOUSING PROGRAM (HOSTEL BLOCK G+7)</u> BILL NO.1-BUILDERS WORKS ELEMENT NO 7 - INTERNAL FINISHES <u>Internal Wall Finishes</u> <u>Cement and sand (1:3) backings</u> A 15mm thick to receive ceramic Wall tiles SM 2,495 B To receive porcelain wall tiles (m.s.) (Lift Lobby) SM 206 <u>Ceramic wall tiles</u> C Supply and Fix approved ceramic wall tiles on prepared backings(m.s) with proprietary adhesive; jointed and pointed in matching coloured proprietary grouting; including pvc spacers and expansion joint as necessary: all to Architect's approval. - Wall Surfaces SM 2,495 <u>Porcelain wall tiles</u> D Supply and Fix porcelain wall tiles on prepared backings(m.s) with proprietary adhesive; jointed and pointed in matching coloured proprietary grouting; including pvc spacers and expansion joint as necessary: aluminium corner and dividing strips; all to Architect's approval. - Wall Surfaces SM 206 <u>15mm (minimum) two coat cement, sand (1:3) plaster complete with wire gauze anti-crack mechanism at the intersection of masonry walling and concrete beams as described to:-</u> E Concrete/masonry surfaces SM 11,555 <u>Painting and Decoration</u> <u>Prepare, Skim and apply Emulsion or universal undercoat followed by two finishing coats of soft satin Emulsion paint in accordance with the manufacturers written instructions and to the satisfaction of the architect to</u> F Plastered concrete/masonry surfaces internally SM 11,555				
	Carried to Collection				

Item	Description	Unit	Qty	Rate	Amount
	<u>Floor Finishes</u>				
	<u>Cement and sand (1:3) screeds, backings, beds etc</u>				
A	32mm bed finished to receive Floor Tiles (m.s)	SM	2,219		
B	25mm thick finished to receive terrazzo	SM	2,591		
	<u>25 mm thick Cement and sand (1:4) backings on concrete surfaces prepared to receive terrazo finish : to:</u>				
C	Landings	SM	94		
D	300 mm wide treads to receive terazzo (m.s)	LM	638		
E	150mm risers to receive terazzo (m.s)	LM	638		
	<u>Ceramic Floor tiles</u>				
F	Supply and Fix non-slip Ceramic tiles, on prepared bed(m.s) with proprietary adhesive; jointed and pointed in matching coloured proprietary grouting; including pvc spacers and expansion joint as necessary: all to Architect's approval.	SM	2,219		
G	Ditto 100mm wide Wall Skirtings	LM	2,029		
	<u>15mm thick Colored terrazzo paving to architects specification, polished to smooth surface and including adhesives, hardener, mixer, and dividing strips on prepared cement sand backin: to:-</u>				
H	Floor surfaces (Corridors, wash areas and lobby)	SM	2,591		
I	Landings	SM	94		
J	300mm wide treads	LM	638		
K	150 mm high risers	LM	638		
L	Ditto 100mm wide Wall Skirtings	LM	2,280		
	Staircase soffit finishes				
	<u>15mm (minimum) two coat cement, sand (1:3) plaster complete with wire gauze anti-crack mechanism at the intersection of masonry walling and concrete beams as described to:-</u>				
M	Soffits of staircase landing	SM	94		
N	Ditto to sloping soffites exceeding 15° from horizontal	SM	183		
O	Staircase string 300mm extreme girth and cut to profile of	LM	153		
	Carried to Collection				
	<u>Paint works</u>				

Item	Description	Unit	Qty	Rate	Amount
	<u>Prepare, skim and apply Emulsion or universal undercoat followed by two finishing coats of soft satin Emulsion paint in accordance with the manufacturers written instructions and to the satisfaction of the architect to</u>				
A	Soffits of staircase landing	SM	94		
B	Ditto to sloping soffits exceeding 15° from horizontal	SM	183		
C	Staircase string 300mm extreme girth and cut to profile of steps	LM	153		
	<u>Ceiling finishes</u>				
	<u>15mm (minimum) two coat cement, sand (1:3) plaster complete with wire gauze anti-crack mechanism at the intersection of masonry walling and concrete beams as described to:-</u>				
D	Soffits of Concrete surfaces	SM	4,900		
	<u>Painting and Decoration</u>				
	<u>Prepare, skim and apply Emulsion or universal undercoat followed by two finishing coats of soft satin Emulsion paint in accordance with the manufacturers written instructions and to the satisfaction of the architect to</u>				
E	Plastered ceilings	SM	4,900		
	<u>Wet areas waterproofing - Kitchens, Toilets etc.</u>				
	Liquid membrane - High build bitumen/ rubber latex emulsion with excellent adhesion, liquid applied to form a seamless flexible water proof/ vapour proof membrane as as per the manufacturer's printed instructions to; solid content =65%, Rubber Content=10% in dried film)				
F	To floors and walls	SM	3,244		
	Carried to Collection				

Item	Description	Unit	Qty	Rate	Amount
	BILL NO.1-BUILDERS WORKS ELEMENT NO 8- BALUSTRADING AND RAILING <u>Balustrades and staircase railings</u> A 50mm diameter x 3mm CHS handrail welded to ms flat core rail, fish tailed and cast onto 100mm thick perforated wall <u>Prepare, prime and apply one undercoat and two finishing coats first quality gloss oil paint on</u> B General metal surfaces of handrail girth not exceeding 200mm	LM	102		
		LM	102		
	ELEMENT NO. 8 Carried to the BALUSTRADE AND RAILING Main summary				
	PROPOSED APARTMENTS FOR STUDENT HOUSING PROGRAM (HOSTEL BLOCK G+7)				

Item	Description	Unit	Qty	Rate	Amount
	BILL NO.1-BUILDERS WORKS ELEMENT NO 9 - JOINERY FITTINGS Allow for providing materials, labour and construct fixtures and fittings as per Architects drawings of the following JOINERY FITTINGS AND FIXTURES complete with associated iron mongery; NOTE: All blockboard, MDF boards,etc in joinery works shall be lipped with hardwood lipping all round before fixing. <u>High level cupboards</u> <u>5000mm Wide high level kitchen cupboards in 18mm laminated mdf sides & shelves complete with doors, top, bottom & divisions with and including all necessary ironmongery; to Architect's details</u> A High level storage cupboard units 5000 mm long x 600mm high x 300mm deep LM 12 <u>Low level kitchen cabinets</u> <u>Low level kitchen worktops with 600x600x10mm porcelain tiles top on 100mm thick reinforced concrete slab with A142 BRC mesh, formwork to soffits and slab edges, plater to soffits of slab, screed to top slab, 100mm thick plastered steeper walls, including 300x300x6mm thick ceramic wall tiles on both sides of the wall: 100mm plastered mass concrete plinths in concrete class 15MPa: 18mm laminated mdf sides & shelves complete with doors, shelves, drawers, cutting tiles for kitchen sink (m.s) & all necessary ironmongery; to Architect's details and approval</u> B Low level kitchen cupboards below concrete worktop total girth grouped together 5000mm long x 850mm high x 550mm deep LM 12 <u>Laundry Worktops</u> <u>600 mm wide laundry worktop comprising;15mm thick Colored terrazzo paving top,polished to smooth surface on 100mm thick reinforced concrete slab with A142 BRC mesh, formwork to soffits and edges of the slab, plaster to soffits of slab, screed to top slab, 100mm thick plastered masonry walls ,100mm plastered mass concrete plinths in concrete class 15MPa: including cutting for sinks (m.s) all to Architect's details and approval</u> C 850mm high x 600mm deep LM 82				
	ELEMENT NO. 9 JOINERY & FITTINGS	Carried to the Main summary			

Item	Description	Unit	Qty	Rate	Amount
	BILL NO.1-BUILDERS WORKS ELEMENT NO 10 - BUILDERS WORKS IN CONNECTION WITH SERVICES (BWICWS) <u>Plumbing, Drainage and Mechanical Installations</u> A Inspect all drawings and Bills of Quantities for Plumbing, Drainage and Mechanical Installations and allow for all Builder's work associated with the installations; including cutting away and making good after installing a concealed drainage system; including cutting or leaving all holes notches, mortices, sinkings and chases in both the structure and its coverings; including but not limited to forming recess in masonry <u>Electrical Services Installations</u> B Inspect all drawings and Bills of Quantities for Electrical Installations and allow for all Builder's work associated with the Electrical installations, including cutting away for and making good after Electrician installing a concealed conduit system including cutting or leaving all holes notches, mortices, sinkings and chases in both the structure and its coverings; including but not limited to forming recess in masonry	Item	1		
		Item	1		
	ELEMENT NO. 10 Carried to the BUILDERS WORKS IN CONNECTION WITH SERVICES (BWICWS) Main summary				

Item	Description	Unit	Qty	Rate	Amount
	<u>PROPOSED APARTMENTS FOR STUDENT HOUSING PROGRAM (HOSTEL BLOCK G+7)</u>				
	BILL NO.1-BUILDERS WORKS MAIN SUMMARY				
1	Substructures				
2	Reinforced Concrete Frame				
3	Walling				
4	Windows				
5	Doors				
6	External Finishes				
7	Internal Finishes				
8	Balustrade and Railing				
9	Joinery and Fittings				
10	Builders Works				
	<u>TOTAL FOR 1NO. (G+7) HOSTEL BLOCK</u>				
	MULTIPLY BY 1.NO OF BLOCKS	X 1			
	<u>TOTAL FOR HOSTEL (G+7) BLOCK(S) CARRIED TO GRAND SUMMARY</u>				

POWERHOUSE

Item	Description	Unit	Qty	Rate	Amount
	<u>PROPOSED POWER HOUSE</u>				
	BILL NO.6-BUILDERS WORKS				
	ELEMENT NO 1 - SUBSTRUCTURES (ALL PROVISIONAL)				
	<u>Site Clearance</u>				
A	Clear site of all grass, hedges, shrubs, bushes grub up roots, load and remove from site and dispose at designated local authority areas.	SM	24		
B	Excavate average 200mm deep to remove top vegetable soil, load, remove from site and dump in designated local authority dump site.	SM	24		
C	Excavate to reduced levels in varying depths not exceeding 1.5m deep from existing ground levels.	Cm	36		
D	Ditto exceeding 1.5m deep but not exceeding 3.0m from existing reduced levels.	Cm	12		
E	Excavate for Strip foundations depth starting from Reduced ground levels.	Cm	3		
F	Excavate for duct bank depth starting from Reduced ground levels.	Cm	4		
G	Extra over all type of excavation for excavating in soft rock	Cm	3		
H	Ditto excavation in hard rock class I	Cm	3		
	Disposal of water				
I	Allow for keeping the whole of the excavation free from all spring and running water by pumping or any other such means as may be necessary	Item	1		
	Planking and strutting				
J	Allow for maintaining and upholding the sides of excavations and keeping excavations clear of all fallen materials, rubbish etc	Item	1		

Item	Description	Unit	Qty	Rate	Amount
	Carried to collection				
	<u>Disposal of excavated material</u>				
A	Return, fill and ram selected excavated material around foundations.	CM	65		
B	Load, wheel and cart away surplus excavated material to a Local Authority designated dumping site or fill soil heaps as away from site instructed by the Project Engineer.	CM	15		
	Fillings				
C	Make up levels using approved imported materials: compacted in layers not exceeding 300mm thick with a roller: to the satisfaction of the Structural Engineer.	CM	49		
D	300mm thick hardcore bed: hand packed : compacted in layers not exceeding 150mm thick: to the satisfaction of the Structural Engineer	SM	36		
F	50 mm Thick Murram Blinding to surfaces of hadcore	SM	36		
	Anti - termite to treatment				
G	Approved anti-termite treatment, with ten-year guarantee, sprayed to surfaces of hardcore strictly in accordance with manufacturer's instructions.	SM	36		
	Damp-proof membrane				
H	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (measured separately) with 300mm side and end laps (measured nett-allow for laps); 1 No. layer: bedded in and including cement and sand (1:3) mortar	SM	36		
	Concrete Blinding				
	In situ concrete class 15/20 mm aggregates: vibrated:				
I	50 mm Thick under strip foundation	SM	14		
J	50 mm Thick under duct bank	SM	5		
	In- situ vibrated reinforced concrete Class 25 (20mm aggregates): in:				
L	Columns	CM	1		
N	Strip foundation	CM	3		
O	100mm thick duct bank sides	SM	13		
P	100mm thick duct bank bottom	SM	4		
Q	150 mm thick horizontal ground floor slab	SM	20		

Item	Description	Unit	Qty	Rate	Amount
	Carried to collection				
	Ribbed reinforcement steel bars to BS4449: 2005: Grade 500 high tensile strength including bends, hooks, tying wire and distance blocks; to S.E's detail (Provisional)				
A	Assorted reinforcement	KG	303		
	Mesh fabric reinforcement to BS 4483 BRC A142; 200x200mm, weighing 2.22kg/m² (measured net - no allowance) for laps; in two layers - top & bottom; including bends, tying wire and spacer blocks)				
B	In floor beds	SM	20		
	<u>Modular steel frame with 5mm thick steel plates covering formwork and/or marine board formwork: to:</u>				
C	Vertical sides to columns	SM	10		
E	Vertical sides to strip footing	SM	9		
F	Vertical sides to duck bank sides	SM	27		
G	Vertical sides to duck bank bottom	LM	49		
H	Edge of slab not exceeding 150mm girth	LM	48		
	Foundation Walling				
	Natural quarry stones rough dressed; bedded in and including cement and sand (1:4) mortar; reinforced with and including 45 mm wide hoop iron gauge in alternate courses: in:				
I	200mm thick walls in foundations	SM	46		
	<u>Pavings</u>				
J	Supply and lay 600 x 600mm medium duty paving blocks round the Building including laying, spreading and compacting 100mm thick approved sand bed blinding to approval.	SM	27		
	<u>Plinth</u>				
	<u>25mm Thick cement and sand (1:4) rendering on concrete or masonry ; wood float finished; to</u>				
K	Plinths externally	SM	10		
	Two coats black bitumastic paint on:				
L	Rendered surfaces	SM	10		

Item	Description	Unit	Qty	Rate	Amount
	Carried to collection				
	COLLECTION				
	Total brought forward from page no: 1				
	Total brought forward from page no: 2				
	Total brought forward from page no: 3				

Item	Description	Unit	Qty	Rate	Amount
	<u>ELEMENT NO. 1</u> Carried to <u>SUBSTRUCTURES</u> Main summary				
	<u>PROPOSED POWER HOUSE</u> BILL NO.1-BUILDERS WORKS ELEMENT No 2 - R.C FRAME Reinforcement to BS 4449:1997 , Grade 460B high strength type 2 ribbed bars with proof stress of 460 N/mm² <i>In situ concrete class 25 (20 mm aggregate): vibrated: reinforced</i>				
A	Columns	CM	1		
B	Ring beam	CM	1		
C	Ramp 200 mm thick average thickness	SM	4		
D	175 mm thick roof slab	SM	31		
	Ribbed reinforcement steel bars to BS4449: 2005:Grade 500 high tensile strength including bends, hooks, tying wire and distance blocks to S.E's detail (All provisional)				
E	Assorted reinforcement	Kg	606.00		
	<i>Modular steel frame with 5mm thick steel plates covering formwork and/or marine board formwork: to</i>				
F	Sides of columns	Sm	12		
G	Sides and soffits of beams	Sm	22		
H	Sloping soffits of roof slab	Sm	31		
J	Edge of ramp exceeding 150mm but not exceeding 225 mm girth	Lm	3		
K	Edges of horizontal roof slab, exceeding 150mm but not exceeding 225 mm girth	Lm	23		

Item	Description	Unit	Qty	Rate	Amount
	ELEMENT NO. 2 Carried to R.C FRAME Main summary				
	<u>PROPOSED POWER HOUSE</u> BILL NO.1-BUILDERS WORKS ELEMENT No 3-WALLING <u>WALLING</u> <u>External Walling</u> <u>Locally available and approved quarry stone walling with a minimum of 7.0 N/mm2 average compressive strength ;bedded and jointed in cement and sand (1:4) mortar, reinforced with and including 25 x 3 mm thick hoop iron strips at every alternate course as described in;</u> A 200mm thick walling Externally Sm 40 B 200mm thick parapet walling Sm 8 <u>Precast Concrete Breeze Ventilation Blocks</u> 305 x 305 mm wide x 150 mm thick Pre Cast Concrete louvered breeze ventilation blocks bedded and jointed in cement and sand (1:4) mortar including vermin proof gauge wire C Sm 1 <u>Damp proof courses</u> D Approved hessian based damp proof course to 200mm thick walling in cement/sand mortar Lm 17 <u>Window Cill</u> <u>Bull-nosed burnt clay, finishing fair on all exposed surfaces and hoisting and placing in position, bedding, jointing and pointing in pigmented cement and sand (1:3) mortar</u> E 150 x 25mm thick clay window sill Lm 7				

Item	Description	Unit	Qty	Rate	Amount
	<u>ELEMENT NO. 3</u> Carried to <u>WALLING</u> Main summary				
	<u>PROPOSED POWER HOUSE</u> <u>BILL NO.1-BUILDERS WORKS</u> ELEMENT NO 4-DOORS <u>Steel Casement Doors</u> Supply, fabricate and fix the following purpose made mild steel casement door comprising 40 x 25 x3mm stiles, top and bottom stiles, 4 No Intermediate rails, 1.5mm steel sheet both sideswelded in place and 5mm thick clear glazing, all primed with red oxide and spray painted with two finishing coats of first grade quality gloss oil paint on ; complete with all necessary ironmongery fasteners and necessary seremetals assembled and fixed to opening including cutting and pinning lugs to concrete or block work sorroung and bedding frame in cement and sand mortar (1:3). A Door size 1000 x 2500mm high B Ditto Door size 2000 x 2500mm high				

Item	Description	Unit	Qty	Rate	Amount
	ELEMENT NO. 4 Carried to DOORS Main summary				
	PROPOSED POWER HOUSE BILL NO.1-BUILDERS WORKS ELEMENT NO 5 - EXTERNAL FINISHES EXTERNAL WALL FINISHES External Finish <u>Cement and sand (1:3) render:wood floated: on concrete or blockwork: to</u> A 15mm thick to columns/beams surfaces externally Keying B Extra over horizontal and vertical pointing in 10mm thick rod in cement and sand mix (1:3) mortar including one coat Bituminous paint External Painting <u>Prepare and apply one coat undercoat and two finishing coats of long lasting exterior/ weatherguard paint or other equal and approved exterior quality paint to surfaces as described in:-</u> C Columns surfaces externally	SM	17		
		SM	56		
		SM	56		

Item	Description	Unit	Qty	Rate	Amount
	ELEMENT NO. 5 Carried to EXTERNAL FINISHES Main summary				
	<u>PROPOSED POWER HOUSE</u> BILL NO.1-BUILDERS WORKS ELEMENT NO 6 - INTERNAL FINISHES <u>Internal Wall Finishes</u> <u>12mm (minimum) two coat lime plaster complete with wire gauze anti-crack mechanism at the intersection of masonry walling and concrete beams as described to:-</u> A Concrete/masonry surfaces SM 42 B Ditto to Jambs and reveals not exceeding 200mm girth LM 30 <u>Painting and Decoration</u> <u>Prepare and apply one undercoat and one finishing coat first quality permaplast emulsion paint on:</u> C Plastered concrete/masonry surfaces internally SM 42 D Ditto to Jambs and reveals not exceeding 200mm girth LM 30 <u>Floor Finishes</u> <u>Plain in-situ concrete (1:3:6/20 mm agg.)</u> E 40 mm Thick polished plain concrete on exisiting Reiforced concrete base; level or to falls; mixed with hardener; SIKA FLOOR 3 QUARTZ ; power floated to smooth finish to approval SM 20 <u>Duct bank cover plate</u>				

Item	Description	Unit	Qty	Rate	Amount
F	6 mm thick chequered plate in duct bank covers including Forming 50 mm wide x 50 mm deep rebate to both sides of channel at the top; with and including 50 mm x 50 mm x 5 mm thick mild steel angle framing cast in concrete with mild steel anchor bars and grouted to both rebated sides of channel; all welding ground to a smooth finish; including priming metal surfaces with red oxide primer before delivery to site and three coats gloss oil automotive spray paint finish; all to Architect's and Structural Engineer's approval	SM	24		
G	Allow a provisional sum for foundation holes for 100 mm LG x 12.5 diameter bolts	Item			
H	Allow a provisional sum for plates, bolts, nuts, washers e.t.c	Item			
Carried to collection					
Ceiling finishes					
<u>12mm (minimum) two coat lime plaster complete with wire gauze anti-crack mechanism at the intersection of masonry walling and concrete beams as described to:-</u>					
A	Soffits of Concrete surfaces	SM	24		
<u>Painting and Decoration</u>					
<u>Prepare and apply one undercoat and one finishing coat first quality plastic emulsion paint on:-</u>					
B	Plastered ceilings	SM	24		
Carried to collection					
COLLECTION					
Total brought forward from page no: 1					

Item	Description	Unit	Qty	Rate	Amount
	Total brought forward from page no: 2				
	ELEMENT NO. 6 Carried to INTERNAL FINISHES				
	PROPOSED POWER HOUSE BILL NO.1-BUILDERS WORKS ELEMENT NO 7 - ROOFING ROOF FINISHES Cement and sand (1:4) screeded beds: on concrete: complete with coloured pigmentation additives and hardener to:				
A	50mm average waterproofed lightweight screed laid to falls and crossfalls to roof slabs -upper roof including gutter bases <u>Prepare and apply to vertical/horizontal surfaces 4mm thick APP/EPDM water proofing or other equal and approved membrane with surface finish weighing 4kg/sm; laid on primer with torch-on process ;by an approved specialist all in accordance with the manufacturers instructions including provision of a written ten (10) year anti leak guarantee.</u>	SM	31		
B	4mm thick APP membrane applied to roof slabs	SM	31		
C	Ditto to skirting 200mm high	LM	20		
D	Dress membrane around 100mm rainwater outlet	No.	2		

Item	Description	Unit	Qty	Rate	Amount
E	<u>The Following Flat roof concrete tiles fixed with approved adhesive, laid and jointed with waterproofing bituminous compound</u> 20mm thick interlocking Concrete tiles of size 225 x 225mm	SM	31		
ELEMENT NO. 7 ROOFING Carried to the Main summary					
<u>PROPOSED POWER HOUSE</u>					
BILL NO.1-BUILDERS WORKS					
MAIN SUMMARY			<u>PAGE</u>		
1	Substructures		PH/4		
2	Reinforced Concrete Frame		PH/5		
3	Walling		PH/6		
4	Doors		PH/7		
4	External Finishes		PH/8		
5	Internal Finishes		PH/9		
6	Roofing		C/10		

GUARD HOUSE

Item	Description	Unit	Qty	Rate	Amount
	<u>PROPOSED GUARD HOUSE</u>				
	BILL NO.1-BUILDERS WORKS				
	ELEMENT NO 1 - SUBSTRUCTURES (ALL PROVISIONAL)				
	<u>Site Clearance</u>				
A	Clear site of all grass, hedges, shrubs, bushes grub up roots, load and remove from site and dispose at designated local authority areas.	SM	15		
B	Excavate average 300mm deep to remove top vegetable soil, load, remove from site and dump in designated local authority dump site.	SM	15		
C	Excavate for Strip foundations depth not exceeding 1.50 metres starting from Reduced ground levels.	CM	10		
D	Ditto to column bases	CM	2		
E	Extra over all type of excavation for excavating in soft rock	CM	1		
F	Ditto excavation in hard rock class I	CM	1		
	Disposal of water				
G	Allow for keeping the whole of the excavation free from all spring and running water by pumping or any other such means as may be necessary	Item	1		
	Planking and strutting				
H	Allow for maintaining and upholding the sides of excavations and keeping excavations clear of all fallen materials, rubbish etc	Item	1		

Item	Description	Unit	Qty	Rate	Amount
	Carried to collection				
	<u>Disposal of excavated material</u>				
A	Load, wheel and cart away surplus excavated material to a Local Authority designated dumping site or fill soil heaps as away from site instructed by the Project Engineer.	CM	1.00		
B	Return, fill and ram selected excavated material around sides of foundations.	CM	12		
	Fillings				
C	300mm thick hardcore bed: hand packed : compacted in layers not exceeding 150mm thick: to the satisfaction of the Structural Engineer	SM	12		
D	50 mm Stone dust/ Murrum blinding to surfaces of hardcore	SM	15		
	Anti - termite to treatment				
E	Approved anti-termite treatment, with ten-year guarantee, sprayed to surfaces of hardcore strictly in accordance with manufacturer's instructions.	SM	15		
	Damp-proof membrane				
F	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (measured separately) with 300mm side and end laps (measured nett-allow for laps); 1 No. layer: bedded in and including cement and sand (1:3) mortar	SM	15		
	Concrete Blinding				
	In situ concrete class 15/20 mm aggregates: vibrated:				
G	50 mm thick blinding under column bases	SM	6		
H	50 mm thick blinding under strip foundations	SM	8		
	In- situ vibrated reinforced concrete Class 25 MPa: in:				
I	Column bases	CM	2		
J	Strip foundations	CM	2		
K	100mm thick surface bed	SM	15		
L	Steps	CM	0		
	In- situ vibrated reinforced concrete Class 25 MPa: in:				
M	Columns	CM	1		

Item	Description	Unit	Qty	Rate	Amount
	Carried to collection				
	Ribbed reinforcement steel bars to BS4449: 2005: Grade 500 high tensile strength including bends, hooks, tying wire and distance blocks; to S.E's detail (Provisional)				
A	Assorted reinforcement	KGS	264		
	Mesh fabric reinforcement to BS 4483 BRC A142;200 x 200mm, weighing 2.22kg/m² (measured net - no allowance) for laps; in two layers - top & bottom; including bends, tying wire and spacer blocks)				
B	In ground floor slab	SM	15		
	<u>Modular steel frame with 5mm thick steel plates covering formwork and/or marine board formwork: to:</u>				
C	Sides of column bases	SM	7		
D	Vertical sides to columns	SM	8		
E	Edge of slab not exceeding 150mm girth	LM	15		
F	Edges of risers 75 - 150mm high	LM	14		
	Foundation Walling				
	Natural quarry stones rough dressed; bedded in and including cement and sand (1:4) mortar; reinforced with and including 45 mm wide hoop iron gauge in alternate courses: in:				
G	200mm thick walls in foundations	SM	18		
	<u>Pavings</u>				
	Supply and lay 600 x 600mm medium duty paving blocks round the building including laying, spreading and compacting 100mm thick approved sand bed blinding, with and including excavation, 150mm thick compacted hardcore and 50mm thick quarry dust blinding to approval.				
H		SM	7		
	<u>Plinth</u>				
	<u>25mm Thick cement and sand (1:4) rendering on concrete or masonry ; wood float finished; to</u>				
J	Plinths externally	SM	5		
	Two coats black bitumastic paint on:				
K	Rendered surfaces	SM	5		

Item	Description	Unit	Qty	Rate	Amount
	Carried to collection				
	COLLECTION Total brought forward from page no: Total brought forward from page no: Total brought forward from page no:				

Item	Description	Unit	Qty	Rate	Amount
	<u>ELEMENT NO. 1</u> Carried to <u>SUBSTRUCTURES</u> Main summary				
	<u>PROPOSED GUARD HOUSE</u> BILL NO.1-BUILDERS WORKS ELEMENT No 2 - R.C FRAME In- situ vibrated reinforced concrete Class 25 MPa: in: A Columns CM 2 B Beams CM 2 C 150mm thick Roof Slab SM 15 Ribbed reinforcement steel bars to BS4449: 2005:Grade 500 high tensile strength including bends, hooks, tying wire and distance blocks to S.E's detail (All provisional) D Assorted reinforcement Kg 759 <u>Modular steel frame with 5mm thick steel plates covering formwork and/or marine board formwork: to</u> E Sides of columns SM 27 F Sides and soffits of beams SM 16 G Soffits of suspended slabs SM 15 H Edges of slab over 150mm but not exceeding 225mm girth LM 15				

Item	Description	Unit	Qty	Rate	Amount
	ELEMENT NO. 2 Carried to R.C FRAME Main summary				
	<u>PROPOSED GUARD HOUSE</u> BILL NO.1-BUILDERS WORKS ELEMENT No 3-WALLING <u>WALLING</u> <u>External Walling</u> <i>Locally available and approved quarry stone walling with a minimum of 7.0 N/mm2 average compressive strength ;bedded and jointed in cement and sand (1:4) mortar, reinforced with and including 25 x 3 mm thick hoop iron strips at every alternate course as described in;</i> A 200mm thick walling Externally SM 24 B 150mm thick parapet walling SM 6 <u>Internal Walling</u> <i>Locally available and approved quarry stone walling with a minimum of 7.0 N/mm2 average compressive strength ;bedded and jointed in cement and sand (1:4) mortar, reinforced with and including 25 x 3 mm thick hoop iron strips at every alternate course as described in;</i> C 200mm thick walling Internally SM 5 D Approved hessian based damp proof course to 200mm thick walling in cement/sand mortar LM 11 COPING E Ditto 200 x 50mm concrete coping to walls twice weathered and throated; LM 11 Lintols F 200mm x 200mm Deep lintols in reinforced concrete class 20MPa with and including 4No T10 and T8 stirups at 200mm centres; complete with formwork LM 2				

Item	Description	Unit	Qty	Rate	Amount
	<u>ELEMENT NO. 3</u> Carried to <u>WALLING</u> Main summary				
	<u>PROPOSED GUARD HOUSE</u> BILL NO.1-BUILDERS WORKS ELEMENT NO 4-WINDOWS <u>MILD STEEL WINDOWS</u> Supply, fabricate and fix the following purpose made small pane mild steel casement windows to be fabricated from approved mild steel sections (atleast 14g 2mm thick) comprising of frame and casement incorporating permanent hooded high level ventilation panels infilled with mosquito gauze : window supplied complete with and including 12mm solid square burglar proofing bars fixed at 200mm centres both ways and metal fixing lugs including building into wall and making good, and all necessary iron mongery viz hinges, fasteners, and hasp including shop priming window with red oxide primer before delivery to site:- A Window, overall size 1900 X 1500mm high to Architects Details NO 1 B Ditto Size 650 x 1500mm high (bedroom) NO 1 C Ditto Size 600 x 900mm high (WC/SH) NO 1 <u>Glazing</u> D 4mm Thick clear sheet glass panes over 0.1 but not exceeding 0.5 square meters; fixing with premium putty SM 4 E Ditto; obscure SM 1 <u>Painting and Decorations</u> <u>On Metal work</u>				

Item	Description	Unit	Qty	Rate	Amount
	<u>Prepare and apply aerosol spray painting in one finishing coats of approved first grade to: -</u>				
F	General window and grille surfaces; over 300mm girth internal	SM	4		
	<u>Bull-nosed burnt clay, finishing fair on all exposed surfaces and hoisting and placing in position, bedding, jointing and pointing in pigmented cement and sand (1:3) mortar</u>				
G	150 x 25mm thick clay window sill	LM	3		
	<u>ELEMENT NO. 4</u> Carried to the Main summary				
	<u>WINDOWS</u>				
	<u>PROPOSED GUARD HOUSE</u>				
	BILL NO.1-BUILDERS WORKS				
	ELEMENT NO 5-DOORS				
	<u>External Doors</u>				
	<u>Flush timber doors</u>				
	50 mm thick Semi Solid cored flush doors with plywood facing to receive painting (m.s) all to Architects details, specifications and approval				
A	Door size 900mm x 2400mm High comprising of 1 No Opennable leaf size 800 x 2100mm high including fixed fanlight size 900 x 300mm high in 4mm clear glass (measured separately)	NO	2		
	<u>Glazing</u>				
	4mm Thick clear sheet glass fixing with timber glazing beads to timber casements.				
B	In panes exceeding 0.1 sqm but not exceeding 0.5 square metres.	SM	1		
	<u>Frames and frame finishes in soft wood Timber</u>				
C	25 x 25mm quadrant	LM	5		
D	25 x 50mm architrave with two labours, plugged	LM	8		
E	150mm x 50mm transome with three labours; chamfered edges; plugged	LM	8		

Item	Description	Unit	Qty	Rate	Amount
F	150mm x 50mm frame with three labours; chamfered edges; plugged	LM	8		
	Carried to collection				
	<u>Painting and decorating</u>				
	<u>Priming back of frame with an aluminium or equivalent and approved wood primer</u>				
A	Surfaces not exceeding 100mm girth	LM	13		
B	Surfaces over 100mm but not exceeding 200mm girth	LM	15		
	<u>Prepare Knot, prime, stop and apply one undercoat and one coats first grade qauality gloss oil paint to wood surfaces</u>				
C	General timber surfaces	SM	9		
D	Surfaces over 200mm but not exceeding 300mm girth	LM	15		
E	Architraves: not exceeding 100 mm girth	LM	8		
F	Quadrant beading : not exceeding 100 mm girth	LM	5		
	Ironmongery				
	Supply and fix the following ironmongery to timber complete with matching screws and keys to the approval of the Architect				
G	100mm pressed steel Butt Hinges	PRS	3		
H	Ditto: but 2 Lever Door Lock with handle	NO	2		
I	Door fixing cramps	NO	12		

Item	Description	Unit	Qty	Rate	Amount
J	Bronze door sign with door numbers as per Architect detail	NO	2		
	Carried to collection				
	COLLECTION Total brought forward from page no: Total brought forward from page no:				
	<u>ELEMENT NO. 5</u> Carried to <u>DOORS</u> Main summary				
	<u>PROPOSED GUARD HOUSE</u> BILL NO.1-BUILDERS WORKS ELEMENT NO 6 - EXTERNAL FINISHES External Render <i><u>Cement and sand (1:3) render:wood floated: on concrete or blockwork: to</u></i> A 15mm thick to beams, Columns, Slab Moulds and walling externally SM 7 B Extra over horizontal and vertical pointing in 10mm thick rod in cement and sand mix (1:3) mortar including one coat Bituminous paint LM 29 External Painting <i><u>Prepare and apply one coat undercoat and two finishing coats of long lasting exterior/ weatherguard paint or other equal and approved exterior quality paint to surfaces as described in:-</u></i> C Concrete/masonry surfaces externally-Beam, Column and Slab Moulds SM 7 ROOF FINISHES Cement and sand (1:4) screeded beds: on concrete: complete with coloured pigmentation additives and hardener to:				

Item	Description	Unit	Qty	Rate	Amount
D	50mm average waterproofed lightweight screed laid to falls and crossfalls to roof slabs -upper roof including gutter bases <u>Prepare and apply to vertical/horizontal surfaces 4mm thick APP/EPDM water proofing or other equal and approved membrane with surface finish weighing 4kg/sm; laid on primer with torch-on process ;by an approved specialist all in accordance with the manufacturers instructions including provision of a written ten (10) year anti leak guarantee.</u>	SM	12		
E	4mm thick APP membrane applied to roof slabs	SM	12		
F	Ditto to skirting 200mm high	LM	11		
G	Dress membrane around 100mm rainwater outlet <u>The Following Flat roof concrete tiles fixed with approved adhesive, laid and jointed with waterproofing bituminous compound</u>	No.	2		
H	20mm thick interlocking Concrete tiles of size 225 x 225mm	SM	12		
ELEMENT NO. 6 Carried to EXTERNAL FINISHES Main summary					
<u>PROPOSED GUARD HOUSE</u> BILL NO.1-BUILDERS WORKS ELEMENT NO 7 - INTERNAL FINISHES <u>Internal Wall Finishes</u> <u>Cement and sand (1:4) backings</u>					
A	12mm thick to receive Ceramic Wall tiles	SM	12		
B	To receive ceramic wall tiles (m.s.) <u>Ceramic wall tiles</u>	SM	24		
C	Supply and Fix 300x300x6mm thick ceramic wall tiles as approvedby Architect on prepared backings(m.s) with proprietary adhesive; jointed and pointed in matching coloured proprietary grouting; including pvc spacers and expansion joint as necessary: all to Architect's approval. - Wall Surfaces <u>Ceramic floor tiles</u>	SM	12		

Item	Description	Unit	Qty	Rate	Amount
D	Supply and Fix Ceramic wall tiles as approved by Architect on prepared backings(m.s) with proprietary adhesive; jointed and pointed in matching coloured proprietary grouting; including pvc spacers and expansion joint as necessary: all to Architect's approval. - Wall Surfaces	SM	24		
	<u>12mm (minimum) two coat lime plaster complete with wire gauze anti-crack mechanism at the intersection of masonry walling and concrete beams as described to:-</u>				
E	Concrete/masonry surfaces	SM	8		
	<u>Painting and Decoration</u>				
	<u>Prepare and apply one undercoat and one finishing coat first quality permaplast emulsion paint to:-</u>				
F	Plastered concrete/masonry surfaces internally	SM	8		
Carried to Collection					
	<u>Ceiling finishes</u>				
	<u>12mm (minimum) two coat lime plaster complete with wire gauze anti-crack mechanism at the intersection of masonry walling and concrete beams as described to:-</u>				
A	Soffits of Concrete surfaces	SM	12		
	<u>Painting and Decoration</u>				
	<u>Prepare and apply one undercoat and one finishing coat first quality plastic emulsion paint on:-</u>				
B	Plastered ceilings	SM	12		

Item	Description	Unit	Qty	Rate	Amount
5	Doors				
6	External Finishes				
7	Internal Finishes				
	<u>TOTAL FOR 1 NO. GUARD HOUSE</u>				
	NO. OF BLOCKS				
	MULTIPLY BY 1 NO. OF GUARD HOUSE	X 1			
	<u>TOTAL FOR 1 NO. GUARD HOUSE CARRIED TO GRAND SUMMARY</u>				

GARBAGE RECEPTACLE

Item	Description	Unit	Qty	Rate	Amount
	<u>PROPOSED GARBAGE RECEPTACLE</u>				
	BILL NO.1-BUILDERS WORKS				
	ELEMENT NO 1 - SUBSTRUCTURES (ALL PROVISIONAL)				
	<u>Site Clearance</u>				
A	Clear site of all grass, hedges, shrubs, bushes grub up roots, load and remove from site and dispose at designated local authority areas.	SM	112		
B	Excavate average 300mm deep to remove top vegetable soil, load, remove from site and dump in designated local authority dump site.	SM	112		
C	Excavate for Strip foundations depth not exceeding 1.50 metres starting from Reduced ground levels.	CM	68		
D	Ditto to column bases	CM	4		
E	Extra over all type of excavation for excavating in soft rock	CM	7		
	Disposal of water				
F	Allow for keeping the whole of the excavation free from all spring and running water by pumping or any other such means as may be necessary	Item	1		
	Planking and strutting				
G	Allow for maintaining and upholding the sides of excavations and keeping excavations clear of all fallen materials, rubbish etc	Item	1		

Item	Description	Unit	Qty	Rate	Amount
	Carried to collection				
	<u>Disposal of excavated material</u>				
A	Load, wheel and cart away surplus excavated material to a Local Authority designated dumping site or fill soil heaps as away from site instructed by the Project Engineer.	CM	2		
B	Return, fill and ram selected excavated material around sides of foundations.	CM	70		
	Fillings				
C	300mm thick hardcore bed: hand packed : compacted in layers not exceeding 150mm thick: to the satisfaction of the Structural Engineer	SM	112		
D	50 mm Stone dust/ Murrum blinding to surfaces of hardcore	SM	112		
	Anti - termite to treatment				
E	Approved anti-termite treatment, with ten-year guarantee, sprayed to surfaces of hardcore strictly in accordance with manufacturer's instructions.	SM	112		
	Damp-proof membrane				
F	1000 gauge polythene or other equal and approved damp-proof membrane, laid over blinded hardcore (measured separately) with 300mm side and end laps (measured nett-allow for laps); 1 No. layer: bedded in and including cement and sand (1:3) mortar	SM	112		
	Concrete Blinding				
	In situ concrete class 15/20 mm aggregates: vibrated:				
G	50 mm thick blinding under column bases	SM	14		
H	50 mm thick blinding under strip foundations	SM	45		
	In- situ vibrated reinforced concrete Class 25 MPa: in:				
I	Column bases	CM	4		
J	Strip foundations	CM	9		
K	100mm thick surface bed	SM	112		
L	Columns	CM	1		

Item	Description	Unit	Qty	Rate	Amount
	Carried to collection				
	Ribbed reinforcement steel bars to BS4449: 2005: Grade 500 high tensile strength including bends, hooks, tying wire and distance blocks; to S.E's detail (Provisional)				
A	Assorted reinforcement	KGS	812		
	Mesh fabric reinforcement to BS 4483 BRC A142;200 x 200mm, weighing 2.22kg/m² (measured net - no allowance) for laps; in two layers - top & bottom; including bends, tying wire and spacer blocks)				
B	In ground floor slab	SM	112		
	<u>Modular steel frame with 5mm thick steel plates covering formwork and/or marine board formwork: to:</u>				
C	Sides of column bases	SM	17		
D	Sides of Strip foundations	SM	30		
E	Vertical sides to columns	SM	17		
F	Edge of slab not exceeding 150mm girth	LM	43		
	Foundation Walling				
	Natural quarry stones rough dressed; bedded in and including cement and sand (1:4) mortar; reinforced with and including 45 mm wide hoop iron gauge in alternate courses: in:				
G	200mm thick walls in foundations	SM	98		
	<u>Pavings</u>				
H	Supply and lay 600 x 600mm medium duty paving blocks round the building including laying, spreading and compacting 100mm thick approved sand bed blinding, with and including excavation, 150mm thick compacted hardcore and 50mm thick quarry dust blinding to approval.	SM	45		
	<u>Plinth</u>				
	<u>25mm Thick cement and sand (1:4) rendering on concrete or masonry ; wood float finished; to</u>				
J	Plinths externally	SM	30		
	Two coats black bitumastic paint on:				

Item	Description	Unit	Qty	Rate	Amount
K	Rendered surfaces	SM	30		
	Carried to collection				
	COLLECTION Total brought forward from page no: Total brought forward from page no: Total brought forward from page no:				

Item	Description	Unit	Qty	Rate	Amount
	<u>ELEMENT NO. 1</u> Carried to <u>SUBSTRUCTURES</u> Main summary				
	<u>PROPOSED GARBAGE RECEPTACLE</u> BILL NO.1-BUILDERS WORKS ELEMENT No 2 - R.C FRAME In- situ vibrated reinforced concrete Class 25 MPa: in: A Columns CM 1 B Beams CM 5 Ribbed reinforcement steel bars to BS4449: 2005:Grade 500 high tensile strength including bends, hooks, tying wire and distance blocks to S.E's detail (All provisional) C Assorted reinforcement Kg 783 <u>Modular steel frame with 5mm thick steel plates covering formwork and/or marine board formwork: to</u> D Sides of columns SM 27 E Sides and soffites of beams SM 45				

Item	Description	Unit	Qty	Rate	Amount
	ELEMENT NO. 2 Carried to R.C FRAME Main summary				
	<u>PROPOSED GARBAGE RECEPTACLE</u> BILL NO.1-BUILDERS WORKS ELEMENT No 3-WALLING <u>WALLING</u> <u>External Walling</u> <i>Locally available and approved quarry stone walling with a minimum of 7.0 N/mm2 average compressive strength ;bedded and jointed in cement and sand (1:4) mortar, reinforced with and including 25 x 3 mm thick hoop iron strips at every alternate course as described in;</i> A 200mm thick walling Externally <u>Internal Walling</u> <i>Locally available and approved quarry stone walling with a minimum of 7.0 N/mm2 average compressive strength ;bedded and jointed in cement and sand (1:4) mortar, reinforced with and including 25 x 3 mm thick hoop iron strips at every alternate course as described in;</i> B 200mm thick walling Internally C Approved hessian based damp proof course to 200mm thick walling in cement/sand mortar	SM 			

Item	Description	Unit	Qty	Rate	Amount
	ELEMENT NO. 3 WALLING	Carried to Main summary			
A	<u>PROPOSED GARBAGE RECEPTACLE</u> BILL NO.1-BUILDERS WORKS ELEMENT NO 4-ROOF IT5 roofing sheets on steel trusses with approved galvanised hook bolts, nuts and washers including side and end laps fixed to and including 100x50x4mm rafters spaced at 900mm c/c with 50x50x3mm SHS purlins at 600x600mm c/c with and including all welded and bolted connections : delivery to site and erection with and including one shop coat red oxide, zinc chromate or similar approved primer: complete to manufacturer's specifications	SM	101		

Item	Description	Unit	Qty	Rate	Amount
	ELEMENT NO. 5 Carried to DOORS Main summary				
	PROPOSED GARBAGE RECEPTACLE BILL NO.1-BUILDERS WORKS ELEMENT NO 6 - EXTERNAL FINISHES EXTERNAL WALL FINISHES External Render <u>Cement and sand (1:3) render:wood floated: on concrete or blockwork: to</u> A 15mm thick to beams, Columns, Slab Moulds and walling externally SM 23 B Extra over horizontal and vertical pointing in 10mm thick rod in cement and sand mix (1:3) mortar including one coat Bituminous paint LM 97 External Painting <u>Prepare and apply one coat undercoat and two finishing coats of long lasting exterior/ weatherguard paint or other equal and approved exterior quality paint to surfaces as described in:-</u>				

Item	Description	Unit	Qty	Rate	Amount
C	Concrete/masonry surfaces externally-Beam, Column and Slab Moulds	SM	23		
	ELEMENT NO. 6 Carried to				
	EXTERNAL FINISHES Main summary				
	<u>PROPOSED GARBAGE RECEPTACLE</u>				
	BILL NO.1-BUILDERS WORKS				
	ELEMENT NO 7 - INTERNAL FINISHES				
	<u>Internal Wall Finishes</u>				
	<u>Cement and sand (1:4) backings</u>				
A	32mm Thick coloured cement sand screed mix 1:3 finished to approval	SM	98		
	<u>12mm (minimum) two coat lime plaster complete with wire gauze anti-crack mechanism at the intersection of masonry walling and concrete beams as described to:-</u>				
B	Concrete/masonry surfaces	SM	237		
	<u>Floor Finishes</u>				
	<u>Cement and sand (1:3) screeds, backings, beds etc</u>				

Item	Description	Unit	Qty	Rate	Amount
C	32mm Thick coloured cement sand screed mix 1:3 finished with red oxide to approval	SM	98		
	ELEMENT NO. 7 Carried to INTERNAL FINISHES Main summary				
	BILL NO.1-BUILDERS WORKS MAIN SUMMARY				
1	Substructures				
2	Reinforced Concrete Frame				
3	Walling				
4	Roof				
5	Doors				
6	External Finishes				

UNDERGROUND WATER TANK

Item	Description	Unit	Qty	Rate	Amount
	<u>UNDERGROUND WATER TANK</u>				
	<u>SUBSTRUCTURE (ALL PROVISIONAL)</u>				
	<u>Excavations</u>				
A	Excavate over site to remove top soil average 200mm deep and cart away.	m ²	30		
B	Excavate for pits commencing at reduced excavation level and not exceeding 1.50m deep.	m ³	45		
C	Excavate for pits commencing at reduced excavation level and not exceeding 1.50-3m deep	m ³	45		
D	Excavate for pits commencing at reduced excavation level and not exceeding 3-4.5m deep	m ³	50		
E	Extra excavation for excavating in all types of rock and cart away.	m ³	42		
F	Remove surplus excavated material from site.	m ³	140		
	<u>Disposal</u>				
G	Allow for keeping the whole of the excavation free from all spring and running water by pumping or any other such means as may be necessary	Item	1		
H	Allow for planking and strutting to sides of already excavated surfaces and new excavated surfaces to keep excavations free from all fallen materials.	Item	1		
	<u>Fillings</u>				
J	Approved 300mm wide granular filling layers not exceeding 150mm thick	m ²	30		
	<u>Insitu concrete Class 15MPa: vibrated:</u>				
K	Floor slab	m ²	30		

Item	Description	Unit	Qty	Rate	Amount
	Carried to Collection				
	<u>REINFORCED CONCRETE FRAME</u>				
	<u>Insitu concrete class 30MPa: vibrated: reinforced</u>				
A	Beams	m ³	3		
B	250mm RC wall	m ²	16		
C	300mm RC wall	m ²	75		
D	300mm bottom slab	m ²	30		
E	200mm top slab	m ²	30		
F	Extra over for boxing to form opening size 600 x 450mm through 200mm thick reinforced concrete slab; rebated edges	No	4		
G	Sump	No	4		
	<u>Ribbed reinforcement steel bars to KS 573:2014 : Grade 500 high tensile strength including bends, hooks, tying wire and distance blocks; to S.E's detail (Provisional)</u>				
H	Assorted reinforcement	kg	5,874		
	<u>Modular steel frame with steel plates covering formwork and/or marine board formwork: to</u>				
J	Sides of beams	m ²	20		
K	RC wall	m ²	181		
L	Soffits of suspended slab	m ²	30		
M	Edge of floor slab 150 - 225mm high.	m	22		
N	Edge of floor slab 225 - 300mm high.	m	22		
	<u>Water Bar</u>				
P	250mm wide PVC water bar	m	26		

Item	Description	Unit	Qty	Rate	Amount
	Carried to Collection				
	<u>FINISHES</u>				
	<u>WALL FINISHES</u>				
	<u>15mm cement and sand rendering on concrete surfaces finished with a wood float to:-</u>				
A	12mm Two coat external lime plaster on walls finished smooth w	m²	181		
	<u>Waterproofing</u>				
	<u>25mm thick 2 coats lime waterproofed plaster in "penetron Plus" as described;</u>				
B	300mm thick floor slab	m²	30		
C	Ditto to walls	m²	181		
	<u>Plastic manhole</u>				
E	Heavy duty plastic manhole cover and frame size 600x450mm wide with cover set in frame with grease	No	4		
F	Supply and fix approved 450mm, 10mm dia solid rungs wide stainless steel step ladder at 300mm centres fixed with SS bolts and nuts to structural details	No	4		
	Carried to Collection				

Item	Description	Unit	Qty	Rate	Amount
	<u>UNDERGROUND WATER TANK</u> <u>COLLECTION</u> Total brought forward from Page No. TOTAL FOR UNDERGROUND TANK CARRIED TO SUMMARY				

ROAD WORKS

Item	Description	Unit	Qty	Rate	Amount
	No separate payment shall be made for the haulage of surplus or unsuitable excavated material and the cost of such haulage shall be included in the rates and/or prices				
A	Excavate in soft material for pipe culverts, subsoil drains, headwalls, wing walls, aprons, toe walls, drop inlets, mitre drains, catch water drains and median drains including support of trench sides, backfilling and compacting as specified or as instructed by the Engineer.	m3	40.00		
B	As Item 8.01 but in hard material (any method)	m3	4.00		
C	Allow for hacking in existing concrete drain for junction connections	m3	10.00		
D	Allow for perforation and connecting to the existing drain including stoppage of inflowing water (hole approximately 600 wide x 800 high x 250 thick)	no.	4.00		
E	Provide, lay and joint 450 mm Internal Diameter (I. D.) Reinforced Cement Concrete pipes. The rate to include excavation, backfilling and compaction to drain formation level	m	4.00		
F	Ditto item 8.06 above but 600mm I.D. Reinforced Cement Concrete pipes	m	2.00		
G	Ditto item 8.06 above but 900mm I.D. Reinforced Cement Concrete pipes	m	1.00		
H	Provide place and compact class 25/20 concrete to headwalls, wingwalls, aprons and toe walls to pipe culverts.	m3	2.00		
J	Provide place and compact 150mm class 15/20 concrete to beds and surround to 450mm diameter pipes	m3	1.00		
K	Ditto item 8.11 above but 600mm I.D. Reinforced Cement Concrete pipes	m3	1.00		
L	Ditto item 8.11 above but 900mm I.D. Reinforced Cement Concrete pipes	m3	1.00		
M	Provide and joint 450mm diameter precast concrete invert block drain (IBD) channels with two double side precast side slabs of 600x225x75mm as lining for side drain including bedding and backfilling with selected material as directed by the Engineer.	m	40.00		
N	Provide and lay 450 Dia service ducts of length 10 m each as per the drawings and as instructed by the Engineer; Rate to include excavation, disposal of excavated material and concrete surround	No.	20.00		
	Carried to Collection				
	<u>Natural Material for Sub-base and Base</u>				

Item	Description	Unit	Qty	Rate	Amount
A	Provide and lay hot applied thermoplastic road marking compound in approved colour and shade (ASTM 9) for road marking on bituminous surface on centerline, 100 mm, edge line 150 mm wide 3.0 mm thick, using fully automatic extrusion machine and using pre-melter for melting thermoplastic material including cleaning the surface of all dirt, dust, and other foreign matter, complete with demarcation at site/pre-marking, finishing and managing the traffic movements. Marking to be done as per the specifications, detailed drawings and as instructed by the Engineer.				
	(i) For lane marking (broken lines) with white paint, 100 mm wide	m2	22.00		
	(ii) For lane marking with yellow paint, 100mm wide	m2	6.00		
	(iii) For raised kerb lines with black paint, 150 mm wide	m2	6.00		
	Other Road Furniture				
B	Provide, lay and Joint complete with hauncing as shown on the drawings and as instructed by the Engineer				
	(i) Raised Kerbs	m	80.00		
	(ii) Flush Kerbs	m	40.00		
C	Provide, lay and Joint complete with hauncing as shown on the drawings and as instructed by the Engineer 100 x 125 mm channels for the walkways and shallow drains	m	120.00		
	Carried to Collection				
1	Preliminary and General Items				
2	Site Clearance and Topsoil Stripping				
3	Earthworks				

SEWER RETICULATION WORKS

Item	Description	Unit	Qty	Rate	Amount
	<u>FOUL DRAINAGE (ALL PROVISIONAL)</u>				
	<u>Site Clearance</u>				
A	Clear site of all grass, hedges, shrubs, bushes grub up roots, load and remove from site and dispose at designated local authority areas.	SM	144		
	<u>Excavations</u>				
B	Excavate trenches for 150mm diameter sewer pipe starting from ground level;average depth 1.5m;Part backfill and remainder cart away.	LM	240		
C	Allow for plunking and strutting to all excavations during construction	ITEM	1		
D	Allow for keeping all excavations free from general waters	ITEM	1		
E	Extra over excavation in rock	CM	14		
	Provide materials, lay, joint and test approved pipes and fittings. Rates to include for handling, laying, all jointing materials and fixing as directed by the engineer.				
F	Provide lay and joint in trench dia 150mm Upvc golden brown class 34 Upvc pipe in flexible rubber ring joints	LM	240		
	<i>Mass concrete grade 15/20 in 150mm Thick Beds, Haunches and surrounds</i>				
G	Provide and place 150mm thick concrete surround and bed haunch for 150mm diameter pipe	LM	240		
	Manholes				
	Excavation quantities are given net. The rate entered are to include for manhole concrete slabs and covers, step irons or ladder, excavation, shuttering where necessary, refilling and compacting around the finished manholes, and disposing of surplus spoil is to be evenly spread. Excavation in any material other than rock				
	Masonry manhole 1050 mm , reinforced concrete manhole slab and cover.				
H	depth not exceeding 0.6 m.	NO	4		
I	depth not exceeding 0.9 m.	NO	2		
J	depth not exceeding 1.2 m.	NO	2		

	Carried to collection				-
	MANHOLES Manhole size 1050 mm , reinforced concrete manhole slab and cover. K depth not exceeding 1.5 m. L ditto but depth; 1.5 - 2.0 m. MANHOLES Manhole size 1200 mm , reinforced concrete manhole slab and cover. M ditto but depth; 2 - 2.5 m. <u>WASTE WATER</u> Provide a provisional sum of Ksh Five Million, five hundred thousand only (5,500,000.00) for 800 P.E for builders works associated with waste water treatment plant/waste water disposal to be executed as authorized by the Engineer and to be measured and valued by the Quantity Surveyor in accordance with the Contract	NO NO NO sum	2 2 2 1	 5,500,000	
	Carried to collection				-
	COLLECTION Total brought forward from page no: Total brought forward from page no:				- -

	TOTAL FOR SEWER WORKS CARRIED TO GRAND SUMMARY				-
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CHAINLINK FENCE

Item	Description	Unit	Qty	Rate	Amount
	<u>CHAIN LINK FENCE</u>				
	<u>ELEMENT NO.1</u>				
	<u>SUBSTRUCTURES</u>				
	<u>(ALL PROVISIONAL)</u>				
	<u>Siteworks and Excavations</u>				
	Excavations				
A	Excavate for Column bases depth not exceeding 1.50 metres starting groundlevel	CM	4		
	Disposal of water				
B	Allow an item for keeping all excavations free from all spring and running water by pumping or any other such means.	ITEM	1		
	Planking and strutting				
C	Allow an item for maintaining and upholding the sides of excavations and keeping excavations clear of all fallen materials.	ITEM	1		

Item	Description	Unit	Qty	Rate	Amount
	Carried to Collection				
	<u>SUBSTRUCTURES-(CONTINUED)</u>				
	Disposal of excavated materials				
A	Return, fill and ram selected excavated material around foundations.	CM	3		
B	Load,wheel and cart away surplus excavated material away from site	CM	1		
	In situ concrete Class 15MPa: vibrated:				
C	Ditto to column bases	SM	4		
	In- situ vibrated reinforced concrete Class 20 MPa: in:				
D	column bases	CM	1		
E	Columns	CM	1		

Item	Description	Unit	Qty	Rate	Amount
	Carried to Collection				
	<u>COLLECTION</u> FROM PAGE BW/1 FROM PAGE BW/2 FROM PAGE BW/3				

Item	Description	Unit	Qty	Rate	Amount
	TOTAL FOR ELEMENT NO. 1 CARRIED TO (SUBSTRUCTURES) SUMMARY	KSHS			
	<u>ELEMENT NO. 2</u>				
	<u>REINFORCED CONCRETE SUPERSTRUCTURE</u>				
	In- situ vibrated reinforced concrete Class 20 MPa: in:				
A	Columns	CM	1		
	Modular steel frame with steel plates covering formwork and/or marine board formwork: to:				
B	Vertical sides of columns	SM	11		
	<u>Ribbed reinforcement steel bars to KS 573:2014 : Grade 500 high tensile strengthincluding bends, hooks, tying wire and distance blocks; to S.E's detail (Provisional)</u>				
C	Assorted Reinforcement (8 - 16mm bars)	KG	108		

Item	Description	Unit	Qty	Rate	Amount
	TOTAL FOR ELEMENT NO. 2 CARRIED TO (REINFORCED CONCRETE) SUMMARY				
	<u>ELEMENT NO. 3</u>				
	<u>WALLING</u>				
	Precast concrete class 20/20 coping as described in;				
A	600 x 350 wide x 100mm thick insitu cast reinforced concrete coping, throated and weathered and jointing to columns with cement sand 1:4 mortar	NO	4		

Item	Description	Unit	Qty	Rate	Amount
	TOTAL FOR ELEMENT NO. 3 CARRIED TO (WALLING) SUMMARY				
	<u>ELEMENT NO. 4</u> <u>EXTERNAL FINISHES</u> <u>15mm (minimum) two coat lime plaster complete with wire gauze anti-crack mechanism at the intersection of masonry walling and concrete beams as described to:-</u>				
A	Columns	SM	7		
	GATES Mild steel sections as described in;				
B	6000mm wide x 2400mm high double gate comprising of 50x50x3mm RHS framing and middle rail 50x25x3mm RHS Vertical infill members at 225mm centres;priming with red oxide primer; purpose made ironmongery; all necessary lugs and grouting as per details (all with roller at the ground)	NO	1		
C	Ditto pedestrian gate size 900x1800 ditto	NO	1		
	Green Fencing with Chainlink				

Item	Description	Unit	Qty	Rate	Amount
D	2400mm High chainlink fencing : comprising 16 gauge chainlink fixed to and including precast concrete posts :holes for and including 8No strands 16 gauge galvanised barbed wire : 16 gauge high tensile galvanised straining vertical wire at 250 centres : 700 x 600 x 650mm deep plain concrete (class 20) base at 3000mm centres : strutting posts : including planting and maintenace to maturity of bouganvillea shrubs along the fenceline; all necessary excavations and disposal	LM	180		
TOTAL FOR ELEMENT NO. 4 CARRIED TO (EXTERNAL FINISHES) SUMMARY					
<u>SECTION SUMMARY - BOUNDARY WALL</u>					
1	SUBSTRUCTURES FROM PAGE.....	BW/4			
2	R.C. SUPERSTRUCTURE FROM PAGE.....	BW/5			
3	WALLING FROM PAGE.....	BW/6			
4	EXTERNAL FINISHES FROM PAGE.....	BW/7			

Item	Description	Unit	Qty	Rate	Amount
	TOTAL FOR CHAINLINK FENCE CARRIED TO GRAND SUMMARY				

MECHANICAL WORKS

**SPECIFICATIONS FOR MECHANICAL SERVICES
INSTALLATIONS**

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1.0 GENERAL SPECIFICATION FOR THE INSTALLATION FOR MECHANICAL ENGINEERING SERVICES

1.1 GENERAL

The Mechanical and Electrical Installations shall comply with this General Specification which details the intrinsic properties (including materials and workmanship) of the Installations in so far as it is not overridden by the Conditions, Particular Specification, Drawings and/or written instructions of the Engineer.

1.2 SCOPE OF THE INSTALLATIONS

This General Specification, Particular Specification, Tender Equipment Schedule and Drawings detail the performance requirements of the Installations.

The Installations to be carried out in accordance with this General Specification shall include the design where specified, installation and supply of all equipment and materials necessary to form a complete installation including any necessary tests, adjustments, commissioning and maintenance as prescribed and all other incidental sundry components together with the necessary labour for installing such components, for the proper operation of the Installations.

1.3 STATUTORY AND REGULATORY REQUIREMENTS

1.3.1 Technical Standards

- a) The installation and equipment shall comply with BS, BS EN, ISO Standards, IEC Standards and Codes of Practice, etc. shall be deemed to include all amendments, revisions and standards superseding the standards listed herein, which are published before the date of first tender invitation for the Nominated Sub-contract unless otherwise specified.
- b) Local Authority Bye-laws and regulations as well as the regulations of the Local Electrical Supply Authority.
- c) Local Fire Regulations.
- d) Affordable Housing *Juakali* Guidelines

All losses, costs or expenditures which may arise as a result of negligence to comply with any regulation applicable to this service as specified above, shall be for the account of the sub-contractor.

Should any requirement, bye-law or regulation which applied at the time of tender or which becomes applicable during the erection of the installation, contradicts any requirement of this or the supplementary specification, such requirement, bye-law or regulation shall overrule this or the supplementary specification and the Contractor shall inform the Engineer immediately of such a contradiction.

1.4	GENERAL EQUIREMENTS ON MATERIALS, EQUIPMENT AND INSTALLATION STANDARDS
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1.4.1 Material and Equipment Standards

All materials, equipment and installation work shall be carried out by adoption of the best available quality materials and workmanship and shall, where applicable, comply with the latest edition of the appropriate standards and/or codes of practice issued by the relevant international Institutes and Standards and as specified in this General Specification. This requirement shall be deemed to include all amendments to these standards and codes up to the date of tendering.

1.4.2 Compatibility of Materials and Equipment

Where different components of equipment are interconnected to form a complete system, their characteristics of performance and capacities shall be matched in order to ensure efficient, economical, safe and sound operation of the complete system.

1.4.3 Equipment Catalogues and Manufacturer's Specifications

Equipment catalogue and manufacturer's specification related to proposed items of equipment shall be specific and shall include all information necessary for the Engineer to ascertain that the equipment complies with this General Specification and/or the Particular Specification and Drawings. Data and sales catalogue of a general nature are not acceptable. Unless otherwise agreed to by the Engineer, all data and catalogues submitted must be in SI units i.e. mm, m, kPa, m/s, Hz, kW, l/s etc.

1.5	DRAWINGS
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The Engineer's drawings are merely diagrammatic and for tender purposes. The Contractor shall prepare working drawings for the installation and layout of major systems and equipment like pumps, water distribution systems, etc.

Three copies of the following finally approved working drawings shall be submitted by the Contractor to the Engineer for distribution to the relevant parties.

a) Electrical Drawings

These shall include the general arrangement drawings of switchboard, control panels, wiring diagrams, cable routes, etc.

b) Mechanical Drawings

Mechanical working drawings for the installation and layout of all mechanical equipment and systems shall be prepared by the sub-contractor timeously to prevent any delay in co-ordinating the mechanical installation with other installations.

Approved drawings by the Engineer shall not relieve the Contractor of his responsibilities for the correctness of dimensions and detail and to ensure the operation of the system and to carry out the work in terms of the contract.

1.6	TESTS
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The sub-contractor shall test the system to the satisfaction of the Engineer and any Authorities or Inspection Bureaus. The Contractor shall provide all the necessary test equipment, instruments and measuring points to carry out the tests. Detailed information of all tests shall be recorded and presented to the Engineer in the form of "Test Certificates".

The following tests shall be carried out:

a) Water Piping

All water piping shall be tested to a pressure of 1.5 times the normal operating pressure at the lowest point in the system or as specified in the Project Specification. These tests shall be carried out before any pipes are lagged, painted or built into shafts or closed up in trenches.

b) Pressure Vessels or Tanks

Pressure vessels shall be tested according to the relevant regulations applicable to the installation.

1.7 NOISE

The mechanical installation shall be installed such as to prevent any undue noises due to high flow rates, vibrations, etc.

1.8 COMMISSIONING

The sub-contractor shall provide the Engineer with a description of his proposed commissioning procedures and a program at least two weeks prior to commissioning of the system.

The sub-contractor shall commission the system and keep a full set of records of the results of all checks, measurements, adjustments and any other relevant information that might be of use for the future maintenance and operation of the system.

An independent Commissioning Authority may be appointed to confirm the commissioning procedures and tests where necessary or if specified.

1.9 OPERATING AND MAINTENANCE MANUALS

Before final acceptance of the installation but after commissioning the sub-contractor shall:

- a) prepare a draft operating and maintenance manual for approval by the Engineer and,
- b) after any adjustments if required by the Engineer, provide two complete operating and maintenance manuals to the Engineer.

The manuals shall consist of:

Section I: System Description

This section shall include a comprehensive description with schematic diagrams for explanations of the complete system.

Section II: Commissioning Data

This section shall include all the recorded results and set point settings of the commissioning of the system.

Section III: Operating Instructions

This section shall include the following:

- a) A pre-start check/test for each piece of equipment.
- b) Stopping and starting instructions.
- c) Plant running check list.
- d) Manual/Automatic operating instructions.

Section IV: Mechanical Equipment

This section shall include the following:

- a) A list of all major equipment giving the make, model number, serial number, manufacturer's name, address, telephone number and contact person as well as the supplier's name, address, telephone number and contact person.
- b) Design capacities with selection curves, capacity tables etc.
- c) Manufacturer's brochures and pamphlets.
- d) A recommended spare parts list with spare part numbers.
- e) Test Certificates for all equipment.

Section V: Maintenance Instructions

This section shall include the schedule of maintenance and lubrication requirements for all equipment as well as frequencies at which such maintenance shall be carried out and a trouble shooting guide.

Section VI: Electrical and Control Equipment

This section shall include the same details as for the mechanical equipment under Section IV and V above.

Section VII: Drawings

This section shall include a complete set of reduced size paper prints of the "As Built" drawings for the Electrical, Mechanical and any other relevant drawings.

The contract will not be regarded as complete until a full set of approved manuals has been handed to the Engineer.

PLUMBING & DRAINAGE PARTICULAR SPECIFICATIONS

2.1 SCOPE OF THE PLUMBING & DRAINAGE INSTALLATIONS

This General Specification, Particular Specification, Tender Equipment Schedule and Drawings detail the performance requirements of the Installations. The Installations to be carried out in accordance with this Particular Specification shall include the design where specified, installation and supply of all materials necessary to form a complete installation including any necessary tests, adjustments, commissioning and maintenance as prescribed and all other incidental sundry components together with the necessary labour for installing such components, for the proper operation of the Installations.

2.2 PLUMBING & DRAINAGE INSTALLATION METHODOLOGY & MATERIAL SPECIFICATIONS

2.2.1 Pipes, Joints and Fittings Material Specifications

The application of pipework types to the various plumbing systems shall be as stated below if not specified in the Contract.

All pipes and fittings shall comply with the relevant standards and shall have suitable markings to indicate the standards.

Application	Type
Above ground drainage system	To standards indicated in the BQ
Below ground drainage system	To standards indicated in the BQ
Cold water supply	To standards indicated in the BQ
Hot water systems	To standards indicated in the BQ
Rainwater drainage systems	To standards indicated in the BQ

2.2.2 Installation of Above Ground Drainage Systems

2.2.2.1 General

Foul water drainage above ground shall be installed generally to BS EN 12056-2: 2000.

Bolted access doors or inspection units shall be provided to all branches and bends (other than ventilating and anti-syphon pipes) and at the foot of main soil stacks. Access doors to cast iron soil stacks shall be fitted with gunmetal bolts.

2.2.2.2 Pipework Penetrating Building Structure

2.2.2.2.1 *Pipes through Walls and Floors*

Where pipes pass through walls or floors:

- a) Cast or build in UPVC sleeves to BS 3505: 1986 or BS EN ISO 1452-1: 2009 with 2 to 12 mm clearance to allow for expansion and movement of pipe
- b) Finish sleeves flush with finished face of walls and ceilings and projecting 100 mm above finished floor level.
- c) Provide loose plastic or chromium plated cover plates, when specified, to ends of sleeves visible in completed work. Plates shall be 50 mm larger than the external diameter of pipe and either clipped to the pipe or screwed or plugged and screwed to the adjacent surfaces.
- d) If required to be water tight, point with approved mastic sealant.

2.2.3 Manholes

Manhole covers and frames shall comply with BS 497:1976 and shall be of the sizes and types as shown on the contract drawings. In general, manhole covers and frames shall be one of three types, as follows unless otherwise specified. Heavy Duty to BS 497 Grade A Medium Duty to BS 497 Grade B Light Duty to BS 497 Grade C

2.2.4 Pipe Entries into Buildings

Pipe entries into buildings shall be sealed with mastic compound and plugged after installation of pipework to prevent the ingress or egress of water or vermin.

2.2.5 Venting and Draining

Air vents and drain valves shall be provided at high points and low points respectively in all piping systems.

Automatic air vents, or air cocks where specified, shall be supplied and installed at the highest points of pipework and where necessary for the venting of air in the installation.

They shall have gunmetal or brass bodies, stainless steel floats and guides, and non-corrodible valves and seats. Each automatic air vent shall be controlled by a lock shield valve. Air release pipes shall be run to discharge at the nearest suitable visible point. Air cocks shall be nickel-plated, of the spoutless pattern and with screwed taper thread. At least two loose keys shall be provided for each type of cock installed.

Drain valves, or drain cocks where specified, shall be fitted on the lowest points of pipework or where necessary for the water drainage of the system. Plugs for drain cocks shall be ground-in. Two loose keys of forged mild steel shall be provided with each drain cock. Drain valves/cocks shall be connected to the nearest building floor drain or drain point of adequate size.

2.2.6 Valves, Taps and Cocks

Valves, taps and cocks shall be of the types and working pressures suitable for the systems to which they are connected and shall be accompanied with valid letters of approval issued by the Water Supplies Department.

Wherever applicable, the following British Standards for cocks and valves shall be relevant: -

- BS 1010 Part 2 Draw-off taps and above ground stop valves.
- BS 5150 Cast iron gate valves for general purposes DN Series PN 16.
- BS 5151 Cast iron gate (parallel slide) valves for general purposes DN Series PN16.
- BS 5152 Cast iron globe and globe stop and check valves for general purposes DN Series PN16.
- BS 5156 Screw down diaphragm valves DN Series PN16.
- BS 5159 Cast iron and carbon steel ball valves for general purposes DN Series PN16.
- BS 5163 Key-operated cast iron gate valves for water works purposes DN Series PN16.

Valves and fittings of PN25 or heavier duty shall be used for high pressure system.

2.3.1 General

Throughout the execution of the installation, the plumbing & drainage subcontractor shall be responsible for ensuring compliance with the Regulations included in general specifications and shall notify the Engineer of any infringement which directly or indirectly detracts from the safe and satisfactory operation of the installation(s) whether or not such infringement relates to the works covered in the contract or to those associated with others

2.3.1.1 Inspection, Testing and Commissioning Methods and Procedures

The plumbing & drainage subcontractor is required to submit detailed inspection, testing and commissioning methods and procedures together with report formats for reporting inspection, testing and commissioning results for the Engineer's approval at least four months before commencement of testing and commissioning works, or four months after the commencement of the Contract, whichever is earlier

2.3.1.2 Labour and Materials

The plumbing & drainage subcontractor is required to be responsible for provision of all labour and both consumable and non-consumable materials for carrying out testing and commissioning works at their expenses.

2.3.1.3 Supply of Inspection, Measuring and Testing Equipment

The plumbing & drainage subcontractor is required to supply the calibrated equipment and instrument for testing and commissioning works in accordance with the requirements as specified in the Particular Specification.

2.3.1.4 Readiness for Commissioning and Testing

The plumbing & drainage subcontractor is required to check the completion of the works to be tested or commissioned, the associated builder's works and the associated building services installations to ensure that testing and commissioning can be proceeded in a safe and satisfactory manner without obstruction.

"Type-test" for equipment shall be carried out at the manufacturers' works or elsewhere appropriate in order to demonstrate their compliance with the Regulation or requirements. "Type-test" certificates together with the

corresponding drawings, sketches, reports and any other necessary documents shall be submitted to the Engineer for approval before delivery of the equipment.

The plumbing & drainage subcontractor shall be responsible for initially setting the plants to work including:

- a) Preliminary checks to ensure that all systems and system components are in a satisfactory and safe condition before start up;
- b) Preliminary adjustment and setting of all plant and equipment consistent with eventual design performance;
- c) Carrying out pressure test, hydraulic test, drainage test and other tests required before energising the equipment and plant;
- d) Checking the proper functioning of the protective devices and safety valves in the installation and carrying out all necessary safety testing;
- e) Energising and setting to work on all plants; and
- f) Initial regulation and demonstration that the installation delivers the correct rate of flow at the conditions specified in the contract

For specialist plant or equipment, the plumbing & drainage subcontractor shall arrange for it to be commissioned, certified and tested by the manufacturer's skilled commissioning engineer and/or technician.

Where the tests involved other plumbing and drainage installations already in operation in other parts of the building outside the Site or works area, the plumbing & drainage subcontractor shall co-ordinate with relevant parties, where necessary, on the temporary suspension of other plumbing and drainage installations for the tests

The plumbing & drainage subcontractor is required to provide advanced notice for inspection, testing and commissioning works as follows: -

- a) Off-site Inspection and Testing

An advanced notice of at least one week before commencement of the inspection or test shall be provided.

- b) On-site Inspection, Testing and Commissioning

An advanced notice of at least 4 calendar days before commencement of inspection, testing or commissioning shall be provided.

2.3.1.5 *Documentation and Deliverables*

The plumbing & drainage subcontractor shall record all commissioning information and testing results at the witness of the Engineer or his representatives. Commissioning and testing record shall be properly checked and certified by contractor's Testing and Commissioning Engineer and signed by the Engineer or his representative who has witnessed the testing or commissioning before submission to the Engineer. The plumbing & drainage subcontractor shall submit full commissioning and testing report to the Engineer within 14 calendar days after completion of commissioning and testing of the installation.

2.3.2 Testing and Commissioning - Definitions

For the purpose of this General Specification the following definitions shall apply: -

Commissioning: the advancement of an installation from the stage of static completion to full working conditions and to meet the specified requirements. This will include setting into operation and regulation of the installation.

Setting to work: the process of setting a static system into motion.

Off-site Tests: tests carried out on items of equipment at manufacturer's works or elsewhere to ensure compliance with the requirements of Specifications and/or relevant Standards or Codes of Practice (or other standards specified).

Site Tests: tests on static plant and systems (e.g. inspection and testing of welds, hydraulic testing of pipe work, etc.) to ensure correct and safe installation and operation.

Regulation: the process of adjusting the rates of fluid flow and heat transfer in a distribution system within specified tolerances as stated in the relevant CIBSE Commissioning Code.

Performance Testing: the measuring and recording of the performance of the commissioned installation.

2.3.2.1 Testing and Commissioning - General

Any defects of workmanship, materials and performance, maladjustments or other irregularities which become apparent during

commissioning or testing shall be rectified by the plumbing & drainage subcontractor at no cost to the Employer and the relevant part of the commissioning or testing procedure shall be repeated at the plumbing & drainage subcontractor's expenses.

The entire testing and commissioning procedure shall be undertaken by the plumbing & drainage subcontractor own competent specialist staff or by a competent Independent Commissioning Specialist nominated by and acting for the plumbing & drainage subcontractor and approved by the Engineer.

2.3.3 Off-Site Tests

Where the specified Standards or Codes of Practice stipulate, "type-tests" on items of equipment to demonstrate compliance shall be carried out at the manufacturer's works or elsewhere as appropriate. In all cases, "type-tests" Certificates shall be submitted in duplicate to the Engineer.

2.3.4 Site Tests

The plumbing & drainage subcontractor shall carry out "on-site" tests in respect of all static systems to ensure safe and proper operation as conforming to the design intent. Such tests shall include test of welds and pressure tests on the hydraulic systems.

2.3.5 Inspection and Testing During Construction Period

2.3.5.1 Periodic Site Tests

Site inspections of "work in progress" will be made by the Engineer or the representative from time to time. The plumbing & drainage subcontractor shall keep such inspection record for checking from time to time. Installations to be permanently covered up shall be subjected to inspection and test before cover up. During the inspection, if the Engineer discovers any work that has been covered up before inspection and testing, this work shall be uncovered for inspection and testing to the Engineer's satisfaction. The cost involved in uncovering the work, inspecting, testing and re-concealing the work together with any consequential losses shall be paid by the plumbing & drainage subcontractor at no additional cost to the Employer.

2.3.5.2 Factory Test Certificates

Certificates of all hydraulic and other manufacturers' tests carried out at the manufacturers' works shall be forwarded in duplicate to the Engineer

for approval. This approval shall normally be required before the materials or apparatus are dispatched from the manufacturer's works.

2.3.5.3 Sampling and Analysis of Potable Fresh Water

The plumbing & drainage subcontractor shall conduct sampling and analysis for the quality of potable fresh water upon substantial completion of the plumbing installation. The sampling and analysis methodology shall be submitted to the Engineer for approval.

The sampling and analysis of potable fresh water for physical, chemical and bacteriological examinations shall be collected, preserved and handled using the standard techniques as listed below: -

- a) BS EN ISO 5667-1: 2006, BS EN ISO 5667-3: 2003 and BS ISO 5667-5: 2006, or equivalent standards;
- b) Annex 4 of the World Health Organization (WHO) Guidelines for Drinking Water Quality 2nd Edition Volume 3

2.3.6 Documents and Data Required for Hand-Over

2.3.6.1 General

The plumbing & drainage subcontractor shall note that the system cannot be handed over until all the foregoing requirements (where applicable) have been carried out to the satisfaction of the Engineer.

2.3.6.2 Test Certificates

Before the handover inspection, the plumbing & drainage subcontractor shall provide the follow test/record certificates where applicable: -

- a) Copies of manufacturer's works tests/record certificates on plant items comprising heat generating plant, heat exchangers, chillers units, packaged air conditioning units, tanks, vessels, motors, fans, pumps, etc.;
- b) Copies of hydraulic and pressure test/record certificates for works carried out on Site;
- c) Copies of Registered Surveyor's test/record certificates for pressure vessels (if any);

2.3.6.3 "As-built" Drawings

All necessary copies of “As-built” drawings as detailed in the Contract Documents and this General Specification shall be provided upon handover.

2.3.6.4 Operation and Maintenance Manuals

All necessary copies of Operating and Maintenance Manuals as detailed in the Contract and this General Specification shall be provided upon handover.

2.3.6.5 Manufacturer's Name Plate

Every item of plant supplied by a manufacturer shall be fitted with a clearly engraved, stamped or cast manufacturer's name plate properly secured to the plant item and showing: -

- Manufacturer's Name;
- Serial and/or Model No.;
- Date of Supply;
- Rating/Capacity; and
- Test and Working Pressure (where applicable).

2.3.6.6 Labels and Related Instructions

Labels and notices shall be supplied and installed for all valves and piping to facilitate operation and proper maintenance of the Installation. All labels shall make cross reference to the operation and maintenance manuals and as-built drawings

All wording shall be in both Swahili and English. All labels shall be of adequate size as to give clearance between lettering and fixings to ensure an aesthetic arrangement on completion, and meeting with.

FIREFIGHTING PARTICULAR SPECIFICATIONS

3.1 INTRODUCTION

3.1.1 General

This section, This General Specification details the intrinsic properties (including materials and workmanship) required of a fire service installation including hydrant/hose reel system, manual and automatic fire alarm system, audio/visual advisory system, gas extinguishing system,

portable appliances, smoke extraction system if any and all associated electrical equipment and wiring.

3.1.2 Preference

The fire service installation shall comply in every respect with this project Specification unless otherwise specified in the Particular Specification, the drawings and/or contract documents relating to a particular job or modified by written instruction of the Engineer.

The Project Specification takes preference over the standard specifications wherever the two Specifications might be in conflict.

3.1.3 Scope of Work

The scope of the works in these specifications consists of the whole of the labour and all materials necessary to form a complete installation and such commissioning, adjustments, tests and maintenance as prescribed or as necessary. It shall include not only the major items of plant and equipment shown or specified but all the incidental sundry components necessary together with the cost of labour for installing such components for the completion of the Works and for the proper and functional operation and maintenance of the installation whether or not these sundry components are mentioned in detail in the Contract.

3.2 STATUTORY OBLIGATIONS AND OTHER REGULATIONS

3.2.1 Installation to Comply with Obligations, Regulations and Specification

The installation shall comply with this particular Specification, and with the following statutory obligations, regulations and specifications currently in force in Kenya

- a) BS 5588-4, *Fire precautions in the design, construction and use of buildings – Part 4: Code of practice for smoke control using pressure differentials.*
- b) BS 7346-1, *Components for smoke and heat control systems – Part 1: Specification for natural smoke and heat exhaust ventilators*
- c) BS 7974, *Application of fire safety engineering principles to the design of buildings – Code of practice.*
- d) EN 12101-2, *Smoke and heat control systems – Part 2: Specification for natural smoke and heat exhaust ventilators.*

e) Internationally recognized equivalent standards acceptable to the local authority and approved by the Engineer.

f) Where indicated, the codes, standards and guidelines issued by the following international institutions, or internationally recognised equivalent standards acceptable to the local authority and approved by the Engineer:

- National Fire Protection Association, United States
- Loss Prevention Council, United Kingdom
- International Organization for Standardisation
- American National Standard Institute
- Committee for European Normalisation
- Factory Mutual, United States
- Underwriters' Laboratory, United States

3.3 EXECUTION OF WORKS

3.3.1 Programme of Works

The sub-contractor shall obtain the programme from the Main Building Contractor (builder) and co-ordinate the Fire Protection installation programme with that of the builder.

3.3.2 Builder's Work

Approved pipe sleeves and pipe collars, and approved fire rated pipe sleeves and fire rated pipe collars where necessary, shall be supplied and installed by the sub-contractor for all fire service pipes and the like passing through compartments, walls, floors and any structural openings. Puddle flanges for inlet and outlet pipes of the tanks for fire service shall be supplied by the sub-contractor and will be installed by the Main Contractor unless otherwise specified.

3.3.3 Training of Employer's Staff

The sub-contractor shall provide training for the operation and where necessary maintenance of sophisticated equipment. The training shall include all training facilities, material and handouts etc. The Contractor shall submit a training schedule and proposal at least three (3) months prior to completion of the Works for the Engineer's Approval.

3.4 PIPEWORK VALVES AND FITTINGS

3.4.1 Steel Tubes and Fittings for Exposed Pipework

All tubes and fittings up to and including 150 mm diameter shall, unless otherwise specified, be galvanised mild steel of at least medium grade to BS 1387 / ISO 65 Steel tubes and tubulars for screwing to BS 21 / ISO 7/1 pipe threads. All other fittings shall be to BS 1740.

All tubes and fittings above 150 mm diameter shall, unless otherwise specified, be ductile iron to BS EN 545 Class K12 cold bitumen coated externally and internally to BS 3416 Type II.

Where specified for operation in high pressure from 1600 kPa, all tubes shall be suitable for pressure from 1600 kPa shall be carbon steel of ERW 320 to BS 3601 - carbon steel pipes and tubes with specified room temperature properties for pressure purposes, and shall have dimensions to BS 3600 - Specification for dimensions and masses per unit length of welded and seamless steel pipes and tubes for pressure purposes. All fittings shall be butt-welding type carbon steel for pressure purposes to BS EN 10253-1. All tubes on or below 150 mm diameter for high pressure from 1600 kPa shall be galvanised mild steel pipe of heavy grade to BS 1387/ ISO 65.

3.4.2 Underground Pipework

Pipe laid underground shall conform to one of the following specifications:

-

- a) EN 12201 - Plastics piping systems for water supply, and for drainage and sewerage under pressure - Polyethylene (PE)
- b) ISO 4427- Plastics piping systems for water supply and for drainage and sewerage under pressure Polyethylene (PE).
- c) AWWA C906-21 - Polyethylene (Pe) Pressure Pipe and Fittings, 4 In. Through 65 In. (100 Mm Through 1,650 Mm), For Waterworks

If not specified in the Particular Specification, all fitting must be fusion weld.

3.4.3 Pipe Sizes

Where pipe sizes are stated in this Particular Specification, this is intended to be the nominal bore in the case of steel tubes and the nominal outside diameter in the case of copper tubes.

3.4.4 Protection of Underground Pipework

Underground pipes shall be protected against corrosion and against mechanical damage. Pipework shall be cleaned after jointing and treated with two coats of good quality bituminous paint and wrapped with

corrosion and water resistance self-amalgamating tapes and mastics having 55% overlapping before laying, and bedded in washed sand free of all salts or sieved soil before the trench is back filled. All joints and supports shall be appropriately wrapped. Pipework shall be hydraulically tested before the trench is back filled. Underground pipework shall be provided with suitable and approved couplings which provide allowance for angular deflection, contraction and expansion. Anchor blocks shall be made at appropriate locations to the approval of the Engineer for thrust bearing. Anchor block, trench, backfilling of trench and sand bed are included under the builder's works.

3.4.5 Pipe Entries into Buildings

Pipe entries into buildings shall be sealed with mastic compound and plugged after installation of pipework to prevent the ingress or egress of water or vermin.

3.4.6 Venting and Draining

Air vents and drain valves shall be provided at high points and low points respectively in all piping systems.

Drain valves, or drain cocks where specified, shall be fitted on the lowest points of pipework or where necessary for the water drainage of the system. Plugs for drain cocks shall be ground-in. Two loose keys of forged mild steel shall be provided with each drain cock. Drain valves/cocks shall be connected to the nearest building floor drain or drain point of adequate size.

3.4.7 Valves, Taps and Cocks

Valves, taps and cocks shall be of the types and working pressures suitable for the systems to which they are connected and shall be accompanied with valid letters of approval issued by the Water Supplies Department.

Wherever applicable, the following British Standards for cocks and valves shall be relevant: -

- BS 1010 Part 2 Draw-off taps and above ground stop valves.
- BS 5150 Cast iron gate valves for general purposes DN Series PN 16.
- BS 5151 Cast iron gate (parallel slide) valves for general purposes DN Series PN16.
- BS 5152 Cast iron globe and globe stop and check valves for general purposes DN Series PN16.
- BS 5156 Screw down diaphragm valves DN Series PN16.
- BS 5159 Cast iron and carbon steel ball valves for general purposes DN Series PN16.

- BS 5163 Key-operated cast iron gate valves for water works purposes DN Series PN16.

3.5 HYDRANT AND HOSE REEL SYSTEM

3.5.1 General Requirements

The general requirements of the hydrant and hose reel system and the individual equipment installations shall comply with local administrative authorities and Circular Letters.

The fire service inlets, hydrant outlet valves and hose reels shall comply with local standards

3.5.2 Fire Service Inlets and Hydrant Outlets

Fire service inlets shall be of twin type comprising screw-down globe type stop valve with male screwed outlet of suitable bore and two 65 mm horizontal male instantaneous inlet connections complete with integral spring loaded resilient seated non-return valves.

The fire service inlets and hydrant outlets shall be of all gunmetal construction except for the hand wheel which shall be of cast iron or hard aluminum alloy.

The inlet and outlets fittings shall be supplied and manufactured to the quality of material, construction, and dimensions as detailed in the following British Standard Specification: -

- a) Hydrant assembly to BS 5041 Part 1.
- b) Major valve components of gunmetal to BS EN 1982.
- c) Globe & check valve of service rating 1000 kPa to BS 5154.
- d) Male and female instantaneous terminals of 65 mm diameter to BS 336.
- e) All fittings shall be tested to at least 2000 kPa.

3.5.3 Venting and Draining

All hydrant risers shall be supplied and installed with automatic air vents of 25 mm size at the highest points and drain valves at the lowest points of the systems.

3.5.4 Hose Reels

Hose reels shall be of fixed or swing-out type to suit the site installation conditions of the site. The construction, testing, performance, working pressure, etc. shall be to local standards. The length of hose shall be 30 m and bore 19 mm.

For the swing-out pattern, the support brackets and the swing-out arm shall be so designed as to enable the whole hose reel assembly be swung through 180° in a horizontal plan.

3.5.4.1 External hydrants shall be of pedestal type manufactured of cast iron. The construction of the street hydrants shall comply with local standards

The hydrant, when tested in accordance with the provision of BS 1042 with one 65 mm outlet working, shall be capable of delivering not less than 2000 litres per minute (33.3 l/sec.) with a minimum running pressure of 170kPa at the outlet. The minimum output and pressure as stated above shall be made available from two 65 mm outlets of the system delivering at the same time, i.e. a total output of not less than 4000 litres per minutes (66.7 l/sec.) at 170 kPa. Where the minimum standards are not possible from direct town mains, the water supply shall be augmented by water tank and booster pumps. The Contractor shall submit to the Engineer for approval soonest after the test proposal for providing booster pumps and tanks for the street hydrant system if the water supply pressure and flow from town mains are not adequate to meet with the local standards.

3.6 PUMPS

3.6.1 Water Pumps

Water pumps for sprinkler systems shall comply with the LPC Rules for Sprinkler Installations. Water pumps for hydrant/hosereel systems shall comply with local standards and BS 5306 Part 1 wherever applicable. Pumps shall be manufactured by a manufacturer possessing certified ISO 9001/9002.

Sprinkler pumps shall be LPCB certified pumps or approved by any similar widely recognised independent regulatory bodies. Test certificate shall be submitted at the time of delivery.

There shall be at least one standby pump in addition to the duty pumps for each pump set. In addition, there shall be at least one jockey pump in each sprinkler pump set.

3.6.2 Pump Set Installation

The pump and motor shall be directly coupled and mounted on a substantial machined base plate of cast iron or of fabricated mild steel. Couplings shall be flexible of steel pin and synthetic rubber bushing type, accurately aligned, and fitted with guards.

Pumps shall be complete with all necessary water seal connections, vents, drains and priming plugs, and all installation materials including foundation bolts and anti-vibration mountings. Drain pipework shall be of copper and shall run to a nearby drain gully or as specified. Automatic priming equipment shall be included where necessary to ensure that the pumps are primed at all times.

3.7 MISCELLANEOUS

3.7.1 Labels and Notices

Labels and notices shall be supplied and installed for all pumps, valves, switches, gauges, indicators, cables, internal wiring terminals and all other equipment to facilitate operation and proper maintenance of the fire service installation. All labels shall make cross reference to the operation and maintenance manuals and as-built drawings

Labels and notices required by statutory requirements shall be inscribed accordingly whereas other labels shall indicate name and purpose of the equipment together with ratings and commissioned set values where applicable.

Labels for equipment identifications shall be made of red plastic material or multilayer Formica with white lettering or as approved. Lettering shall be engraved on the plastic material or Formica. All wording shall be in both Swahili and English. All labels shall be of adequate size as to give clearance between lettering and fixings to ensure an aesthetic arrangement on completion.

Notices for safety warning and instructions shall be constructed of heavy gauge aluminium sheets painted with symbols or wording as appropriate. Notice for instruction for operation and use of the equipment shall be provided as appropriate and necessary. Instructions for use shall be provided to all equipment for use by the general public and for operation by the operating staff.

Labels and notices shall be fixed by screws. Where drilling and tapping is impracticable, approved adhesive may be used subject to prior approval by the Architect. For pipelines or valves, where applicable, labels shall be fixed

by means of a key ring attached to the upper corner of the pipe mounting bracket or the hand wheel of valves. The labels shall be suspended from brass or stainless-steel chain loops over the relevant pipe.

All major fire service equipment and components such as pumps and motors, flow switches, alarm valves, expansion joints, pipes and fittings, etc. shall have factory applied permanent nameplates indicating, where relevant: -

- a) Name of Manufacturer.
- b) Model.
- c) Serial Number.
- d) Design Flow Rate, Pressure, etc.
- e) Rated Duty.
- f) Operating Voltage, Phase, Ampere, and Frequency.
- g) Full Load Current and Power.
- h) Starting Method and Current.
- i) Power Factor.
- j) Date of Manufacture.
- k) IEC, British Standards or other Authorities' markings to indicate their compliance and grades of application.
- l) Any other necessary data to conform to specified requirements and to indicate the equipment performance.

Instructions for oiling and/or greasing of all fans, motors, etc. shall be attached to the relevant greasing or oiling points.

Where the equipment has an operating life less than or equal to ten (10) years, the expiry date or the 'end of service life' date has to be stated on the label attached to the equipment. Labels of approved types shall be supplied and installed for fire extinguishers, fixed sprayer units, batteries, detectors and gas extinguishing system showing the expiry date of design operating life. Unless otherwise barcode labels are provided, the label shall have a serial number of the equipment and the serial number shall be recorded on the as-built drawings.

All isolators and protective devices that can isolate the supply to the fire alarm system shall be properly labelled to the approval of the Engineer.

3.7.2 Danger Notices

Danger notices worded: DANGER-PLANT ON AUTOMATIC START (-) in English and Swahili shall be supplied and installed adjacent to all automatically controlled motor-driven and engine-driven pumps.

Notices, instructions of use complying with the requirements of Labour Department and Occupational Safety and Health Ordinance, Chapter 509, shall be supplied and installed.

3.7.3 Painting, Finishing, Protection and Identification

Painting shall follow General Specification for Building unless otherwise specified. Paint all surfaces including cable trunking/conduit, panel, box, enclosure, cladding, pipework, equipment, fitting, etc. except otherwise specified.

Self-finished surfaces like stainless steel, anodised aluminium, chrome plated, bronze, plastic, etc. are not required to be painted.

Painting and coatings for the purpose of protecting the materials from corrosion including those inside concealed spaces shall be required.

All surfaces shall be painted and finished as specified in the Particular Specification to meet and match the aesthetic Architectural design as required.

3.8 COMMISSIONING AND ACCEPTANCE TEST

3.8.1 Adjustments, Commissioning, Functional and Performance Tests

The Contractor shall commission the installation and carry out complete functional and performance tests for all equipment and systems installed by him/her or them, make all necessary adjustments, including setting all controls and checking the operation of all protective and safety devices in accordance with the manufacturers' instructions, the requirements of the statutory rules and regulations and to the satisfaction of the Engineer before the installations will be accepted.

The detailed procedures submitted shall follow Testing & Commissioning Procedures submitted by the Engineer with additional details and tests proposed by the Contractor to the approval of the Engineer and in accordance with the manufacturer's recommendation, relevant standards and statutory regulations. Detailed commissioning and testing procedures shall be submitted for all special systems and systems. The detailed procedures shall be prepared in two main parts covering the following: -

- a) Testing that is required to be carried out during the construction period when part of the Works is installed.
- b) Commissioning and testing required for certifying completion of the Works and before commencement of the Maintenance Period.

Commissioning and testing shall include, but not limited to: -

- a) Factory tests and off-site tests.
- b) Visual inspection and checking.
- c) Setting to work, safety and quality tests.
- d) Commissioning, regulations, tuning and adjustment
- e) Functional tests.
- f) Performance tests.
- g) Final mock-up tests.
- h) Statutory tests and inspections.

Visual inspection and checking shall include verification of the installed equipment being the approved models. The Contractor shall submit relevant documents including delivery orders and payment vouchers to substantiate the equipment installed on site being the approved models if the identification of the manufacturer and model name cannot be seen easily on site.

Any defects of workmanship, materials and performance, maladjustments or other irregularities which become apparent during commissioning and testing shall be rectified by the Contractor at no additional cost to the Employer and the relevant part of the commissioning or testing procedure shall be repeated at the Contractor's expenses

3.8.2 Factory Tests and Off-site Tests

Factory test shall deem to be included. Factory test and off-site tests shall be carried out at the manufacturer's works or by an approved independent testing body/laboratory where specified, or elsewhere as approved.

The Contractor shall note that the Engineer may require witnessing tests and inspections of manufactured equipment during construction at the manufacturer's works. Where this requirement is indicated in the Contract, the Contractor shall allow for making the necessary arrangements.

3.8.3 Visual Inspection and Checking

Site inspections of 'work in progress' will be made by the Engineer or the representative from time to time. The Contractor shall keep such inspection

record for checking from time to time. Works to be permanently covered up shall be subjected to inspection, pressure test and other tests before cover up. During the inspection, if the Engineer discovers any work that has been covered up before inspection and testing, this work shall be uncovered for inspection and testing to the Engineer's satisfaction. The cost involved in uncovering the work, inspecting, testing and re-concealing the work together with any consequential losses shall be paid by the Contractor at no additional cost to the Employer. Any defective works and installation of poor workmanship found during visual inspection shall be rectified or replaced before proceeding with further tests.

3.8.4 Setting to Work, Safety and Quality Tests

Prior to any commissioning and testing works, the Contractor shall check the completion of the works, the associated builder's work, the related fire services provisions and the associated building services installations, to ensure that commissioning can be proceeded without obstruction.

Before any installation is subjected to commissioning and site testing, it shall be thoroughly cleaned both internally and externally.

The Contractor shall be responsible for initially setting the plants to work including: -

- a) Preliminary checks to ensure that all systems and system components are in a satisfactory and safe condition before start up.
- b) Preliminary adjustment and setting of all plant and equipment consistent with eventual design performance.
- c) Carrying out pressure test, hydraulic test and other tests required before energizing the equipment and plant.
- d) Checking the proper functioning of the protective devices and safety valves in the installation and carrying out all necessary safety testing.
- e) Energizing and setting to work on all plants.
- f) Initial regulation and demonstration that the installation delivers the correct rate of flow at the conditions specified in the Contract.

The Contractor shall arrange for any specialist plant or equipment to be commissioned and tested by the specialist equipment manufacturer's skilled commissioning engineer and/or technician.

3.8.5 Commissioning, Regulations, Tuning and Adjustment

The Contractor shall regulate, balance, tune, commission and adjust the installation and equipment as appropriate and necessary to deliver the conditions and requirements specified in the Contract. The Contractor shall

allow carrying out such adjustment and re-adjustment as necessary until all the requirements are met and the installation is accepted by the Engineer.

3.8.6 Functional Tests

The Contractor shall demonstrate to the satisfaction of the Engineer the functioning of the installation, system and equipment complying with the operational and functional intent and the requirements in the Contract. The Contractor shall demonstrate and test the proper operational mode, control and the sequence of the operation in various parts of the system and installation.

3.8.7 Performance Tests

The Contractor shall carry out tests to prove the performance of the installation, system and equipment in term of flow, pressure, current, sound level, and other technical/design aspects complying with the requirements in the Contract and the statutory requirements. The Contractor shall regulate, balance, tune, adjust and modify the installation, system and equipment as necessary till the performance requirements are met. The final setting and operational parameters of all equipment shall be recorded.

Where necessary, the Contractor shall carry out full load test by simulation or other approved method to prove the performance of the installation at full load condition.

Item	Description	Unit	QTY	Rate	Amount
B	<u>SANITARYWARE INSTALL ONLY</u>				
I	<u>GROUND FLOOR</u>				
	<u>INSTALL ONLY</u>				
	Supply and deliver the following appliances including their support brackets, screws etc.				
	<u>WC suite</u>				
1	Dual flush close couple toilet suite complete with Push button dual flush system, Comes with Soft Close Seat Cover, WC Connector, fixing brackets, PEX – O14 Fanski Flexible Connector: 1/2in x 1/2in x 30cm, Angle Valve, with Extension: 1/2 x 1/2in	No.	6		
	<u>Washbasin and Tap</u>				
2	White Drop In Basin - with full pedestal -White, One central taphole fixing brackets, PVC Bottle Trap and waste 1.25in x 40, Chrome Tempo Push-Delay Action Basin Tap, PEX – O14 Fanski Flexible Connector: 1/2in x 1/2in x 30cm, Angle Valve, with Extension: 1/2 x 1/2in	No.	9		
	<u>Shower & Fittings</u>				
3	Concealed shower fittings comprising of plastic shower arm, stop cock and bib tap, Instant Shower 3kW Element, Shielded selection switch, Adjustable three temperatures, hard and salty water application	No	9		
	<u>Kitchen sink and Tap</u>				
4	Single Bowl Single Drain Stainless Steel Kitchen Sink, PVC Bottle Trap and waste 1.5in x 40, Long Neck Wall type Bib Tap	No.	2		
	<u>Bathroom Accessories</u>				
5	Robe Hook (Single), Chrome Plated	No.	15		
6	Vertical Soap Dispenser: Satin	No.	3		
7	Toilet Roll Holder	No.	6		
8	Bathroom Mirror, (80×60)cm	No.	9		
	<u>Hand Drier</u>				
9	Sensor operated hand dryer with steel cover, white Epoxy finish c/w with HEPA filter media, and also with the filter and the ionizer "Ion Hygienic" together,	No.	3		
	<u>Fire blankets</u>				
10	Fire Blanket (1.2 x 1.2m)	No.	1		
	<u>Urinal</u>				
11	Urinal bowl white - top entry complete with zeda: bottle trap and waste 1.5in x 40, exposed (top entry) urinal flush valve 40mm, White Wall Hung Urinal Divider	No.	5		

Item	Description	Unit	QTY	Rate	Amount
	TOTAL TO NEXT PAGE				
	<i>Balance brought forward</i>				
12	<u>Disabled WC Suite</u> Close Couple one piece wc, s trap, with soft close seat and twin flush fittings, and wc connector, angle valve and flex hose, crane wall hung wash basin 665 x 545 x 190mm c/w bottle trap, angle valve, flex hose, clinical single lever basin tap, 1no. wall mounted grab bar 600 mm long, 1No. wall mounted hinged hand rail 750 x 100 mm, 1no. door mounted grab bar	No.	2		
13	<u>Dhobi sink and Tap</u> Terrazzo Dhobi Sink, PVC Bottle Trap and waste 1.5in x 40, Long Neck Wall type Bib Tap	No.	4		
14	<u>Arabic Shower</u> Supply & Installation of an Arabic shower c/w relevant accessories & Fittings	No.	6		
	<u>Total For 1No. Floor</u>				
	<u>Total For 1No. Floor</u>				1.00
	TOTAL TO SANITARYWARE SUPPLY COLLECTION PAGE				

Item	Description	Unit	QTY	Rate	Amount
II	<u>TYPICAL 1ST- 7TH FLOOR</u> <u>INSTALL ONLY</u> Supply and deliver the following appliances including their support brackets, screws etc. <u>WC suite</u> Dual flush close couple toilet suite complete with Push button dual flush system, Comes with Soft Close Seat Cover, WC Connector, fixing brackets, PEX – O14 Fanski Flexible Connector: 1/2in x 1/2in x 30cm, Angle Valve, with Extension: 1/2 x 1/2in <u>Washbasin and Tap</u> White Drop In Basin - with full pedestal -White, One central taphole fixing brackets, PVC Bottle Trap and waste 1.25in x 40, Chrome Tempo Push-Delay Action Basin Tap, PEX – O14 Fanski Flexible Connector: 1/2in x 1/2in x 30cm, Angle Valve, with Extension: 1/2 x 1/2in <u>Shower & Fittings</u> Concealed shower fittings comprising of plastic shower arm, stop cock and bib tap, Instant Shower 3kW Element, Shielded selection switch, Adjustable three temperatures, hard and salty water application <u>Kitchen sink and Tap</u> Single Bowl Single Drain Stainless Steel Kitchen Sink, PVC Bottle Trap and waste 1.5in x 40, Long Neck Wall type Bib Tap <u>Bathroom Accessories</u> Robe Hook (Single), Chrome Plated Vertical Soap Dispenser: Satin Toilet Roll Holder Bathroom Mirror, (80×60)cm <u>Hand Drier</u> Sensor operated hand dryer with steel cover, white Epoxy finish c/w with HEPA filter media, and also with the filter and the ionizer "Ion Hygienic" together, <u>Fire blankets</u> Fire Blanket (1.2 x 1.2m) <u>Urinal</u> Urinal bowl white - top entry complete with zeda: bottle trap and waste 1.5in x 40, exposed (top entry) urinal flush valve 40mm, White Wall Hung Urinal Divider <u>Dhobi sink and Tap</u> Terrazzo Dhobi Sink, PVC Bottle Trap and waste 1.5in x 40, Long Neck Wall type Bib Tap	No.	8		
1		No.	8		
2		No.	8		
3		No	10		
4		No.	4		
5		No.	10		
6		No.	2		
7		No.	8		
8		No.	8		
9		No.	2		
10		No.	1		
11		No.	6		
12		No.	8		

Item	Description	Unit	QTY	Rate	Amount
13	<u>Arabic Shower</u>	No.	8		
	Supply & Installation of an Arabic shower c/w relevant accessories & Fittings				
	<u>Total For 1No. Floor</u>				
					7.00
	<u>Total For 7No. Floor</u>				
TOTAL TO SANITARYWARE SUPPLY COLLECTION PAGE					
<u>SANITARY INSTALL COLLECTION PAGE</u>					
I	Ground Floor				
II	Typical 1st, to 7th, Floor Typical				
	Sub Total For 1No. Block				
					1.00
	Total For 1No. Block				

Item	Description	Unit	QTY	Rate	Amount
	TOTAL TO MAIN SUMMARY PAGE				
C	<u>INTERNAL PLUMBING</u>				
I	<u>GROUND FLOOR</u>				
	Supply, deliver install, Test and Commission: PP-R (Polypropylene Random Co-polymer) pipes PN 20 and fittings and fusion joints to (KS ISO 15874 Part 1, 2, 3 & 5) of approved manufacturer. Rates must allow for all Metal/plastic threaded adaptors where required for the connection of sanitary fixtures, valves, sockets, sliding and fixed joints etc. as required in the running lengths of pipework. The pipes shall run in floors and wall chase. The pipes will be pressure tested before the plastering of wall commences and as per the manufacturers recommended testing pressures.				
	<u>Cold Water</u>				
1	25mm diameter PPR Pipes	LM	55		
2	32mm diameter PPR Pipes	LM	40		
3	40mm diameter PPR Pipes	LM	25		
	<u>Extra over PPR tubing for the following:</u>				
4	25mm diameter PPR 90° elbow	No.	15		
5	32mm diameter PPR 90° elbow	No.	30		
6	40mm diameter PPR 90° elbow	No.	16		
	<u>Tees</u>				
7	25mm diameter PPR equal tee	No.	9		
8	32mm diameter PPR equal tee	No.	10		
9	40mm diameter PPR equal tee	No.	10		
	<u>Reducer Coupling</u>				
10	25x20mm diameter PPR reducer coupling	No.	25		
11	32x25mm diameter PPR reducer coupling	No.	10		
12	40x32mm diameter PPR reducer coupling	No.	10		
	<u>Reducer Tees</u>				
13	25x20mm diameter PPR reducer tees	No.	10		

Item	Description	Unit	QTY	Rate	Amount
14	32x25mm diameter PPR reducer tees	No.	15		
15	40x32mm diameter PPR reducer tees	No.	8		
16	40x25mm diameter PPR reducer tees	No.	8		
	<u>Union</u>				
16	25mm diameter PPR union	No.	9		
17	32mm diameter PPR union	No.	7		
18	40mm diameter PPR union	No.	4		
	<u>Gate Valves</u>				
19	40mm dia approved high pressure screw- down full way non-rising stem solid wedge disc gate valve to (KS ISO 15874 Part 1, 2, 3 & 5) for Series B Rating with wheel head and metal/plastic adaptors to PPR tubing. Valve to be as "Crane Model " or equal and approved	No.	8		
20	63mm ditto	No.	4		
	TOTAL TO NEXT PAGE				
	<i>Balance brought forward</i>				
	<u>PPR Male threaded adaptors (Brass threads).</u>				
21	20 x ¾"ø dia Male threaded adaptors (Brass threads).	No.	20		
22	25 x 1"ø dia ditto	No.	12		
23	40 x 1 1/2"ø dia ditto	No.	8		
24	63 x 1 1/2"ø dia ditto	No.	8		
	<u>PPR Male/Female threaded elbows (Brass threads).</u>				
25	20 x ¾"ø dia female threaded adaptors (Brass threads).	No.	22		
26	25 x 1"ø dia ditto	No.	10		
27	32 x 1 1/4"ø dia ditto	No.	8		
28	63 x 1 1/2"ø dia ditto	No.	8		
	<u>Total for 1No. Floor</u>				
	<u>Total for 1No. Floor</u>				1.00

Item	Description	Unit	QTY	Rate	Amount
	TOTAL TO INTERNAL PLUMBING COLLECTION PAGE				
<u>C</u>	<u>INTERNAL PLUMBING</u>				
<u>II</u>	<u>TYPICAL 1ST TO 7TH FLOOR</u>				
	Supply, deliver install, Test and Commission: PP-R (Polypropylene Random Co-polymer) pipes PN 20 and fittings and fusion joints to (KS ISO 15874 Part 1, 2, 3 & 5) of approved manufacturer. Rates must allow for all Metal/plastic threaded adaptors where required for the connection of sanitary fixtures, valves, sockets, sliding and fixed joints etc. as required in the running lengths of pipework. The pipes shall run in floors and wall chase. The pipes will be pressure tested before the plastering of wall commences and as per the manufacturers recommended testing pressures.				
	<u>Cold Water</u>				
1	25mm diameter PPR Pipes	LM	25		
2	32mm diameter PPR Pipes	LM	45		
3	40mm diameter PPR Pipes	LM	15		
	<u>Extra over PPR tubing for the following:</u>				
4	25mm diameter PPR 90° elbow	No.	15		
5	32mm diameter PPR 90° elbow	No.	28		
6	40mm diameter PPR 90° elbow	No.	16		
	<u>Tees</u>				
7	25mm diameter PPR equal tee	No.	9		
8	32mm diameter PPR equal tee	No.	10		
9	40mm diameter PPR equal tee	No.	10		
	<u>Reducer Coupling</u>				

Item	Description	Unit	QTY	Rate	Amount
10	25x20mm diameter PPR reducer coupling	No.	18		
11	32x25mm diameter PPR reducer coupling	No.	10		
12	40x32mm diameter PPR reducer coupling	No.	10		
	<u>Reducer Tees</u>				
13	25x20mm diameter PPR reducer tees	No.	18		
14	32x25mm diameter PPR reducer tees	No.	10		
15	40x32mm diameter PPR reducer tees	No.	12		
16	40x25mm diameter PPR reducer tees	No.	10		
	<u>Union</u>				
16	25mm diameter PPR union	No.	4		
17	32mm diameter PPR union	No.	8		
18	40mm diameter PPR union	No.	3		
	<u>Gate Valves</u>				
19	40mm dia approved high pressure screw- down full way non-rising stem solid wedge disc gate valve to (KS ISO 15874 Part 1, 2, 3 & 5) for Series B Rating with wheel head and metal/plastic adaptors to PPR tubing. Valve to be as "Crane Model " or equal and approved	No.	8		
20	63mm ditto	No.	4		
	TOTAL TO NEXT PAGE				
	<i>Balance brought forward</i>				
	<u>PPR Male threaded adaptors (Brass threads).</u>				
21	20 x ¾"ø dia Male threaded adaptors (Brass threads).	No.	28		
22	25 x 1"ø dia ditto	No.	12		
23	40 x 1½"ø dia ditto	No.	8		
24	63 x 1½"ø dia ditto	No.	4		
	<u>PPR Male/Female threaded elbows (Brass threads).</u>				
25	20 x ¾"ø dia female threaded adaptors (Brass threads).	No.	28		
26	25 x 1"ø dia ditto	No.	10		
27	32 x 1¼"ø dia ditto	No.	8		
28	63 x 1½"ø dia ditto	No.	4		
	<u>Total for 1No. Floor</u>				
					7.00
	<u>Total for 7No. Floor</u>				

Item	Description	Unit	QTY	Rate	Amount
	<u>MuPVC waste System conforming to BS 5255</u>				
1	32Φ Waste pipe	LM	8		
2	40Φ Waste pipe	LM	18		
3	50Φ Waste pipe	LM	30		
4	100Φ Waste pipe	LM	30		
	Extra over MuPVC waste pipework for the following:				
5	32Φ 90 degree sweep Bend	No.	6		
6	40Φ 90 degree sweep Bend	No.	22		
7	50Φ 90 degree sweep Bend	No.	20		
8	100Φ 90 degree sweep Bend	No.	18		
9	32Φ Sweep Tee	No.	4		
10	40Φ Sweep Tee	No.	14		
11	50Φ Sweep Tee	No.	14		
12	100Φ Sweep Tee	No.	14		
13	100Φ Double Branch	No.	4		
14	32Φ Access plug	No.	2		
15	40Φ Access plug	No.	6		
16	50Φ Access plug	No.	8		
17	100Φ Access plug	No.	10		
18	32mm dia - socket	No.	2		
19	40mm dia - socket	No.	5		
20	50mm dia - socket	No.	8		
21	100mm dia - socket	No.	8		
	TOTAL TO NEXT PAGE				
	<i>Balance brought forward</i>				
22	50 x 32mm dia - socket reducer	No.	2		
23	50 x 40mm dia - socket reducer	No.	8		
24	100 x 50mm dia - Reducer Tee	No.	8		
25	100 x 50 Floor traps complete with Plastic Grating	No.	5		
26	100Φ Vent Cowl	No.	6		
27	Allow for 2" PVC pipe sleeves through/ on side of the columns in	LM	4		
	<u>Total For 1No. Floor</u>				

Item	Description	Unit	QTY	Rate	Amount
	<u>MuPVC waste System conforming to BS 5255</u>				
1	32Φ Waste pipe	LM	8		
2	40Φ Waste pipe	LM	32		
3	50Φ Waste pipe	LM	60		
4	100Φ Waste pipe	LM	50		
	Extra over MuPVC waste pipework for the following:				
5	32Φ 90 degree sweep Bend	No.	6		
6	40Φ 90 degree sweep Bend	No.	28		
7	50Φ 90 degree sweep Bend	No.	20		
8	100Φ 90 degree sweep Bend	No.	10		
9	32Φ Sweep Tee	No.	4		
10	40Φ Sweep Tee	No.	10		
11	50Φ Sweep Tee	No.	14		
12	100Φ Sweep Tee	No.	18		
13	100Φ Double Branch	No.	2		
14	32Φ Access plug	No.	2		
15	40Φ Access plug	No.	8		
16	50Φ Access plug	No.	12		
17	100Φ Access plug	No.	5		
18	32mm dia - socket	No.	2		
19	40mm dia - socket	No.	8		
20	50mm dia - socket	No.	12		
21	100mm dia - socket	No.			
	TOTAL TO NEXT PAGE				
	<i>Balance brought forward</i>				
22	50 x 32mm dia - socket reducer	No.	2		
23	50 x 40mm dia - socket reducer	No.	8		
24	100 x 50mm dia - Reducer Tee	No.	8		
25	100 x 50 Floor traps complete with Plastic Grating	No.	8		

[illegible]

Item	Description	Unit	QTY	Rate	Amount
	Sub Total For 1No. Block Total For 1No. Blocks				
					1.00
	TOTAL TO MAIN SUMMARY PAGE				
E	EXTERNAL FOUL DRAINAGE				

Item	Description	Unit	QTY	Rate	Amount
I	<u>HOSTEL BLOCK</u> Supply, deliver and install the following uPVC (Unplasticized Polyvinyl chloride) to (KS ISO 1452 Part 1, 2, 3, 4 & 5) Heavy gauge soil and waste system. Allow for all the various sizes of adaptor, connectors, sockets, holderbats, clips etc not measured but required for the satisfactory functioning of the system. <u>Below Ground</u> <u>MuPVC waste System conforming to BS 5255</u>				
1	100.4.40 Soil and Vent pipe	LM	90		
2	100.6.60 Soil and Vent pipe	LM	160		
3	101.4.90 Sweep bend	No.	18		
4	100Φ 45 degree sweep Bend	No.	7		
5	104.6.92 Single branch	No.	4		
6	136.4 Access Cap	No.	9		
	<u>Gully Trap - Concrete Cover</u> Allow for a masonry gully trap of size 300 x 300 x450 mm deep with cast Iron P-Trap, cast iron grating, drain pipe, concrete cover, etc.	No.	8		
	<u>Inspection Chambers</u> Allow excavation and concreting to Class 1:3:6, walling 150 mm thick solid concrete block walls with 1:3 mortar and plastering to 1:2, rectangular Cast Iron heavy duty cover and MS frame with double air seal for manhole not exceeding 1000 mm depth.	No.	20		
	Sub Total For 1No. Block				
					1.00
	Total For 1No. Blocks				

Item	Description	Unit	QTY	Rate	Amount
	TOTAL TO MAIN SUMMARY PAGE				
E					
II	<u>EXTERNAL FOUL DRAINAGE SUMMARY PAGE</u>				
I	Hostel Block				0.00
	Total For 1No. Block				
					1.00
	Total For 1No. Block				

Item	Description	Unit	QTY	Rate	Amount
	TOTAL TO MAIN SUMMARY PAGE				
F	<u>RAINWATER DRAINAGE</u> <u>HOSTEL BLOCK</u> Supply, deliver and install UPVC (Unplasticized Polyvinyl chloride) to (KS ISO 1452 Part 1, 2, 3, 4 & 5) rainwater pipework. Allow for all flanges, couplings, nipples, connector joints, fixing clips holder bats etc as required in running length of pipework but not measured.				
I	<u>uPVC Rainwater system conforming to BS 4576</u>				
1	100mm dia pipe	LM	260		
2	100mm Sweep bend	No.	16		
3	100mm Sweep Tee	No.	8		
3	100mm dia Fulbora Outlets	No	10		
	Sub Total For 1No. Block				
					1.00
	Total For 1No. Blocks				

Item	Description	Unit	QTY	Rate	Amount
	TOTAL TO MAIN SUMMARY PAGE				
G	<u>HOSEREELS, FIRE EXTINGUISHERS</u>				
I	<u>HOSTEL BLOCK</u>				
	GI Class 'B' tubing to KS06-259 with screwed and socketed joints to KS ISO 7-1:1994 including all range piping, fittings, hanagers, supports, brackets, and supports				
1	25mm diameter Black Pipe	Lm	10		
2	50mm diameter ditto	Lm	55		
	<u>Extra over GMS tubing for the following:</u>				
3	25mm diameter Black Pipe elbow	No.	16		
4	50mm dia ditto	No.	6		
	<u>Tees</u>				
5	25mm Black Pipe equal tee	No.	8		
6	50mm ditto	No.	8		
	<u>Reducing Bushes</u>				
7	25 x 20mm Black Pipe reducing bush	No.	8		
8	50 x 25 mm ditto	No.	8		
	<u>Coupler</u>				
9	25mm diameter Coupler	No.	5		
10	50mm ditto	No.	12		
	<u>Gate Valves</u>				
11	25mm dia high pressure screw- down full way non-rising stem solid wedge disc gate valve to BS 5154 PN 16 for Series B Rating with wheel head and joints to steel tubing. As "Crane Model 156 " or equal and approved	No.	8		
12	50mm ditto	No.	3		
	<u>Pressure Gauge</u>				
13	50mm diameter Pressure Gauge as Pakkens or equal and appro	No.	1		
	<u>Hosereels</u>				
14	Non recessed swinging type hosereel complete with 30 metres of 20mm internal diameter rubber fire hose with nylon spray/jet shut off nozzle , conforming to BS 5274 complete with 25mm diameter Pressure Gauge as Pakkens or equal and approved	No.	8		

Item	Description	Unit	QTY	Rate	Amount
15	Wire brush , clean, and paint complete installation with one coat of red oxide primer, undercoat, and gloss coat to Architects colour including banding and colour coding to British Standards	Sum	1		
	<u>Fire Extinguishers</u>				
16	5kg portable water/CO2 (gas cartridge) fire extinguisher conforming to BS 5423 complete with support brackets	No.	8		
17	9 kg portable dry chemical powder extinguisher conforming to BS 5423 complete with support brackets and approvedopriate charge of powder and CO2 cartridge.	No.	8		
18	12kg automatic Dry Powder Fire Extinguisher mounted over generators, witch room	No.	3		
	TOTAL TO NEXT PAGE				
	<i>Balance brought forward</i>				
19	Supply and fix signs indicating the words "FIRE POINT" in 80mm high letters	No.	5		
20	50mm non-return valve	No.	1		
21	50mm dia in-line strainer	No.	1		
22	Electrical wiring from local supply left within 10 metres within the pump room to control panel, from control panel to electric motors and from level controls to control panel.	Sum	1		
23	Allow for 50mm dia. Pressure Reducing Valve	No.	1		
	Sub Total For 1No. Block				
					1.00
	Total For 1No. Blocks				

Item	Description	Unit	QTY	Rate	Amount
	<u>Fire Hose</u>				
8	65mmdia x30m long canvas hose as specified	No.	1		
9	Hose cradle for above canvas hose	No.	1		
10	65mm dia branch pipe complete with nozzle/spray	No.	7		
	<u>Gate Valves</u>				
11	100mm dia approved high pressure screw- down full way non-rising stem solid wedge disc gate valve to BS 5154 PN 16 for Series B Rating with wheel head and joints to steel tubing. As "Crane Model 156 " or equal and approved	No.	1		
12	100mm 2-way horizontal mounted pumping in breeching inlet to BS 5041 Part 3 and horizontal inlet box with door fitted with Georgian wired glass panel to BS5041 Part 5. Inclusive of Breeching inlet cabinet as specified complete with access break glass and painted	Item	1		
13	25mm dia Air Relief Valve as specified	No.	1		
14	Wire brush , clean, and paint complete installation with one coat of red oxide primer, undercoat, and gloss coat to Architects colour including banding and colour coding to British Standards	Sum	1		
	<u>Pressure testing and Painting</u>				
15	Allow for pressure testing of the entire Dry riser installation and obtain relevant test certificates endorsed by the Engineer or his representative.	Sum	1		
	Sub Total For 1No. Block				0.00
	Sub Total For 1No. Blocks				0.00
	TOTAL COST FOR DRY RISER TO MAIN SUMMARY PAGE				
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
I	<u>INTERNAL PLUMBING - RISERS, DROPPERS, & ROOF</u>				
	Supply, deliver and install PN20 PPR pipes and fittings for sizes up to 110mm for cold water. Tenderers must allow in their pipework prices for all the couplings, connectors, joints etc. required in the running length of pipework and also where necessary, for pipe fixing clips, holder bats plugged and screwed, brackets, and pipe sleeves through structural members. The solvent weld shall be by a heat gun as recommended by the manufacturer.				
	<u>Cold Water</u>				
1	32mm diameter PPR Pipes	Lm	24		
2	40mm diameter PPR Pipes	Lm	40		
3	50mm diameter PPR Pipes-Rising Main	Lm	60		
4	50mm diameter PPR Pipes - Dropper for 2nd and 3ard Floors	Lm	40		
5	63mm diameter PPR Pipes Dropper from Roof Tank to Wet Areas	Lm	115		
5	100mm diameter GI Pipes at Roof Terrace Painted	Lm	100		
	Extra over PPR tubing for the following:				

Item	Description	Unit	QTY	Rate	Amount
6	32mm diameter PPR 90° elbow	No.	10		
7	40mm diameter PPR 90° elbow	No.	10		
8	50mm diameter PPR 90° elbow	No.	16		
9	63mm diameter PPR 90° elbow	No.	12		
9	100mm diameter GI 90° elbow painted	No.	12		
	<u>Tees</u>				
10	32 mm diameter PPR equal tee	No.	10		
11	40 mm diameter PPR equal tee	No.	10		
12	50 mm diameter PPR equal tee	No.	20		
13	63mm diameter PPR 90° equal tee	No.	35		
12	100 mm diameter GI equal tee painted	No.	4		
14	32x25mm diameter PPR reducer coupling	No.	4		
15	40x32mm diameter PPR reducer coupling	No.	4		
16	63x50mm diameter PPR reducer coupling	No.	25		
16	100x63mm diameter GI-PPR reducer coupling painted	No.	4		
	<u>Unions</u>				
17	32mm diameter PPR socket	No.	4		
18	40mm diameter PPR socket	No.	10		
19	50 mm diameter PPR socket	No.	20		
20	63 mm diameter PPR socket	No.	30		
20	100 mm diameter GI socket painted	No.	5		
	TOTAL TO NEXT PAGE				
	<i>Balance brought forward</i>				
	<u>Gate Valves</u>				
21	32mm dia approved high pressure screw- down full way non-rising stem solid wedge disc gate valve to BS 5154 PN 16 for Series B Rating with wheel head and joints to steel tubing. As "Crane Model 156 "	No.	16		
22	40mm ditto	No.	16		
23	50mm ditto	No.	4		
24	63mm ditto	No.	6		
25	100mm ditto	No.	2		
	<u>PPR Male/Female threaded adaptors (Brass threads).</u>				
26	32 x1 1/4"ø dia threaded adaptors (Brass threads).	No.	32		
27	40 x1 1/2"ø dia threaded adaptors (Brass threads).	No.	32		

Item	Description	Unit	QTY	Rate	Amount
I	Internal Plumbing-Risers, Droppers, and Roof				
TOTAL COST FOR MECHANICAL WORKS (INCL 16% VAT)					

Item	Description	Unit	QTY	Rate	Amount
I	EXTERNAL WATER RETICULATION & BOOSTED MAINS				
	<u>Float Switch & Cable</u>				
1	RC tank low water level cut out float switch, Pressed Steel roof tank high level and low level cut out float switch inclusive of cables and laying from the pump control panel to the controls float switches. (Approx. 100 metres).	Item	1		
	<u>Painting & Colour Coding</u>				
2	Allow for painting of the whole of the plumbing installation with one coat of primer and two finishing coats in accordance with BS1710 specifications and labelling to the satisfaction of the Engineer.	Sum	1		
	<u>Connection to Local Authority Water Mains</u>				
3	Allow for application on behalf of Client and be responsible for water connection to the main supply pipe including liason with the local authority	Sum	1		
	<u>Bulky Water Meter</u>				
4	Allow for 50 mm diameter "Kent" water meter	No.	3		
	<u>Valve/Meter Chamber</u>				
5	Allow for a masonry valve chamber for 50 mm diameter valve and above of size 600 x 600 x 450 mm maximum depth with reinforced concrete cover with mild steel frame conforming to local authority requirements.	No.	7		
	<u>Hose Taps</u>				
6	Heavy duty, chrome plated 1/2" hose bibcock with star handles complete with GI stand pipe and support, and hose union	No.	20		
	<u>Excavation</u>				
	Excavate trench for buried drain pipes not exceeding 1000 mm and average 600 mm deep, part return, fill in, ram and remainder cart away.				
7	Allow for bracketing of pipes in vertical and horizontal runs after every 1.5m	Sum	1		
8	Concrete surround for pipe across driveway	LM	30		
	<u>Pump Room</u>				
9	50mm dia galvanised mild steel puddle flange manufactured from K-SS35 Class C pipe with flanges made of 15mm thick mild steel plate, all hot dipped galvanised after manufacture and treated with primer and finishing coats of colas bitumastic-Council inlet, Borehole inlet, float switch cables, domestic outlets	No.	6		
10	75mm dia galvanised mild steel puddle flange manufactured from K-SS35 Class C pipe with flanges made of 15mm thick mild steel plate, all hot dipped galvanised after manufacture and treated with primer and finishing coats of colas bitumastic-Overflow	No.	12		
11	150mm dia galvanised mild steel puddle flange manufactured from K-SS35 Class C pipe with flanges made of 15mm thick mild steel plate, all hot dipped galvanised after manufacture and treated with primer and finishing coats of colas bitumastic-Provision for fire discharge	No.	2		

Item	Description	Unit	QTY	Rate	Amount
12	RC Underground Water Tank 450,000 Litres Capacity	No.	1		
13	50mm dia High Pressure Ball float Valve	No.	2		
14	GI Tank breather C/W insect Screen and bends 150mm dia	No.	1		
TOTAL TO NEXT PAGE					
	<i>Balance brought forward</i>				
15	32mm diameter PPR Pipes	Lm	30		
16	32mm diameter PPR Elbows	No.	12		
17	32 x1 3/4"ø dia threaded adaptors (Brass threads).	No.	4		
18	800x600mm mild steel sheet hinged cover complete with mild steel frame, and padlock.Cover and frame to be painted with corrosion resistant zinc primer and paint.	No.	1		
19	Allow for Stainless Steel Cat Ladder	Item	1		
	Water Supply Pipes From Underground Tank To Each Block				
	Supply, deliver and install- Cold Water, Corrosion Resistant HDPE water supply pipes Tenderers must allow in their pipework prices for all the couplings, connectors, adaptors, joints etc.required in the running length of pipework and also where necessary, for pipe fixing clips, holderbats plugged and screwed, brackets and pipe sleeves through structural members.				
20	75mm diameter HDPE Pipes supply	LM	95		
21	50mm diameter HDPE Pipes supply	LM	55		
	<u>Extra over HDPE pipe</u>				
22	75 mm dia. Bend	No.	12		
23	50 mm dia. Bend	No.	8		
	<u>Gate Valve</u>				
24	50mm dia approved high pressure screw- down full way non-rising stem solid wedge disc gate valve to BS 5154 PN 16 for Series B Rating with wheel head and joints to steel tubing. As "Crane Model 156 "	Nos	3		
25	75mm ditto	Nos	4		
	<u>Non Return Valve</u>				
26	50mm dia approved high pressureNon-Return Valve As Crane Model	Nos	1		
27	75mm dia approved high pressureNon-Return Valve As Crane Model	Nos	1		
	<u>HDPE Female threaded adaptors (Brass threads).</u>				
28	50x 2"ø dia Female threaded adaptors (Brass threads).	No.	6		
29	75x 3"ø dia Female threaded adaptors (Brass threads).	No.	8		
	<u>Excavation</u>				
30	Excavate trench for buried drain pipes not exceeding 1000 mm and average 600 mmdeep, part return, fill in with quarry dust along driveway, ram and remainder cart away.	LM	150		

Item	Description	Unit	QTY	Rate	Amount
	Garden Stand Pipe				
31	Stand pipe 15mm 2Metres long GMS stand pipe each complete with 15mm lockabler bib tap	8	No.		
	Underground PPR Piping				
32	PPR 25Ø complete with relvant fittings and accessories	50	m		
33	Ditto 32Ø	50	m		
	TOTAL TO MAIN SUMMARY PAGE				

ITEM	DESCRIPTION	QTY.	UNIT	RATE (KES)	AMOUNT (KES)
1.0	<u>Internal Plumbing Installations</u> Supply, deliver install, Test and Commission: PP-R (Polypropylene Random Co-polymer) pipes PN 20 and fittings and fusion joints to (KS ISO 15874 Part 1, 2, 3 & 5) of approved manufacturer. Rates must allow for all Metal/plastic threaded adaptors where required for the connection of sanitary fixtures, valves, sockets, sliding and fixed joints etc. as required in the running lengths of pipework. The pipes shall run in floors and wall chase. The pipes will be pressure tested before the plastering of wall commences and as per the manufacturers recommended testing pressures.				
(i)	<u>3 BR AHP</u> Pipe Works A 25mm Ø PPR Pipe 10 LM B Ditto 20mm Ø 2 LM Extra Over Pipe Work Elbows/ Bends C 25mm Ø Elbows/ Bends 3 No. D Ditto 20mm Ø 2 No. 7 Equal/Unequal Tees E 25 x 20 x 25mm 1 No. Reducers F 25 x 20mm reducer 2 No. Male/Female brass threaded adaptor 9.00 25 x 20mm male/female threaded adaptor 2 No. H 25 x 15mm ditto 1 LM I 25 x 15mm male threaded bend 1 LM				

Total Carried to Next Page					
ITEM	DESCRIPTION	QTY.	UNIT	RATE (KES)	AMOUNT (KES)
	Total from Previous Page				
	Isolating valves				
J	25mm Ø Gate Valve as "Pegler" or Equivalent	1	No.		
	Shut off Angle Valve				
K	Brass plated 1/2" angle valve	3	No.		
	Check Meter				
L	25mm diameter water check meter	1	No.		
	Testing and Commissioning				
M	Allow for pressure testing of the Plumbing installation to the satisfaction of the Engineer including provision of necessary pipe plugs.	1	Item		
	Sub Total for 1				
	TOTAL	1		x 1	

Total Cost of Plumbing Installation Guard House					
ITEM	DESCRIPTION	QTY.	UNIT	RATE (KES)	AMOUNT (KES)
2.0	SANITARY FITTINGS AND ACCESSORIES				
	Water Closet (WC) Pan				
A	Close Coupled dual flush Floor Standing Close Coupled WC Bowl complete with seat cover and cistern, WC connector relevant fittings & accessories	1	No.		
	Wash Basin				
B	WHB basin Full pedestal Wash Basin 450x485x230m White Complte with bottle traps, flexible connection hoses and other accessories with cws only tap	1	No.		
	WHB Mirror				
C	6mm thick polished plate glass silver backed mirror with bevelled edges, screwed to wall with 4No. Chrome plated dome screws omplete with 5mm thick foam layer back rest and of sizes: 600mm by 450mm	1	Set		
	Shower Fittings				
D	Shower fitting c/w 15mm diameter chrome plated stop cork, Instant shower fitting and 1/2" Cobra 211- 15 Star Pillar tap as Pegler or equal and equivalent	1	No.		
	Sub Total for 1				
	TOTAL	1		x 1	

Total Cost of Sanitary Fittings & Accessories					
ITEM	DESCRIPTION	QTY.	UNIT	RATE (KES)	AMOUNT (KES)
	<u>Foul Drainage</u> Supply, deliver and install the following uPVC (Unplasticized Polyvinyl chloride) to (KS ISO 1452 Part 1, 2, 3, 4 & 5) Heavy gauge soil and waste system. Allow for all the various sizes of adaptor, connectors, sockets, holderbats, clips etc not measured but required for the satisfactory functioning of the system.				
	<u>Piping</u>				
A	32mm diameter heavy duty grey uPVC pipe	2	LM		
B	40mm ditto	3	LM		
C	50mm ditto	6	LM		
D	100mm ditto	4	LM		
E	100mm diameter heavy duty pipe	8	LM		
	<u>Extra over uPVC Pipeworks</u>				
F	32mm sweep bend	1	No.		
G	40mm sweep bend	1	No.		
H	50mm sweep bend	2	No.		
I	100mm sweep bend	1	No.		
J	40mm 45° bend	1	No.		
K	50mm Ditto	1	No.		
L	50mm sweep tee	2	No.		
M	40 x 32mm reducer	1	No.		
N	40mm access plug	1	No.		

	Total Carried to Next Page				
ITEM	DESCRIPTION	QTY.	UNIT	RATE (KES)	AMOUNT (KES)
	Total From Previous Page				
AA	100 x 50mm floor trap set complete with plastic flush grating	2	No.		
	Gulley Trap				
BB	Gully trap comprising of 100mm diameter golden brown uPVC gully piece, 100mm diameter uPVC trap spigot outlet with screws and washers, and 300 x 300mm masonry gully trap chamber with mild steel plate and a heavy duty iron cover.	1	No.		
	Manholes				
CC	Construct manhole/ inspection chamber size 450 x 600 x 750mm deep internally in 200mm stone walls, 150mm concrete bed, water proof plaster, forming drain channels, medium duty cover frame in cast iron with recessed cover with concrete infill and all necessary formwork, excavation and soil disposal.	1	No.		
	Excavations				
DD	Excavate trench for pipe not exceeding 100mm diameter and not exceeding 1.5m deep (average 600mm deep) and make good as before.	8	LM		
EE	Allow for hydrostatic pressure testing of drainage installation including provision of pipe plugs and other required fittings.	1	Item		

	Total Cost For Ground Floor Foul Drainage Installation				
ITEM	DESCRIPTION	QTY.	UNIT	RATE (KES)	AMOUNT (KES)
	Rain Water Drainage Supply, deliver and install UPVC (Unplasticized Polyvinyl chloride) to (KS ISO 1452 Part 1, 2, 3, 4 & 5) rainwater pipework. Allow for all flanges, couplings, nipples, connector joints, fixing clips holder bats etc as required in running length of pipework but not measured.				
A	Piping 100mm ditto	6	LM		
	Extra over piping for fittings:-				
B	100mm ditto	2	No.		
C	100mm sweep bend	2	No.		
D	100mm single branch	2	No.		
E	100mm double branch	2	No.		
F	100mm flat roof rain water outlets	1	No.		

	Total Cost For Rain Water Drainage Installation				

ITEM	DESCRIPTION	QTY.	UNIT	RATE (KES)	AMOUNT (KES)
	ROOF WATER STORAGE TANK Top Tank Deluxe heavy duty rotationally moulded polyethylene cylindrical vertical close end tank of nominal capacity of 1000 Litres and complete with lid and ball valve, float switch. Tanks to be complete with inlet, outlet and overflow connections and tank connectors for the same as described below: - - 1 No. 32mm diameter inlet pipe connection - 1 No. 50mm diameter outlet pipe connection - 1 No. 40 mm diameter overflow pipe connection				
A	Tank Capacity : 1000 litres	1	No		

	Total Cost For Roof Tanks				
ITEM	DESCRIPTION				AMOUNT (KES)
	<u>SUMMARY PAGE</u>				
1.0	Total Cost for Internal Plumbing				
3.0	Total Cost for Sanitary Fittings				
6.0	Total Cost For Ground Floor Foul Drainage Installation				
8.0	Total Cost For Rain Water Drainage Installation				
9.0	Total Cost For Roof Tanks				

	Total carried to Mechanical Works Main Summary Page	

ITEM	DESCRIPTION	QTY	UNIT	RATE (KES)	AMOUNT (KES)
1.0	<u>Internal Plumbing Installations</u> Supply, deliver install, Test and Commission: PP-R (Polypropylene Random Co-polymer) pipes PN 20 and fittings and fusion joints to (KS ISO 15874 Part 1, 2, 3 & 5) of approved manufacturer. Rates must allow for all Metal/plastic threaded adaptors where required for the connection of sanitary fixtures, valves, sockets, sliding and fixed joints etc. as required in the running lengths of pipework. The pipes shall run in floors and wall chase. The pipes will be pressure tested before the plastering of wall commences and as per the manufacturers recommended testing pressures. Pipe Works A 25mm Ø PPR Pipe 6 LM B Ditto 20mm Ø 2 LM Extra Over Pipe Work Elbows/ Bends C 25mm Ø Elbows/ Bends 3 No. D Ditto 20mm Ø 2 No. 7 Equal/Unequal Tees E 25 x 20 x 25mm 1 No. Reducers F 25 x 20mm reducer 2 No. Male/Female brass threaded adaptor G 25 x 20mm male/female threaded adaptor 2 No. 9.00 25 x 15mm ditto 1 LM I 25 x 15mm male threaded bend 1 LM				

Total Carried to Next Page					

ITEM	DESCRIPTION	QTY.	UNIT	RATE (KES)	AMOUNT (KES)
	Total from Previous Page				
	Isolating valves				
J	25mm Ø Gate Valve as "Pegler" or Equivalent	1	No.		
	Testing and Commissioning				
L	Allow for pressure testing of the Plumbing installation to the satisfaction of the Engineer including provision of necessary pipe plugs.	1	Item		
	Sub Total				
	TOTAL	1		x 1	

Total Cost of Plumbing Installation Guard House					

ITEM	DESCRIPTION	QTY.	UNIT	RATE (KES)	AMOUNT (KES)
	<u>Foul Drainage</u>				
	Supply, deliver and install the following uPVC (Unplasticized Polyvinyl chloride) to (KS ISO 1452 Part 1, 2, 3, 4 & 5) Heavy gauge soil and waste system. Allow for all the various sizes of adaptor, connectors, sockets, holderbats, clips etc not measured but required for the satisfactory functioning of the system.				
	<u>Piping</u>				
A	50mm ditto	6	LM		
B	100mm ditto	4	LM		
C	100mm diameter heavy duty pipe	4	LM		
	<u>Extra over uPVC Pipeworks</u>				
D	50mm sweep bend	2	No.		
E	100mm sweep bend	1	No.		

	Total Carried to Next Page				

ITEM	DESCRIPTION	QTY.	UNIT	RATE (KES)	AMOUNT (KES)
	Total From Previous Page				
	Gulley Trap				
EE	Gully trap comprising of 100mm diameter golden brown uPVC gully piece, 100mm diameter uPVC trap spigot outlet with screws and washers, and 300 x 300mm masonry gully trap chamber with mild steel plate and a heavy duty iron cover.	1	No.		
	Manholes				
GG	Construct manhole/ inspection chamber size 450 x 600 x 750mm deep internally in 200mm stone walls, 150mm concrete bed, water proof plaster, forming drain channels, medium duty cover frame in cast iron with recessed cover with concrete infill and all necessary formwork, excavation and soil disposal.	1	No.		
	Excavations				
HH	Excavate trench for pipe not exceeding 100mm diameter and not exceeding 1.5m deep (average 600mm deep) and make good as before.	4	LM		

	Total Cost For Ground Floor Foul Drainage Installation					

ITEM	DESCRIPTION	QTY.	UNIT	RATE (KES)	AMOUNT (KES)
	Rain Water Drainage Supply, deliver and install UPVC (Unplasticized Polyvinyl chloride) to (KS ISO 1452 Part 1, 2, 3, 4 & 5) rainwater pipework. Allow for all flanges, couplings, nipples, connector joints, fixing clips holder bats etc as required in running length of pipework but not measured.				
A	Piping 100mm ditto	6	LM		
	Extra over piping for fittings:-				
B	100mm ditto	2	No.		
C	100mm sweep bend	2	No.		
D	100mm single branch	2	No.		
E	100mm double branch	2	No.		
F	100mm flat roof rain water outlets	1	No.		

	Total carried to Mechanical Works Main Summary Page	

GENERIC G+7 - 580 PAX GRAND SUMMARY PAGE

[illegible]

Amount in Words: Kenya Shillings.....

.....

Official Stamp & Address:.....

.....

Tenderer's Signature:.....Date:.....

Witness' Name:.....Witness' Signature:.....

Address:.....

Date:.....

ELECTRICAL WORKS

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1.0 SECTION 1 - GENERAL SPECIFICATION FOR THE INSTALLATION FOR ELECTRICAL ENGINEERING SERVICES

1.1 *General*

This section specifies the general requirements for plant, equipment and materials forming part of the Electrical Sub-Contract Works and shall apply except where otherwise specified. The Sub-Contract Works shall comply with the General Specification when read in conjunction with the Particular Specification and any other requirements of the Specification as previously defined.

1.2 *Regulation and Standards*

The Sub-Contract Works shall comply with the current Kenya Government Electrical Regulations, the current edition of the Institution of Electrical Engineers Regulations for the Electrical Equipment of Buildings, hereinafter referred to as the I.E.E. Regulations, and the Bye-Laws of the Electricity Supply Authority. The Sub-Contract Works shall also comply where applicable to Kenya Standards as published by Kenya Bureau of Standards or current edition IEC (International Electro technical Commission) and British Standards Codes of Practice where Kenya Standards have not been published.

1.3 *Quality of Materials and Manufacturing Standards*

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

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

Unless otherwise specified all materials, including equipment, fittings, cables, etc., shall be in new condition and manufactured to appropriate standards of the Kenya Bureau of Standards, the British Standards Institution, the I.E.E. Regulations or other equivalent and approved standards.

Defective equipment or that damaged in course of installation or test shall be replaced or repaired to the approval of the Engineer.

Materials and apparatus supplied by the Sub-Contractor shall be as specified and no variations will be permitted without the written consent of the Engineer. Should any replacement be necessary the Sub-Contractor shall bear the cost of any associates Builder's Work and making good finishes.

1.4 *Installation Requirements - General and Liaison*

The starting currents of all electric motors and equipment supplied under the Specification shall be limited so as not to exceed the maximum permissible starting currents described in the Electricity Supply Authority's Bye-Laws. Attention is drawn to the fact that all the Sub-Contractor's work is subject to the Engineer's approval.

1.5 *Installation and Commissioning*

The Sub-Contractor shall be deemed to have included in the Sub-Contractor Sum for the services of a specialist or manufacturer's engineer or technician to assist in the installation and commissioning of the Sub-Contract Works or any part thereof if the Sub-Contractor has not his own suitable and competent staff available at the site of the works to carry out such functions.

1.6 *Labelling*

All plant, apparatus, equipment, distribution boards, distribution cases, terminals and cable cores shall be securely and properly labelled to the approval of the Engineer. The labelling shall be such as to show clearly the identification of the item and if applicable its control function and the part of the system controlled.

2.0 SECTION 2 - H.V. SWITCHGEAR

2.1 *General*

The units which together comprise the switchboards are to be provided in accordance with the Contract Drawings and Schedules of equipment.

The switchboards shall be manufactured in accordance with B.S.162 and all equipment and material used in the switchboards is to be in accordance with the appropriate British Standards. The switchboards shall be flush fronted in appearance with the breaker operating mechanism easily accessible but behind the hinged door.

The Sub-Contractor shall allow for the supply of a complete set of Record Drawings relating to the switchboard, made in ink on tracing cloth.

Four sets of instruction manuals are to be provided describing the method of operating the equipment together with instructions for maintenance and adjustment and giving full details of all connections brought out to the Test Link Blocks.

2.2 *Supply System*

415V, 3 phase, 50Hz, earthed system.

2.3 *Type of Switchgear*

The switchgear shall consist of oil circuit breakers or oil switches as indicated on the Contract Drawings. They shall be of the fully interlocked, metal clad, vertical isolation type, incorporating integral earthing facilities manufactured to the current edition of B.S. 5211 and B.S. 5463. Circuit breakers shall be fitted with manually charged spring closing mechanisms.

2.4 *Bus-Bars*

The bus-bars for each switchboard may be air insulated provided that all primary circuits in the fixed portion of the units are insulated with Epoxy Resin.

Bus-bars and current transformer joints and connections are to be insulated by epoxy resin shrouds which shall be mechanically jointed, or PVC sleeved and filled with encapsulating compound, otherwise the

switchboard shall be compound insulated. The bus-bars and connections shall be constructed from high conductivity solid copper.

The bus-bars and bus-bar supports shall be arranged to withstand, without damage, the effects of any fault current up to and including the maximum rated breaking capacity of the switchgear.

Bus-bars and connections shall be suitably and adequately colour coded for phase identification.

2.5 *Extensibility*

All units shall be so designed and the bus-bars drilled so that further extension units can be added without difficulty. Space and full provision for fitting future units shall be allowed in accordance with the instructions in the Schedule of Equipment.

2.6 *Cable Boxes*

Where required, cable boxes manufactured from close grained cast iron to B.S. 2562, Part 1 where applicable, shall be provided suitable for the reception of the cable specified.

2.7 *Special Tropical Finish*

The switchgear shall be designed for use in the tropics and the following requirements shall be incorporated:

- a) All parts of the switchgear shall be totally enclosed and enclosures shall be vermin proof.
- b) Gaskets shall be Neoprene or similar material.
- c) All steelwork shall be treated with a phosphoric base etching primer containing a resign bond and finished with two coats of paint.
- d) The interior of all gear not having oil, compound or other insulation, and all exposed current carrying metalwork (other than contact faces) shall be sprayed with an approved type of bakelite varnish.
- e) The final coat of paint shall be of a colour taken from B.S. 3810 or B.S. 4800 to be chosen by the Engineer.

2.8 *Labels*

Each switch shall have a designation label of Traffolyte with 10mm high black lettering on a white background. They shall be screwed to the equipment,

adhesive only is not acceptable. A small similar designation label shall also be fixed to the rear of each fixed portion.

2.9 *Relays*

Protection relays shall be of the type and number listed in the schedule of requirements for HV switchgear in the Particular Specification.

All relays shall be flush mounted, and where required, shall be provided with additional contacts for remote indication etc., Bezels shall be finished in black gloss.

The relays shall have their secondary connections brought out to studs on the rear and firmly secured by suitable washers, nuts and locknuts. The relays shall have hand reset features.

2.10 *Instrumentation*

Instruments shall be fitted on the switchboard as shown on the drawings and in the schedules of requirements for HV switchgear in the Particular Specification.

Ammeters shall be MICS 100mm square dial flush mounting pattern with rotary selection switch.

Voltmeters shall be MICS 100mm square dial flush mounting pattern with rotary selector switch.

The construction of the instruments shall be in accordance with B.S. 89 and shall be of industrial grade.

2.11 *Instrument Panels*

Instrument panels shall be mounted at the same height on each unit and have suitably hinged front panels.

2.12 *Test Link Blocks*

Test link blocks shall be connected to all protection and instrumentation current transformer connections.

2.13 *Small Wiring*

All small wiring necessary for connecting the instruments, relays and other devices shall be included and shall have a conductor size of not less than 7/.085mm with a thermoplastic flame retarding type of insulation.

The wiring shall be distinctly coloured and marked with ferrules of an approved type at each end.

All wiring within each switchboard, not installed in conduits, shall be neatly laced and cleated to the panel structure of each switchboard and its auxiliary equipment.

Where wiring passes through a hole in the metal work, thermoplastic grommets shall be used and in no case shall cables be unprotected where they come into contact with the edge of a piece of metal work.

2.14 *Current Transformers*

Separate current transformers shall be provided for protection and instrumentation.

Current transformers shall have a secondary rating of 5 amps. The primary currents are indicated on the drawings. Current transformers shall have overcurrent factors suitable for the prospective short circuit current of the system. Current transformers shall have overcurrent factors suitable for the respective short circuit current of the system. Current transformers required for operating relays shall have a one-second rating as defined in B.S. 3938, be suitable for the characteristics of the relay concerned and have a minimum output of 15 Va.

Current transformers shall be of the bar primary or wound primary type according to the transformer ratio with jointress ring core of either hot or cold rolled silicon iron.

2.15 *Voltage Transformers*

Voltage transformers shall be of the dry type with hinge isolation and in accordance with B.S. 3941. The rated output and accuracy offered should be stated. Cartridge type fuses shall be provided for protection of both primary and secondary windings.

2.16 *Drawings for Approval*

The following drawings shall be submitted for each switchboard for approval as soon as possible after receipt of instructions from the Engineers to proceed:

Plans and elevations showing position of instruments, relays, current transformers, voltage transformers, fuses, cable boxes and other accessories.
Foundation plan showing fixing bolt centres, cables centres and other relevant dimensions.

- i. Wiring and connection diagrams.

ii. Schematic diagrams.

In addition, the Sub-Contractor shall provide any other drawings or information required by the Engineer in order that the Engineer may satisfy himself as to the design of the plant. Manufacture shall not be commenced until all relevant drawings have been approved by the Engineer.

2.17 *Miscellaneous*

A tinned copper bonding bar shall be provided for the full length of the switchboard to which each unit shall be bonded.

A wall chart mounted on metal, with instructions for the treatment of electric shock, shall be supplied and fixed in the switch rooms.

Six in number heavy brass non-interchangeable padlocks, for locking switchgear, spout covers and operating mechanisms, shall be provided each with two keys.

A framed diagram showing clearly the layout of the high voltage distribution system shall be provided and fixed in the switch rooms.

2.18 *D.C. Tripping Equipment*

A nickel cadmium type battery adequately rated to operate the D.C. tripping circuit of the breakers shall be supplied with each switchboard. The battery shall be complete with floor mounting stand and a suitable trickle charger having a 240-volt single phase input.

From the output terminals of the battery unit wiring shall be taken to the trip terminals located at the rear of the switchboard.

3.0 SECTION 3 - L.V. SWITCHBOARD AND GEAR

3.1 *General*

The switch gear shall be designed throughout to ensure safety during operation, inspection, cleaning and Maintenance and shall be so arranged as to minimise the risk of fire arising and spreading.

The switchboard shall be manufactured in accordance with B.S. 162 which co-ordinates the requirements for electric power switch gear and associated apparatus.

It is not intended that B.S. 162 should cover the requirements for specific apparatus for which separate British Standards exist. All equipment and material used in the switchboard shall be in accordance with the appropriate British Standard.

3.2 *Switchboard Cubicle Construction*

The switchboard shall be a cubicle type of flat front, back connected, sectional, painted, all steel construction of neat appearance.

It shall be floor mounted and have ring bolts, lifting lugs or other approved means of transporting and lifting.

Each switchboard section shall be completed, fully wired and checked out at the factory and shall require a minimum of installation work at the Site of the Works. Modula construction shall be used wherever practicable and provision shall be made for simplifying servicing, replacement and maintenance throughout without major dismantling.

The switchboard shall be constructed from not less than 10 gauge welded bright mild steel for framework and structural sections and 16 gauge for doors and panels which shall be adequately stiffened by folding or welded stiffeners. The switchboard base shall be of heavy gauge tube or structural section to allow moving on rollers. All doors shall be properly stiffened and fitted with heavily cadmium plated concealed hinges and flush catches.

Removable stiffened steel covers shall be provided elsewhere on the switchboard for full access. All doors and covers shall be fitted with cemented resilient gasket seals to provide a dust proof enclosure. All hardware and fastening shall be heavily cadmium plated. No self-tapping screws shall be used.

All steelwork shall be clean and free of burrs, scale and blemishes, with all raw edges hidden and shall be finished with a rust inhibiting treatment one primer or undercoat and final coat of first quality sprayed baking enamel the colour of which shall be to approval.

The switchboard shall be arranged to provide the maximum of safety to personnel and equipment. All electrical wiring and bus-bars shall be completely enclosed. Closure panels, isolating and insulating barriers and interlocks shall be provided as required for maximum safeguard. All fuse switches shall be capable of being padlocked in the 'OFF' and the 'ON' positions.

Adequate supports shall be provided for all bus-bars and wiring and incoming and outgoing cables shall be provided with glands, cable boxes and other necessary terminations in a cable area separate from the busbars.

All switches shall be operable from floor level, all fuses shall be within 2000mm of the floor and flush mounted indicating meters within 1650mm.

The main switchboard in Substation shall be IP-32 Form-3B complete with Incomer MCCB, Outgoing breakers, Surge Protector, KPLC meters, phase indicators and Changeover to Common area Generator other accessories to comply with Fully Type Tested Assembly (TTA) to IEC 60439 and KSIEC60439 Standards. The No. of meters will be finalized in consultation with M/S KPLC

Where spaces on the switchboard are provided for future circuit components to be installed, as shown on the drawings, all ancillary parts shall be provided and installed so that future components may be installed and connected in the least time possible. Full safety precautions shall be provided with all such spaces.

The mild steel angle or channel forming the bottom rear edge of the switchboard shall be made up in sections and bolted into position such that any one section may be removed to facilitate installation of cables.

3.3 *Bus-bars*

All bus-bars shall be of high conductivity copper and shall be manufactured and tested in accordance with B.S. 158 and B.S. 159. They shall be mounted fully enclosed within the main enclosure of the switchboard in separate chambers in accordance with B.S. 162. The bus-bars shall be fully separated from the incoming and out-going cable areas.

Except for instruments, potential or current connections, which shall be clamped in position and be of minimum length, no circuit wiring shall be within the bus-bar chamber.

Bus-bars shall be sheathed in approved insulating material, in their respective phase colours, and secondary insulation shall be provided where bus-bars pass through supports to prevent tracing paths. Supports shall be such that the required clearances between phases, neutral and earth are maintained under rated continuous current and under fault conditions.

Provisions shall be made for expansion and contraction of the bus-bars and connections, with variations in temperature.

Interconnections between bus-bars and switchgear shall be of minimum length, properly insulated and rigidly supported.

All contact areas of the bus-bar and the connections fastened to the bus-bars shall be heavily silver-plated. Joints and connections shall be rigidly made with clamps and high tensile steel bolts and nuts used with spring washers to maintain uniform pressure and flat washers to prevent cupping. Ready access to all joints and connections shall be provided.

3.4 *Circuit Breakers*

Each circuit breaker shall be fitted with telescopic rails to allow the breaker to be withdrawn clear of the cubicle and a racking mechanism. Safety shutters shall be provided to protect against accidental contact with the stationary isolating contacts when the breaker is withdrawn.

Interlocks shall be provided to ensure that:-

- a. The cubicle door is closed and the slide rails locked before the circuit breaker can be racked in.
- b. The trip button must be depressed before the racking mechanism can be operated in either direction.
- c. The circuit breaker cannot be pushed into the ratchet in position without the use of the racking mechanism.
- d. The cubicle cannot be opened when the circuit breaker is in the racked in or fully racked out position.
- e. The circuit breaker can be operated only when it is in the fully racked in or fully racked out position.

The circuit breakers shall have a stored energy, single shot, trip free, closing mechanism.

Inverse definite minimum time lag over current relay protection shall be provided on each circuit breaker.

Tripping under fault conditions shall be effected by a 30V D.C. trip coil energised by a 30V nickel cadmium battery and charger set. The battery and its trickle charger shall be mounted in a naturally ventilated, floor mounted, steel cubicle and located as shown on the drawings. This battery shall be suitable for tripping two low voltage circuit breakers. A manual trip push button which shall be independent of the operator's speed of operation shall also be provided.

The trip coil latching lever and the roller mechanism shall be made from anti corrosive metal.

The contacts shall be silver plated, shrouded and renewable. Barriers shall be provided between phases and recessed into the base.

A mechanically operated semaphore shall be used to indicate the condition the circuit breaker using the words 'ON' AND 'OFF'.

Each circuit breaker shall be provided with the facility of locking the breaker in the 'OFF' position.

3.5 *Oil Switches*

Oil switches shall be identical to the oil circuit breakers, B.S. 5311 except that tripping devices are not required. Means of locking the switches in the 'OFF' position shall be provided.

3.6 *Air Break Switches*

Air break switches shall be suitable for the system conditions, indicated and shall be in strict accordance with B.S. 5419. Class II switches. Means of locking the switches in the 'OFF' position shall be provided.

3.7 *Fuse Switches*

All fused switches shall be supplied and installed complete with Class Q1 H.R.C. Cartridge Fuse Links complying with B.S. 88, as shown on the drawings and shall be contained in metal clad, dust proof, gasket sealed individual

enclosures with non-detachable steel operating handles which shall be capable of being locked in either the 'ON' or the 'OFF' position.

The fuse switch units shall comply with B.S. 5419 and shall be withdrawable.

The fuse switch units shall have fault rating at least equal to the fault rating of the switchboard in which they are to be installed.

The fuse switch units shall be of fast make break design suitable for on load operation and shall be arranged operation of the switch when the cover is open and to prevent opening of the cover when the switch is in the 'ON' position. The H.R.C. fuse links shall be carried on the moving contact mechanism and shall be isolated from the line and load contacts when in the 'OFF' position. In the 'ON' position a barrier shall be interposed between the fuse links.

The switch contacts shall be separately and fully shrouded and shall be renewable.

Moving or fixed indicators shall use the words 'ON' and 'OFF' to indicate the fused switch condition. Indicators shall be mechanically locked with the moving contact assembly and shall operate in such a manner that all phases shall be broken before the 'OFF' position is indicated.

3.8 *Earth Bars*

A high conductivity copper earth bar of not less than 50mm x 6mm section, adequately rated for the anticipated earth fault current, shall be installed the full length of the switchboard in the outgoing cable area within the switchboard enclosure.

Connection to the earth bar shall be made with approved cable lugs and high tensile steel nuts and bolts with washers as specified for the phase bus-bars.

The points of contacts on the earth bars shall be silver plated.

3.9 *Neutral Bars*

A high conductivity copper neutral bar adequately rated and supported for normal and fault conditions shall be installed in the outgoing cable area in the switchboard enclosure. This bar shall be mounted on insulators and shall be

divided into sections according to the design of the switchboard. The sections shall be connected by copper links double bolted to each section.

Voltmeters shall be MICS 150mm square dial, flush mounting pattern with rotary selector switch enabling phase to phase and phase to neutral volts to be read.

Voltmeters shall be protected by means of cartridge fuses, category of duty A.C. 46 and fusing factor, 1.5. The construction of the instruments shall be in accordance with B.S. 89 and shall be of industrial grade.

The current transformers shall be of an approved type to B.S. 3938.

The Sub-Contractor shall agree with the Engineer, the arrangement of the indicating instruments, their scale deflections C.T. ratios and all information that the switchboard manufacturers may require, prior to manufacture of the switchboard.

3.10 *Phase Failure Relays*

Where the requirement is shown on the Drawings phase failure relays shall be installed for the operation of the emergency lighting.

Phase failure relays shall be connected across each phase and neutral of the supplies as indicated on the distribution diagram.

Relays shall be protected by means of cartridge fuses, category of duty A.C. 46 and fusing factor 1.5.

In addition, test buttons shall be provided. The test buttons shall be connected in series with each phase failure relay coil so that when any one of the test buttons is operated the emergency lighting shall come on automatically.

Test buttons and relays shall be housed in the instrument section of the switchboard.

3.11 *Air Break Switches*

All individually mounted air-break switches shall be of 660 volt metal clad type, single pole and neutral, or triple pole and neutral as required, fitted with interlocking handles so that the cases cannot be opened when the handle is in the 'ON' position. All insulating material employed in the construction must be of non-hygroscopic type and to the approval of the Engineer.

The construction and performance of the airbreak switch shall be in accordance with B.S.5419 : Parts 1 and 2.

3.12 *Switch Fuses*

All individually mounted switch fuses shall be of the metal clad type, the number of poles with or without neutral, as required, fitted with interlocking handles so that the case cannot be opened when the handle is in the 'ON' position. All insulating material employed in the construction must be of non-hygroscopic type and to the Engineer's approval.

The construction and performance of the switch fuses shall be in accordance with the relevant British Standard indicated below.

- i. Units rated not in excess of 100 amps and for a system voltage not in excess of 250 volts to earth shall be in accordance with B.S. 5419 unless specifically amended by the Engineer.
- ii. Units rated in excess of 100 amps and for a system voltage not in excess of 380 volts to earth shall be in accordance with B.S. 5419.
- iii. Fuses shall be of the cartridge type, to B.S. 88 category A.C. 46, Class Q1 and fusing factor 1.5 graded to suit the loads carried.

Sub-contractor's attention is drawn to the fact that all fusing in single phase circuits shall be on the "Single pole" principle with solid link in the neutral unless otherwise noted.

3.13 *Cabling*

A cabling zone clear of busbars, fused switch and circuit breaker chamber, etc., shall be provided in such a manner to give minimum difficulty in connecting submain cables entering the switchboard for connection to fuses switch units or circuit breakers. The cabling zone shall be fully insulated from any live metal part so that future cabling and alterations can be carried out in complete safety without the necessity of shutting down the complete switchboard.

3.14 *Distribution Boards*

Distribution boards shall be clad, surface or recessed pattern with the number of ways, rating and phase arrangement (single or three phase) indicated on the drawings. Cases shall be zinc coated sheet steel of substantial construction with

hinged lids fitted with foam rubber gasket, enamelled finish. Where called for in the specification the cases shall be provided with locks. For ratings of 60 amp. and over detachable drilling plates and soldering lugs for incoming cable terminations shall be provided.

Where the requirement for fuses is indicated on the Contract Drawing the Distribution Boards shall be fitted with the high quality porcelain fuse carriers and bases, removable insulated shields to provide adequate protection against accidental contact with live metal, and circuit indicating labels fixed inside the cover.

The Distribution Boards shall be complete with HRC fuses to B.S. 88 1952, category 440 volts, A.C.5.

Where the requirement for miniature circuit breakers is indicated on the Contract Drawings, the Distribution Boards shall be fitted with moulded thermoplastic units of the combined thermal overload and magnetic short circuit tripping type to B.S. 3871, Part 1. MCB's of all ratings shall have a minimum short circuit current breaking capacity of 3,000 amps.

Where the prospective fault current exceeds 2500 amps. or where specified, careful consideration shall be given to back-up protection or the installation of miniature circuit breakers of a short circuit capacity in excess of 300 amps. Although short circuit calculations were carried out when the Contract Drawings were prepared, the Sub-Contractor is advised to make his own calculations and assure himself that the prospective fault currents at each protection level does not exceed the short circuit capability of the switch or distribution gear he intends to install as it is his responsibility to sign the appropriate declaration in accordance with the I.E.E. Regulations.

3.15 *Labelling of Switchgear and Distribution Boards*

All switchgear shall have engraved labels indicating the services fed from them. The inscription shall be in white 10mm. high letters on black 'Traffolite' sheet or equal and shall be fixed on or adjacent to the apparatus by screws or rivets.

Each Distribution Board shall bear a number or inscription as called for on the Contract Drawings which shall correspond to that shown on the Record Drawings. The circuits fed from each Distribution Board shall be marked on a card or identification plate fixed to the inside of the Board or where provided for. This information must include the outlets (with cross reference to the reference numbers on Contract Drawings) fed from each fuseway or MCB and the size of the fuse or circuit breaker rating.

3.16 *Drawings for Approval*

The following drawings shall be submitted for L.V. each switchboard for approval as soon as possible after receipt of instructions from the Engineer to proceed:-

- i. Plans and elevations showing position of instruments relays, current transformers, voltage transformers, fuses, cable boxes and other accessories.
- ii. Foundation plan showing fixing bolt centres, cables centres and other relevant Dimensions.
- iii. Wiring and connection diagrams.
- iv. Schematic diagrams.

The copies of each drawing as finally approved shall be supplied to the Engineer. In addition the Sub-Contractor shall provide any other drawings on information required by the Engineer in order that the Engineer may satisfy himself as to the design of the plant. Manufacture shall not be commenced until all relevant drawings have been approved by the Engineer.

4.0 SECTION 5 - POWER CABLES

4.1 *Paper Insulated Cables*

These shall be 1100 volt, 3300 volt, 6600 volt, or 11000 volt grade, according to operating voltage and manufactured and tested in accordance with B.S. 6480 for cables with copper conductors.

E.H.V. cables shall be suitable for operation on an earth system, and shall be of the belted type.

Multi core cables shall be paper insulated, lead sheathed, single wire armoured and served with hesian or PVC or left bright as indicated on the diagram of distribution. Single core cables shall be lead sheathed and served. All paper insulated cables shall be of the fully impregnated non-draining type.

Sizes of cables shall be in accordance with the details given on the Contract Drawings.

4.2 *Jointing*

Where possible the core of the paper insulated cable shall be taken direct to the terminal of the apparatus. The conductor shall be sweated into a cast pattern cable socket that has been drilled to receive the conductor without excessive clearance. A cable spreader box shall be fitted to and below the apparatus and filled with compound after the cables have been installed. Alternatively, a system of compression jointing, approved by the Engineer may be employed. All cables tails shall be taped with double lapped Empire tape and after grade insulating varnish. VRL/PVC tails shall not be fitted without the approval of the Engineer in writing. If such approval is given the tails shall be of the same cross section as the PILC cable cores. The entire responsibility for the work involved in measuring, proper cutting, jointing and sealing paper insulated cables shall be borne by the Sub-Contractor who shall employ fully qualified, certified and experienced jointers for this work. This applies particularly to the jointers working on E.H.V. jointing.

Whenever a paper insulated cable is cut prior to joining the joint shall be commenced forthwith and completed without interruption. All necessary precautions shall be taken against the ingress of moisture and impurities during the preparation of the joint. Should the cable be cut and circumstances prevent a joint being made the ends shall be suitably sealed by means of plumbers lead

caps pending the completion of the jointing work. The seals of the cables must not be removed until all preparations for jointing are complete and adequate protection from the weather arranged by the Sub-Contractor.

Before rejoining cable ends shall be tested from moisture content in an approved manner. If any moisture is discovered the wet cable or cables shall be cut out.

Care shall be taken when making off cable ends to phase out the cores to agree with the transformer terminals. No cross overs will be permitted in the leads. Phase colours shall be clearly indicated at all points of connections and shall comply with B.S. 158, Table I.

It shall be ensured that all times straight through joints are from an A end to a Z end. Under no circumstances will core cross overs resulting from joints of the same end of the cable be permitted.

4.3 *PVC Insulated and Sheathed Single Wire Armoured or Unarmoured Cables with Stranded Copper Conductors*

PVC insulated, single wire armoured and PVC sheathed multi core cable shall be 660/1000 volt grade, manufactured in accordance with B.S. 6346.

The cables shall be sized to comply with the current edition of the I.E.E. Regulations except where specific sizes of cables are shown on the Contract Drawings or detailed in other sections of the Specification.

4.4 *PVC Insulated and Sheathed Aluminium Strip Armoured or unarmoured Cables with Solid Aluminium Conductors*

PVC insulated, aluminium strip armoured and PVC sheathed multicore cables shall be 660/1000 volt grade, manufactured in accordance with B.S. 6346.

The cables shall be sized to comply with the current edition of the I.E.E. Regulations, except where specific sizes of cables are shown on the Contract Drawings or detailed in other sections of the Specification.

The cable cores shall be identified in accordance with B.S. 6346.

An approved system of compression terminations secured to the conductor by indentation made with a special dies and a portable hydraulic compressor as recommended by the cable manufacturer shall be used.

Alternatively, in the appropriate conductor sizes and, where tunnel type terminals are used, connection may be made by means of "Swage" process whereby the shape of the conductor end is rounded to fit the terminal.

To eliminate the possibility of damage to cables due to thermal expansion, allowance for movement shall be made by the introduction of a bend or set in each core adjacent to the terminal.

Aluminium armour may be used as the earth continuity conductor where the Cross section is adequate for the purpose, but under no other circumstances shall the armour be used as a neutral conductor.

4.5 *Gland for PVC Insulated Armored and PVC Sheathed Cables*

The cables shall be terminated on a mechanical type cable gland. The glands shall be complete with armouring clamp suitable for bonding the armouring to equipment by means of an earth continuity conductor of adequate cross section and the bend shall be carried out at the time of making the joint. PVC shrouds shall be fitted over terminal cable gland and clamp.

4.6 *Installation*

Cable routes were indicated on the Contract Drawings for tender purposes only. The exact final routing shall be agreed with the Engineer.

All work except Builders Work shall be carried out by the Sub-Contractor, who shall include for the supply and installation of all jointing material, cable supports, steel racking and making all the necessary cable joints. The cable shall be installed and tested in strict accordance with the appropriate clauses of the current edition of the I.E.E. Regulations, the Factories Act, B.S. 6480 - Paper Insulated cables, and B.S. 6346 - PVC Insulated Cables.

Cables shall at all times be handled with care and every effort made to avoid damage. Unloading, rolling to position and mounting of cable drums shall be carried out efficiently and carefully in the recognised manner and cable shall be pulled from the top of the drum and twisting shall at all times be avoided.

Adequate numbers of drum jacks, rollers and other handling accessories shall be used and make shift arrangements will not be permitted. In all cases care shall not be fragged over loose earth, concrete or any surface but shall be adequately supported on rollers or manhandled into position.

The Sub-Contractor shall take particular care to avoid damage to other services which may run adjacent to or across the route of the cable being installed. The

Sub-Contractor shall take particular care to avoid damage to other services which may run adjacent to or across the route of the cable being installed.

Cables shall be installed with a minimum of 300mm clearance from any equipment or pipework including lagging associated with other services. Where this condition is unavoidable or difficult to maintain, the Engineer shall be informed prior to the installation being commenced, otherwise the Sub-Contractor may be called upon to divert or adjust the route of any cable to the Engineer's satisfaction.

Cables passing through structural slabs shall be tightly wrapped with asbestos tape and grouted in. A hard wood surround below shaped to suite the cables passing through shall be fitted below the slab. Where cables are run vertical heavy gauge sheath metal guards shall be supplied and fixed to the wall. The casing shall be fixed from floor level to the underneath side of the appropriate and dividing box or to a height of 1.5m above floor level.

Detailed drawings showing dimensions and method of manufacture of the cable guards shall be submitted for the approval of the Engineer.

All cables shall be firmly and adequately supported from cable hangers for the whole of their length except when they are run through stoneware or pitch fibre pipes or are buried directly in the ground.

Continuity, phasing and insulation tests shall be carried out and the record of all tests shall be sent to the Engineer within 7 days of the cables being installed and jointed.

4.7 *Cable Supports*

Where cables run through service ducts or cable trenches they shall be fixed by means of purpose made cable hangers which shall be of the Unistrut pattern or equal and approved. Hangers shall be of non-ferrous metal or of steel and shall be treated with one coat of zinc primer and two coats of anti-corrosive paint and shall be suitable for horizontal and vertical mounting, either cased in, or secured to concrete structure using such brackets and adapters as are available from the manufacturers.

Hangers for the support of the cables shall be spaced according to the current edition of the I.E.E. Regulations, Table B.2M or to the manufacturers recommendations as appropriate. The Sub-Contractor shall take particular care to avoid sagging of stress on any cable by wrong positioning or inadequately spaced hangers. Single and multiway cleats shall be of cast alloy, interlocking

pattern, for mounting either on the steel channels or directly to concrete structure in the case of single way cleats.

The sizes of cleats shall be selected such that all cleats can be tightened down without exerting undue pressure or strain on the cables.

In the case of vertical cables the cleats shall be so designed and of sufficient number to grip the cable firmly to prevent creeping. No cable shall be run without fixing and all cable hangers and racks shall be approved by the Engineer before installation.

Where cable routes are subject to numerous changes in level and direction, additional cable hangers shall be provided to satisfactorily negotiate all such obstructions. Where cables are spaced some distance from a supporting services, the cable racks shall be separately bolted to additional lengths of channel section which in turn shall be fixed to brackets bolted and fixed into the structure.

4.8 *Cable Identification Discs*

Identification discs shall be supplied for cables installed within buildings and attached with galvanised wire to each cable at intervals not greater than 12m and at all conspicuous positions such as within cable trenches, manholes, and at all cable terminations.

Discs shall be machine engraved from non-deteriorating black traffolite or similar material displaying white engraved indicating the design voltage, the description of load, and the number of cross sectional area of the cores. The characters shall not be less than 3mm high and shall be clearly legible.

4.9 *Cable Ducts*

The Sub-Contractor shall provide and lay asbestos cement or pitch fibre cable ducts under roadways or concrete walkways under which cables are to be routed. The Main Contractor will supply and install ducts where required in the footings of buildings, but it will be the Sub-Contractor's responsibility to provide accurate details to the Main Contractor of the required positions of these ducts, and to ascertain that they are laid to the correct falls. After the installation of cables all ducts shall be adequately sealed to restrict the ingress of moisture.

The number of ducts to be provided shall be as follows:-

1 cables - 2 ducts

2 cables	-	3 ducts
3 cables	-	4 ducts
4 or 5 cables	-	6 ducts
6, 7 or 8 cables	-	9 ducts

All cable ducts entering or within buildings including spare ways, shall be sealed at each end with Densoplast or other approved sealing substance to the satisfaction of the Engineer.

4.10 *Terminal Sealing Boxes*

All sealing boxes shall be of an approved make and design. The casting shall be of the split type secured together by bolts and nuts and treated inside and out with a suitable preservation compound and shall be complete with brass wiping gland. The castings shall be made of close grounded cast iron free from all holes and flaws. The halves of the casting shall be machined and so arranged to form an effective seal.

The box shall be provided with an external armour clamp. The lead sheathing of the cable shall be firmly secured to the interior of the box by clamping and where necessary by lead packing to form an additional support for the cable.

The lead sheathing shall be plumbed to the brass wiping gland and the armouring neatly fixed by means of binding wire and the external clamp. The Sub-Contractor shall ensure that the lead sheath and wire armouring is efficiently bonded to the metal parts of the apparatus served, with 300mm x 10mm copper tape. This bond shall be fitted at the time the joint is made.

An adequate compound filling gland shall be provided on each box and shall be so placed that the compound can be poured when the sealing end box is bolted into position.

Sealing compound shall be a blend of natural bitumen base containing no coal tar derivatives of any kind and having no deleterious action whatever on the materials used in cable manufacture.

The compound shall be in accordance with B.S. 1858.

4.11 *Trenching*

Trenching and backfilling will be carried out by the Main Contractor, but the Sub-Contractor shall be responsible for marking out the cable routes and for the

supervision of the backfilling in so far as the prevention of damage to the cables in this process is concerned.

Cables in trenches shall be laid at a minimum depth of 600mm for L.V. cables and 700mm for 11KV cables and shall be on a 75mm pad of shift soil or sand and a further 75mm shall be added before placing cable covers in position. Where laid in trenches the cables shall be completely protected by inter-locking concrete or other approved cable covers indelibly marked "DANGER, HATARI".

Cable marker posts fabricated in precast concrete, shall be installed at each cable entry into the building, each change of direction, each road or pathway crossing and throughout the length of the cable at intervals not exceeding 40m.

The marker posts shall indicate the voltage, depth and distance from the face of post of each cable installed.

Marker posts shall be provided at the position of all underground, through or tee joints and shall, in addition, to those functions detailed above, indicate the type of joint. The position of all marker posts shall be agreed with the Engineer before installation.

4.12 *Testing*

Before backfilling trenches and subsequent to all terminal jointing having been completed, H.V. cables shall be tested in accordance with B.S. 6480, 1966. L.V. cables shall be subjected to all insulation test at pressure of 1000 volts between cores and to earth and the results of these tests shall be recorded and communicated to the Engineer.

4.13 *Cable Length, Types and Sizes*

The Sub-Contractor shall be deemed to have allowed in the Sub-Contract Sum for supplying sufficient cable lengths of each type and size to complete the system and for making allowances for any additional lengths for cutting and waste.

4.14 *Mineral Insulated Copper Sheathed Cables*

Mineral insulated copper sheathed cables shall be manufactured in accordance with B.S. 6207 by an approved manufacturer. Where installed in corrosive situations, they shall be PVC sheathed. No cable shall have conductors less than 1.5mm² cross section.

All main and sub-main cables shall be sized as shown on the Contract Drawings.

All final sub-circuit and control cables shall be sized in accordance with the current edition of the I.E.E. Regulations unless specifically noted on the Contract Drawings or the Specification.

All mineral insulated copper sheathed cable glands shall be of the same manufacture as the cable and shall be of the compression type.

The choice of cable seal type shall be based on the manufacturer recommendation for the particular application.

In areas where a flameproof installation is specified, the glands shall be of flame proof type.

The cable glands and seals for PVC covered mineral insulated copper sheathed cables shall be of the same type as those specified in the preceding paragraph. They shall, however, be fitted with rigid impact resistant hoods and shall be filled with plastic compound as used for sealing the 44°C cable seals.

Connection of mineral insulated copper sheathed cables of 4mm² cross section and larger to apparatus shall in general be by means of cone grip type cable lugs. At a termination, each core shall be identified by colour tapes or sleeves. Where this is not practicable, the Sub-Contractor shall advise the Engineer in writing and shall obtain his decision regarding the type of connection to be provided.

Where MICS cables are fixed direct to the structure of the building, the fixings shall be by means of copper saddles, brass screws and raw plugs.

Where MICS cables are fixed to cable tray the fixing shall be by means of copper saddles and brass bolts and nuts.

PVC covered copper saddles shall be used with PVC covered MICS cables.

Under no circumstances shall bare MICS cables be fixed to galvanised steel cable tray, galvanised steel brackets or galvanised structural steelwork.

Bare MICS cables shall only be fixed direct to painted structural steelwork and brackets or to painted PVC/Plastic coated steel cable trays as specified later.

All MICS cable fixings shall be installed 75mm either side of a fitting, accessory or; right-angle bend and subsequently spaced in accordance with the current edition of the I.E.E. Regulations.

All persons employed to make terminations on MICS cables shall have attended a course of instruction approved by the Engineer. Prior to commencing work, they shall demonstrate to the Engineer their ability to make

a satisfactory seal. The greatest care shall be taken at all times when terminating MICS cables and insulation tests shall be performed 24 hours after the cable has been sealed.

Where single core MICS cables are used, all necessary precautions shall be taken to prevent hysteresis and eddy currents.

Ferrous plates or structures through which the cables pass shall be slotted and brass glands and sockets shall be used.

5.0 SECTION 5 - APPROVED WIRING SYSTEMS

The system of wiring shall be as specified and shall be one or more of the following systems:-

5.1 *System A - PVC Insulated Cables with Insulated Earth Continuity Conductor Enclosed in Concealed Non Metallic Conduit or Trunking*

Wiring shall be carried out in an approved type single core, plastic insulated cable with earth continuity conductor enclosed in high impact, heavy gauge, non-metallic conduit or trunking.

Conduit shall be buried in the walls and floors of building, and either run in roof space or buried in structural slabs.

5.2 *System B - PVC Insulated Cables with Insulated Earth Continuity Conductor enclosed in Non-Metallic Conduit or Trunking fixed to the Surfaces of Walls and Ceilings*

Wiring shall be carried out in an approved type single core plastic insulated cable with earth continuity conductor enclosed in high impact, heavy gauge, non-metallic conduit or trunking.

Conduit and trunking shall be run on the surface of the walls and ceilings or in false ceiling spaces. Conduit shall be secured in position by means of spacer bar saddles. Conduit shall be run horizontally on the walls or vertically to switches or outlets.

5.3 *System C - Mineral Insulated Copper Sheathed Cables*

The wiring shall be carried out in single core or multi-core mineral insulated copper sheathed cables run on the surfaces of walls and ceilings, in the roof space or concealed in walls and floors.

5.4 *System D - PVC Insulated and Sheathed Cables, Clipped to the Surface of the Walls and Roof Members or to the Ceilings*

The installation shall be carried out in an approved type twin or three-core PVC insulated and sheathed cable. Cables shall be securely fixed to the surface of the walls and in the roof spaces, and shall be fixed to the underside of ceilings, only when there is no reasonable access from above. They shall be fixed to walls and the sides of roof members or in such other positions as may be approved by means of non-corrodible, saddles or

buckle clips with non-corrodible fixings spaced at intervals not exceeding 225mm. Where cables pass through holes they shall be bushed.

Under no circumstances will joints be permitted in the run of a cable. Wires shall be connected together only by looping into the terminals of accessories or by approved mechanical connectors in suitable joint boxes. Under no circumstances will taped joints be permitted.

The cables sheathing shall be carried into the switch, ceiling rose or other accessories.

Cables shall not be installed within 300mm of a metal roof, unless clipped to the lower side of wooden joints or otherwise protected from radiant heat.

5.5 *System E - PVC Insulated and Sheathed Cables Clipped to Roof Members and Run in Metal or Plastic Conduit Drops Concealed in Walls*

The wiring shall be carried out as for System F except that cables shall be enclosed in steel or plastic conduit where drops are required to switches, distribution boards or accessories.

5.6 *System F _ PVC Insulated Single Wire Armoured and PVC Sheathed or Paper Insulated Lead Sheathed Single Wire Armoured and Served Cables Laid in Ducts, Trenches and Saddled to walls*

Cables shall be suspended on purpose - made frame and hangers, drawn through ducts or laid in trenches. Cables suspended on multiple hangers shall be so arranged that one cable can be removed without disturbing the others. Frames and hangers shall be galvanised or of non-ferrous material and shall not be fixed in contact with other metals with which they are liable to set up electrolytic action. All spacings of cable hangers and supports shall not exceed those laid down for the relevant size and type of cable in the current edition of the I.E.E. Regulations.

6.0 SECTION 6 - CONDUITS, TRUNKING AND ASSOCIATED FITTINGS

6.1 *Flexible Conduit*

Conduit connections to motors and equipment shall be made using a minimum of 300mm waterproof flexible conduit. The solid conduit shall be terminated in a large BESA or adaptable box enclosing sufficient coils of motor cables to enable "Tong Test" readings to be taken in each conductor. Earth continuity shall be maintained by means of a copper conductor seized in accordance with the appropriate table of current edition of the I.E.E. Regulations and insulated with Green and Yellow PVC. This conductor shall be run externally to the flexible conduit connecting apparatus to solid conduit and shall be secured to the connecting adaptors by an approved means.

All connecting adaptors shall be solid bronze or brass pattern with standard thread for conduit connection and a thread for conduit connection and a thread to receive the flexible conduit. The adaptor shall be sweated solid to the flexible conduit and the rub screw fully tightened.

6.2 *Plastic Compound*

All galvanised boxes and boxes in a situation where the air flow is likely to cause excessive condensation shall be filled with a plastic compound which fulfils the following conditions: -

- No effect on the physical properties of insulation at any temperature.
- No effect on metals, porcelain, synthetic resins, etc.,
- Unaffected by atmospheric and temperature extremes.
- Remains plastic indefinitely.
- Has a high insulation value

6.3 *Television Conduit*

Television conduit shall be 19mm diameter thermo-plastic type installed vertically from each outlet point terminating 300mm above finished roof surface. A purpose made bend shall be screwed on to the conduit at its roof termination. Outlet points shall be the conduit at its roof termination. Outlet points shall be Belling and Lee Type 1480 complete with plug type L734/PA1, or other similar and approved, fitted to a flush plastic box to B.S. 1363. Draw-in wires as provided for telephone conduit shall be installed.

6.4 *Cable Tray*

Cable tray shall be fabricated from perforated mild steel tray of 150mm minimum width and 14 swg. with return flanges and coupling pieces for rigidity and strength

The cable tray shall be painted grey enamel for indoor use and shall be hot dipped galvanised for outdoor locations.

Cable tray shall be appropriately fixed on robust and substantial brackets fixed into the walls or shall be suspended on rods securely fixed to the structure together with a bracket arrangement as required to facilitate the support of the cable tray. Suspension rods shall be minimum 10mm. dia. mild steel, Brackets or suspension supports shall be provided as necessary, the spacing of which shall not exceed 1800mm.

Where the cable tray changes direction the minimum radius of bends shall not be less than 300mm on the inside of the bend and in no case shall be less than the bending radius of the cable supported.

All brackets, suspension rods and attachments shall be finished as the cable tray supported.

6.5 ***Under floor Ducting***

Where under floor ducting is specified, it shall be of two or three compartment type manufactured from 16-gauge zinc coated steel with base plate and badly welded together to make a single unit. The capacity of each section shall be adequate for the number of conductors to be drawn in and the space factor as required for compliance with the current edition of the I.E.E. Regulations shall not be exceeded.

7.1 *General*

The wiring throughout shall be carried out by looping cables progressively from point to point and no tee or other joint will be permitted. Conductors of the same circuit shall be contained in the same conduit or trunking. At distribution boards, the neutral bar in the same sequence as the live conductors are connected to the fuses or circuit breakers so that they can be readily identified.

7.2 *PVC Cable in Conduits*

Unless otherwise specified cables shall conform to B.S. 6004. They shall be 600/1000-volt grade, single-core. No cable smaller than 1/1.38mm (1.5²) shall be used. Cable size shall comply with circuit details as indicated on the Contract Drawings. Slack cable shall be left at all points of connection.

When used with pinch type terminals cable ends shall be prepared as follows: -

- i. 1/1.38mm. (1.5mm²) and 1/1.78mm. (2.5mm²) - the conductor doubled back on itself to present a double thickness.
- ii. 7/0.85mm (4.0mm²) to 7/1.70mm. (15mm²) - the strands well twisted together to make as solid a conductor as possible.
- iii. 7/2.14mm. (70mm²) and above - the strands sweated solid or fitted with purpose made soldering thimbles.

Cables shall be delivered to the site with seals intact and offered to the Engineer for inspection prior to installation.

Care shall be drawn in after the erection of the complete conduit and trunking system, or completed section if approved by the Engineer and all plaster has dried out. Draw wires, tapes or cables shall not be threaded in at the time conduit is being installed.

The live and neutral conductors of a circuit shall be drawn in the same conduit or enclosure.

Cable sizes shall be selected to allow for a 20% increase in load on every final sub-circuit.

Space shall be left in conduit and trunking for drawing in at some future date two additional cables of size not less than the largest cable enclosed in the conduit or trunking being considered.

Not more than six final sub-circuit cables shall run in conduit feeding outlet boxes, without the approval of the Engineer. Not more than eight cables running straight back to the distribution board shall be enclosed in any one conduit. Flexible cords shall be

of 300/500-volt grade VR or PVC insulated and shall comply with B.S. 6500. No flexible cord smaller than 0.75mm² shall be used. Flexible cords for pendant fittings shall be circular heat resistant type, white finish.

8.0 SECTION 8 - TESTING ON SITE

8.1 *Installation Tests*

The Sub-Contractor shall conduct during and at the completion of the installation and if required, again at the expiration of the Maintenance Period, tests in accordance with the relevant section of the current edition of the I.E.E. Regulations, the Government Electrical Specification and Electric Supply Authority's Bye-Laws.

Tests shall be carried out to prove that all single pole switches are installed in the 'live' conductor.

Tests shall be carried out to prove that all socket outlets and switched socket outlets are connected to the 'live' conductor in the terminal marked as such, and that every earth terminal is effectively bonded to the earth continuity system. Tests shall be carried out to verify the continuity of all conductors of each 'ring' circuits.

Phase tests shall be carried out on completion of the installation to ensure that correct phase sequence is maintained throughout the installation.

The Sub-Contractor shall prepare and hand over to the Engineer within 14 days of the witnessed tests three copies of the results of the above tests. The Sub-Contractor shall be required to issue to the Engineer the requisite certificates upon completion as required by the current edition of the I.E.E. Regulations.

Any faults, defects, omissions, faulty workmanship or incorrectly positioned or installed parts of the installation made apparent by such inspections or tests shall be rectified by the Sub-Contractor at his own expense.

8.2 *Testing Equipment*

The Sub-Contractor shall provide accurate instruments and apparatus and all labour required to carry out the above tests. The instruments and apparatus shall be made available to the Engineer to enable him to carry out such tests as he may require.

8.3 *Attendance on Other Contractors*

The Sub-Contractor shall generally attend on other Contractors employed on the Works and carry out such electrical tests as may be necessary.

8.4 *Equipment, Plant, Apparatus and Systems*

The Sub-Contractor shall test to the Engineer's approval and as specified, all equipment, plant and apparatus forming part of the Works and before connecting to any power supply and setting to work.

Where such equipment, etc., forms part of, or is connected to, a system whether primarily of an electrical nature or otherwise (e.g. Air Conditioning System) the Sub-Contractor shall attend on and assist in balancing, regulating, testing and commissioning, or if primarily an electrical or other system forming part of the Works, shall balance, regulate, test and commission the system to the Engineer's approval.

9.0 SECTION 9 - EARTHING

9.1 *Earthing*

The extent of earthing equipment to be installed as part of the Sub-Contract Works shall be as follows: -

9.2 *Earthing System for High Voltage Supply*

A main earth bus-bar of 55mm. x 6mm. of high conductivity hard drawn copper shall be mounted on insulators on the wall of the Sub-station at the position indicated on the Contract Drawings. The following connections shall be made to this bus-bar:

1. Insulated stranded cable connection to the transformer neutral
2. Bare conductors to the transformer frame.
3. Bare conductor to H.V. switchgear frame.
4. Bare conductor to L.V. Switchgear frame.
5. Insulated stranded conductor to sub-station earth electrodes.

The size of the earth continuity conductors shall be as follows:

<u>Maximum Prospective Fault Current</u>	<u>Insulated Stranded Conductor</u>	<u>Bare Copper Conductor</u>
14 KA	19/2.52 (95mm ²)	25mm x 9mm
9 KA	19/2.14 (70mm ²)	25mm x 3mm

Where necessary, earthing connections shall be protected against mechanical damage and corrosion.

Where connections are made to the earth bus-bars, contacting surfaces shall be tinned.

The earth electrodes shall comprise 8 earth rods, installed in pairs, each pair connected together and to the earth bus-bar by an insulated stranded conductor. The earth rods shall be 1.5m long by 15mm. dia, extensible type, each pair of electrodes shall be located not less than 3m. apart, the first pair being not less than 3m. from the building. The head of the earth rods shall be driven to 300mm below the surface of the ground and enclosed in a concrete box with a concrete inspection cover.

The metal sheaths of all H.V. and L.V. cables shall be adequately bonded to the appropriate switchgear frame.

9.3 *Earthing System for L.V. Supply*

Where the supply is taken at L.V. from either a Substation on the site or a remote substation, the following earthing equipment shall be installed.

1. In the main switch room (supply intake):
 - A copper earth bus-bar, as described in Clause 10.01.
 - A bare 25mm x 3 mm copper conductor from each item of isolated switchgear, connected to the earth busbar.
 - A complete earth electrodes system, installed as specified in Clause 10.01, connected by an insulated earth continuity conductor to the earth busbar.
2. In the switch rooms of isolated buildings on the site. A similar earthing installation to that described in (1) above.
3. In the event of the K.P.& L. Co. providing an earth terminal at the intake position, the earth electrodes and earth continuity conductors, described in (1) and (2) above, shall be omitted.

9.4 *Protective Multiple Earthing*

Where protective multiple earthing (PME) is provided by the supply undertaking, the earthing lead shall be connected to the consumer's earthing terminal and, together with the neutral conductor of the installation, shall be so arranged that connection to the neutral conductor of the incoming supply can be carried out by the supply undertaking.

The earthing of the installation shall comply with the requirements laid down in the current edition of the I.E.E. Regulations. The earthing system for H.V. supply, described in Clause 10.01 shall be amended for the provision of separate earth electrodes for the H.V. and L.V. sides of the installation.

In addition, provision for earthing the neutral conductor shall be made for each distribution main at the end farthest from the transformer where it is connected to the main switchboard of an independent building or area of the site.

9.5 *Consumer's Earth*

The consumer's earth is deemed to be the earthing terminal at: -

1. The main L.V. switchboard
2. The L.V. switchboard at the intake position of an isolated building.

The consumer's earth will be bonded to the earth bus-bar in the sub-station in an approved manner.

9.6 *Bonding*

All conduit, trunking metal enclosures, the metallic sheathing of cables, the cases and enclosures of switchgear, fuse gear and apparatus of electrical nature in each building shall be so bonded as to be directly connected to the respective consumer's earth. Earthing arrangements and resistance of the earth continuity conductor shall comply with the current edition of the I.E.E. Regulations.

In situations such as bathrooms, kitchens, laundries or any situation where there is exposed metal and socket outlets or fixed appliances are installed, all metal work including hot and cold-water pipes, waste pipes, metal draining boards, the casing of electrical appliances, etc., shall be effectively bonded to the earth continuity conductor of the electrical installation so as to ensure that no difference in electrical potential can arise between these items.

Earthing system shall be tested in accordance with the current edition of the I.E.E. Regulations, and if the minimum impedance required by the I.E.E. Regulations is not obtainable, the Engineer shall be informed.

The Sub-Contractor will be responsible for rectifying any fault in the earth continuity conductor at his own expense.

10.1 *Fixings*

Information on the proposed method of fixing each type of lighting fitting is included in Part C of the Specification.

10.2 *Alignment*

Care shall be taken that individual lighting fittings are aligned with the ceiling in all planes and that there is proper alignment in groups or rows of lighting fittings.

Where necessary, cast iron extension rings shall be used to provide alignment between recessed point boxes and finished ceiling levels.

10.3 *Enclosures*

In situations where a lighting fitting is fitted to a ceiling of combustible material, the back plate or other accessory shall be so designed that the connecting cables are completely enclosed.

10.4 *Earthing of Lighting Fittings*

At every lighting point an earthing terminal shall be provided and connected to the earth continuity conductor of the final sub-circuit.

10.5 *Programme for Erection of Lighting Fittings*

The Sub-Contractor shall liaise with the Main Contractor in order that lighting fittings can be erected at such a time that:

- i. The work of other trades is not inhibited by the presence of the fittings in-situ.
- ii. No damage is caused to finished ceilings or walls
- iii. Where fittings are located in selected spaces left open in a suspended ceiling, there is adequate clearance for the fittings, access to suspension points, and clearance for any other services in the ceiling void at that point.

No claims will be considered for costs of extra works or damages which arise out of the Sub-Contractor's failure to comply with this clause.

11.0 SECTION 11 - LIGHTING AND SINGLE-PHASE POWER ACCESSORIES

11.1 *General*

The lighting switches, socket outlets, fused spur outlets and similar accessories shall be as specified. The type of accessory to be used in each location is related to the type of wiring system in that area,

In all cases where switches are grouped together, and are connected to the same phase they shall be ganged together and mounted in a multi-gang box and plate.

Where switches control points not readily visible from the switching position the plates shall be engraved to indicate the points controlled.

All switches controlling maintained circuits shall have the word 'MAINTAINED' engraved on the switch plate.

Multi-gang switch boxes, containing switches supplied from different phase shall have integral fixed separators segregating the switches on different phases. Each such segregated compartment shall have a separately fixed metal cover clearly marked 'Danger' 415 volts' and the overall switch plate shall cover the whole.

11.2 *Special Accessories*

Accessories for special purpose such as speed controls for small motors, dimmers, flameproof or sparkless switches, etc., shall be as specified. Where special accessories are supplied as part of the Sub-Contract Works they shall have a finish to match the other accessories installed in the same area.

12.0 SECTION 12 - PLANT POWER WIRING

12.1 *General*

Wiring to motor outlets and control outlets in Plant Rooms, Boiler Houses, etc., and to remote motor and control outlets forming part of the Mechanical Engineering Services installation, shall be carried out in one of the wiring systems described in the specification.

The approximate location of motor and control outlets, distribution boards and control panels are shown on the Contract Drawings. Details of the size and type of cables, and rating of fuse ways or circuit breaker are shown on the diagram of connections.

Precise instructions on the Sub-Contractor's responsibilities for the supply, fixing and connecting of equipment such as isolators, starters, control switches, sensing elements, annunciator panels, etc., are given in the Particular Specification. Where such items of equipment are provided by others it will be their responsibility to issue to the Main Contractor schematic diagrams; diagrams of connections and details of any special requirements, such as the provision and specification of screened cables and to ensure that the equipment is suitable for the electrical characteristics of the supply available.

12.2 *Power Outlets for Lifts*

The outlet for each lift shall terminate on an isolator located at the position shown on the Contract Drawings. The rating of the isolator and the size and type of cables are shown on the diagram of connections. Each outlet shall be wired on a separate circuit using butyl rubber cables in conduit or MICS cables, as indicated on the diagram of connections.

The switch fuse controlling a Firemen's Lift shall be located on the main switchboard, and shall be provided with means for padlocking in the 'ON' position.

Where the installation includes a mains failure generator, the supply to the Firemen's Lift shall be connected to the 'essential services' section of the main switchboard.

The isolating switch controlling each lift shall disconnect all supplies to the lift hoist and control equipment

13.0 SECTION 13 - NON-METALLIC CONDUIT

13.1 *General*

Non-metallic conduit shall be best quality new super high impact grade heavy gauge Class 'A' rigid PVC plasticised conduit suitable for plain connections.

13.2 *Manipulation*

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

- i. Small sizes, i.e. 19mm and 25mm, 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° to allow for 'spring back'.
- ii. Larger sizes of conduit shall be preheated before inserting rubber cord to prevent kinking. Conduit badly formed or bent, or damaged in any way, shall not be used.

13.3 *Joint of Plain Conduit*

Joints shall be made water-tight by the use of adhesives applied with a brush or rag. The adhesive shall be applied to the complete circumference of the conduit. Conduit shall be thoroughly cleaned at the ends to ensure a good adhesion to the end fittings. The adhesive shall not be permitted to enter into the conduit.

13.4 *Conduit Fittings*

All conduit fittings and accessories including couplers, reducers, stopping plugs, lock nuts and male and female bushes shall be manufactured to B.S. 4607 Part 1, 1970.

Solid tees shall not be used. Solid or inspection elbows or bends or inspection tees shall be used only in exceptional circumstances and then only with the Engineer's approval.

Where it eases the installation of cast-in-situ back entry boxes on the looping system, purpose made bends comprising a tight bend with a push socket at one end and a threaded socket at the other may be used.

13.5 *Fixing of Conduit*

Conduit shall be installed on the loop-in system and shall be either cast-in-situ in the main concrete structure concealed in chases case in concrete wall, or chases cut in solid partition walls, run in ceiling spaces or in hollow partitions or floors; 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 subject to the approval of the Engineer.

Sunken conduit run in chases in walls or ceilings shall be fixed by spacer bar saddles fixed not more than 900mm apart.

Surface conduit shall also be fixed 125mm. on both sides of all boxes, the box itself being securely fixed. Where such an arrangement of boxes and saddles would prove to be both unsightly and unnecessary, short lengths of conduit not exceeding 900mm. in length between boxes need not be secured further than by connection to the adjacent boxes. In such cases the Engineer reserves the right to insist upon additional fixings being provided, should he for any reason whatsoever consider additional fixings necessary.

Where two or more lines of conduit run parallel to each other, on the surface of walls, etc., the distance between them shall be not less than 20mm. and conduit shall not cross.

Conduit shall be installed in such a manner as to prevent interference with other services and shall be kept at least 150mm. clear of gas or water pipes, and heat in excess of 68°C.

A means of expansion shall be provided in conduit runs in excess of 6m. without any bend or set, by the use of 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 filled with paper to prevent ingress of concrete, and all boxes shall be securely fixed to the shuttering with nails, or by means which shall be visible as a marked-on removal or the shuttering only where these marks can be concealed. Conduit shall be installed after the first grid of steel reinforcement work is securely fixed and all open ends of conduit 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 installing the wiring all conduit and fittings shall be dried and cleaned out by drawing through a cloth swab. Rawl plugs shall be used for fixings to brickwork, self-tapping screws for fixing to aluminium section, rawlnuts, spring toggles, gravity toggles or rawlbolts shall be used for fixing to other materials as approved by the Engineer.

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

13.6 *Circular Inspection Boxes*

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 dimensional with B.S. 31/1940 with standard circular non-metallic (3mm) 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 extension rings to accommodate the ceiling rose must be provided.

Where ceiling boxes, including extension rings, are flush with the ceiling surface, break joint rings shall be provided to hide the joints.

Where a non-metallic outlet box of thermoplastic material is used for the fixing or suspension of a lighting fitting, care shall be taken to ensure that the temperature of the box does not exceed 60°C and the box shall be fitted with steel insert clips.

13.7 *Stopping Plugs*

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

13.8 *Continuity*

Where fittings and accessories require earthing, an earth continuity conductor shall be run through the conduit. The earth continuity conductor shall be of copper minimum size 1.0mm² and shall be continuous between terminals. Where the earth terminal is formed by a brass screw and washer, 'Ross Courtney' terminations shall be used.

All metal boxes shall be equipped with an earth terminal.

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 the particular final sub-circuit.

PART B

ELECTRICAL ENGINEERING SERVICES

PARTICULAR SPECIFICATION

1.0 SECTION 1 - INCOMING ELECTRICITY SUPPLIES

1.1 *General*

The electricity supply shall be derived from the Kenya Power and Lighting Company network. The incoming low voltage cables from Transformer will be supplied, installed and connected to the main Low Voltage Switchboard by K.P.L.C. The Main Low Voltage Switchboard shall be supplied and installed under this contract.

A Provisional Sum is included in the appropriate price schedule for the service line charges that will become payable to the Kenya Power and Lighting Company.

The Sub-Contractor shall ascertain the size and type of incoming Low Voltage supply cables that will be installed by the Supply Authority and thereby ensure that the correct glands and terminations for the service cables entries into the Main Low Voltage switchboard are provided.

1.2 *Earthing*

Earthing and bonding shall be carried out to comply with the regulations currently in force and copper tape mesh system shall be installed adjacent to the Kenya Power and Lighting Company supply intake.

The copper tape mesh system has been decided on due to the nature of soil resistivity at the proposed site for construction.

A provisional sum has been included in the appropriate price Schedule for any additional cost that may be necessary to achieve an effective and permanent earthing system.

Provision shall be made for protective multiple earthing at the main meter boards with the final connection between the neutral and the consumers earthing terminal being affected by the Kenya Power and Lighting Company Limited's electrode system.

1.3 *Metering Power Supplies*

The electricity power supply to the units shall be metered via K.P.L.C.'s maximum demand (kVA) and energy (kWh) meters supplied at the Main Low Voltage Switchboard by K.P.L.C.

1.4 *Attendance*

The Sub-Contractor shall pay all attendance and liaise fully with Kenya Power and Lighting Company in ensuring satisfactory completion of all their work.

2.0 SECTION 2 - MAIN L.V. SWITCHBOARD

2.1 *Scope of Work*

This section of the Specification covers the supply, installation, testing and commissioning of the Main Low Voltage Switchboard in accordance with the Contract Drawings and Specification.

2.2 *Contract Drawings*

The Schematic Layout of Main Electrical Distribution for the Building is shown on the contract Drawings.

The Sub-Contractor shall be deemed to have studied all the Contract Drawings and to have allowed for any necessary provisions in this section of the works required thereby.

2.3 *Low Voltage Switchboard General Requirements*

The Low Voltage Switchboard and meter boards shall be self-supporting floor mounted cubicles with front access incorporating the equipment as detailed on the Schematic Layout of Main Electrical Distribution System.

They shall also be supplied complete with all internal connections, voltmeter, instrument selection switches, cable glands or boxes and current transformers for the supply Authority's meters. The switchboard shall have a separate compartment to house the Kenya Power and Lighting Company metering equipment.

The switchboard shall be in accordance with the Specification.

The main Low Voltage Switchboard shall be capable of extension and the busbar section shall allow for this provision. The Engineer reserves the right to make such variations to the layout and dimensions of the switchboards as are deemed necessary to suit site conditions.

The arrangement of these switchboards shall be capable of accommodating power supply connection to all part of the buildings.

2.4 *Fuse Switches*

The fuse switches shall be as shown on Schematic Layout of Main Electrical Distribution and shall be to BS 5419. The fuse switched shall be provided complete with Class Q1 H.R.C. cartridge fuse links and three spare fuse links of each size fuse.

2.5 *M.C.C.B.'s*

Moulded case circuit breakers (M.C.C. B's) of fault breaking capacity of over 50KA shall be installed unless otherwise stated.

These M.C.C. B's shall be as shown on Schematic Layout of Main Electrical Distribution system. Where switches or isolators are specified, these shall be moulded case switches and shall be capable of interrupting currents up to 10 times the rated current.

3.0 SECTION 3 - ELECTRICAL DISTRIBUTION SYSTEM

3.1 *Scope of Work*

This section of the Specification covers supply, installation, connection, testing and commissioning of the Sub-main cables, consumer units and distribution boards in accordance with the Contract Drawings and Specification.

3.2 *Sub-main Cables*

The sub-main cables and methods of installation shall be as shown on the Schematic and Layout Drawings and/or as specified in this Specification.

3.3 *Distribution Boards and Consumer Units*

The distribution boards and consumer units shall conform to the requirements of this Specification.

Schematic of individual distribution boards and consumer units have been prepared and the Sub-Contractor should note that power boards consist of single phase and three phase sub-circuits ways.

All neutral conductors in a single-phase distribution board shall be connected in the same circuit sequence as its phase conductor, i.e. phase wire No. 1 connected to No. 1 terminal on the neutral bar, etc.

In addition to this requirement for every distribution board each phase and neutral conductor shall have clipped to its sheath in the distribution board a clip-on numbered tag corresponding to its circuit number. All circuit numbers shall commence from left to right.

3.4 *Electrical Services Associated with Mechanical Services Installation*

3.4.1 *Scope of Work*

Work to be carried out under this section includes the supply, installation, wiring to and connection to the mechanical equipment power supply isolator or its control panel. The supply, installation, testing and commissioning of the equipment control panel, wiring between control pane; and equipment shall be by the Mechanical Equipment sub-contractor.

The electrical services shall be associated with the following mechanical equipment: -

- i. Domestic water pumps (duty and standby) and the associated control panel.
- ii. Rainwater pumps (duty and Standby) and the associated control panel.
- iii. Fuel Interceptor pump (petrol interceptor pumps) (duty and standby) and associated control panel.
- iv. Sprinkler pumps (duty and standby) and associated control panel.
- v. Wet Riser Pumps (duty and standby) and associated control panel.
- vi. Waste water treatment plant pumps (duty and Standby) and associated control panel.
- vii. Hose reel pumps (duty and Standby) and associated control panel.
- viii. Domestic/Rain water transfer pumps (duty and standby) and the associated control panel.
- ix. Air conditioning and Mechanical ventilation services and their associated control panels.

The Electrical Services shall also be associated with the provision of power supply up to the isolator or control panel of the following specialised equipment: -

- i. Electric passenger lifts and associated control panel.
- ii. Electric Bullion Hoist and associated control panel.
- iii. PABX equipment.
- iv. Surveillance equipment
- v. Fire protection system

3.5 *Fuse Switches (Loose Equipment)*

Fuse switches shall conform to the requirements detailed in this Specification.

3.6 *Isolator (Loose Equipment)*

Isolators shall conform with the requirements detailed in this specification but to exception that solid links shall be suitably sized to carry the full rated current of the respective isolators. Unless otherwise stated, isolators shall be designed for load making/load breaking duties.

3.7 *Cable Tray*

Sizes, proposed fixing arrangements and routes of the galvanised cable tray have been detailed on the layout drawings. The cable tray shall conform with the requirements detailed in this specification.

3.8 *Cable Schedule*

The sub-contractor shall prepare a suitable cable route and schedule for all major Low Voltage cables within the Facility. The schedule shall be submitted with working drawings after contracts have been exchanged. During the course of installation, each major cable shall be suitably identified along its route by traffolite cable markers, in accordance with the Sub-Contractor's cable schedule.

3.9 *Rising Main Bus bars*

There shall be four sub- boards for each block and additional board for mechanical loads.

Phase colours of the incoming cables to each board shall clearly be marked and the current ratings shall comply with B.S. 159 for a temperature rise of 50°C. All connections to the boards shall be made by means of bolted type clamps designed to ensure maximum conductivity at all times, and drilling of bus-bars in the boards shall never be permitted.

4.0 SECTION 4 - LIGHTING AND POWER INSTALLATION

4.1 *Scope of Work*

This section of the Specification covers supply, installation, connection, testing and commissioning of the lighting and single-phase power installation in accordance with the Contract Drawings and Specification.

4.2 *Wiring System*

Final sub-circuit wiring shall be carried out using single core PVC insulated copper cables enclosed in a system of high impact heavy gauge PVC conduit. The conduits shall be embedded in the fabric of the building or run surface on the roof members.

All single phase 13A socket outlets shall be wired using 30A ring main circuit system or 20A radial circuits as shown on the Contract Drawings.

An insulated earth continuity conductor shall be enclosed in all non-metallic conduits.

4.3 *Lighting Luminaries*

Lighting Luminaries shall be of the type and manufacture as detailed in this Specification.

All luminaries shall be supplied and installed complete with lamps and tubes of the wattage specified.

All fluorescent tubes shall be warm white shall conform to B.S. 1853.

4.4 *Lighting Switches and Socket Outlets*

In general areas Lighting switches shall be flush mounted, single pole, 15A rating, rocker operated grid switches with ivory moulded plastic cover plates.

Socket outlets and spur units shall be flush mounted 13 Amp. rating with rocker operated switches and ivory plastic moulded cover plates.

4.5 *Cooker Control Units*

Cooker control units shall be flush mounting, with 45 Amp. D.P. switch, 13 Amp switched socket and neon indicators. An appropriate connector block shall be

installed at low level. The cooker control units shall comply fully with B.S 4177 and shall have ivory plastic cover plates.

4.6 *Connector Boxes*

Connector boxes for cookers and water heaters shall be flush mounted with moulded cover plates. The connector boxes shall be supplied complete with terminal blocks and cords grips, terminals shall be capable of accommodating up to 2 No. 10mm² stranded copper conductors.

4.7 *Ramp Lighting*

The work under this section includes the supply and installation of the ramp lighting as shown on the Contract Drawings. The ramp lights shall comprise of 18W PL lamp in 300mm dia. polycarbonate post top lanterns as specified on the contract drawings or equal and approved.

The ramp light shall be on top of the ramp parapet wall.

4.8 *External lighting*

The works under this section includes the supply and installation of the external security lighting and floodlighting of the building.

The security luminaries shall be controlled via photoelectric cell mounted on roof. The photo electric cell shall detect darkness in the evening and then energises the contactor coil to switch on power supply to the external luminaries via the respective distribution boards located in the riser ducts.

The car park lighting shall be controlled by photoelectric cells. Power supply to the car park lighting shall be derived from the consumer unit at the Gate House.

4.9 *Adaptor Boxes*

All adaptor boxes draw-in boxes, conduit boxes, lighting points boxes, boxes for sockets, telephone outlets, television outlets, camera boxes etc. shall form part of conduit layout installations.

4.10 *Sub-Main Cables*

All main and sub-main cables shall be supplied complete with glands, lugs etc.

5.0 SECTION 5 - LIGHTNING PROTECTION SYSTEM

5.1 *Scope of Work*

Under this section of the specification, the Sub-Contractor shall supply, deliver, install and test a lightning protection system as shown on the Contract Drawings.

The Sub-Contractor shall include for the supply and installation of the roof tapes network, all bonding to down conductors and other metal works and earthing as indicated on the appropriate drawings.

5.2 *Description of Installation*

The installation is based on the recommendation of Kenya Bureau of Standards and I.E.C 62561 and shall comprise a network of 25mm x 3mm flat copper roof tapes running on the ridges and parapet wall and bonded to a selected 20mm diameter reinforced steel (lengths welded to form a sound and effective electrical continuity down to the concrete foundation bases). At the basement level, the down conductors shall be bonded to a system of effective earthing comprising of earth mats as specified herein.

5.3 *Bonding of Roof Copper Tapes*

The roof copper tapes shall be fixed onto the roof ridges; parapet wall etc by means of special holdfasts.

All roof tanks and other metal works projecting from the roof shall be bonded to the roof copper tapes.

5.4 *Earthing of Lightning Protection System*

Earthing of the lightning protection system shall be effected by bonding 20mm diameter reinforced steel down conductor to 25mm x 3mm earth matt constructed from the 25mm x 3mm copper tape as detailed in the contract drawings.

The earth matt shall be placed in an earth pit 1200mm x 1200mm x 800mm deep. The earth matt shall then be filled with red soil mixed with charcoal in the ratio of 3:1. The earth pit shall then be covered by concrete slab.

The periodical testing of the earthing for lightning protection system shall be conducted at the earth testing point in the basement column and as clearly shown on the contract drawings.

The expected earthing test result for this specification shall never be above 5 ohms.

5.5 *Earth Continuity Test for Down Conductors*

It will be the responsibility of the Electrical Sub-Contractor to ensure that the 20mm reinforced steel down conductor is properly welded to guarantee earth continuity from roof to foundation level.

The electrical sub-contractor shall witness and be satisfied that concrete pouring to the columns with lightning protection down conductors does not affect the welded points.

6.0 SECTION 6 - TELEPHONE/COMMUNICATION DISTRIBUTION SYSTEM

6.1 *Scope of Works*

This section of the specification covers the supply and installation of trunkings, conduits and cable trays for the distribution of telephone system, communication system like Television network via satellite dish on roof all in accordance with the Contract Drawings and specification.

The supply and installation of the telephone equipment, communication equipment - T.V. and C.C.T.V. does not form part of this sub-contract.

6.2 *Distribution System*

At the ground floor level, the sub-contractor shall supply and install a cable tray for the installation of the main incoming line from the main university point of entry into the building to the proposed telecommunication room.

The sub-contractor shall also provide and install cable tray from telecom room to riser duct and all the length of riser duct up to highest floor ceiling.

The electrical sub-contractor shall provide conduit interconnections between each cabinet box and office floor trunkings. Details of the office floor trunkings are shown on the Drawings and the trunking shall be 3-compartment with a separate compartment for telephone cables. The electrical sub-contractor shall provide and install an accessory box and telephone outlet plates (plug-in type as specified) for connection by other. Draw wires shall be installed in all conduits to facilitate wiring by others.

A metallic trunking 200mm x 50mm 3 - compartment shall be provided and installed by electrical sub-contractor in the same telephone riser duct from basement floor to highest floor for the accommodation of communication cables, T.V. cables and Fire Alarm and Detection system cables.

6.3 *Wiring System*

The Sub-Contractor shall supply and install lead-in pipe of diameter 100mm for the main incoming last mile cables.

The Sub-Contractor shall allow for all conduit installation from the cabinet to the data outlet position. The final wiring from the distribution case to each telephone outlet shall be carried out by others.

The minimum size of conduit shall be 25mm diameter and not more than 3 data outlets shall be fed by each 25mm diameter conduit.

At each telephone outlet position the sub-contractor shall supply and install an accessory box and outlet plate for connection by others. Each outlet plate shall comprise of jack plug mounted on an ivory plastic moulded cover plate to match the other accessories used.

SECTION 1: ELECTRICAL INSTALLATION WORKS					
1.00	<u>BILL NO.1. GROUND FLOOR</u>				
	<u>LIGHTING POINTS, FITTINGS & ACCESSORIES</u>				
	<u>Supply, Install, Connect, Test and Set to work the following:-</u>				
1.01	Lighting points wired in 3x1.5mm ² PVC insulated single core (SC) copper cables drawn in 20mm diameter HG PVC conduit concealed in walls and or floor slabs with all accessories but excluding switch and fitting for one way switching.	No.	36		
1.02	Ditto but for two way switching.	No.	35		
1.03	Ditto but for Emergency Switching.	No.	3		
	<u>Supply, Install, Connect, Test and Set to work the following as marked on drawings and described in the schedule of Fittings:-</u>				
	<u>10A white moulded wide rocker switch plates:-</u>				
1.04	10A 1 gang 1 way switch	No.	11		
1.05	10A 1 gang 2 way switch	No.	12		
1.06	10A 2 gang 2 way switch	No.	2		
1.07	10A Intermediate switch	No.	0		
	<u>Supply, Install, Connect, Test and Set to work the following as marked on drawings and described in the schedule of Fittings:-</u>				
	<i>Light fittings, complete with lamps of specified wattage and appropriate colour rendering:-</i>				
1.08	Type FB - IP44, 19W, 1200mm LED tube light fitting with diffuser	No.	10		
1.09	Type FBe - IP44, 19W, 1200mm LED tube light fitting with diffuser c/w emergency kit	No.	4		
1.10	Type C - E27 Ceiling rose c/w 10W LED Bulb	No.	0		
1.11	Type D - Round Light with LED lamp	No.	38		
1.12	Type De - Round Light with LED lamp c/w emergency kit	No.	6		
1.13	Type Exit	No.	4		
1.14	Type P 1200 X 300MM 220/240V x 30 watt Warm White, 6500K Ceiling Mount. (Two LED Tubes)	No.	12		

	Total Carried Forward to the Next Page				

Item	DESCRIPTION	UNIT	QTY	Rate (KES)	Amount (KES)
	Balance Brought Forward from the Previous Page				
	<u>POWER POINTS & ACCESSORIES</u>				
	Supply, Install, connect and set to work the following:-				
1.15	Power outlet points wired as for a ring main circuit in 3 x 2.5mm ² PVC single core (SC) copper cables drawn in 25mm diameter HG PVC conduits concealed in walls and floor slabs complete with all accessories excluding the socket outlet plate.	No.	28		
1.16	Power outlet points wired as for a radial circuit in 3x4.0mm ² PVC single core (SC) copper cables drawn in 25mm diameter HG PVC conduits concealed in walls and floor slabs for instant shower but excluding the DP switch.	No.	2		
	<u>POWER POINTS & ACCESSORIES</u>				
	Supply, Install, connect and set to work the following:-				
1.17	Power outlet points wired as for a radial circuit in 3x4.0mm ² PVC single core (SC) copper cables drawn in 25mm diameter HG PVC conduits concealed in walls and floor slabs for lift sump pump but excluding the DP switch.	No.	2		
	<u>Supply, Install, Connect, Test and Set to work the following as marked on drawings and described in the schedule of Fittings:-</u>				
1.18	13A flush mounted twin socket-outlet	No.	28		
1.19	20A flush mounted switched DP switch	No.	2		
1.20	32A flush mounted switched DP switch	No.	3		
	<u>ELV CABLE WAYS</u>				
	ICT Points				
1.21	Supply, install and connect data outlet point consisting of average 20 meters of 25 mm diameter concealed heavy gauge PVC conduit inclusive of conduit, couplers, draw boxes, switch boxes, draw wire and other necessary accessories but excluding face plates.	No.	12		
	CCTV Points				
1.22	Supply, install and connect CCTV outlet point consisting of average 20 meters of 25 mm diameter concealed heavy gauge PVC conduit inclusive of conduit, couplers, draw boxes, switch boxes, draw wire and other necessary accessories.	No.	10		
	Fire Alarm Points				

1.23	Outlets for fire Alarm points drawn in 25mm diameter heavy gauge PVC conduits concealed in wall and floor slabs including all conduit accessories and draw wire but excluding cabling and detectors	No.	22		
Total Carried Forward to the Next Page					

Item	DESCRIPTION	UNIT	QTY	Rate (KES)	Amount (KES)
	<i>Balance Brought Forward from the Previous Page</i>				
	<u>POWER DISTRIBUTION</u>				
	Supply, Install, connect and set to work the following:-				
1.24	Supply, install and connect 16 way TP/N distribution board for power supply in riser duct complete with 125 Amp integral isolator and MCBs as specified.	No.	2		
1.25	10A SP MCB	No.	20		
1.26	20A SP MCB	No.	22		
1.27	32A SP MCB	No.	4		
1.28	Blanking Plates	No.	2		
1.29	Allow for Labeling of distribution boards as per technical specifications	Item.	1		
1.30	Earthing of the Distribution Board above	Item.	1		

	Total Carried Forward to Collection Page				-

Item	DESCRIPTION	UNIT	QTY	Rate (KES)	Amount (KES)
2.00	<u>BILL NO.2. TYPICAL QUAD UNIT</u>				
	<u>LIGHTING POINTS, FITTINGS & ACCESSORIES</u>				
	<u>Supply, Install, Connect, Test and Set to work the following:-</u>				
2.01	Lighting points wired in 3x1.5mm ² PVC insulated single core (SC) copper cables drawn in 20mm diameter HG PVC conduit concealed in walls and or floor slabs with all accessories but excluding switch and fitting for one way switching.	No.	3		
	<u>Supply, Install, Connect, Test and Set to work the following as marked on drawings and described in the schedule of Fittings:-</u>				
2.02	10A 1 gang 1 way switch	No.	1		
	<u>Supply, Install, Connect, Test and Set to work the following as marked on drawings and described in the schedule of Fittings:-</u>				
2.03	Type C - E27 Ceiling rose c/w 10W LED Bulb	No.	1		
2.04	Type RL -7W 1 FT Reading Light	No.	2		
	<u>POWER POINTS & WIRING ACCESSORIES</u>				
	<u>Supply, Install, Connect, Test and Set to work the following:-</u>				
2.05	Power outlet points wired as for a ring main circuit in 3 x 2.5mm ² PVC single core (SC) copper cables drawn in 25mm diameter HG PVC conduits concealed in walls and floor slabs complete with all accessories excluding the socket outlet plate.	No.	4		
	<u>Supply, Install, Connect, Test and Set to work the following as marked on drawings and described in the schedule of Fittings:-</u>				
2.06	13A flush mounted Single socket-outlet	No.	0		
2.07	13A flush mounted twin socket-outlet	No.	4		

	Total Amount for Typical Quad Unit Incl. VAT				-

Item	DESCRIPTION	UNIT	QTY	Rate (KES)	Amount (KES)
3.00	<u>BILL NO.3. COMMON AREAS-TYPICAL 1ST FLOOR</u>				
	<u>LIGHTING POINTS, FITTINGS & ACCESSORIES</u>				
	<u>Supply, Install, Connect, Test and Set to work the following:-</u>				
3.01	Lighting points wired in 3x1.5mm ² PVC insulated single core (SC) copper cables drawn in 20mm diameter HG PVC conduit concealed in walls and or floor slabs with all accessories but excluding switch and fitting for one way switching.	No.	12		
3.02	Ditto but for two way switching.	No.	22		
3.03	Ditto but for Emergency Switching.	No.	15		
	<u>Supply, Install, Connect, Test and Set to work the following as marked on drawings and described in the schedule of Fittings:-</u>				
	<u>10A white moulded wide rocker switch plates:-</u>				
3.04	10A 1 gang 1 way switch	No.	10		
3.05	10A 2 gang 2 way switch	No.	3		
3.06	10A Intermediate switch	No.	2		
	<u>Supply, Install, Connect, Test and Set to work the following as marked on drawings and described in the schedule of Fittings:-</u>				
	<i>Light fittings, complete with lamps of specified wattage and appropriate colour rendering:-</i>				
3.07	Type FB - IP44, 19W, 1200mm LED tube light fitting with diffuser	No.	8		
3.08	Type FBe - IP44, 19W, 1200mm LED tube light fitting with diffuser c/w emergency kit	No.	4		
3.09	Type C - E27 Ceiling rose c/w 10W LED Bulb	No.	4		
3.10	Type D - Round Light with LED lamp	No.	26		
3.11	Type De - Round Light with LED lamp c/w emergency kit	No.	6		
3.12	Type Exit	No.	3		

3.13	Type P 1200 X 300MM 220/240V x 30 watt Warm White, 6500K Ceiling Mount. (Two LED Tubes)	No.	0		
<u>POWER POINTS & ACCESSORIES</u>					
Supply, Install, connect and set to work the following:-					
3.14	Power outlet points wired as for a ring main circuit in 3 x 2.5mm ² PVC single core (SC) copper cables drawn in 25mm diameter HG PVC conduits concealed in walls and floor slabs complete with all accessories excluding the socket outlet plate.	No.	8		
3.15	Power outlet points wired as for a radial circuit in 3x4.0mm ² PVC single core (SC) copper cables drawn in 25mm diameter HG PVC conduits concealed in walls and floor slabs for instant shower but excluding the DP switch.	No.	5		
Total Carried Forward to the Next Page					

Item	DESCRIPTION	UNIT	QTY	Rate (KES)	Amount (KES)
<i>Balance Brought Forward from the Previous Page</i>					
<u>POWER POINTS & ACCESSORIES</u>					
Supply, Install, connect and set to work the following:-					
3.16	Power outlet points wired as for a radial circuit in 3x4.0mm ² PVC single core (SC) copper cables drawn in 25mm diameter HG PVC conduits concealed in walls and floor slabs for lift sump pump but excluding the DP switch.	No.	0		
<u>Supply, Install, Connect, Test and Set to work the following as marked on drawings and described in the schedule of Fittings:-</u>					
3.17	13A flush mounted twin socket-outlet	No.	8		
3.18	20A flush mounted switched DP switch	No.	0		
3.19	32A flush mounted switched DP switch	No.	5		
<u>ELV CABLE WAYS</u>					
ICT Points					
3.20	Supply, install and connect data outlet point consisting of average 20 meters of 25 mm diameter concealed heavy gauge PVC conduit inclusive of conduit, couplers, draw boxes, switch boxes, draw wire and other necessary accessories but excluding face plates.	No.	3		
CCTV Points					
3.21	Supply, install and connect CCTV outlet point consisting of average 20 meters of 25 mm diameter concealed heavy gauge PVC conduit inclusive of conduit, couplers, draw boxes, switch boxes, draw wire and other necessary accessories.	No.	5		
Fire Alarm Points					

3.22	Outlets for fire Alarm points drawn in 25mm diameter heavy gauge PVC conduits concealed in wall and floor slabs including all conduit accessories and draw wire but excluding cabling and detectors	No.	12		
	<u>POWER DISTRIBUTION</u>				
	Supply, Install, connect and set to work the following:-				
3.23	Supply, install and connect 16 way TP/N distribution board for power supply in riser duct complete with 125 Amp integral isolator and MCBs as specified.	No.	1		
3.24	10A SP MCB	No.	20		
3.25	20A SP MCB	No.	22		
3.26	32A SP MCB	No.	4		
3.27	Blanking Plates	No.	2		
3.28	Allow for Labeling of distribution boards as per technical specifications	Item.	1		
3.29	Earthing of the Distribution Board above	Item.	1		
	Sub - Total 1st Floor Common areas Carried Forward to Collection Page				-

Item	DESCRIPTION	UNIT	QTY	Rate (KES)	Amount (KES)
4.00	<u>BILL NO.4. COMMON AREAS-TYPICAL 2ND To 7TH FLOORS</u>				
	<u>LIGHTING POINTS, FITTINGS & ACCESSORIES</u>				
	<u>Supply, Install, Connect, Test and Set to work the following:-</u>				
4.01	Lighting points wired in 3x1.5mm ² PVC insulated single core (SC) copper cables drawn in 20mm diameter HG PVC conduit concealed in walls and or floor slabs with all accessories but excluding switch and fitting for one way switching.	No.	12		
4.02	Ditto but for two way switching.	No.	20		
4.03	Ditto but for Emergency Switching.	No.	15		
	<u>Supply, Install, Connect, Test and Set to work the following as marked on drawings and described in the schedule of Fittings:-</u>				
	<u>10A white moulded wide rocker switch plates:-</u>				
4.04	10A 1 gang 1 way switch	No.	10		
4.05	10A 2 gang 2 way switch	No.	3		
4.06	10A Intermediate switch	No.	2		
	<u>Supply, Install, Connect, Test and Set to work the following as marked on drawings and described in the schedule of Fittings:-</u>				
	<i>Light fittings, complete with lamps of specified wattage and appropriate colour rendering:-</i>				
4.07	Type FB - IP44, 19W, 1200mm LED tube light fitting with diffuser	No.	8		
4.08	Type FBe - IP44, 19W, 1200mm LED tube light fitting with diffuser c/w emergency kit	No.	4		

4.09	Type C - E27 Ceiling rose c/w 10W LED Bulb	No.	4		
4.10	Type D - Round Light with LED lamp	No.	24		
4.11	Type De - Round Light with LED lamp c/w emergency kit	No.	6		
4.12	Type Exit	No.	3		
4.13	Type P 1200 X 300MM 220/240V x 30 watt Warm White, 6500K Ceiling Mount. (Two LED Tubes)	No.	0		
	POWER POINTS & ACCESSORIES				
	Supply, Install, connect and set to work the following:-				
4.14	Power outlet points wired as for a ring main circuit in 3 x 2.5mm ² PVC single core (SC) copper cables drawn in 25mm diameter HG PVC conduits concealed in walls and floor slabs complete with all accessories excluding the socket outlet plate.	No.	8		
4.15	Power outlet points wired as for a radial circuit in 3x4.0mm ² PVC single core (SC) copper cables drawn in 25mm diameter HG PVC conduits concealed in walls and floor slabs for instant shower but excluding the DP switch.	No.	5		
	Total Carried Forward to the Next Page				

Item	DESCRIPTION	UNIT	QTY	Rate (KES)	Amount (KES)
	Balance Brought Forward from the Previous Page				
	POWER POINTS & ACCESSORIES				
	Supply, Install, connect and set to work the following:-				
4.16	Power outlet points wired as for a radial circuit in 3x4.0mm ² PVC single core (SC) copper cables drawn in 25mm diameter HG PVC conduits concealed in walls and floor slabs for lift sump pump but excluding the DP switch.	No.	0		
	<u>Supply, Install, Connect, Test and Set to work the following as marked on drawings and described in the schedule of Fittings:-</u>				
4.17	13A flush mounted twin socket-outlet	No.	8		
4.18	20A flush mounted switched DP switch	No.	0		
4.19	32A flush mounted switched DP switch	No.	5		
	<u>ELV CABLE WAYS</u>				
	ICT Points				
4.20	Supply, install and connect data outlet point consisting of average 20 meters of 25 mm diameter concealed heavy gauge PVC conduit inclusive of conduit, couplers, draw boxes, switch boxes, draw wire and other necessary accessories but excluding face plates.	No.	3		
	CCTV Points				
4.21	Supply, install and connect CCTV outlet point consisting of average 20 meters of 25 mm diameter concealed heavy gauge PVC conduit inclusive of conduit, couplers, draw boxes, switch boxes, draw wire and other necessary accessories.	No.	5		

4.22	Fire Alarm Points Outlets for fire Alarm points drawn in 25mm diameter heavy gauge PVC conduits concealed in wall and floor slabs including all conduit accessories and draw wire but excluding cabling and detectors	No.	12		
4.23	POWER DISTRIBUTION Supply, Install, connect and set to work the following:- Supply, install and connect 16 way TP/N distribution board for power supply in riser duct complete with 125 Amp integral isolator and MCBs as specified.	No.	1		
4.24	10A SP MCB	No.	20		
4.25	20A SP MCB	No.	22		
4.26	32A SP MCB	No.	4		
4.27	Blanking Plates	No.	2		
4.28	Allow for Labeling of distribution boards as per technical specifications	Item.	1		
4.29	Earthing of the Distribution Board above	Item.	1		
Sub - Total Typical 2nd to 7th Floors Common areas Carried Forward to Collection Page					-

5.00	BILL NO.5. ROOFTOP				
Item	DESCRIPTION	UNIT	QTY	Rate (KES)	Amount (KES)
5.01	<u>LIGHTING POINTS, FITTINGS & ACCESSORIES</u> <u>Supply, Install, Connect, Test and Set to work the following:-</u> Lighting points wired in 3x1.5mm ² PVC insulated single core (SC) copper cables drawn in 20mm diameter HG PVC conduit concealed in walls and or floor slabs with all accessories but excluding switch and fitting for two way switching.	No.	18		
5.02	<u>Supply, Install, Connect, Test and Set to work the following as marked on drawings and described in the schedule of Fittings:-</u> <u>10A white moulded wide rocker switch plates:-</u> 10A 2 gang 2 way switch	No.	3		
5.03	10A Intermediate switch	No.	2		
5.04	<u>Supply, Install, Connect, Test and Set to work the following as marked on drawings and described in the schedule of Fittings:-</u> <i>Light fittings, complete with lamps of specified wattage and appropriate colour rendering:-</i> Type D - Round Light with LED lamp	No.	3		

5.05	Type De - Round Light with LED lamp c/w emergency kit	No.	3		
5.06	Type A4- IP65 External bulkhead fitting	No.	8		
5.07	Type A4E- IP65 External bulkhead fitting	No.	4		
5.08	Type Exit	No.	3		
<u>POWER POINTS & ACCESSORIES</u>					
Supply, Install, connect and set to work the following:-					
5.09	Power outlet points wired as for a ring main circuit in 3 x 2.5mm ² PVC single core (SC) copper cables drawn in 25mm diameter HG PVC conduits concealed in walls and floor slabs complete with all accessories excluding the socket outlet plate.	No.	6		
<u>Supply, Install, Connect, Test and Set to work the following as marked on drawings and described in the schedule of Fittings:-</u>					
5.10	13A flush mounted twin weather proof socket-outlet	No.	6		
5.11	20A weather proof Three phase wall Surface Mounted Isolator for the hosereel as Katko	No.	2		
Total Carried Forward to the Next Page					

Item	DESCRIPTION	UNIT	QTY	Rate (KES)	Amount (KES)
<i>Balance Brought Forward from the Previous Page</i>					
<u>POWER POINTS & ACCESSORIES</u>					
Supply, Install, connect and set to work the following:-					
<u>ELV CABLE WAYS</u>					
CCTV Points					
5.12	Supply, install and connect CCTV outlet point consisting of average 20 meters of 25 mm diameter concealed heavy gauge PVC conduit inclusive of conduit, couplers, draw boxes, switch boxes, draw wire and other necessary accessories.	No.	5		
Fire Alarm Points					
5.13	Outlets for fire Alarm points drawn in 25mm diameter heavy gauge PVC conduits concealed in wall and floor slabs including all conduit accessories and draw wire but excluding cabling and detectors	No.	3		
<u>POWER DISTRIBUTION</u>					
Supply, Install, connect and set to work the following:-					
5.14	Supply, install and connect 4 way TP/N distribution board for power supply in riser duct complete with 125 Amp integral isolator and MCBs as specified.	No.	2		

5.15	10A SP MCB	No.	4		
5.16	20A SP MCB	No.	4		
5.17	20A TP MCB	No.	2		
5.18	Blanking Plates	No.	2		
5.19	Allow for Labeling of distribution boards as per technical specifications	Item.	1		
5.20	Earthing of the Distribution Board above	Item.	1		
Sub-Total for Rooftop carried to Electrical Installation Summary Page					

ITEM NO.	COLLECTION PAGE	AMOUNT KShs
1.00	Total Amount for Ground Floor Common Areas Brought Forward from Page 2 (x 1)	-
2.00	Total Amount for Typical Quad Rooms Brought Forward from Page 3 (Quads x 145)	-
3.00	Total Amount for 1st Floor Common Areas Brought Forward from Page 5 (x 1)	-
4.00	Total Amount for Typical 2nd to 7th Floor Common Areas Brought Forward from Page 5 (x 6)	-
5.00	Total Amount for Rooftop Brought Forward from Page 7	-

	Sub-Total for Apartments carried to Electrical Installation Summary Page	-

Item	DESCRIPTION	UNIT	QTY	Rate (KES)	Amount (KES)
5.00	<u>BILL NO.5: MAIN POWER DISTRIBUTION</u>				
	<u>LV BOARDS</u>				
	<u>Supply, Deliver and Position the Following:</u>				
	<u>SUB-BOARDS NON-MAINTAINED POWER</u>				
5.21	8 way Sub-board in the ducts as IP-32, Form-2B as per the Schematic and in compliance with IEC 60439 and KSIEC 60439 Standards, complete with the following:-	No.	1		
	Incomer				
	1No. 400A TP Adj. MCCB				
	Indicator Lamps (RYB)				
	Outgoers				
	- 9 nos. adj 3P 100A, 25kA, MCCBs Outgoers				
	- 2 nos. 3P 63A Spares				
5.22	Label Subboard as per schematic drawing.	Item	1		

5.23	Provide As-Built Schematic Drawing	Item	1		
	<u>CABLES</u>				
5.24	Submains circuit from the Main board to Sub-Boards (SB-GF/01, SB-FF-01,SB-GF/00) in electrical ducts comprising of 2x120mm2 XLPE/PVC/SWA 4c + 120mm2 sc ECC Copper cables laid in PVC Duct and Trays	Lm.	200		
5.22	Submains circuit from the Generator to the Main Board comprising of 16mm2 XLPE/PVC/SWA 4c + 10mm2 sc ECC Copper cables laid in PVC Duct and Trays	Lm.	100		
5.25	Submains circuit from the Main board to the Typical Floors DB comprising of 10mm2 XLPE/PVC/SWA 4c + 6.0mm2 sc ECC Copper cables laid in PVC Duct and Trays	Lm.	100		
5.26	Submains circuit from the Main board to the Pump Room DB comprising of 16mm2 XLPE/PVC/SWA 4c + 10.0mm2 sc ECC Copper cables laid in PVC Duct and Trays	Lm.	50		
5.27	Submains circuit from the Sub board on the ground floor to the Lift DB comprising of 16mm2 XLPE/PVC/SWA 4c + 10.0mm2 sc ECC Copper cables laid in PVC Duct and Trays	Lm.	50		
5.27	Submains circuit from Main Board to Common Area DBs at the Ground Floor Electrical Ducts comprising of 10mm2 XLPE/PVC/SWA 4c + 6.0mm2 sc ECC Copper cables laid in PVC Duct and Trays	Lm.	100		
5.28	Submains circuit from Common Area Sub-Board at the Ground Floor to, Common Area and Roof Terrace DBs comprising of 10mm2 XLPE/PVC/SWA 4c + 6.0mm2 sc ECC Copper cables laid in PVC Duct and Trays	Lm.	100		
5.29	Cable gland for above cables terminations	Lot.	1		
5.30	Cable Lugs for above cables terminations	Lot.	1		
	Total Carried Forward to the Next Page				

Item	DESCRIPTION	UNIT	QTY	Rate (KES)	Amount (KES)
	<i>Balance Brought Forward from the Previous Page</i>				
	<u>CABLE MANAGEMENT</u>				
5.31	400 x 50mm Powder coated fabricated Cable tray complete with angle bends, Tees, end caps and mounting brackets & accessories to detail and to approval. Including equipotential bonding.	Lm.	50		
5.32	300 x 50mm Powder coated fabricated Cable tray complete with angle bends, Tees, end caps and mounting brackets & accessories to detail and to approval. Including equipotential bonding.	Lm.	50		

5.33	150 x 50mm Powder coated fabricated Cable tray complete with angle bends, Tees, end caps and mounting brackets & accessories to detail and to approval. Including equipotential bonding.	Lm.	40		
<u>MECHANICAL LOADS</u>					
5.34	Supply, install and connect 4 way TP/N distribution board for Pump Room power supply in riser duct complete with 125 Amp integral isolator and MCBs as specified.	No.	1		
5.35	Supply, install and connect 4 way TP/N distribution board for Lifts power supply in riser duct complete with 125 Amp integral isolator and MCBs as specified.	No.	2		
5.36	Supply and install 16A/ 20 Amp weather proof TP isolators for pumps and other equipment.	No.	4		
5.37	Supply and install 63 Amp weather proof TP isolators for Lift.	No.	1		
Total Carried to Electrical Installation Summary Page					

7.00	<u>BILL NO.6: FIRE ALARM SYSTEM</u>				
ITEM	<u>DESCRIPTION</u>	<u>UNIT</u>	<u>QTY</u>	<u>RATE</u>	<u>AMOUNT</u>
7.01	Microprocessor based 1-Loop Addressable Fire Alarm Control Panel	No.	1		
7.02	Addressable Photoelectric Smoke Detector	No.	62		

7.03	Addressable Heat Detector as Menvier or Approved equivalent	No.	0		
7.04	Addressable Manual Fire Alarm 'Break Glass' call points	No.	24		
7.05	Flashing beacon	No.	24		
7.06	Microprocessor based Addressable Fire Alarm Repeater Panel	No.	1		
7.07	2x2.5mm2 FP 200 Network cables for connecting the above panels.	Lm	180		
7.08	Demonstrate operation of the complete fire alarm system in presence of manufacturer's representative	Item	1		
7.09	Connect, test, program and commission the fire alarm system and provide log and schedule of active devices	Item	1		
7.10	Operation manuals and 3 sets of record drawings both hard and soft copies	Item	1		
Total Carried to Electrical Installation Summary Page					

	<u>Supply, Install, Test, Commission and Set to work:-</u>				
8.01	64 CH Network Video Recorder - Embedded 4K NVR DS-9632/64NI-I16 + 12TB Storage HDD • Third-party network cameras supported • Up to 12 Megapixels resolution recording • Support 2-ch HDMI, 2-ch VGA, HMDI1 at up to 4K(3840x2160) resolution • Up to 64 IP cameras can be connected with 320M incoming bandwidth • Up to 16 SATA interfaces • Support HDD hot swap with RAID0,1,5,6,10 storage scheme configurable • Support H.265/H.264/MPEG4 video formats	No.	2		
8.02	2MP WDR Fixed Dome Network Camera DS-DS-2CD1121-1 • Support H.264+ • Up to 30m IR range • IP67 weather-proof protection • Mobile monitoring via iVMS-4500 (Gnd, 1st to 8th Floor)	No.	80		
8.03	2MP WDR Fixed Bullet Network Cameras (Specs same as for the Dome Cameras) (Roof Top, Entrance , Perimeter wall & Basement)	No.	15		
8.04	Wireless Lift camera- 4MP dome network Camera	No.	1		
8.05	M2 Ubiquiti nano stations for point to point link for the wireless Lift cameras	No.	2		
8.06	Remote View Workstation (PC) -inclusive 32 inch Display) - Gate house	No.	1		
8.07	CCTV surveillance monitoring Screen (LED Display)- 50"	No.	3		
8.08	Network cable (Cat 6 E cable) -Full copper - 305meter rolls	Rolls	35		
8.09	20M HDMI cable	No.	4		
8.10	Consumables : RJ 45 plugs, cable ties , labels	Lot	1		
8.11	8T Surveillance Harddisk	No.	4		
8.12	Installation ,configuration, testing , documentation (Manuals) , commissioning & Client Training	Item	1		

	Total Carried forward to Summary Page				

9.00	BILL NO.8: STRUCTURED CABLING INSTALLATION				
ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	<u>Supply, Install, Test, Commission and Set to work:-</u>				
9.01	Ruijie Networks PoE/PoE+ 48-port Gigabit managed switch with 4 SFP ports as Ruijie Networks RG-NBS3200-48GT4XS-P	No.	3		
9.02	9U wall-mount Cabinet (for Ducts)	No.	3		
9.03	Wide 42 U Cabinet Free Standing - Server Room	No.	1		
9.04	CAT6A 4 pair UTP cable roll - 305m per roll/box	No.	15		
9.05	48 Port RJ45 Patch Panel	No.	5		
9.06	Cabinet Cable Managers	No.	8		
9.07	Wi-Fi Access Points as RG-RAP2200 Series Reyee Wi-Fi 5 AC1300 Indoor Cloud Managed Access Point (for Common Areas:- Kitchens & Lounges)	No.	26		
9.08	1-meter Patch Cords -UTP	No.	130		
9.09	3-meter Patch Cords	No.	11		
9.10	Siemon Faceplate And Modules	No.	11		
9.11	Multimode Fiber Optic Cable - in meters	meters	300		
9.12	SFP Gigabit Modules for Fiber termination	No.	8		
9.13	1m Fiber Patch Cords	No.	8		
9.14	48 port Fiber ODF (optical distribution frame)	No.	1		
9.15	Mikrotik CCR 8 port Gigabit router with 2 SFP & dual power supply as Microtik CCR1036-8G-2S+	No.	1		
9.16	Mikrotik CRS 10 SFP cage managed switch with 5No. 1G SFP ports and 4No. 10GSFP+ ports as Microtik CRS310-1G-5S-4S+IN	No.	1		
9.17	Accessories: Cable Ties, RJ 45, Flexiconduits - Lot	Lot	1		
9.18	Labour	No.	1		

	Total Carried forward to Summary Page				

10.00	BILL NO.9: LIGHTNING PROTECTION				
Item	DESCRIPTION	UNIT	QTY	Rate (KES)	Amount (KES)
	Supply, Install, Test, Commission and Set to work:-				
	Air Termination				
10.01	2000mm x15mmØ multiple point pure copper AirRods/ Termination with spikes as Furse Part No. RA240 or approved equivalent	No	1		
10.02	Copper Air Rod Base as Furse Part No. SD105-H or approved equivalent	No.	1		
10.03	Copper Junction Clamps for copper tape as Furse Part No. CN105-H or approved equivalent	No.	2		
10.04	25x3mm copper tape TC030 on tape clip Furse CP210 including saddles, appropriate bonding & jointing clamps to bond and clamp the tape to masonry wall.	Lm	150		
	Down Conductor				
10.05	32mm diameter HG concealed PVC conduit with factory made bends, all conduit fittings as shown on drawing.	Lm	80		
10.06	70mm ² bare copper conductor enclosed HG concealed PVC conduit between copper tape and test joint (down conductor).	Lm	80		
10.07	Screwdown copper test clamp as Furse CT305 or approved equivalent	No.	2		
	Earth Termination				
10.08	Supply and install earthing complete with Earthing Matt measuring 1000x1000mm build in 25mm x 3mm thick riveted with copper rivets. 2Nos. Earth electrodes, and 2Nos. Rod to tape clamps. The earth matt to be treated by marconite and salt to obtain reading <10.0 ohms.	No.	2		
10.09	70mm ² ECC in 1x25mm dia PVC conduit between the test clamp and the earth rods.	Lm	10		
10.10	Concrete earthing inspection pits	No	2		
10.11	Test the completed lightning protection system and log in results	Item	1		
	Bonding				

10.12	Bonding and clamping to all metal work including water pipes, gas pipes, hand-rails, smatv system, window frames, cladding, metal roof etc. and the main earth for the building.	Item	1		
Total Carried to Electrical Installation Summary Page					-

ELECTRICAL INSTALLATION WORKS SUMMARY PAGE		AMOUNT
1.00	Bill No.1. Apartment Floors Electrical Installation Works	-
2.00	Bill No.5: Main Power Distribution	-
3.00	Bill No.6: Fire Alarm System	-
4.00	Bill No.7. IPCCTV Intsllations	-
5.00	Bill No.8: Structured Cabling Installations	-
6.00	Bill No.9: Lightning Protection	-
TOTAL CARRIED FORWARD TO GRAND SUMMARY PAGE INCL. VAT		-

SECTION 1: ELECTRICAL INSTALLATION WORKS					
Item	DESCRIPTION	UNIT	QTY	Rate	Amount
1.00	<u>EXTERNAL WORKS</u>				
1.01	Allow for trenching of 750mm and width 450mm, laying of 2x 200mm Conduit, back filling of trenches, and laying of "DANGER " cable tiling (for cable running along non-concrete areas), reinstatement and making of good of ground as directed by the Engineer on site	Lm	100		
6.02	200mm Heavy Guege PVC pipes and fittings laid in trenches and complete with draw wires	Lm	200		
1.02	100mm Heavy Guege PVC pipes and fittings laid in trenches and complete with draw wires	No.	100		
1.03	Power Manholes of sizes 1000mmLx1000mmWx1000mm deep Cable pits, excavation, 100mm plain in-situ concrete class 21/20 base and sides, 100mm thick precast concrete cover class 21/20 reinforced with two layers of mesh reinforcement A142 weighing 2.2Kgs per square meter with galvanized lifting handles, holes through sides for 100mm & 200mm dia pipes for Power.	No.	10		
1.04	Data Manholes of sizes 600mmLx600mmWx600mm deep Cable pits, excavation, 100mm plain in-situ concrete class 21/20 base and sides, 100mm thick precast concrete cover class 21/20 reinforced with two layers of mesh reinforcement A142 weighing 2.2Kgs per square meter with galvanized lifting handles, holes through sides for 100mm & 200mm dia pipes for Data.	No.	10		
	<u>EXTERNAL LIGHTING</u>				
	Supply, Install, Test, Commission and Set to work:-				
1.05	Lighting points wired in 3x1.5mm ² PVC insulated single core (SC) copper cables drawn in 20mm diameter HG PVC conduit concealed in walls and or floor slabs with all accessories but excluding switch and fitting for one way switching.	No.	14		
1.06	Supply and install 20A 4 poles AC3 duty contactor mounted on DIN rails in the sub-board for external lighting circuits inclusive of wiring to contactor coil.	No.	1		
1.07	Supply and install Programmable digital time switch with minimum 100 hours reserve and over-ride facility for external lighting.	No.	1		
	Supply, deliver to site and install the following complete with lamps, control gear/drivers as appropriate including fixings and supports:		1		
1.08	Type WL- IP65 External bulkhead fitting	No.	14		
1.09	Type SL-Street lights 50W c/w 6m pole, integrated, 90AH, 2V Lithium battery, solar panel, and intelligent dusk to dawn controls	No.	10		

Item	DESCRIPTION	UNIT	QTY	Rate	Amount
1.10	Gate lights 50W	No.	2		
TOTAL CARRIED FORWARD TO THE NEXT PAGE					
BROUGHT FORWARD FROM PREVIOUS PAGE					
SPECIALIZED ITEMS CABLE WAYS					
<u>CCTV POINTS</u>					
1.11	CCTV points drawn in 25mm diameter heavy gauge PVC conduits concealed in wall and floor slabs including all conduit accessories and draw wire but excluding cabling and termination kits	No.	12		
TOTAL CARRIED FORWARD TO GRAND SUMMARY PAGE					
INCL. VAT					

Item	Description	Unit	QTY	Rate	Amount
A.	<u>GARBAGE RECEPTACLE</u>				
	SUPPLY, DELIVER , INSTALL ,SET TO WORK AND COMMISSION THE FOLLOWING:-				
	LIGHTING POINTS				
9.01	Lighting point completely wired in 3 x 1.5mm ² single core PVC insulated copper cables drawn in 20mm diameter heavy gauge PVC conduits including all accessories for one way switching, but excluding the switch and luminaire.	No.	4.00		
	ii) Ditto as in item No. 5.01 but for two way switching	No.	4.00		
9.02	10A white moulded switch plate as Crabtree, MK Logic, Clipsal E- Series or approved equivalent as follows:-				
	i) 10A one gang one way switch	No.	4.00		
	ii) 10A one gang two way switch	No.	2.00		
9.03	LIGHTING FITTINGS				
	a) Circular shaped surface mounted led luminaire as Phillips Coreline Cat No. WL131V LED12S/840 PSED EL3 WH "Type N"	No.	4.00		
	b) Bulkhead fitting with moulded glass diffuser & Die Cast Aluminium base c/w 16W PL Lamp as Massive Sunderland Cat. No. 71410/01/31 for security lights. "Type B"	No.	4.00		
9.04	CCTV points in designtaed locations for survailance, comprising of 25mm diameter HG PVC conduits complete with draw wire and the blanking plate. Allow for draw boxes where all the conduits from each security point converge.	No.	2.00		

Total Carried Forward to Next Page				

ITEM	DESCRIPTION	UNIT	QTY	RATE (KSH)	AMOUNT (KSH)
	Total B/F from Previous Pg.				
9.05	300x 300x 100mm deep 16 G galvanized adaptable box.	No.	1.00		
9.06	24A, 240V, 2P DB/CU mounted silent operation contactor for Switching External lights complete with all accessories and as CRABTREE CIK24 or an approved equivalent	No.	1.00		
9.07	Photocell control unit and wired to energize the contactors complete with a D.P override switch as THORN QPK or approved equivalent	No.	1.00		
9.08	6 ways 100A SPN Consumer Unit 'G' complete with 100A SPN integral isolator, but excluding the MCBs ,and as Schneider Electric Acti 9 or approved equivalent.	No.	1.00		
9.09	MCBs for item above as Schneider Electric Acti 9 or approved equivalent				
	i)10 A SP MCB	No.	1.00		
	ii)32 A SP MCB	No.	1.00		
	iii) Blanking plates	No.	4.00		
9.10	Sub-mains circuits for CU 'G' above comprising of 2 core 6mm ² PVC/SWA/PVC cable drawn in 32mm diameter heavy gauge conduits for gate house	LM	35.00		
TOTAL AMOUNT FOR GARBAGE RECEPTACLE CARRIED FORWARD TO GRAND SUMMARY PAGE					

Item	Description	Unit	QTY	Rate	Amount
A.	<u>GUARD HOUSE</u>				
	SUPPLY, DELIVER , INSTALL ,SET TO WORK AND COMMISSION THE FOLLOWING:-				
	LIGHTING POINTS				
7.01	Lighting point completely wired in 3 x 1.5mm ² single core PVC insulated copper cables drawn in 20mm diameter heavy gauge PVC conduits including all accessories for one way switching, but excluding the switch and luminaire.	No.	8.00		
	ii) Ditto as in item No. 5.01 but for two way switching	No.	8.00		
7.02	10A white moulded switch plate as Crabtree, MK Logic, Clipsal E- Series or approved equivalent as follows:-				
	i) 10A one gang one way switch	No.	6.00		
	ii) 10A one gang two way switch	No.	4.00		
7.03	LIGHTING FITTINGS				
	a) Circular shaped surface mounted led luminaire as Phillips Coreline Cat No. WL131V LED12S/840 PSED EL3 WH "Type N"	No.	12.00		
	b) Bulkhead fitting with moulded glass diffuser & Die Cast Aluminium base c/w 16W PL Lamp as Massive Sunderland Cat. No. 71410/01/31 for security lights. "Type B"	No.	4.00		
7.04	CCTV points in designtaed locations for survailance, comprising of 25mm diameter HG PVC conduits complete with draw wire and the blanking plate. Allow for draw boxes where all the conduits from each security point converge.	No.	6.00		
Total Carried Forward to Next Page					

Item	Description	Unit	QTY	Rate	Amount
	Total B/F from Previous Pg.				
7.05	300x 300x 100mm deep 16 G galvanized adaptable box.	No.	1.00		
7.06	24A, 240V, 2P DB/CU mounted silent operation contactor for Switching External lights complete with all accessories and as CRABTREE CIK24 or an approved equivalent	No.	1.00		
7.07	Photocell control unit and wired to energize the contactors complete with a D.P override switch as THORN QPK or approved equivalent	No.	1.00		
	POWER AND SOCKET OUTLET POINTS				
7.08	13A SP socket point completely wired in 3 x 2.5mm ² single core PVC insulated copper cables drawn in 25mm diameter heavy gauge PVC conduits including all accessories but excluding the 13A SP switched socket outlet.	No.	1.00		
7.09	Socket Outlet plates i) 13A SP twin switched socket outlet as MK 2536 or equal & approved equivalent.	No.	1.00		
	TELEPHONE, DATA AND TV POINTS POINTS				
7.10	Data point comprising of draw wire in 25mm diameter Heavy Gauge PVC conduits including all accessories and blanking plate but excluding the data socket outlet.	No.	1.00		
7.11	6 ways 100A SPN Consumer Unit 'G' complete with 100A SPN integral isolator, but excluding the MCBs ,and as Schneider Electric Acti 9 or approved equivalent.	No.	1.00		
Total Carried Forward to Next Page					

Item	Description	Unit	QTY	Rate	Amount
	Total B/F from Previous Pg.				
7.12	MCBs for item above as Schneider Electric Acti 9 or approved equivalent				
	i)10 A SP MCB	No.	1.00		
	ii)32 A SP MCB	No.	1.00		
	iii) Blanking plates	No.	4.00		
7.13	Sub-mains circuits for CU 'G' above comprising of 2 core 6mm2 PVC/SWA/PVC cable drawn in 32mm diameter heavy gauge conduits for gate house	LM	35.00		
TOTAL AMOUNT FOR GATE HOUSE CARRIED FORWARD TO GRAND SUMMARY PAGE					

PROPOSED STUDENT HOUSING PROJECT G+7 GENERIC

ELECTRICAL INSTALLATIONS BILL OF QUANTITIES

GRAND SUMMARY PAGE

ITEM	DESCRIPTION	Unit	Qty	RATE (KSHS)	AMOUNT (KSHS)
1	SUMMARY FOR ELECTRICAL SERVICES FOR G+7 BLOCK STUDENT HOUSING	No	1		
2	SUMMARY FOR ELECTRICAL SERVICES FOR EXTERNAL ELECTRICS	No	1		
3	GARBAGE RECEPTACLE	No	1		
4	GATE HOUSE	No	1		
	TOTALS FOR ELECTRICAL INSTALLATION SERVICES FOR STUDENT HOUSING PROJECT				

Amount in Words: Kenya Shillings.....

.....

Official Stamp & Address:.....

.....

Tenderer's Signature:.....Date:.....

Witness' Name:.....Witness' Signature:.....

Address:.....

Date:.....

PROVISIONAL SUMS

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	MECHANICAL INSTALLATIONS PROVISIONAL SUMS / EXCLUSIONS				
A	Supply only of sanitary fittings Allow for profits and overheads Allow for attendance	SUM % Sum	1		2,277,500
B	Booster Pumps supply & installation (25m³/hr. @ 5 Bar) Allow for profits and overheads Allow for attendance	SUM % Sum	1		1,600,000
C	48,000 Liters GRP tanks roof level (1 NO) Allow for profits and overheads Allow for attendance	SUM % Sum	2	1,200,000	2,400,000
D	Hose reel pumps (100 l/min@ 3Bar) (1 set) Allow for profits and overheads Allow for attendance	SUM % Sum	1		200,000
E	External reticulation borehole water Allow for profits and overheads Allow for attendance	SUM % Sum	1		80,000
F	External reticulation council water Allow for profits and overheads Allow for attendance	SUM % Sum	1		85,000
G	Borehole drilling and equipping Allow for profits and overheads Allow for attendance	SUM % Sum	1		4,500,000
H	800 PE waste water treatment plant (civil works and associated mechanical works) Allow for profits and overheads Allow for attendance	% Sum			7,000,000
	TOTAL FOR MECHANICAL INSTALLATIONS PROV. SUMS CARRIED TO SUMMARY				
	<u>Summary Page</u>				

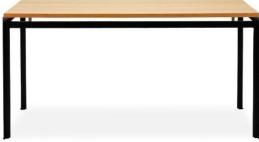
GRAND SUMMARY

**PROPOSED CONSTRUCTION OF MERU NATIONAL POLYTECHNIC STUDENT VILLAGE AND ACCOMMODATION
IN MERU COUNTY (WITH ASSOCIATED SOCIAL AMENITIES AND INFRASTRUCTURE)**

GRAND SUMMARY			
ITEM	DESCRIPTION	TENDERER'S AMOUNT	FOR OFFICIAL USE ONLY
1.00	PARTICULAR PRELIMINARIES		
2.00	GENERAL PRELIMINARIES		
3.00	PROJECT PROVISIONS		
4.00	HOSTEL BLOCKS - 1NO.		
5.00	POWER HOUSE		
6.00	GUARDHOUSE		
7.00	GARBAGE RECEPTACLE		
8.00	CHAINLINK FENCE		
9.00	MECHANICAL WORKS		
10.00	ELECTRICAL WORKS		
11.00	UNDERGROUND WATER TANK		
12.00	ROADWORKS		
13.00	SEWER		
14.00	PROVISIONAL SUMS		
	SUB-TOTAL		
	ADD CONTINGENCY (2%)		
	GRAND TOTAL CARRIED TO FORM OF TENDER (VAT INCLUSIVE)		
	AMOUNT IN WORDS : KENYA SHILLINGS TENDERER'S NAME ADDRESS DATE TENDERER'S SIGNATURE WITNESS'S NAME..... ADDRESS DATE WITNESS SIGNATURE.....		

PROPOSED CONSTRUCTION OF MERU NATIONAL POLYTECHNIC STUDENT VILLAGE AND
ACCOMMODATION IN MERU COUNTY (WITH ASSOCIATED SOCIAL AMENITIES AND INFRASTRUCTURE)

TYPICAL ROOMS

No.	NAME	SPECIFICATION	QUANTITY	RATE	COST		IMAGE
1	Loft bed	MS frame bed of overall size of 2000mm x 900mm x 1750mm high.	4		KES	-	
2	Wardrobe	18mm thick particle board of overall size of 450mm x 600mm x 1700mm high.	4		KES	-	
3	Table	MS framework with 18 mm thick particle board top table.1000mm x 600mm x 750mm high.	4		KES	-	
4	Chair	MS tube framework and 8mm pressed plywood chair. 450mm x 450mm x 450mm high seating height and 800 high back rest.	4		KES	-	
5	Curtains	Fabric curtain 2000mm wide x 1900mm high	1		KES	-	
6	Mattress	Medium duty, skid resistant, dual side school mattress. 1800mm x750mm x150mm	4		KES	-	
COST OF FURNITURE PER ROOM					KES	-	
TOTAL FOR 145 NO ROOMS					KES	-	

PROJECT:

CLIENT:

DRAWING TITLE:
FULL G+7 HOSTEL BLOCK FURNITURE

SCALE:

1:100

DRAWN BY:

CHECKED BY:

Name: _____
Signature: _____ Date: _____

DATE:

MINISTRY OF LANDS, PUBLIC WORKS,
HOUSING AND URBAN DEVELOPMENT
STATE DEPARTMENT FOR HOUSING & URBAN
DEVELOPMENT

FOR THE GOVERNMENT OF THE

**PROPOSED CONSTRUCTION OF MERU NATIONAL POLYTECHNIC STUDENT VILLAGE AND ACCOMMODATION IN
MERU COUNTY (WITH ASSOCIATED SOCIAL AMENITIES AND INFRASTRUCTURE)**

COST PER SQM CALCULATION PROPOSAL

1.0 CONSTRUCTION COST

	Amount	Total
<u>Project Cost</u>		
<u>Total Project Cost</u>		
1.1 Hostel Blocks Including Auxiliary Buildings, Amenities & External Works		

2.0 BUILT UP STRUCTURES

	Built Up Area	No. of Blocks	Area	
2.1 Hostel Block G+7	5851	1	5,851	
2.2 Guard House	15	1	15	
2.3 Garbage Receptacle	112	1	112	
2.4 Power House	24	1	24	
			Total Area	6,002.00

3.0 COST PER SQM CALCULATION

3.1 Total Project Cost		
3.2 Gross Built up Area	6,002	
3.3 Overall Cost per Sqm	Kshs	Per Sqm