KENYA ELECTRICITY GENERATING COMPANY PLC

RFx: 5000012123

KGN-GDD-035-2023

TENDER FOR RENOVATION AND CONSTRUCTION OF ABLUTION BLOCK AT GEOTHERMAL SPA

(Women Enterprise)

Kenya Electricity Generating Company PLC
Stima Plaza Phase III, Kolobot Road, Parklands
P.O. BOX 47936-00100,
NAIROBI.
Website: www.kengen.co.ke

February 2023

INVITATION TO TENDER

PROCURINGENTITY: ***KENYA ELECTRICITY GENERATING COMPANY PLC.***

CONTRACT NAME AND DESCRIPTION: **TENDER FOR RENOVATION AND CONSTRUCTION OF ABLUTION BLOCK AT GEOTHERMAL SPA.**

KenGen invites sealed tenders for the construction works, **Tender for Renovation and Construction of Ablution Block at Geothermal Spa.**

Tendering will be conducted under open competitive method to [**Women Enterprise**] using a standardized tender document. Tendering is open to all qualified and interested Tenderers.

Qualified and interested tenderers may obtain further information and inspect the Tender Documents during office hours between 8am and 5pm starting at the date of advert at the office of:

General Manager, Supply Chain
Tel: (254) (020) 3666000
Email: tenders@kengen.co.ke; cc POnyango1@kengen.co.ke

The document can be viewed and downloaded for free from the website www.kengen.co.ke and/or on E-procurement https://eprocurement.kengen.co.ke:50001/irj/portal . Tenderers who download the tender document must forward their particulars immediately to (tenders@kengen.co.ke , 0711036000 and P.O.BOX 47936-00100 postal address) to facilitate any further clarification or addendum

Bidders who are unable to download the tender documents from the website may collect them from any KenGen Supply Chain Office upon payment of a non-refundable fee of **KShs.1, 000.00** paid via Mpesa, pay bill no. **400200 and account no. 01120069076000**, then share the MPesa message to KenGen Finance office staff for receipt and issuance of official receipt or through a banker's cheque and payable to the address given below.

Tender Security is **Not** Applicable. Bidders will be required to complete and sign the Tender Securing Declaration Form annexed to this tender document.

The Tenderer shall chronologically serialize all pages of the tender documents submitted.

There shall be a Mandatory Site Visit on 1st March 2023 at Geothermal Plaza-Olkaria Stating at 10.00 a.m.

Completed tenders must be submitted **online** on or before ***20th March 2023 at 10.00 a.m.***

Electronic Tenders *will be* permitted ***through our e-procurement platform found at www.kengen.co.ke (https://eprocurement.kengen.co.ke:50001/irj/portal on or before; 20th March 2023 at 10.00 a.m.***

Internet Explorer and Firefox Mozilla are the preferred web browsers.

Tenders will be opened immediately after the deadline date and time specified above or any dead line date and time specified later. Tenders will be publicly opened in the presence of the Tenderers' designated representatives who choose to attend at the address below.
Late tenders will be rejected.

1. The addresses referred to above are:

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

Physical address for hand Courier Delivery to an office or Tender Box (City, Street Name, Building, Floor Number and Room)

Kenya Electricity Generating Company PLC
Stima Plaza Phase III, Kolobot Road, Parklands
P.O. BOX 47936-00100
tenders@kengen.co.ke ;

b. Address for Opening of Tenders.

General Manager, Supply Chain
Kenya Electricity Generating Company PLC
Stima Plaza Phase III, Kolobot Road, Parklands
P.O. BOX 47936-00100
6th Floor

KenGen adheres to high standards of integrity in its business operations.
Report any unethical behavior immediately to any of the provided anonymous hotline service.

1) Call Toll Free: 0800722626;
2) Free-Fax: 00800 007788;
3) Email: kengen@tip-offs.com
4) Website: www.tip-offs.com

GENERAL MANAGER, SUPPLY CHAIN

PART 1 ~ TENDERING PROCEDURES

SECTION I: INSTRUCTIONS TO TENDERERS

A General Provisions

1. Scope of Tender

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

2. Fraud and Corruption

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

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

2.3 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.

2.4 Unfair Competitive Advantage -Fairness and transparency in the tender process require that the Firms or their Affiliates competing for a specific assignment do not derive a competitive advantage from having provided consulting services related to this tender being tendered for. The Procuring Entity shall indicate in the **TDS** firms (if any) that provided consulting services for the contract being tendered for. The Procuring Entity shall check whether the owners or controllers of the Tenderer are same as those that provided consulting services. The Procuring Entity shall, upon request, make available to any tenderer information that would give such firm unfair competitive advantage over competing firms.

3. Eligible Tenderers

3.1 A Tenderer may be a firm that is a private entity, a state-owned enterprise or institution subject to ITT 3.7 or any combination of such entities in the form of a joint venture (JV) under an existing agreement or with the intent to enter into such an agreement supported by a letter of intent. Public employees and their close relatives *(spouses, children, brothers, sisters and uncles and aunts)* are not eligible to participate in the tender. 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. The maximum number of JV members shall be specified in the **TDS.**

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

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

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

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

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

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

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

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

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

h) Has a close business or family relationship with a professional staff of the Procuring Entity who:

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) would be involved in the implementation or supervision of such Contract unless the conflict stemming from such relationship has been resolved in a manner acceptable to the Procuring Entity throughout the tendering process and execution of the Contract.

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

3.5 A Tenderer (either individually or as a JV member) shall not participate in more than one Tender, except for permitted alternative tenders. This includes participation as a subcontractor in other Tenders. Such participation shall result in the disqualification of all Tenders in which the firm is involved. A firm that is not a tenderer or a JV member may participate as a subcontractor in more than one tender. 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.

3.6 A Tenderer may have the nationality of any country, subject to the restrictions pursuant to ITT 4.8.A Tenderer shall be deemed to have the nationality of a country if the Tenderer is constituted, incorporated or registered in and operates in conformity with the provisions of the laws of that country, as evidenced by its articles of incorporation (or equivalent documents of constitution or association) and its registration documents, as the case may be. This criterion also shall apply to the determination of the nationality of proposed subcontractors or sub- consultants for any part of the Contract including related Services.

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

3.8 Tenderers that are state-owned enterprises or institutions may be eligible to compete and be awarded a Contract(s) only if they are accredited by PPRA to be (i) a legal public entity of the state Government and/or public administration, (ii) financially autonomous and not receiving any significant subsidies or budget support from any public entity or Government, and (iii) operating under commercial law and vested with legal rights and liabilities similar to any commercial enterprise to enable it compete with firms in the private sector on an equal basis.

3.9 A Firms and individuals may be ineligible if their countries of origin (a) as a matter of law or official regulations, Kenya prohibits commercial relations with that country, or (b) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, Kenya prohibits any import of goods or contracting of works or services from that country, or any payments to any country, person, or entity in that country. A tenderer shall provide such documentary evidence of eligibility satisfactory to the Procuring Entity, as the Procuring Entity shall reasonably request.

3.10 Foreign tenderers are required to source at least forty (40%) percent of their contract inputs (in supplies, subcontracts and labor) from national 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 in for this purpose is be provided in *"SECTION III - EVALUATION AND QUALIFICATION CRITERIA, Item 9".*

3.11 Pursuant to the eligibility requirements of ITT 4.10, a tender is considered a foreign tenderer, if the tenderer is not registered in Kenya or if the tenderer is registered in Kenya and has less than 51 percent ownership by Kenyan Citizens. JVs are considered as foreign tenderers if the individual member firms are not registered in Kenya or if are registered in Kenya and have less than 51 percent ownership by Kenyan citizens. The JV shall not subcontract to foreign firms more than 10 percent of the contract price, excluding provisional sums.

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

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

3.14 A Kenyan tenderer shall provide evidence of having fulfilled his/her tax obligations by producing a valid tax clearance certificate or tax exemption certificate issued by the Kenya Revenue Authority.

4. Eligible Goods, Equipment, and Services

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

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

5. Tenderer's Responsibilities

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

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

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

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

B. Contents of Tender Documents

6. Sections of Tender Document

6.1 The tender document consists of Parts 1, 2, and 3, which includes all the sections specified below, and

which should be read in conjunction with any Addenda issued in accordance with ITT 8.

PART 1 Tendering Procedures

i) Section I - Instructions to Tenderers (ITT)
ii) Section II - Tender Data Sheet (TDS)
iii) Section III - Evaluation and Qualification Criteria
iv) Section IV - Tendering Forms

PART 2 Works Requirements

i) Section V - Drawings
ii) Section VI - Specifications
iii) Section VII - Bills of Quantities

PART 3 Conditions of Contract and Contract Forms

i) Section VIII - General Conditions of Contract (GCC)
ii) Section IX - Special Conditions of Contract (SC)
iii) Section X - Contract Forms

6.2 The Invitation to Tender Document (ITT) issued by the Procuring Entity is not part of the Contract documents.

6.3 Unless obtained directly from the Procuring Entity, the Procuring Entity is not responsible for the completeness of the Tender document, responses to requests for clarification, the minutes of the pre-Tender meeting (if any), or Addenda to the Tender document in accordance with ITT 8. In case of any contradiction, documents obtained directly from the Procuring Entity shall prevail.

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

7. Site Visit

7.1 The Tenderer, at the Tenderer's own responsibility and risk, is encouraged to visit and examine and inspect the Site of the Required Services and its surroundings and obtain all information that may be necessary for preparing the Tender and entering into a contract for the Services. The costs of visiting the Site shall be at the Tenderer's own expense.

8. Pre-Tender Meeting

8.1 The Procuring Entity shall specify in the **TDS** if a pre-tender meeting will be held, when and where. The Procuring Entity shall also specify in the **TDS** if a pre-arranged pretender site visit will be held and when. The Tenderer's designated representative is invited to attend a pre-arranged pretender visit of the site of the works. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.

8.2 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.

8.3 Minutes of the pre-Tender meeting and the pre-arranged pretender site visit of the site of the works, 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 in accordance with ITT 6.3. Minutes shall not identify the source of the questions asked.

8.4 The Procuring Entity shall also promptly publish anonym zed (*no names*) Minutes of the pre-Tender meeting and the pre-arranged pretender visit of the site of the works at the web page identified in the **TDS**. Any modification to the Tender Documents that may become necessary as a result of the pre-tender meeting and the pre-arranged pretender site visit, 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. Nonattendance at the pre-Tender meeting will not be a cause for disqualification of a Tenderer.

9. Clarification and amendments of Tender Documents

9.1 A Tenderer requiring any clarification of the Tender Document shall contact the Procuring Entity in writing at the Procuring Entity's address specified in the **TDS** or raise its enquiries during the pre-Tender meeting and the pre- arranged pretender visit of the site of the works if provided for in accordance with ITT 8.4. 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 6.3, including a description of the inquiry but without identifying its source. If 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 appropriately following the procedure under ITT 8.4.

10. Amendment of Tendering Document

10.1 At any time prior to the deadline for submission of Tenders, the Procuring Entity may amend the Tendering document by issuing addenda.

10.2 Any addendum issued shall be part of the tendering document and shall be communicated in writing to all who have obtained the tendering document from the Procuring Entity in accordance with ITT 6.3. The Procuring Entity shall also promptly publish the addendum on the Procuring Entity's web page in accordance with ITT 8.4.

10.3 To give prospective Tenderers reasonable time in which to take an addendum into account in preparing their Tenders, the Procuring Entity shall extend, as necessary, the deadline for submission of Tenders, in accordance with ITT 25.2 below.

C. Preparation of Tenders

11. Cost of Tendering

11.1 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.

12. Language of Tender

12.1 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.

13. Documents Comprising the Tender

13.1 The Tender shall comprise the following:

a) Form of Tender prepared in accordance with ITT 14;
b) Schedules including priced Bill of Quantities, completed in accordance with ITT 14 and ITT 16;
c) Tender Security or Tender-Securing Declaration, in accordance with ITT 21.1;
d) Alternative Tender, if permissible, in accordance with ITT 15;
e) Authorization: written confirmation authorizing the signatory of the Tender to commit the Tenderer, in accordance with ITT 22.3;
f) Qualifications: documentary evidence in accordance with ITT 19establishing the Tenderer's qualifications to perform the Contract if its Tender is accepted;
g) Conformity: a technical proposal in accordance with ITT 18;

h) Any other document required in the **TDS**.

13.2 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 Agreement. The Tenderer shall chronologically serialize pages of all tender documents submitted.**

13.3 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.

14. Form of Tender and Schedules

14.1 The Form of Tender and Schedules, including the Bill of Quantities, shall be prepared using the relevant form*s* 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.

15. Alternative Tenders

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

15.2 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.

15.3 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. 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.

16. Tender Prices and Discounts

16.1 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.

16.2 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.

16.3 The price to be quoted in the Form of Tender, in accordance with ITT 14.1, shall be the total price of the Tender, including any discounts offered.

16.4 The Tenderer shall quote any discounts and the methodology for their application in the Form of Tender, in accordance with ITT 14.1.

16.5 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.

16.6 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 16.4, provided the Tenders for all lots (contracts) are opened at the same time.

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

17. Currencies of Tender and Payment

17.1 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 Tenderer expecting to incur expenditures in other currencies for inputs to the Works supplied from outside Kenya shall device own ways of getting foreign currency to meet those expenditures.

18. Documents Comprising the Technical Proposal

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

19. Documents Establishing the Eligibility and Qualifications of the Tenderer

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

19.2 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.

19.3 A margin of preference will not be allowed. Preference and reservations will be allowed, individually or in joint ventures. Applying for eligibility for Preference and reservations shall supply all information required to satisfy the criteria for eligibility specified in accordance with ITT 33.1.

19.4 Tenderers shall be asked to provide, as part of the data for qualification, such information, including details of ownership, as shall be required to determine whether, according to the classification established by the Procuring Entity, a 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.

19.5 The purpose of the information described in ITT 19.4 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.

19.6 The Tenderer shall provide further documentary proof, information or authorizations that the Procuring Entity may request in relation to ownership and control which information on any changes to the information which was provided by the tenderer under ITT 6.3. 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.

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

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

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

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

19.10 If a tenderer submits information pursuant to these requirements that is incomplete, inaccurate or out-of-date, or attempts to obstruct the verification process, then the consequences ITT 6.7 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.

20. Period of Validity of Tenders

20.1 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 24). A Tender valid for a shorter period shall be rejected by the Procuring Entity as non-responsive.

20.2 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 21.1, 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, except as provided in ITT 20.3.

20.3 If the award is delayed by a period exceeding the number of days to be specified in the **TDS** days beyond the expiry of the initial tender validity period, the Contract price shall be determined as follows:

a) in the case of **fixed price** contracts, the Contract price shall be the tender price adjusted by the factor specified in the **TDS**;
b) in the case of **adjustable price** contracts, no adjustment shall be made; or in any case, tender evaluation shall be based on the tender price without taking into consideration the applicable correction from those indicated above.

21. Tender Security

21.1 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.

21.2 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:

a) an unconditional Bank Guarantee issued by reputable commercial bank); or

b) an irrevocable letter of credit;

c) a Banker's cheque issued by a reputable commercial bank; or

d) another security specified **in the TDS**,

21.3 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 20.2.

21.4 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.

21.5 If a Tender Security is specified pursuant to ITT 21.1, 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 nonresponsive or a bidder declines to extend tender validity period.

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

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

e) if a Tenderer withdraws its Tender during the period of Tender validity specified by the Tenderer on the Form of Tender, or any extension thereto provided by the Tenderer; or

f) if the successful Tenderer fails to:

i) sign the Contract in accordance with ITT 50; or

ii) furnish a Performance Security and if required in the **TDS**, and any other documents required in the **TDS**.

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

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

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

22. Format and Signing of Tender

22.1 The Tenderer shall prepare one original of the documents comprising the Tender as described in ITT 13 and clearly mark it "ORIGINAL." Alternative Tenders, if permitted in accordance with ITT 15, shall be clearly marked "ALTERNATIVE." In addition, the Tenderer shall submit copies of the Tender, in the number specified in the **TDS** and clearly mark them "COPY." In the event of any discrepancy between the original and the copies, the original shall prevail.

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

22.3 The original and all copies of the Tender shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Tenderer. This authorization shall consist of a

written confirmation as specified in the **TDS** and shall be attached to the Tender. The name and position held by each person signing the authorization must be typed or printed below the signature. All pages of the Tender where entries or amendments have been made shall be signed or initialed by the person signing the Tender.

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

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

D. Submission and Opening of Tenders

23. Sealing and Marking of Tenders

23.1 Depending on the sizes or quantities or weight of the tender documents, a tenderer may use an envelope, package or container. 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 15, 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.

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

24. Deadline for Submission of Tenders

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

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

25. Late Tenders

25.1 The Procuring Entity shall not consider any Tender that arrives after the deadline for submission of tenders, in accordance with ITT 24. 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.

26. Withdrawal, Substitution, and Modification of Tenders

26.1 A Tenderer may withdraw, substitute, or modify its Tender after it has been submitted by sending a written notice, duly signed by an authorized representative, and shall include a copy of the authorization in accordance with ITT 22.3, (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 22 and ITT 23 (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 24.

26.2 Tenders requested to be withdrawn in accordance with ITT 26.1 shall be returned unopened to the Tenderers.

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

27. Tender Opening

27.1 Except in the cases specified in ITT 23 and ITT 26.2, 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 24.1, shall be as specified in the **TDS**.

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

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

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

27.5 Next, all remaining envelopes shall be opened one at a time, reading out: the name of the Tenderer and whether there is a modification; the total Tender Price, per lot (contract) if applicable, including any discounts and alternative Tenders; the presence or absence of a Tender Security or Tender-Securing Declaration, if required; and any other details as the Procuring Entity may consider appropriate.

27.6 Only Tenders, alternative Tenders and discounts that are opened and read out at Tender opening shall be considered further for evaluation. The Form of Tender and pages of the Bills of Quantities are to be initialed by the members of the tender opening committee attending the opening. The number of representatives of the Procuring Entity to sign shall be specified in the **TDS**.

27.7 At the Tender Opening, the Procuring Entity shall neither discuss the merits of any Tender nor reject any Tender (except for late Tenders, in accordance with ITT 25.1).

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

a) the name of the Tenderer and whether there is a withdrawal, substitution, or modification;

b) the Tender Price, per lot (contract) if applicable, including any discounts;

c) any alternative Tenders;
d) the presence or absence of a Tender Security, if one was required.
e) number of pages of each tender document submitted.

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

E. Evaluation and Comparison of Tenders

28. Confidentiality

28.1 Information relating to the evaluation of Tenders and recommendation of contract award shall not be disclosed to Tenderers or any other persons not officially concerned with the Tender process until information on Intention to Award the Contract is transmitted to all Tenderers in accordance with ITT 46.

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

28.3 Notwithstanding ITT 28.2, 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.**

29. Clarification of Tenders

29.1 To assist in the examination, evaluation, and comparison of the tenders, and qualification of the tenderers, the Procuring Entity may, at its discretion, ask any tenderer for a clarification of its tender, given a reasonable time for a response. Any clarification submitted by a tenderer that is not in response to a request by the Procuring Entity shall not be considered. The Procuring Entity's request for clarification and the response shall be in writing. No change, including any voluntary increase or decrease, in the prices or substance of the tender shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Procuring Entity in the evaluation of the tenders, in accordance with ITT 33.

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

30. Deviations, Reservations, and Omissions

30.1 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.

31. Determination of Responsiveness

31.1 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 13.

31.2 A substantially responsive Tender is one that meets the requirements of the Tender document without material deviation**, reservation, or omission. A material deviation, reservation, or omission is one that, if accepted, would:**
a) affect in any substantial way the scope, quality, or performance of the Works specified in the Contract; or
b) limit in any substantial way, inconsistent with the tender document, the Procuring Entity's rights or the tenderer's obligations under the proposed contract; or

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

31.3 The Procuring Entity shall examine the technical aspects of the tender submitted in accordance with ITT 18, to confirm that all requirements of Section VII, Works' Requirements have been met without any material deviation, reservation or omission.

31.4 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.

32. Non-material Non-conformities

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

32.2 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, to rectify nonmaterial non-conformities in the tender related to documentation requirements. Requesting information or documentation on such non- conformities shall not be related to any aspect of the price of the tender. Failure of the tenderer to comply with the request may result in the rejection of its tender.

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

33. Arithmetical Errors

33.1 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.

33.2 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, and 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

33.3 Tenderers shall be notified of any error detected in their bid during the notification of a ward.

34. Currency provisions

34.1 Tenders will priced be in Kenya Shillings only. Tenderers quoting in currencies other than in Kenya shillings will be determined non-responsive and rejected.

35. Margin of Preference and Reservations

35.1 No margin of preference shall be allowed on contracts for small works.

35.2 Where it is intended to reserve the contract to specific groups under Small and Medium Enterprises, or enterprise of women, youth and/or persons living with disability, 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/firms belonging to those specified groups are the only ones eligible to tender. Otherwise if no so stated, the invitation will be open to all tenderers.

36. Nominated Subcontractors

36.1 Unless otherwise stated in the **TDS**, the Procuring Entity does not intend to execute any specific elements of the Works by subcontractors selected in advance by the Procuring Entity.

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

36.3 The 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 by the Procuring Entity in the **TDS** as can be met by subcontractors referred to hereafter as 'Specialized Subcontractors', in which case, the qualifications of the Specialized Subcontractors proposed by the Tenderer may be added to the qualifications of the Tenderer.

37. Evaluation of Tenders

37.1 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 Best Evaluated Tender in accordance with ITT 40.

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

a) price adjustment due to discounts offered in accordance with ITT 16;
b) converting the amount resulting from applying (a) and (b) above, if relevant, to a single currency in accordance with IIT39;
c) price adjustment due to quantifiable nonmaterial non-conformities in accordance with ITT 30.3; and
d) any additional evaluation factors specified **in the TDS** and Section III, Evaluation and Qualification Criteria.

37.3 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.

37.4 In the case of multiple contracts or lots, Tenderers shall be allowed to tender for one or more lots and the methodology to determine the lowest evaluated cost of the lot (contract) combinations, including any discounts offered in the **Form of Tender, is specified in Section III, Evaluation and Qualification Criteria.**

38. Comparison of Tenders

38.1 The Procuring Entity shall compare the evaluated costs of all substantially responsive Tenders established in accordance with ITT 38.2 to determine the Tender that has the lowest evaluated cost.

39. Abnormally Low Tenders

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

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

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

40. Abnormally High Tenders

40.1 An abnormally high 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.

40.2 In case of an abnormally high tender 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.

40.3 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.

41. Unbalanced and/or Front-Loaded Tenders

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

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

a) accept the Tender; or

b) require that the total amount of the Performance Security be increased at the expense of the Tenderer to a level not exceeding a 30% of the Contract Price; or

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

d) reject the Tender,

42. Qualifications of the Tenderer

42.1 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.

42.2 The determination shall be based upon an examination of the documentary evidence of the Tenderer's qualifications submitted by the Tenderer, pursuant to ITT 19. The determination shall not take into consideration the qualifications of other firms such as the Tenderer's subsidiaries, parent entities, affiliates, subcontractors (other than Specialized Subcontractors if permitted in the Tender document), or any other firm(s) different from the Tenderer.

42.3 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.

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

42.5 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.

42.6 After evaluation of the price analyses, if 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.

43. Best Evaluated Tender

43.1 Having compared the evaluated prices of Tenders, the Procuring Entity shall determine the Best Evaluated Tender. The Best 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.

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

44.1 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 thereby incurring any liability to Tenderers. In case of annulment, all Tenderers shall be notified with reasons and all Tenders submitted and specifically, Tender securities, shall be promptly returned to the Tenderers.

F. Award of Contract

45. Award Criteria

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

46. Notice of Intention to enter into a Contract

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

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

47. Standstill Period

47.1 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.

47.2 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.**

48. Debriefing by the Procuring Entity

48.1 On receipt of the Procuring Entity's Notification of Intention to Enter into a Contract referred to in ITT 46, 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.

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

49. Letter of Award

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

50. Signing of Contract

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

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

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

51. Appointment of Adjudicator

51.1 The Procuring Entity proposes the person named in the **TDS** to be appointed as Adjudicator under the Contract, at the hourly fee specified in the **TDS**, plus reimbursable expenses. If the Tenderer disagrees with this proposal, the Tenderer should so state in his Tender. If, in the Letter of Acceptance, the Procuring Entity does not agree on the appointment of the Adjudicator, the Procuring Entity will request the Appointing Authority designated in the Special Conditions of Contract (SCC) pursuant to Clause 23.1 of the General Conditions of Contract (GCC), to appoint the Adjudicator.

52. Performance Security

52.1 Within twenty-one (21) days of the receipt of the Letter of Acceptance 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 40.2 (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.

52.2 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.

52.3 Performance security shall not be required for contracts estimated to cost less than Kenya shillings five million shillings.

53. Publication of Procurement Contract

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

a) name and address of the Procuring Entity;
b) name and reference number of the contract being awarded, a summary of its scope and the selection method used;
c) the name of the successful Tenderer, the final total contract price, the contract duration.
d) dates of signature, commencement and completion of contract;

e) names of all Tenderers that submitted Tenders, and their Tender prices as read out at Tender opening.

54. Procurement Related Complaints and Administrative Review

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

54.2 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.

ITT Reference	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
	A. General
ITT 1.1	The reference number of the Request for Tenders (ITT) is : ***KGN-GDD-035-2023*** The Procuring Entity is: ***Kenya Electricity Generating Company PLC*** The name of the ITT is: **TENDER FOR RENOVATION AND CONSTRUCTION OF ABLUTION BLOCK AT GEOTHERMAL SPA.**
ITT 3.1	Maximum number of members in the Joint Venture (JV) shall be maximum 5. No firm can participants in more than one JV for purposes of this tender.
B. Contents of Tender Document	
8.1	**There shall be a Mandatory Site visit on 1st March 2023 at Geothermal Plaza-Olkaria starting at 10.00 a.m.**
ITT 8.2	The questions in writing, to reach the Procuring Entity not later than **7 Days** before the Tender closing date and Time
ITT 9.1	For Clarification of Tender purposes, for obtaining further information and for purchasing tender documents, the Procuring Entity's address is: tenders@kenge.co.ke to reach the Procuring Entity not later than **7 Days before** the Tender closing date and Time The Procuring Entity shall publish its response at the website www.kengen.co.ke
C. Preparation of Tenders	
ITP 13.1 (h)	The Tenderer shall submit the following additional documents in its Tender: ***as per Executive order no 2 of 2020 and other specified in the evaluation criteria***
ITT 15.1	Alternative Tenders *shall not be* considered.
ITT 15.2	Alternative times for completion ***shall not be*** permitted.
ITT 16.5	The prices quoted by the Tenderer ***shall not*** be subject to adjustment during the performance of the Contract.
ITT 20.1	The Tender validity period shall be **126 days.**
ITT 21.1	A *Tender Security* ***shall not be*** required. A Tender-Securing Declaration ***shall be*** required. The tenderer will be required to complete a Duly filled, signed and stamped **Tender Securing Declaration form** attached in the standard forms of the tender document.
ITT 21.5	Performance security shall be at **1% of the Contract Price where the contract value is above five million shillings.**
ITT 22.3	The written confirmation of authorization to sign on behalf of the Tenderer shall consist of **a Notarized Power of Attorney.**
D. Submission and Opening of Tenders	
ITT 24.1	(A) For Tender submission purposes only, the Procuring Entity's address is: ***The tender MUST be submitted through our e-procurement platform found at www.kengen.co.ke (https://eprocurement.kengen.co.ke:50001/irj/portal*** ***SUBMISSION OF TENDERS:***

ITT Reference	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
	For suppliers registering for the first time using the link https://supplierregistration.kengen.co.ke:4302/slc_selfreg ensure the **"Public Tender" checkbox is ticked** so that the login details are sent to suppliers automatically.  It is a mandatory requirement that all documents are uploaded to the ***c-folder*** of the SRM System through the link https://eprocurement.kengen.co.ke:50001/irj/portal '***Technical RFx response'***. Responses documents attached to the '***notes and attachments***' tab **will not be considered for evaluation.**  Prices MUST be entered under item tab of the RFx and MUST be similar to the prices in the price/BoQ Schedule.  Bidders should confirm on the supplier portal that the status of their RFx response shows "Submitted" and not "Saved" to ensure their RFx response is submitted.  Bidders who have submitted their bids should not click on WITHDRAW but click on EDIT to amend their bid response with appropriate changes if they desire to do so. Manuals to guide on the bidding process are accessible via the KenGen Tenders Portal.  Bidders to note that **system challenges/support** related to bid submission issues shall be **addressed 48 hours before** tender opening date and time. Date and time for submission of Tenders **20th March 2023 at 10.00 a.m.** Tenders shall **submit** tenders electronically.
ITT 27.1	The Tender opening shall take place at the time and the address for Opening of Tenders provided below: **Kenya Electricity Generating Company PLC,** **6th Floor, KenGen Pension Plaza II,** **Kolobot Road, Parklands,** **P.O. Box 47936, 00100** **NAIROBI.** Date and time: **20th March 2023 at 10.30 a.m.** Note; In an effort to curb the spread of the COVID-19 pandemic the following measures shall apply: **•Where bidders or their representatives choose to attend the bid opening, KenGen shall limit the persons to a maximum of 5 people, whom shall be nominated by the bidders present for the opening session.** **•The tender opening shall be conducted in a spacious environment and observing a social distance of at least 1.5 meters away from each other.** **Screening and registration of all attendees shall take place in all sessions. •Failure to attend the bid opening shall not invalidate the process.** **Bidders can request for the tender opening minutes of the tender opening session through the following email address tenders@kengen.co.ke**
ITT 27.1	If Tenderers are allowed to submit Tenders electronically, they shall follow the electronic tender submission procedures **specified below;** ***The tender MUST be submitted through our e-procurement platform found at www.kengen.co.ke (https://eprocurement.kengen.co.ke:50001/irj/portal*** ***SUBMISSION OF TENDERS:***

ITT Reference	PARTICULARS OF APPENDIX TO INSTRUCTIONS TO TENDERS
	For suppliers registering for the first time using the link https://supplierregistration.kengen.co.ke:4302/slc_selfreg ensure the **"Public Tender" checkbox is ticked** so that the login details are sent to suppliers automatically.  It is a mandatory requirement that all documents are uploaded to the ***c-folder*** of the SRM System through the link https://eprocurement.kengen.co.ke:50001/irj/portal '***Technical RFx response'***. Responses documents attached to the '***notes and attachments***' tab **will not be considered for evaluation.**  Prices MUST be entered under item tab of the RFx and MUST be similar to the prices in the price/BoQ Schedule.  Bidders should confirm on the supplier portal that the status of their RFx response shows "Submitted" and not "Saved" to ensure their RFx response is submitted.  Bidders who have submitted their bids should not click on WITHDRAW but click on EDIT to amend their bid response with appropriate changes if they desire to do so. Manuals to guide on the bidding process are accessible via the KenGen Tenders Portal.  Bidders to note that **system challenges/support** related to bid submission issues shall be **addressed 48 hours before** tender opening date and time.
ITT 27.6	The number of representatives of the Procuring Entity to sign is 3
E. Evaluation, and Comparison of Tenders	
ITT 37.2 (d)	Additional requirements apply. These are detailed in the evaluation criteria in Section III, Evaluation and Qualification Criteria.
	Preliminary Examination Tender sum as submitted and read out during tender opening as per the form of tender is absolute and final and shall not be subject to correction, adjustment or amendment.
	Due Diligence KenGen may at its own discretion conduct due diligence on the eligible bidders to establish their ability to perform the contract before award of the contract.
ITT 52.2	Other documents required are _____
ITT 54.1	The procedures for making a Procurement-related Complaints are detailed in the "Regulations" available from the PPRA Website www.ppra.go.ke or email complaints@ppra.go.ke. In summary, a Procurement-related Complaint may challenge any of the following: (i) the terms of the Tender Documents; and (ii) the Procuring Entity's decision to award the contract.

SECTION III - EVALUATION AND QUALIFICATION CRITERIA

1. General Provisions

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.

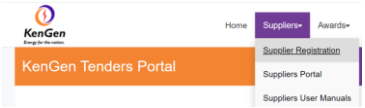
b) Value of single contract - Exchange rate prevailing on the date of the contract signature.

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.

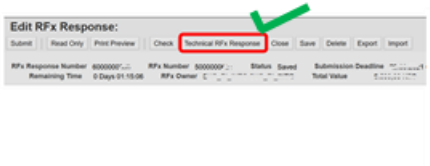
This section contains the criteria that the Employer shall use to evaluate tender and qualify tenderers. No other factors, methods or criteria shall be used other than specified in this tender document. The Tenderer shall provide all the information requested in the forms included in Section IV, Tendering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

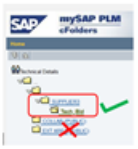
REGISTRATION AND BIDDING PROCESS

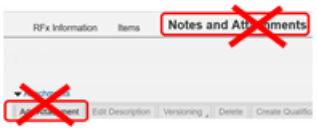
1. For suppliers registering for the first time using the link https://supplierregistration.kengen.co.ke:4302/slc_selfreg(bD1lbiZjPTMwMCZkPW1pbg==)/bspwdapplication.do#VIEW_ANCHOR-ROS_TOP ensure the **"Public Tender" checkbox is ticked** so that the login details are sent to suppliers automatically.



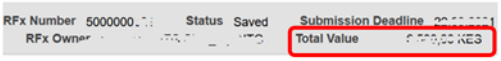
2. It is a mandatory requirement that all documents are uploaded to the ***c-folder*** of the SRM System through the link https://eprocurement.kengen.co.ke:50001/irj/portal '***Technical RFx response***'. Responses documents attached to the '***notes and attachments***' tab **will not be considered for evaluation.**







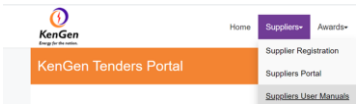
- Prices **MUST** be entered under item tab of the RFx and **MUST** be similar to the prices in the price/BoQ Schedule.



- Bidders should confirm on the supplier portal that the status of their RFx response shows "Submitted" and not "Saved" to ensure their RFx response is submitted.

- Bidders who have submitted their bids should not click on WITHDRAW but click on EDIT to amend their bid response with appropriate changes if they desire to do so.

- Manuals to guide on the bidding process are accessible via the KenGen Tenders Portal.



- Bidders to note that **system challenges/support** related to bid submission issues shall be **addressed to** eprocurement@kengen.co.ke tender closing date and time.

Evaluation and contract award Criteria

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

2. **Preliminary examination for Determination of Responsiveness**

The Procuring Entity will start by examining all tenders to ensure they meet in all respects the eligibility criteria and other requirements in the ITT, and that the tender is complete in all aspects in meeting the requirements of "Part 2 – Procuring Entity's Works Requirements", including checking for tenders with unacceptable errors, abnormally low tenders, abnormally high tenders and tenders that are front loaded. The Standard Tender Evaluation Report 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 irresponsive and will not be considered further.

STAGE 1: MANDATORY REQUIREMENTS

The following mandatory requirements must be met not withstanding other requirements in the tender document:

No.	Requirements
MR 1	Copy of Registration Certificate /Certificate of Incorporation
MR 2	Valid Certified copy of the business permit
MR 3	Valid tax compliance certificate at the time of tender closing date
MR 4	Proof of current registration with NATIONAL CONSTRUCTION AUTHORITY - NCA 1 to NCA 6 (Building Works). *(Attach valid copy of Registration Certificates and Licenses)*
MR 5	Valid/Current AGPO Certificate for **Women Enterprise.**
MR 6	Copy of CR 12 issued within 6 months before tender closure date (Not Applicable to sole Proprietors).
MR 7	Tender security is not Required for this tender However, the tenderer will be required to complete a **Tender Securing Declaration Form** attached in the standard forms of this tender document.
MR 8	Duly filled, signed & stamped Tenderer's Eligibility Confidential Business Questionnaire form *[Duly filled FORM ELI – 1.1, 1.2 & 2]*
MR 9	Duly filled and signed Form of Tender
MR 10	Duly filled, completed, and signed price schedule
MR 11	Duly filled Addendum(s) and Clarification(s) issued must be attached (Where Applicable)
MR 12	The Tender MUST be submitted be in the required format and serialized on each page of the bid submitted, **Sec.74.1.i. of the PPADA, 2015.**
MR 13	The tender has been duly signed by the person lawfully authorized to do so, (by virtue of ownership / directorship or through a power of Attorney)
MR 14	Tender Shall be submitted electronically. Method of submission provided in the TDS.

MR 15	Dully filled and signed SELF DECLARATION THAT THE PERSON/TENDERER IS NOT DEBARRED IN THE MATTER OF THE PUBLIC PROCUREMENT AND ASSET DISPOSAL ACT 2015.
MR 16	Dully filled and signed SELF DECLARATION THAT THE PERSON/TENDERER WILL NOT ENGAGE IN ANY CORRUPT OR FRAUDULENT PRACTICE.
MR 17	Duly filled and signed CERTIFICATE OF INDEPENDENT TENDER DETERMINATION
MR 18	Duly filled and signed DECLARATION AND COMMITMENT TO THE CODE OF ETHICS
MR 19	Duly Signed Site Visit Certificate issued at the site visit
MR 20	Tender documents Must be submitted through our e-procurement platform found at www.kengen.co.ke (https://eprocurement.kengen.co.ke:50001/irj/portal

3. **Tender Evaluation (ITT 35) Price evaluation**: in addition to the criteria listed in ITT 35.2 (a) – (c) the following criteria shall apply:

STAGE 2: TECHNICAL EVALUATION CRITERIA

Technical evaluation carried out only if the tender is determined to be responsive to the preliminary examination. Bidder must demonstrate conformance to the all the technical specifications. The following MUST be provided in the bid document: -

No	Requirements
TR 1	Provide details of their technical personnel and their CVs to be provided in accordance to CV Template in this tender document; **(Duly filled & Signed FORM PER-1 and FORM PER-2, accompanied with applicable attachments)**
TR 2	Provide List of major items of Construction Plant, Tools and Equipment; Essential equipment to be made available during execution of this Contract **(Duly filled FORM(s) EQU-1)**
TR 3	Provide Works Methodology for construction;
TR 4	Provide Program of Works / Works Schedule – Indicative of the timelines as provided in this tender
TR 5	Provide an Environmental, Social, Health, and Safety (ESHS) Management Plan
TR 6	Provide 6 Months bank Statements. The Bank Statements shall be certified by the issuing bank and shall be current within the last 6 months prior to closing date of this tender document.
TR 7	Provide a valid financing tender-specific commitment letter (i.e. line of credit or letter of access to credit facility) issued by a recognized financial institution in KENYA (Including Banks, SACCOs and/or Youth Enterprise fund) demonstrating willingness to finance at least 50% of the project cost as per Item 12 on **FORM QF-1: QUALIFICATION FORM. [Fill Form FIN – 3.1, with applicable attachments]**
TR 8	Provide Information on History of Non-Performing Contracts (if any) between January 1, 2012, to date of this Tender Submission Deadline; **[Duly Filled Form CON-2]**
TR 9	Information on Litigation History of the Firm; and Current Litigations (if any) between January 1, 2012, to date of this Tender Submission Deadline; **[Duly Filled Form CON 2]**
TR10	General Construction Experience as per Item 13 on **FORM QF-1: QUALIFICATION FORM**
TR11	Specific Construction & Contract Management Experience as per Item 14 on **FORM QF-1: QUALIFICATION FORM**
TR 11	Copy of a Valid EPRA C1 Electricians License (Holder must attend Kickoff meeting and be available to supervise electromechanical works)

No	Requirements
TR 12	Relevant datasheets of proposed Luminaires, Consumer Units, Air Conditioning Systems, Public Address Systems (Rack mountable Amplifier, Mixer, Microphones, Speakers, UPS) and Hand Dryers

STAGE 3. FINANCIAL EVALAUATION

Financial evaluation shall involve;

- Checking completeness of financial bid.
- Checking for arithmetic errors. Contract price read out during tender opening shall be final and not subject to any change or correction (Sec. 82 of PPADA). Bidders must therefore ensure that there are no arithmetic errors on the prices and any error noted.
- Comparison of prices of compliant evaluated bidders. **The Lowest evaluated and compliant bidder to be determined for Award.**
- All prices must be inclusive of all the applicable taxes.

STAGE 4. DUE DILLIGENCE

Award of Contract shall be based on a Bidder who whose tender has been determined to be substantially responsive to the tendering documents and who has offered the lowest evaluated tender price, provided that such Bidder has been determined to be: -

(a) eligible

(b) Qualified

In addition: -

The Procuring Entity may determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated responsive Tender is qualified to perform the contract satisfactorily, in accordance with the criteria herein; this shall be done by determining the **AUTHENTICITY** and **TRUTHFULNESS** of all submitted documents.

The determination will take into account the Bidder's eligibility, financial, technical, and production capabilities. It will be based upon examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to qualifying and eligibility criteria as set out in this tender, as well as such other information as the Procuring Entity deems necessary and appropriate. Factors not included in these Tendering documents shall not be used in the evaluation of the Bidder's qualifications.

An affirmative determination will be a prerequisite for award of the contract to the Bidder. A negative determination will result in rejection of the Bidder's Tender, in which event the Procuring Entity will proceed to the next lowest evaluated Tender to make a similar determination of that Bidder's capabilities to perform satisfactorily.

QUALIFICATION FORMS

1. FORM EQU: EQUIPMENT

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

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

2. FORM PER - 1

Contractor's Representative and Key Personnel Schedule

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

Contractor' Representative and Key Personnel

1.	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*]

3. FORM PER-2:

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

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

Name of Tenderer

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

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

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

Declaration

I, the undersigned *[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:	*[insert period (start and end dates) for which this Contractor's Representative or Key Personnel is available to work on this contract]*
Time commitment:	*[insert period (start and end dates) for which this Contractor's Representative or Key Personnel is available to work on this contract]*

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): _____

4. TENDERER'S QUALIFICATION WITHOUT PRE-QUALIFICATION

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

4.1 FORM ELI -1.1

Tenderer Information Form
Date: _____

ITT No. and title: _____

Tenderer's name
In case of Joint Venture (JV), name of each member:
Tenderer's actual or intended country of registration: *[indicate country of Constitution]*
Tenderer's actual or intended year of incorporation:
Tenderer's legal address [in country of registration]:
Tenderer's authorized representative information Name: _____ Address: _____ Telephone/Fax numbers: _____ E-mail address: _____
1. Attached are copies of original documents of ☐ 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 • 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.

4.2 FORM ELI -1.2

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

ITT No. and title: _____

Tenderer's JV name:
JV member's name:
JV member's country of registration:
JV member's year of constitution:
JV member's legal address in country of constitution:
JV member's authorized representative information Name: _____ Address: _____ Telephone/Fax numbers: _____ E-mail address: _____
1. Attached are copies of original documents of ☐ 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 3.8. 2. Included are the organizational chart and a list of Board of Directors.

4.3 FORM CON – 2

Historical Contract Non-Performance, Pending Litigation and Litigation History

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

Non-Performed Contracts in accordance with Section III, Evaluation and 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			
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 award	**Outcome as percentage of Net**	**Contract Identification**	**Total Contract Amount (currency), Kenya**

	Worth		Shilling Equivalent (exchange rate)
[insert year]	*[insert 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]* Matter in dispute: *[indicate main issues in dispute]* Party who initiated the dispute: *[indicate "Procuring Entity" or "Contractor"]* Reason(s) for Litigation and award decision *[indicate main reason(s)]*	*[insert amount]*

4.4 FORM FIN – 3.1:

Financial Situation and Performance

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

4.4.1. 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

4.4.2 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		

4.4.3 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 statements[1] 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.

4.5 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**
[indicate year]	*[insert amount and indicate currency]*		
Average Annual Construction Turnover *			

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

4.6 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		

4.7 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					
	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					

4.8 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: _____	

4.9 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:				

4.10 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	

4.11 FORM EXP - 4.2(b)

Construction Experience in Key Activities

Tenderer's Name: _____
Date: _____
Tenderer's JV Member Name: _____
Sub-contractor's Name[2] (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

5. FORM OF TENDER

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

INSTRUCTIONS TO TENDERERS

i) *All italicized text is to help the Tenderer in preparing this form.*

ii) *The Tenderer must prepare this Form of Tender on stationery with its letterhead clearly showing the Tenderer's complete name and business address. Tenderers are reminded that this is a mandatory requirement.*

iii) *Tenderer must complete and sign CERTIFICATE OF INDEPENDENT TENDER DETERMINATION and the SELF DECLARATION FORMS OF THE TENDERER as listed under (s) 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]*

Dear Sirs,

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

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

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

2. We undertake, if our tender is accepted, to commence the Works as soon as is reasonably possible after the receipt of the Project Manager's 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. Unless and until a formal Agreement is prepared and executed this tender together with your written acceptance thereof, shall constitute a binding Contract between us. We further understand that you are not bound to accept the lowest or any tender you may receive.

5. We, the undersigned, further declare that:
   i) *No reservations:* We have examined and have no reservations to the tender document, including Addenda issued in accordance with ITT 28;
   ii) *Eligibility:* We meet the eligibility requirements and have no conflict of interest in accordance with ITT 3 and 4;
   iii) *Tender-Securing Declaration:* We have not been suspended nor declared ineligible by the Procuring Entity based on execution of a Tender-Securing or Proposal-Securing Declaration in the Procuring Entity's Country in accordance with ITT 19.8;
   iv) *Conformity:* We offer to execute in conformity with the tendering documents and in accordance with the implementation and completion specified in the construction schedule, the following Works: *[insert a brief description of the Works];*

v) *Tender Price:* The total price of our Tender, excluding any discounts offered in item 1 above is: *[Insert one of the options below as appropriate]*

vi Option 1, in case of one lot: Total price is: [*insert the total price of the Tender in words and figures, indicating the various amounts and the respective currencies*]; Or

Option 2, 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 subcontractor, 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, Project Manager, manufacturers, or service providers for any part of the contract, are not subject to, and not controlled by any entity or individual that is subject to, a temporary suspension or a debarment imposed by the Public Procurement Regulatory Authority or any other entity of the Government of Kenya, or any international organization.

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 ITT 3.8*];

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 thereof included in your Letter of Acceptance, shall constitute a binding contract between us, until a formal contract is prepared and executed;

xvii) Not Bound to Accept: We understand that you are not bound to accept the lowest evaluated cost Tender, the Most Advantageous Tender or any other Tender that you may receive;

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

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

xx) We undertake to adhere by the Code of Ethics for Persons Participating in Public Procurement and Asset Disposal, copy available from___(*specify website*) during the procurement process and the execution of any resulting contract.

xxi) **Beneficial Ownership Information:** We commit to provide to the procuring entity the Beneficial Ownership Information in conformity with the Beneficial Ownership Disclosure Form upon receipt of notification of intention to enter into a contract in the event we are the successful tenderer in this subject procurement proceeding.

xxii) We, the Tenderer, have duly completed, signed and stamped the following Forms as part of our Tender:

a) Tenderer's Eligibility; Confidential Business Questionnaire – to establish we are not in any conflict to interest.
b) Certificate of Independent Tender Determination – to declare that we completed the tender without colluding with other tenderers.
c) Self-Declaration of the Tenderer – to declare that we will, if awarded a contract, not engage in any form of fraud and corruption.
d) Declaration and commitment to the Code of Ethics for Persons Participating in Public Procurement and Asset Disposal

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

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

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

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

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

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

Date signed_____day of_____, _____

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

A. TENDERER'S ELIGIBILITY- CONFIDENTIAL BUSINESS QUESTIONNAIRE

Instruction to Tenderer

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

(a) **Tenderer's details**

	ITEM	DESCRIPTION
1	Name of the Procuring Entity	
2	Reference Number of the Tender	
3	Date and Time of Tender Opening	
4	Name of the Tenderer	
5	Full Address and Contact Details of the Tenderer.	1. Country 2. City 3. Location 4. Building 5. Floor 6. Postal Address 7. Name and email of contact person.
6	Current Trade License Registration Number and Expiring date	
7	Name, country and full address (*postal and physical addresses, email, and telephone number*) 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 (*postal and physical addresses, email, and telephone number*) of state which stock exchange	

General and Specific Details

b) Sole Proprietor, provide the following details.

Name in full_____

Age_____

Nationality_____

Country of Origin_____

Citizenship _____

c) Partnership, provide the following details.

	Names of Partners	Nationality	Citizenship	% Shares owned
1				
2				
3				

d) Registered Company, provide the following details.

i) Private or public Company_____

ii) State the nominal and issued capital of the Company_____

Nominal Kenya Shillings (Equivalent).....

Issued Kenya Shillings (Equivalent).....

iii) Give details of Directors as follows.

	Names of Director	Nationality	Citizenship	% Shares owned
1				
2				
3				

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

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

If yes, provide details as follows.

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

ii) Conflict of interest disclosure

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

	Type of Conflict	Disclosure YES OR NO	If YES provide details of the relationship with Tenderer
9	Has the conflict stemming from such relationship stated in item 7 and 8 above been resolved in a manner acceptable to the Procuring Entity throughout the tendering process and execution of the Contract.		

f) Certification

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

Full Name_____

Title or Designation_____

_____ _____

(Signature) *(Date)*

B. CERTIFICATE OF INDEPENDENT TENDER DETERMINATION

I, the undersigned, in submitting the accompanying Letter of Tender to the_____ [Name of Procuring Entity] for: _____ [Name and number of tender] in response to the request for tenders made by:_____ [Name of Tenderer] do hereby make the following statements that I certify to be true and complete in every respect:

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

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

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

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

4. For the purposes of this Certificate and the Tender, I understand that the word "competitor" shall include any individual or organization, other than the Tenderer, whether or not affiliated with the Tenderer, who:
   a) has been requested to submit a Tender in response to this request for tenders;
   b) could potentially submit a tender in response to this request for tenders, based on their qualifications, abilities or experience;

5. The Tenderer discloses that [check one of the following, as applicable:
   a) The Tenderer has arrived at the Tender independently from, and without consultation, communication, agreement or arrangement with, any competitor;
   b) the Tenderer has entered into consultations, communications, agreements or arrangements with one or more competitors regarding this request for tenders, and the Tenderer discloses, in the attached document(s), complete details thereof, including the names of the competitors and the nature of, and reasons for, such consultations, communications, agreements or arrangements;

6. In particular, without limiting the generality of paragraphs (5)(a) or (5)(b) above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
   a) prices;
   b) methods, factors or formulas used to calculate prices;
   c) the intention or decision to submit, or not to submit, a tender; or
   d) the submission of a tender which does not meet the specifications of the request for Tenders;
   except as specifically disclosed pursuant to paragraph (5)(b) above;

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

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

Name_____

Title_____

Date _____

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

C. SELF - DECLARATION FORMS

FORM SD1

SELF DECLARATION THAT THE PERSON/TENDERER IS NOT DEBARRED IN THE MATTER OF THE PUBLIC PROCUREMENTAND ASSET DISPOSALACT 2015.

I, ……., of Post Office Box ……..……. being a resident of …….. in the Republic of ……. do hereby make a statement as follows: -

1. THAT I am the Company Secretary/ Chief Executive/Managing Director/Principal Officer/Director of ……...…….. *(insert name of the Company)* who is a Bidder in respect of Tender No. …….. for ……. *(insert tender title/description)* for ……. *(insert name of the Procuring entity)* and duly authorized and competent to make this statement.

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

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

……..……..……
(Title) (Signature) (Date)

Bidder Official Stamp

FORM SD2

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

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

1. THAT I am the Chief Executive/Managing Director/Principal Officer/Director of ……..... *(insert name of the Company)* who is a Bidder in respect of Tender No. ….....……. for
…….. *(insert tender title/description)* for …… *(insert name of the Procuring entity)* and duly authorized and competent to make this statement.

2. THAT the aforesaid Bidder, its servants and/or agents /subcontractors will not engage in any corrupt or fraudulent practice and has not been requested to pay any inducement to any member of the Board, Management, Staff and/or employees and/or agents of ……... *(insert name of the Procuring entity)* which is the procuring entity.

3. THAT the aforesaid Bidder, its servants and/or agents /subcontractors have not offered any inducement to any member of the Board, Management, Staff and/or employees and/or agents of ……. (name of the procuring entity)

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

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

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

Bidder's Official Stamp

FORMAT OF POWER OF ATTORNEY

We..... (name and address of the registered office) do hereby constitute, appoint and authorize Mr. / Mrs. / Ms ..... (name and residential address) who is presently employed with us and holding the position of ..... as our attorney, to do in our name and on our behalf, all such acts, deeds and things necessary in connection with or incidental to our proposal for the project/goods/works/services“.....”, including signing and submission of all documents and providing information / responses to the Kenya Electricity Generating Company PLC, ("KenGen"), representing us in all matters before KenGen, and generally dealing with KenGen in all matters in connection with our Proposal for the said project/goods/works/services.

We hereby agree to ratify all acts, deeds and things lawfully done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall and shall always be deemed to have been done by us

..... (Signature) (Name, Title and Address)

Accepted

..... (Signature) (Name, Title and Address of the Attorney)

DECLARATION AND COMMITMENT TO THE CODE OF ETHICS

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

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

Name of Authorized signatory…….....

Sign…….....

Position…….....…….....

Office address…….

Telephone…….....…….

E-mail…….....….....…

Name of the Firm/Company…….....……

Date…….....….

(Company Seal/ Rubber Stamp where applicable)

Witness

Name ……..... Sign.....

Date……

D. APPENDIX 1 - FRAUD AND CORRUPTION

(Appendix 1 shall not be modified)

1. Purpose

2. 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.

3. Requirements

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

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

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

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

3) Without limiting the generality of the subsection (1) and (2), the person shall be: -

a) disqualified from entering into a contract for a procurement or asset disposal proceeding; or

b) if a contract has already been entered into with the person, the contract shall be voidable;

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

5) An employee or agent of the procuring entity or a member of the Board or committee of the procuring entity who has a conflict of interest with respect to a procurement: -

a) shall not take part in the procurement proceedings;

b) shall not, after a procurement contract has been entered into, take part in any decision relating to the procurement or contract; and

c) shall not be a subcontractor for the bidder to whom was awarded contract, or a member of the group of bidders to whom the contract was awarded, but the subcontractor appointed shall meet all the requirements of this Act.

6) An employee, agent or member described in subsection (1) who refrains from doing anything prohibited under that subsection, but for that subsection, would have been within his or her duties shall disclose the conflict of interest to the procuring entity;

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

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

a) Defines broadly, for the purposes of the above provisions, the terms set forth below as follows:

i) "corrupt practice" is the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;

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

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

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

v) "obstructive practice" is:

- deliberately destroying, falsifying, altering, or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede investigation by Public Procurement Regulatory Authority (PPRA) or any other appropriate authority appointed by Government of Kenya into allegations of a corrupt, fraudulent, coercive, or collusive practice; and/or threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation; or
- acts intended to materially impede the exercise of the PPRA's or the appointed authority's inspection and audit rights provided for under paragraph 2.3 e. below.

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

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

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

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

e) Requires that a clause be included in Tender documents and Request for Proposal documents requiring (i) Tenderers (applicants/proposers), Consultants, Contractors, and Suppliers, and their Sub-contractors, Sub-consultants, Service providers, Suppliers, Agents personnel, permit the PPRA or any other appropriate authority appointed by Government of Kenya to inspect[2] all accounts, records and other documents relating to the procurement process, selection and/or contract execution, and to have them audited by auditors appointed by the PPRA or any other appropriate authority appointed by Government of Kenya; and

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

FORM OF TENDER SECURITY-[Option 1–Demand Bank Guarantee] - NOT APPLICABLE

Beneficiary:_____

Request for Tenders No:

_____

Date:_____

TENDER GUARANTEE No.:_____

Guarantor: _____

1. We have been informed that_____(here inafter called "the Applicant") has submitted or will submit to the Beneficiary its Tender (here inafter 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 onor 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] -NOT APPLICABLE

TENDER GUARANTEE No.: _____

1. Whereas ..... [*Name of the tenderer]* (hereinafter called "the tenderer") has submitted its tender dated ..... [*Date of submission of tender]* for the ..... *[Name and/or description of the tender]* (hereinafter called "the Tender") for the execution of_____under Request for Tenders No._____("the ITT").

2. KNOW ALL PEOPLE by these presents that WE ..... of ..... [**Name of Insurance Company**] having our registered office at ..... (hereinafter called "the Guarantor"), are bound unto ..... [*Name of Procuring Entity*] (hereinafter called "the Procuring Entity") in the sum of ..... (Currency and guarantee amount) for which payment well and truly to be made to the said Procuring Entity, the Guarantor binds itself, its successors and assigns, jointly and severally, firmly by these presents.

   Sealed with the Common Seal of the said Guarantor this ___day of _____ 20 __.

3. NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Applicant:

   a) has withdrawn its Tender during the period of Tender validity set forth in the Principal's Letter of Tender ("the Tender Validity Period"), or any extension thereto provided by the Principal; or

   b) having been notified of the acceptance of its Tender by the Procuring Entity during the Tender Validity Period or any extension thereto provided by the Principal; (i) failed to execute the Contract agreement; or (ii) has failed to furnish the Performance Security, in accordance with the Instructions to tenderers ("ITT") of the Procuring Entity's Tendering document.

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

4. This guarantee will expire: (a) if the Applicant is the successful Tenderer, upon our receipt of copies of the contract agreement signed by the Applicant and the Performance Security and, or (b) if the Applicant is not the successful Tenderer, upon the earlier of (i) our receipt of a copy of the Beneficiary's notification to the Applicant of the results of the Tendering process; or (ii)twenty-eight days after the end of the Tender Validity Period.

5. Consequently, any demand for payment under this guarantee must be received by us at the office indicated above on or before that date.

_____	_____
[Date]	*[Signature of the Guarantor]*
_____	_____
[Witness]	*[Seal]*

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

TENDER-SECURING DECLARATION FORM

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

Date:.....*[insert date (as day, month and year) of Tender Submission]*
Tender No.:.....*[insert number of tendering process]*
To:..... *[insert complete name of Purchaser]* I/We, the undersigned, declare that:

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

2. I/We accept that I/we will automatically be suspended from being eligible for tendering in any contract with the Purchaser for the period of time of [Two years] starting on [Closing 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]*

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

PART II ~ WORK REQUIREMENTS

SECTION V ~ DRAWINGS

A list of drawings should be inserted here. The actual drawings including Site plans should be annexed in a separate booklet.

SECTION V (A): TECHNICAL SPECIFICATIONS

SPECIFICATIONS: GENERAL

PART I: GENERAL

1.1 **MATERIALS GENERALLY**

All materials used on the works shall be new and of the qualities and kinds specified herein and equal to approve samples. Deliveries shall be made sufficiently in advance to enable samples to be taken and tested if required. No materials shall be used until approved and all materials which are not approved or which are damaged, contaminated or have deteriorated in any way or do not comply in any way with the requirements of this specification shall be rejected and shall be immediately removed from the site at the Contractor's expense.

1.2 **MATERIALS FOR WHICH THERE IS A KENYA BUREAU OF STANDARDS SPECIFICATION**

All materials used in the works for which KENYA Bureau of Standards Specification has been published shall conform with the latest edition thereof in every way. The Architect reserves the right to demand that the Contractor shall obtain at his own expense a certificate in respect of any materials to state that it is in accordance with the Kenyan Bureau of Standard Specification.

1.4 **ALTERNATIVES TO PROPRIETARY BRANDS**

Where materials are specified by their proprietary names or where fittings are specified by catalogue numbers, or descriptions, the contractor may offer materials or fittings of alternative manufacture which are of equal quality. Such alternative must be approved before being used in the works and the Contractor shall allow for this, but prior to tendering he may submit to the Architect for approval the names of any suppliers of manufacturers whose products he intends to use, together with catalogue numbers and descriptions and/or samples but the decision of the Architect shall be final.

SPECIFICATIONS: GENERAL
PART I: GENERAL

1.5 **SAMPLES**

The Contractor shall furnish for approval, with reasonable promptness all samples of materials and workmanship required by the Architect. The Architect shall check and approve such samples for conformance with the design concept of the works and for compliance with the information given in the Contract Documents. The work shall be in accordance with approved samples.

(a) All material samples shall be delivered to the Architect's office with all charges in connection therewith paid by the Contractor.

(b) Duplicate final approved samples, in addition to any required for the Contractor's use, shall be furnished to the Architect, one for office use and one for the site.

(c) Samples shall be furnished so as not to delay fabrication, allowing the Architect reasonable time for consideration of the sample submitted.

(d) Each sample shall be properly labelled with the name and quality of the material, manufacturers name, name of the project, the Contractor's name and the date of submission and the specification number to which the sample refers.

1.6 **MEASURING AND TESTING EQUIPMENT**

The Contractor shall provide the following equipment for carrying out measuring and control tests on the site and maintain in full working order:

(a) Straight edges 2 metres and 4 metres long for testing the accuracy of the finished

concrete.

(b) A glass graduated cylinder for use in the silt test of organic impurities in the sand.
(c) Slump test apparatus.
(d) 150 mm steel cube moulds with base plates and tamping rod to B.S. 1881.
(e) Two 30 metre steel tapes.
(f) One dumpy or quickset level and staff
(g) Micrometer

SPECIFICATIONS: DEMOLITIONS AND ALTERATIONS

PART 2: DEMOLITIONS AND ALTERATIONS

2.1 **DEMOLITION**

Demolitions, taking out and cutting away shall be carefully performed and every precaution shall be taken to ensure the safety of the works. If damage should occur in the carrying out of the demolitions or alterations the contractor shall reinstate and make good the same at his own expense.

2.2 **PROTECTION**

Supply, erect and maintain during the cutting of openings etc, all necessary protection to the existing premises against damage by weather or other causes.

2.3 **LAYING THE DUST**

Allow for laying the dust as far as possible during the alteration by watering with a hose or other means.

2.4 **MAKING GOOD**

All making good of blockwork, building up of openings etc, shall be in solid blockwork unless otherwise described, in cement mortar (1:4) properly cured, toothed and bonded and pinned up to existing work and pointed where necessary.

2.5 **CREDIT FOR MATERIALS**

Unless otherwise specified materials arising from the demolitions and alterations will become the property of the Contractor. If the Contractor wishes to allow a credit for any such materials the appropriate allowance should be included in the credit column of the Bills of Quantities.

In the event that the Employer wishes to take possession of any such materials the contractor will only be entitled to receive compensation to the amount of credit indicate.

PART 3: EXCAVATION AND EARTHWORKS

3.0 **GENERAL**

3.1 **ARCHITECT OR ENGINEER**

Where the word `Engineer' is used in these descriptions of Materials and Workmanship, it shall in all appropriate cases be used and construed as the Structural Engineer. For this purpose the Engineer shall be deemed vested with the duties of and be the representative of the Architect.

3.2 **DISCREPANCIES IN DESCRIPTIONS**

The drawings take precedence over the bills of quantities.

3.3 **TEST AND SAMPLES**

Unless otherwise described in the Bills of Quantities, the Contractor will be responsible for all the costs involved in testing materials as described hereinafter. He will also be responsible for all the costs involved in supplying samples of materials or workmanship as required hereinafter to the satisfaction of the Engineer. The cost of replacing materials fixed or placed in position which do not comply with the required test results or approved samples shall be borne solely by the contractor. Samples of materials shall be submitted as soon as possible after the Contract is let. No deliveries in bulk shall be made until the samples are approved by the Engineer.

3.4 **SITE CLEARANCE**

Site clearance shall include the cutting down of all tress, stumps, bushes, vegetation and rubbish, burning the debris arising in approved locations, and carting remaining material to a tip provided by the Contractor.

3.5 **GRUBBING**

Grubbing up roots etc. shall include the following and disposal shall be as described under the foregoing clause:

1. Stumps and roots of large trees shall be completely removed

2. Stumps and roots of small trees, bushes or other vegetation shall be completely removed to a depth of at least 600 mm below formation.
3. Smaller stumps and roots of vegetation up to 25 mm thick shall be completely removed to a depth of 230 mm below formation.
4. Fine roots shall be removed to as great depth as is practicable by hand.

Except where the area of grubbing is to be excavated, all resulting holes shall be filled up solid with approve material compacted to the same relative density as the surrounding material.

PART 3: EXCAVATION AND EARTHWORKS

3.6 EXCAVATION

The Contractor is advised to visit the site and ascertain the nature of the ground to be excavated and he shall price accordingly and no claim will be allowed for want of knowledge in this respect.

Rates for excavation shall include for excavation in soil, earth, black cotton, sandy soil, murram, tuff, soft rock, boulders or whatever other subsoil is encountered, except hard rock as defined below.

3.7 HARD ROCK

Any rock or other hard materials encountered in excavating to the required depths which in the opinion of the Architect or Engineer can only be removed by wedges, compressed air or other special plant, or explosives shall be paid for as an extra and the price shall include for trimming and levelling. No blasting will be allowed without prior written permission from the Engineer and relevant Government Authority. Material which can be removed by pick or traxcavator, ripper or similar mechanical plant will not be classed as rock.

a) The foundation trenches and column bases shall be excavated to the widths and depths of the concrete foundations shown on the drawings or to such widths and depths as the Engineer may instruct after examination of the excavations. Quantities of all excavations shall be measured and valued by the Quantity Surveyor and any difference between such measurements and the measurements herein given shall be dealt with as a variation to the Contract.

   If however, the Contractor excavates to any greater depths than shown in the drawings or as instructed by the Engineer, then he shall at his own expense fill in such extra depth of excavation with concrete as specified for the foundations to the satisfaction of the Engineer. The Contractor shall not be paid for the cost of any excavation executed deeper or wider than shown on the drawings or instructed by the Engineer nor for the cost of back filling such excavation or disposing of surplus.

b) The Contractor shall report to the Engineer when secure bottoms have been obtained to the excavations and are ready to receive the foundation concrete. Any concrete or other work put in before the excavations have been inspected and approved by the Engineer shall, if so directed, be removed and new work substituted in accordance with the specification after excavations have been approved, all at the Contractor's expense.

c) The bottoms of all foundation trenches and column bases shall be trimmed square and level. The Contractor shall form such steps on bottoms of foundation trenches as the Engineer may consider necessary in such positions and to such depths as he may direct.

PART 3: EXCAVATION AND EARTHWORKS

3.9 SURPLUS SOIL DISPOSAL

Excavated material not required for subsequent refilling shall be removed to areas off site which shall be approved by the Architect.

3.10 TOP SOIL FOR SPREADING

Where required in the Bills of Quantities, top soil required for subsequent spreading over finished work shall be especially selected and shall be dumped in special heaps as indicated by the Architect. Such top soil shall be reasonably free from vegetation to the satisfaction of the Architect, and shall be compacted as little as possible in the heaps.

3.11 FILLING UNDER SURFACE BEDS IN BUILDINGS

i) Murram filling

Murram for filling as base course shall be from an approved source and of the

highest quality. It shall be laid in layers not less than 150 mm thick and not greater than 230 mm thick prior to compaction. Water will be applied to O.M.C. and each layer will be thoroughly compacted by at least 8 passes of a 10 tonne smooth wheeled roller or a 2 tonne vibrating roller until all movement ceases and 100% C.B.R. is obtained.

ii) Hardcore filling

Hardcore filling shall be crushed rock, broken brick, broken concrete or other approved hard granular materials broken to pass not greater than a 150 mm ring or to be 75% of the finished thickness of the layers being compacted whichever is the less and graded so that it can be easily and thoroughly compacted by rolling. The filling is to be laid in layers each of a consolidated thickness not exceeding 230 mm.

Where rolling by 10 tonne smooth wheeled roller or 2 tonne vibrating roller is impossible, compaction shall be by hand or mechanical tampers. Each layer shall be compacted by at least 8 passes of the roller.

The top surface of the hardcore shall be levelled or graded to falls as required and blinded with similar material broken to 25 mm gauge and surfaced with stone dust and well wetted before consolidation by the roller. The surface so obtained shall be to the Engineer's approval.

3.12 MATERIALS FOUND IN EXCAVATIONS

All materials classified as rock may, if approved by the Architect or Engineer be used as hardcore filling and the measured quantities of imported filling will be adjusted accordingly; all rock so used must be broken to the required size as before described before being used.

No sand, aggregate, murram or other material found in the excavations is to be used in the works without the written permission of the Architect.

PART 3: EXCAVATION AND EARTHWORKS

3.13 FILLING OBTAINED FROM THE EXCAVATIONS

Filling obtained from surplus excavated materials is to be free from all weeds, roots, vegetable soil or other unstable materials and is to be filled in layers each of not more than 230 mm finished thickness. Each layer to be well wetted and consolidated as described herein.

3.14 INSECTICIDE TREATMENT

Where described, the top surface of filling shall be treated with `Gladiator T C' Pesticide or equal and approved to be applied and approved firm and in accordance with the manufacturer's instructions and subject to a ten year guarantee to the satisfaction of the Architect.

3.15 DIOTHENE SHEETING

Diothene sheeting shall be produced by an approved manufacturer Joints in sheeting shall be treble folded with a 150 mm fold and taped at 300 mm intervals with 50 mm wide back plastic adhesive tapes. The sheeting shall not be stretched but shall be laid with sufficient wrinkles to permit shrinkage up to 15%.

SPECIFICATIONS: CONCRETE

PART 4: CONCRETE WORK

4.1 CODES OF PRACTICE

All workmanship, materials, tests and performances in connection with reinforced concrete shall be in conformity with the latest edition of the British Standard for concrete works (B.S 8110 parts 1 & 2, BS 8004, B.S 8007) and any other approved Local and International Standards. Where inconsistency exists between these preambles and these Standards, the Contractor shall notify the Engineer in good time for his Clarification as to which of the two shall prevail. Such clarification shall not have cost implications on the Contract.

4.2 SUPERVISION

A competent person approved by the Engineer shall be employed by the Contractor whose duty will be to supervise all stages in the preparation and placing of the concrete. All cubes shall be made and site tests carried out under his direct supervision, in consultation with the Engineer.

As and when required by the Engineer the Contractor shall prepare and submit, before

commencing the work, a time-chart (additional to the general programme) detailing the various operations for concrete works.

4.3 CONTRACTOR'S PLANT, EQUIPMENT AND CONSTRUCTION PROCEDURES

Not less than 30 days prior to the installation of the Contractor's plant and equipment for processing, handling, transportation, storing and placing concrete, the Contractor shall submit drawings for approval by the Engineer, showing proposed general plant arrangement, together with a general description of the equipment he proposes to use. After completion of installation, the operation of the plant and equipment shall be subject to the approval of the Engineer.

Where these Preambles, the Bills of Quantities or the Drawings require specific procedures to be followed, such requirements are not to be construed as prohibiting use by the Contractor of alternative procedures providing these have been approved by the Engineer in advance.

Approval of plant and equipment or their operation, or of any construction procedure, shall not operate to waive or modify any provision or requirements contained in the Preambles governing the quality of the materials of the finished work.

SPECIFICATIONS: CONCRETE

4.4 LEVELS AND FOUNDATIONS

The foundations of the Works shall be carried down to depths as may be directed by the Engineer and they must be cut as nearly to the size of the concrete as possible and the vacant spaces between the concrete and the solid ground excepting where otherwise shown must be carefully filled in as directed by the Engineer.

All temporary timber shall be removed but should any timber be left in or should any other work be done beyond that specified, it will be at the Contractor's own cost.

4.5 TOLERANCES

On all setting out, dimensions of six metres and over, a maximum non-accumulative tolerance of plus or minus 6 mm will be allowed. On all setting out, dimensions under six metres, a maximum non-accumulative tolerance or plus of minus 3 mm will be allowed. On the cross sectional dimensions of structural members, unless otherwise required by the Drawings, a maximum tolerance of plus or minus 3 mm will be permitted.

The top surface of concrete floor slabs and beams shall be within 6 mm of the normal level and line shown on the Drawings. Columns shall be truly plumb and non-accumulative tolerance of 3 mm in each storey and not more than h/3000 out of plumb in their full height will be permitted. The Contractor shall be responsible for the cost of all corrective measures required by the Engineer to rectify work which is not constructed within the tolerances set out above.

4.6 MATERIALS GENERALLY

All materials which have been damaged, contaminated or have deteriorated or do not comply in any way with the requirements of these Preambles shall be rejected and shall be removed immediately from the Site at the Contractor's own expense. No materials shall be stored or stacked on suspended floors without the Engineer's prior approval.

SPECIFICATIONS: CONCRETE

4.7 SAMPLES AND TESTING

The Contractor shall provide on the site, equipment, staff and labour for carrying out the sampling and testing and shall carry out any or all of these tests at such times and with such frequency as may be requested by the Engineer.

All equipment shall be calibrated and checked from time to time by the relevant Government authority and/or as the Engineer may direct.

The Contractor shall provide all samples required by the Engineer as soon as possible after the contract is let. No deliveries in bulk shall be made until the samples are approved by the Engineer. All condemned material shall be removed from the site within 24 hours.

Frequency of tests and number of samples required shall be governed by the results of previous tests, the quality of materials revealed during the tests and the uniformity of that quality. Should it become evident that the quality of concrete is deteriorating, the Engineer may require additional samples to be taken and test cubes to be made and tested to determine the cause.

4.8 CEMENT

Cement unless otherwise specified shall be ordinary Portland Cement of a brand and source approved by the Engineer and shall comply with the requirements of B.S. 12. A manufacturer's certificate of test in accordance with B.S 12 shall be supplied for each consignment delivered to the Site.

Should the Contractor require to use cement of Rapid Hardening variety, he shall submit his proposals to the Engineer along with any cost implications on the project for his approval. Any additional cost that may be caused by the use of Rapid Hardening cement shall be borne by the Contractor.

Cement may de delivered to the Site either in bags or in bulk.

If delivered in bags each bag shall be properly sealed and marked with the manufacturer's name and on the Site is to be stored in weatherproof shed of adequate dimensions with a raised floor. Each consignment shall be kept separate and marked so that it may be used in the sequence in which it is received. Any bag found to contain cement which has set or partly set, shall be completely discarded and not used in the works. Bags shall not be stored in stacks more than 2.0 metres in height.

No cement which has been kept on site in bags for more than 3 months shall be used in works.

4.8 CEMENT

If delivered in bulk the cement shall be stored in a weather proof silo either provided by the cement supplier or by the Contractor but in either case the silo shall be to the approval of the Engineer.

SPECIFICATIONS: CONCRETE

4.8A SAND

Sand used for concrete shall be clean, well graded siliceous sand of good sharp hard quality equal to samples which shall be deposited with and approved by the Engineer. The sand shall be free from lumps of stone, earth, loam, dust, salt organic matter and other deleterious substances, sieved and washed with clean water unless directed otherwise by the Engineer.

4.9 AGGREGATE

Aggregates shall conform with the requirement of B.S. 882 and all the proposed sources, types and grading test results of all aggregates are to be approved in all respects by the Engineer before work commences.

The grading of aggregates shall be one within the limits set out in B.S. 882 and as later specified and the grading, once approved, shall be adhered to throughout the Works and not varied without the approval of the Engineer. Fine aggregates shall be clean, coarse, siliceous sand of good, sharp, hard quality and shall be free from lumps of stone, earth, loam dust, salt, organic matter and any other deleterious substances. It shall be graded within the limits of Zone 1 and 2 of Table 2 of B.S. 882.

Coarse aggregate shall be good, hard, clean, approved blacktrap or similar stone, free from dust, decomposed stone, clay, weather matter, foreign substances or friable thin elongated or laminated pieces. It shall be graded within the limits of Table 1 of B.S. 882 for its respective nominal size.

If in the opinion of the Engineer the aggregate meets with the above requirements but is dirty or adulterated in any manner it shall be screened and/or washed with clean water at the Contractor's expense.

Aggregate shall be delivered to the Site in their prescribed sizes or gradings and shall be stock-piled on paved areas to boarded platforms in separate units to avoid intermixing. On no account shall premixed coarse aggregates be brought to the batching plant. On no account shall aggregates be stock-piled on the ground.

The Engineer shall be entitled to require a Certificate from an approved testing

laboratory in connection with each source of fine and coarse aggregates (including sand) showing that materials comply with the specification. Samples shall be subjected to such tests and at frequencies as determined by the Engineer. All such testing shall be carried out at the Contractor's expense.

SPECIFICATIONS: CONCRETE

4.10 WATER

The water used for mixing concrete shall be from an approved source, clean, fresh, and free from harmful matter and comply with the requirements of B.S. 3148.

4.11 ADMIXTURES

Before approval for the use of a proprietary admixture is given, the Contractor shall satisfy the Engineer as to its suitability for the work and its compatibility with the cement it is intended to complement.

4.12 EXPANSION JOINT FILLERS

Expansion joint filler shall be "Flexcell" as manufactured by Expandite Ltd. or "Rexilex" as manufactured by Evomastic Ltd, or equivalent and approved filler.

4.13 JOINT SEALANT

Sealants shall be plysulphide based "Pli-astic" or Seelastic" as described, both manufactured by Expandite Ltd. or equivalent, applied in accordance with the manufacturer's printed instructions and prices shall include for temporary battens or fillets and afterwards withdrawing to form groves as necessary.

"Seelastic" shall be applied by gun and where more than 12 mm deep shall include filling with loose packing yarn to within 12 mm from outer face.

"Pli-astic" shall be applied hot. With the Engineer 's approval Polemastic fillers of the appropriate grade as manufactured by Evomastics Ltd., may be substituted for "Seelastic". On no account shall soft board materials be used as joint fillers.

4.14 CONCRETE MIXES

All structural concrete shall consist of laboratory designed mixes. The wrights of cement, fine, coarse aggregates and water (and plasticiser where required) to be used in the designed concrete mixes shall be those giving one cubic metre of mixed concrete. Each design mix (for each class of structural concrete) shall be submitted to the Engineer along with at least 8 laboratory test results (4 No. 7 days and 4 No. 28 days) for his approval. The design mixes and the accompanying test results shall be sent in their original form directly to the Engineer with a copy to the Contractor. No photocopies shall be accepted. Once approved these design mixes shall be used in preliminary stage of works.

Only the 28 day test results shall form the basis of assessment for the preliminary and works cube results but the Engineer may use the 7 day test results to determine the quality of concreting at his discretion.

4.15 STRUCTURAL CONCRETE STRENGTHS AT PRELIMINARY WORKS STAGE

For the purpose of this Contract, Structural concrete shall mean concrete for which the specified characteristic cube strength is equal to or higher than 20N/mm².

SPECIFICATIONS: CONCRETE

The concrete mix shall be designed to attain a mean strength greater than the characteristic strength by at least the current margin. The current margin shall be taken as the smaller of the value resulting from (1) or (2) below.

1) For at least 40 separate batches of concrete of identical proportions of similar materials produced over a period of between 5 days and 60 days using the same plant under similar supervision and procedures.

   Current Margin = 1.64 times the standard deviation but no less than 7.5N/mm².

2) For cube tests on at least 100 batches as described in (1) produced over a period not exceeding 12 months.

Current Margin = 1.64 times the standard deviation but not less than 3.75N/mm² for

concrete grade 20 and above.

Where there is insufficient data to satisfy (1) and (2), the current margin for the initial mix design shall be taken as 10N/mm² until sufficient data is available.
Testing of concrete at preliminary stage shall continue until the Engineer is fully satisfied that the concrete mix has met all the requirements outlined in this section.

Structural concrete shall satisfy the above requirements for the characteristic strength at 28 days shown in the table below.

CONCRETE STRENGTHS IN (N/MM²)

Age	Grade 45	Grade 40	Grade 35	Grade 30	Grade 25	Grade 20
7 days	30.0	27.0	23.5	20.0	16.5	13.5
Characteristic strength at 28 days	45.0	40.0	35.0	30.0	25.0	20.0

The strength at 7 days shall only be indicative and unless the Engineer otherwise agrees, it shall not form the basis of approval for design mixes.

4.16 QUALITY CONTROL AT WORKS STAGE

Once the concrete mix is accepted from preliminary to works stage, the principal basis of control shall be analysis of the cube test results at 28 days.

Cube test results shall be examined individually in 10 consecutive sets of four. The standard deviation and mean strength of each set shall be calculated.

The concrete mix proportions shall only be acceptable if all of the following requirements are complied with:

i) Not more than two results in 40 are less than the characteristic crushing strength.

ii) No value of the average for any set of four results shall be less than the characteristic strength plus one-half of the current margin.

iii) When 40 No. have been obtained and the mean strength and standard deviation are calculated, the mean strength minus 1.64 times the standard deviation shall be greater than the characteristic strength.

Where the results do not conform to the above requirements the following action shall be taken:

- Adjustments to the mix to obtain strength required.

- In the case where any result is less than 85% of the characteristic strength the structural implications shall be determined and any necessary remedial action carried out shall be at the Contractor's costs.

4.17 PROPORTIONS OF CONCRETE WORKS

All structural concrete shall be proportioned in weight using weigh batching machines of an approved type (to B.S. 1305) and shall be properly maintained and checked for accuracy to the requirements of Factories Inspectorate and at such intervals as required by the law and/or as Engineer shall direct.

4.18 CEMENT

The quantity of cement shall be measured by weight. Where delivered in bags, each batch of concrete is to contain one or more bags of cement in

accordance with the proportions specified.

For non-structural concrete, volume batching may be used as indicated below.

Class of Concrete Nominal Mix by Volume	15 1:3:6	10 1:4:8
Cubic metres of fine aggregate per 50 kg. bag of cement	0.12	0.16
Cubic metres of coarse aggregate per 50 kg bag of cement	0.24	0.32
Maximum size of coarse aggregate	40 mm*	40 mm*

* or 20 mm for blinding concrete where described.

Where batching is by volume, approved gauge boxes of such a size as will give the correct proportions shall be used, and full account shall be taken of bulking due to high moisture content.

4.19 READY-MIXED CONCRETE

Where the Contractor desires to use ready-mixed concrete prepared outside the site, he shall submit a written request to the Engineer for his approval. In his request, the Contractor shall attach a detailed proposal showing the logistics of carrying out such an exercise.

The Engineer shall give his written consent only after satisfying himself with the adequacy of the Contractor's proposals as far as specifications and logistics are concerned.

The Engineer may demand particular conditions be fulfilled before granting the permission (A sample of "Delivery Ticket" for ready-mix concrete as attached at the back of this specification).

SPECIFICATIONS: CONCRETE

4.20 WATERPROOF CONCRETE

Where waterproof concrete is specified, Sealocrete "Sealopruf Integral Waterproofing Compound" and "Sealoplaz Concrete Plasticizer" or similar approved are to be added to the mixing water strictly in accordance with the manufacturer's instructions and at the rate of 500 cc and 125 cc respectively to each 50 kg bag of cement to which the aggregates have already been added and mixed. Not more than 22.5 to 24.75 litres of water per 50 kg bag of cement are to be used unless otherwise approved by the Engineer.

4.21 SURFACE TREATMENT FOR WATERPROOFING

Where specified treatment with "Vandex", "Sealocrete Supercoat Waterproofer" etc. shall be applied to concrete or blockwork surfaces strictly in accordance with the manufacturer's instructions. The surfaces must be well wire-brushed to remove dirt, efflorescence, adhering mortar and all foreign matter. It shall then be cleaned with fresh water. When absolutely dry a generous coat of Sealocrete Supercoat shall be applied by brush or spray gun. Surface so treated shall be protected from damage or staining as described elsewhere.

4.22 PHYSICAL BARRIER FOR WATERPROOFING

Where specified, physical barriers shall consist of the following:

Mastic Asphalt

This shall be laid inlayers of maximum thickness of 10 mm each. The Materials and workmanship shall comply to CP 102:1973.

Rubber-Membrane

This shall consist of preformed laminated membrane comprising an elastomeric self-adhesive rubber/bitumen compound and robust polythene sheet such as Bituthene 1000, as produced by SERVICISED LIMITED or other similar approved material. The membrane shall be stored, handled and laid onto the elements to be protected strictly in accordance with the manufacturers specifications and under the supervision of one of their approved representatives all to CP 102:1973. Special precautions shall be taken at the interface of this material and mastic asphalt. Only approved water bars shall be incorporated in the structural concrete works and these shall be provided in the positions indicated on the drawings or at other alternative positions approved by the Engineer.

Waterbars

Joints shall be heat welded in accordance with the manufacturer's instructions and where the waterbar is to be fixed vertically, metal clips as manufactured by the supplier of the waterbar or of other approved design shall be provided to suspend the waterbar from the reinforcement.

Where waterproof concrete is used the Contractor shall adhere strictly to the position and type of construction joints as detailed on the drawings. Any deviation from this procedure or the provision of additional construction joints will require the prior approval of the Engineer and any additional waterbar so required will be at the Contractor's expense.
Formwork shall be designed with sufficient timber forms and blocking pieces to support the waterbar and to ensure that it is not displaced during concreting. In the case of horizontal joints in vertical walling and similar members the formwork shall be so constructed as to permit the starter or upstand concrete surrounding the lower half of the waterbar to be poured in the same operation as the slab or other concrete from which it springs. Formwork to walls or similar members where waterbar is positioned at the base of the lift shall have sufficient inspection openings not less than 300 mm square at approximately 15 mm to 300 mm above the level of the waterbar to permit checking that the waterbar is correctly positioned and not displaced during concreting.

Through-bolts or ties will not be permitted in liquid retaining structure or in retaining walls. The Contractor shall use only such bolts or ties as are capable of being removed in part so that the portion remaining embedded in the concrete shall be between the specified thickness of cover to the reinforcement.

No concreting will be permitted to portions where upstand starters form an integral part until the formwork to the starter has been fixed and approved. No through holes shall be permitted in basement retaining walls.

The Contractor shall provide the following furniture and equipment for setting up his laboratory to be used in carrying out control tests on the site.

SPECIFICATIONS: CONCRETE

4.23 WORK CUBE TESTS

Work cubes are to be made at intervals as required by the Engineer and the Contractor shall provide a continuous record of the concrete work. The cubes shall be made in approved 100 or 150 mm moulds as required by the Engineer in strict accordance with the Code of Practice.
At least four cubes shall be made on each occasion, from different batches, the concrete being taken from the point of deposit.
Frequency of the tests and the number of samples required will be governed by the results of the previous tests, the quality of the materials revealed during the tests, and the uniformity of the quality. Should it become evident that the quality of the concrete is deteriorating the Engineer may require additional samples to be taken and test cubes to be made and tested to determine the cause.
Each cube shall be marked with a distinguishing number (numbers to run

consecutively) and the date, and a record shall be kept on site giving the following particulars:

a) Cube No.

b) Date and time made

c) Temperature and weather conditions

d) Location in work

e) 7-day Test

Date: .....
Strength: .....

f) 28-day Test
Date: .....

Strength: .....

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Cubes shall be forwarded, carriage paid to an approved Testing Laboratory in time to be tested two at 7 days and two at 28 days. No cube shall be dispatched within 3 days of casting.

Authentic copies of all Work Test results shall be forwarded to the Engineer directly from the testing laboratory and one shall be retained on the site. The test certificate shall indicate all properties as required by B.S. 1881.

If the strengths required above are not attained and maintained throughout the carrying out of the Contract, the Contractor will be required to increase the proportion of cement and/or substitute better aggregates so as to give concrete which does comply with the requirements of the contract. 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 Work Cube Test.

The Contractor must allow in his rates for concrete test cubes for all expenses in connection with the preparation and conveyance to the Testing Laboratory and testing of test cubes and no claim in respect of his failure to do so will be entertained.

4.24 MIXING OF CONCRETE

The concrete shall be mixed only in approved power driven weigh batch mixers of a type and capacity suitable for the work. The batching plant shall have a reserve capacity of at least 30% over and above the expected maximum demand.

The weigh batch mixer shall be equipped with an accurate water measuring device. All materials shall be thoroughly mixed dry before the water is added and the mixing of each batch shall continue for a period of not less than two minutes after the water has been added and until there is a uniform distribution of the materials and the mass is uniform in colour.

The entire contents of the mixed drum shall be discharged before recharging. The volume of mixed materials shall not exceed the rated capacity of the mixer. Whenever the mixer is started, 10% extra cement shall be added to the first batch and no extra payment will be made on this account.

As a check on concrete consistency slump tests shall be carried out in accordance with B.S. 1881. The Contractor shall provide the necessary apparatus and allow for the cost of such test.

The slump of the concrete made with the specified water content, using dry materials, shall be determined and the water to be added under wet conditions shall be so reduced as to give approximately the same slump.

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4.25 TRANSPORTING CONCRETE

The concrete shall be mixed as near to the place where it is required as is practicable, and only as much as is required for a specified section of the work shall be mixed at one time, such section to be commenced and finished in one operation without delay.

All concrete must be efficiently handled and used in the Works within twenty (20) minutes of mixing. It shall be discharged from the mixer direct either into receptacles or barrows and shall be distributed by means which do not cause separation or otherwise impair the quality of the concrete. Approved mechanical means of handling will be encouraged, but the use of chutes for placing concrete is subject to the prior approval of the Engineer.

Where approval is obtained for concrete to be conveyed by chutes, these shall have a slope (not exceeding 1 vertical to 2 horizontal) such as to ensure a continuous flow of concrete.
Additional water shall not be introduced to assist the flow.
Where approval is obtained for pumping the concrete, the pump manufacturer's recommendations shall be followed. The pumps used shall be of adequate capacity and power to ensure delivery of a continuous supply. The Contractor shall provide adequate alternative arrangements for transporting concrete including standby pumps in case of breakdown of the pumping equipment.

No relaxation of these specification on pumped concrete will be permitted. In particular, attention shall be paid to the proper grading of aggregates to prevent bleeding and/or segregation during pumping operations.

The inclusion of mixtures to improve the flow characteristics of the concrete will only be permitted where it can be shown that they do not adversely affect the concrete.

Proper bridging arrangements for traffic over reinforcement shall be provided so that the reinforcement is not distorted, damaged or displaced.

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4.26 PLACING CONCRETE

No concrete shall be placed before approval by the Engineer's representative.

Any accumulation of set concrete on the reinforcement shall be removed by wire brushing before further concrete is placed.

Care shall be taken that the concrete is not disturbed or subjected to vibrations and shocks during the setting period.

Mixing machines, platforms and barrows shall be clean before commencing mixing and be cleaned on every cessation of the work.

Where concrete is laid on hardcore or other absorbent materials, the base shall be suitable and sufficiently wetted before the concrete is deposited.

Concrete shall be placed from a height not exceeding 1.5 m directly into its permanent position and shall not be worked along the shutters to that position. Unless otherwise approved, concrete shall be placed in a single operation to the full thickness of slabs, beams and similar members, and shall be placed in horizontal layers not exceeding 1.5 m deep in walls and similar members.
Concrete in columns may be placed to a height of 4.0 m with careful placing and vibration and satisfactory results. Where the height of the column exceeds 4.0 m

suitable openings must be left in the shutters so that this maximum lift is not exceeded. The bottom 500 mm must first be thoroughly compacted before more concrete is added as the vibrator is gradually withdrawn.
Tops of lifts in walls and columns shall be finished level and well compacted so that minimal preparation of the next lift is required.
Concrete shall be placed continuously until completion of the part of the work between construction joints as specified hereinafter.
If stopping of concreting is unavoidable elsewhere, a construction joint shall be made where the work is topped.A record of all such joints must be made by the contractor and a copy supplied to the Engineer.

4.27 WET WEATHER CONCRETING

Concreting during periods of constant rain shall not be permitted unless aggregate stockpiles, mixers and transporting equipment and the areas to be concreted are adequately covered.

4.28 HOT WEATHER CONCRETING

Concreting shall not be permitted if its temperature at placing is in excess of 38°C. In order to maintain the temperature of the concrete below this value the following precautions shall be taken wholly or in part as instructed by the Engineer:

i) All aggregate stockpiles, water lines and tanks as well as the mixer shall be protected from the direct rays of the sun.

ii) Coarse aggregate shall be cooled by constant watering where possible.

iii) Mixing water shall be cooled by the addition of ice to the storage tanks where necessary.

iv) Rapid-hardening cement shall not be used.

v) Where the above precautions are inadequate, concreting shall be carried out during the cooler parts of the day or night as may be directed by the Engineer.

When the air temperature is above 20°C loss of mixing water by evaporation shall be considered in arriving at the mount of water to be added to the mix. In order to maintain the water/cement ratio within permissible limits, an approved water-reducing agent shall be included in the mix.
The maximum water/cement ratio may be increased with the Engineer's permission during mixing, but on no account shall water be added to concrete directly or indirectly once it has left the mixer.
In order to reduce premature drying of the concrete during transporting and placing, all chutes, formwork and reinforcement shall be cooled by watering when possible, or shall otherwise be protected from the direct rays of the sun. Any water so used shall be removed by jetting with compressed air before placing the concrete in close contact.

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As soon as possible after concreting, the formwork shall be stripped and the surface of the concrete shall be treated in accordance with the requirements stated elsewhere.
Where drying winds are encountered, wind shields shall be positioned as directed by the Engineer to protect exposed surfaces of the curing concrete.

4.29 CONTINUOUS POUR IN CONCRETE

Where the Contractor desires to use continuous concreting method in large sections (rafts and walls), he shall submit a written request to the Engineer for approval. In the request he shall attach details which shall include but not be limited to the following:

- Total amount of concrete to be placed in the shift

- Stock of approved concrete materials on site

- Capacity of the batching plant

- Number and type of truck mixers to be deployed for the exercise and movement logistics

- Number of skilled and other manpower to be deployed for exercise in shifts.

- Number and capacity of plant to be used in placing concrete (pumps, vibrators, buckets, etc.)
- Method(s) of monitor and dealing with the heat of hydration

- Details of protection against rain and floodwaters and how to cope with it.

The Engineer shall consider the above details and other parameters (e.g. weather, satisfactory records of cube test results, availability of adequate working section where reinforcement placement and the necessary formwork have been approved etc.) before making his decision. The Engineer may order that additional concrete cube moulds be made available as well as arrangements be made for cube crushing with an approved laboratory to cope with the increased demand.
The Engineer may order that the concreting works be stopped immediately if in his opinion the quality of the works is threatened for whatever reason.

4.30 SPECIAL NO-FINES CONCRETE

No-fines concrete for use in subsoil drainage shall consist of a 1:8 cement/aggregates mix by volume. Aggregate shall be 20 mm to 10 mm graded with no more than 5% passing the 10 mm sieve. Only sufficient water shall be added to ensure complete coating of the aggregate. One half of this water shall be placed into the mixer first, after which the aggregate and cement shall be admitted. After partial mixing, the balance of the water shall be added until a consistency of mix is achieved.
Preliminary tests shall be carried out on the site to prove the suitability of the finished concrete and adjustments made to the proportions and/or grading as may be required by the Engineer.

4.31 COMPACTION

At all times during which concrete is being placed, the Contractor shall provide adequate trained and experienced labour to ensure that the concrete is compacted in the forms to the satisfaction of the Engineer.

The Contractor shall ensure that he has at least 30% backup/reserve capacity over and above the maximum expected demand.

Concrete shall not be placed at a rate greater than will permit satisfactory compaction nor to a depth greater than 450 mm before it is compacted.
During and immediately after placing, the concrete shall be thoroughly compacted by means of continuous vibration.

Care shall be taken to fill every part of the forms, to work the concrete under and around the reinforcement without displacing it and to avoid disturbing recently placed concrete which has begun to set.
Any water accumulating on the surface of newly placed concrete shall be removed and no further concrete shall be placed thereon until such water is removed. Internal vibrators shall have a frequency of not less than 7,000 cycles per minute and shall have a rotation eccentric weight of at least 0.75 kg with an eccentricity of not more than 15 mm. Such vibrators shall visibly affect the concrete within a radius of 250 mm from the vibrator.

4.31 COMPACTION

Internal vibrators shall not be inserted between layers of reinforcement less than one

and one half times the diameter of the vibrators apart. Contact between vibrators and reinforcement and vibrators and formwork shall be avoided.
Internal vibrators shall be inserted vertically into the concrete wherever possible at not more than 500 mm centres and shall constantly be moved from place to place. No internal vibrator shall be permitted to remain in any one position for more than ten seconds and it shall be withdrawn very slowly from the concrete.

In consolidating each layer of concrete the vibrating head shall be allowed to penetrate and re-vibrate the concrete in the upper portion of the underlying layer. In the area where newly placed concrete in each layer joins previously placed concrete, more than usual vibration shall be performed, the vibrator penetrating deeply at close intervals along these contacts. Layers of concrete shall not be placed until layers previously placed have been vibrated thoroughly as specified.

Vibrators shall not be used to move concrete from place to place in the formwork.

At least one internal vibrator shall be operated for every four cubic metres of concrete placed per hour and at least one spare vibrator for every three shall be maintained on site in case of break-down during concreting operations.
External formwork vibrators shall be of the high frequency low amplitude type applied with the principal direction of vibration in the horizontal plane. They shall be attached directly to the forms at not more than 1.200 M centres.

In addition to internal and external vibration, the upper surface of suspended floor slabs shall be levelled with a tamping or vibrating screed prior to finishing.

Vibrating elements shall be of the low frequency high amplitude type operating at a speed of not less than 3,000 r.p.m.

4.32 CONSTRUCTION JOINTS

Construction joints shall be permitted only at the positions predetermined on the drawings or as instructed on the Site by the Engineer. In general they shall be perpendicular to the lines of principal stresses and shall be located at points of minimum shear, viz. vertical at, or near, midspans of slabs, ribs and beams.

The position of construction joints, when not shown on the Drawings or otherwise required by this specification, shall be decided on site having regard to the plant and labour made available by the Contractor for the manufacture, placing and compaction of the concrete as well as its curing, the climatic conditions prevailing at the time of concreting, the nature and size of the formwork and conditions of operations of the work. The Contractor shall submit his proposals to the Engineer for his approval before commencing the work.
Suspended concrete slabs are generally to be cast using alternate bay construction in bays not exceeding 15 m in length. No two adjacent bays are to be cast within a minimum period of 48 hours of each other. The joints between adjacent bays are to be in positions agreed with the Engineer.

Under no circumstances shall concrete be allowed to tail-off, but it shall be deposited against stopping-off boards.
Before placing new concrete against concrete already hardened, the face of the old concrete shall be thoroughly hacked, roughened, and cleaned, and laitance and loose material removed therefrom, and immediately before placing the new concrete the surface shall be saturated with water and covered with a coat of mortar at least 25 mm in thickness composed of cement and fine aggregate in the proportions used in the concrete.

4.33 CURING AND PROTECTION

Care must be taken that no concrete is allowed to become prematurely dry and the fresh concrete must be carefully protected within two hours of placing from rain, sun and

wind by means of at least three layers of Hessian sacking, white polythene sheeting, or other approved means. This protective layer and the concrete itself must be kept continuously wet for at least seven days after the concrete has been placed. The Contractor must allow for the complete coverage of all fresh concrete for a period of 7 days. Hessian or white polythene sheeting shall be in the maximum widths obtainable and shall be secured against wind. The Contractor will not be permitted to use old cement bags, clear or any other colour polythene sheets, hessian or other material in small pieces.

4.33 CURING AND PROTECTION

Concrete in foundations and other underground work shall be protected from admixture with the falling earth after placing.

Traffic or loading must not be allowed on the concrete until the concrete is sufficiently matured, and in no case shall traffic or loading be of such magnitude as to cause deflection or other movement in the formwork or damage to the concrete members. Where directed by the Engineer props may be required to be left in position under slabs and other members for greater periods than those specified hereafter.

4.34 FAULTY CONCRETE

Any concrete which fails to comply with these Preambles, or which shows signs of setting before it is placed shall be taken out and removed from the Site. Where concrete is found to be defective after it has set, the concrete shall be cut out and replaced in accordance with the Engineer's instructions. **On no account shall any faulty, honeycombed, or otherwise defective concrete be repaired or patched until the Engineer has made inspection and issued** instructions for the repair.

On the Engineer's instruction, the contractor shall cut out and replace any concrete in any part of the structure if in the Engineer's opinion:-

a) The concrete does not conform to the specification, or
b) Deleterious materials or materials which are likely to produce harmful effects have been included in the concrete, or
c) The honeycombed or damaged surfaces are too extensive, or
d) The finished concrete sizes are not in accordance with the drawings within permissible tolerances, or
e) The setting-out is incorrect, or
f) The steel cover has not been maintained, or
g) The protection, including curing of the concrete during the construction was inadequate resulting in damage, or
h) Undue deformation of or damage to the works has taken place due to inadequate shuttering or to premature traffic or to excessive loading, or
i) Any combination of the above points has taken place resulting in unsatisfactory work.

The whole of the cost, whatsoever (including time lost) which may be occasioned by the need to remove faulty concrete shall be borne by the Contractor.

SPECIFICATIONS: CONCRETE

4.35 LOADING TESTS

The Engineer may direct that a loading test be made on the works or any part thereof if he deems such a test to be necessary for one or more of the following reasons:

a) Failure of "Site cubes" to attain the strength requirements.
b) Premature removal of formwork
c) Overloading of structure during construction
d) Improper compaction of concrete
e) Any other circumstances attributable to alleged negligence on the part of the Contractor which in the opinion of the Engineer may result in the structure being of less than the required strength.

The loading test ordered solely or in part for reasons (a) to (e) shall be made at the Contractor's own cost.

Loading tests shall be carried out in accordance with the requirements of B.S. 8110.

If the results of the test are not satisfactory, the Engineer will direct that the part of the work concerned be taken down or removed and reconstructed to comply with the Specification or that such other remedial measures as he may think fit be taken to make the work acceptable and the Contractor shall carry out such work at his own cost.

LOADING TESTS

The Engineer may also instruct the Contractor before a loading test takes place to take out cylindrical core specimens from the structures concerned and have them tested. The cutting equipment and the method of doing the work shall be to the Engineer's approval. The specimens shall be dealt with in accordance with B.S. 1881. Prior to testing, the specimens shall be available for examination by the Engineer. If the cores are ordered to be taken solely or in part for reasons (a) to (e) above, the work involved and the testing shall be made at the Contractor's own cost.

No extensions of time shall be granted for any delays or disruption of work caused by these tests.

4.36 STEEL REINFORCEMENT

The steel reinforcement shall comply with the latest requirements of the following British Standards:

Hot rolled M.S for the reinforcement of concrete	B.S. 4449
Hot rolled H.Y. steel for the reinforcement of concrete	B.S. 4449
Cold worked H.Y. steel for the reinforcement of concrete	B.S. 4461
Hard drawn steel wire	B.S. 4482

4.36 STEEL REINFORCEMENT

Generally high yield, hi-rib rebars (425 & 460 N/mm²) shall be used for main reinforcement and mild steel round bars, (250 N/mm²) for links and ductility for special elements where specified. In addition where so detailed, mild steel deformed bars shall also be used.

The Contractor shall submit a test certificate of the rollings. Reinforcement shall be stored on racks above ground level in covered waterproof sheds to keep away rain water. The sheds shall be well drained to prevent deterioration or contamination from any cause. All reinforcement shall be free from loose mill scale or rust, grease, paint or other substances likely to reduce the bond between the steel and concrete.

4.37 FABRIC REINFORCEMENT

Fabric reinforcement shall be electrically cross-welded steel wire mesh reinforcement to B.S. 4483, and of the size and weight specified and made of wire to B.S. 4482.

4.38 FIXING STEEL REINFORCEMENT

Reinforcement shall be accurately bent to the shapes and dimensions shown on the Drawings and Schedules and in accordance with B.S. 4466 and B.S. 8110. Reinforcement must be cut and bent cold and no welded joints will be permitted unless so detailed or directed by the Engineer.

Reinforcement shall be accurately placed in position as shown on the drawings, and before and during concreting, shall be secured against displacement by using No. 18. S.W.G. annealed binding wire or suitable clips at intersections, and shall be supported by concrete or metal supports, spacers or metal hangers to ensure the correct position and cover. No part of binding wire shall protrude into the specified nominal cover.

No concreting shall be commenced until the Engineer has inspected the reinforcement in position and until his approval has been obtained. The Contractor shall give two clear days notice of his intention to concrete to the Engineer. Approval forms shall be submitted in duplicates. (A sample of the format of the Approval form is attached at the back of this specification).

The Contractor is responsible for maintaining the reinforcement in its correct position, according to the drawings, before and during concreting. During concreting a competent steel fixer must be in attendance on the concretors to adjust and correct the positions of any reinforcement which may be displaced. The vibrators are not to come into contact with the reinforcement.

Where required to support and retain the reinforcement in its correct position, the

Contractor shall provide templates, stools or other supports at his own cost.
Unless permitted by the Engineer, welding of bar reinforcement at intersections or for the joining of bars is prohibited. Where permission is granted, welding shall be carried out in accordance with the recommendations of the Institute of welding for the welding of reinforcement bars

4.38 FIXING STEEL REINFORCEMENT

The Contractor shall provide on-site facilities for cutting and bending reinforcement whether he is ordering his reinforcement bent or not and shall ensure that a token amount of straight bar of each diameter is available on site for bending as and when directed by the Engineer in order that minor modifications may be implemented on site without prior notice.
Bar bending schedules shall be issued to the Contractor at least a month in advance of the actual physical requirement in site. The Contractor is responsible for verifying that he has in his possession the required schedules to meet his programme and shall give the Engineer at least 3 weeks notice for any schedules that he requires.

4.39 SPLICES AND SCREWED COUPLERS

Where specified in the works, splices and screwed couplers shall be CCI systems type or similar approved and shall be for reinforcement bar sizes 16, 20, 25 and 32. The relevant certificates of performance shall be submitted to the Engineer for approval. The Engineer may order additional relevant tests be carried out through the Contractor from time to time as a measure of continuous monitoring of qualify and performance.

4.40 POSITION AND CORRECTNESS OF REINFORCEMENT

The Contractor shall draw the Engineer's attention in good time if any discrepancies between details on drawings and bar bending schedules occur. Irrespective of whether any inspection and/or approval of the fixing of the reinforcement has been carried out as above, it shall be the Contractor's sole responsibility to ensure that the reinforcement complies with the details on the drawings or bending schedules and is fixed exactly in position shown therein and in position to give prescribed cover.
The Contractor will be held entirely responsible for any failing or defect in any portion of the reinforced concrete structure and including any consequent delay, claims, third party claims, etc., where it is shown that the reinforcement has been incorrectly positioned or is incorrect in size or quantity with respect to the detailed drawings or bending schedules.

4.41 SPACER BLOCKS

Spacing blocks of approved size and shape made of concrete similar to that used in the surrounding construction and fixed to the reinforcement or formwork by No. 18 S.W.G. wires set into the spacer blocks or other approved means shall be provided where necessary to ensure that the requisite cover is obtained. The Contractor is to include for providing sufficient such spacer blocks in his prices for steel reinforcement where such supplier has been nominated. Where composite blocks or other forms of rib construction are used, spacer blocks are to be provided as shown on the drawings. These will generally consist of concrete blocks as described above made to fit the width of the rib less 3 mm to tolerance and with single or double grooves (depending on the number of the reinforcement bars used per rib) in the top surface with wire ties at each groove.

FIXING STEEL REINFORCEMENT

The Engineer may direct that special types of spacers (e.g. preformed plastic types) be used in the whole or part of the works, if in his opinion the concrete spacers are not to the required standard.

4.42 NOMINAL CONCRETE COVER TO REINFORCEMENT

Unless otherwise directed the nominal concrete cover to steel reinforcing bars (including links and distribution) in any face shall be:

Foundations against earth face	75 mm
Foundation against blinding	50 mm
Columns (main bars)	40 mm
Beams (main bars)	30 mm or diameter

	of main bar
Slabs and stairs	20 mm
Wall (main bars)	40 mm

The tolerance on placing of bars achieve nominal cover is ±5mm

4.43 FIXING FABRIC REINFORCEMENT

The fabric shall be free from scale, rust, grease or other substances likely to reduce the bond between the steel and the concrete and shall be laid with minimum 300 mm laps and bound with No 18. S.W.G. annealed iron wire.

4.44 PROJECTING REINFORCEMENT

Where reinforcement projects from a concreted section of the structure and this reinforcement is expected to remain exposed for some time, it is to be coated with a cement grout to prevent rust staining on the finished concrete. This grout is to be brushed off the reinforcement prior to the continuation of concreting.

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4.45 SECURITY REINFORCEMENT

Spiral

Spiral reinforcement where specified in the works shall be chubb spiral, Aegamesh or similar approved. It shall consist of steel bars of at least 15 mm diameter forming a mattress with pitches not exceeding 125 mm, and shall be delivered to the site in preformed 2 row mattress cages of exact and specified dimensions and incorporating appropriate spacer bars to maintain mattress rigidity. When assembled, the cages shall define the outline of the elements to be protected including allowance for openings. The assembling in the works shall be carried out under the supervision of the supplier's approved representative.

These shall be chubb tangbars, John Tann bars, Tord bars or similar approved. They shall be made from 3 mm thick mild steel plates cut into strips running off a central cord. They shall be transported to the site in flat condition where they shall be twisted into spirals. The twisting and laying of the units shall be carried out under the supervision of the supplier's approved representative.

4.47 FIXTURES AND INDENTATIONS IN CONCRETE

No openings, chases, holes or other voids shall be formed in the concrete without the prior approval of the Engineer. Details of any fixtures to be permanently built into the concrete including the proposed positions of all conduits 25 mm and over in diameter shall be submitted to the Engineer for his approval before being placed.

4.48 CHASES, HOLES, ETC IN CONCRETE

The Contractor shall be responsible for the co-ordination with the Electrical and other sub-contractors for incorporating electrical conduits, pipes, fixing blocks, chases, holes and the like in concrete members as required and must ensure that adequate notice is given to such sub-contractors informing them when concreting members incorporating the above are to be poured. The Contractor shall submit full details of these items to the Engineer for approval before the work is put in hand. All fixing blocks, chases, holes, etc, to be left in the concrete shall be accurately set out and cast with the concrete.

4.49 POSITION OF ELECTRICAL CONDUIT

Unless otherwise instructed by the Engineer all electrical conduits to be positioned within the reinforced concrete shall be fixed inside the steel cages of beams and between the top and bottom steel layers in slabs and similar members.

The proposed position of all conduits 25 mm and over in diameter which are to be enclosed in the concrete shall be shown accurately on a plan to be submitted to the Engineer whose approval shall be obtained before any such conduit is placed.

CONSTRUCTION OF FORMWORK

All surfaces which will be in contact with concrete shall be oiled or greased to prevent adhesion of mortar. Oil or grease shall be of a non-staining mineral type applied as a

thin film before the reinforcement is placed. Surplus moisture shall be removed from the forms prior to placing of the concrete. Great care shall be taken to avoid oiling or greasing the reinforcement.

Temporary openings shall be provided at the base of columns, wall and beam forms and at any other points where necessary to facilitate cleaning and inspection immediately before the pouring of concrete. Before the concrete is placed the shuttering shall be trued-up and any water accumulated therein shall be removed. All saw-dust, chips, nails and other debris shall be washed out or otherwise removed from within the formwork. The reinforcement shall then be inspected for accuracy of fixing. Immediately before placing the concrete the formwork shall be well wetted and inspection openings shall be closed. Cement slurry shall be applied to previously casted concrete as necessary to allow for adequate bonding. The erection, easing, striking and removing of all formwork must be done under the personal supervision of a competent foreman, and any damage occurring through faulty formwork or its incorrect removal shall be made good by the Contractor at his own expense.

After removal of formwork, all projections, fins, etc., on the concrete surface shall be chipped off, made good to the requirements of the Engineer. Any voids or honeycombing shall be treated as described under "Faulty Concrete".

4.52 STRIPPING FORMWORK

All formwork shall be removed without undue vibration or shock and without damage to the Concrete. No formwork shall be removed without the prior consent of the Engineer. The Contractor shall notify the Engineer of his intended removal of any formwork at least two days in advance. The minimum periods that shall elapse between the placing of the concrete and the striking of the formwork will be as follows:

Beam sides, wall and columns (unloaded)	2 days
Slab soffits (props left under)	3 days
Beam soffites (props left under)	7 days

Removal of props to: (partly subject to 7 days concrete cube strength being satisfactory)

Slabs	10 days
Beams	14 days
Cantilever beams and slabs	28 days

4.52 STRIPPING FORMWORK

In continuous spanning slabs or beams, no span shall be de-propped until the adjoining spans have been cast and cured for the specified periods.

Stripping and re-propping will not be permitted. The striking times indicated herein are for normal conditions and shall be adjusted if:

a) The span of the structural member under consideration exceeds 6.0 m for beam. An additional period of one day for each 500 mm of additional span shall then be allowe

b) The dead load of the structural member under consideration forms a large proportion of the total design load.

c) The setting of the concrete has been retarded for any reason.

d) Any combination of the above points and other consideration which would call for such a precaution to be taken.

In any case, props shall be left in place in the lower two consecutive floors over which construction loads are expected to be supported.

4.53 SURFACE FINISHES

Fair Face Finish

Where fair face finish is specified the concrete shall be brought to a perfectly true smooth and even surface by rubbing with carborundum stone dipped in cement grout. Such work must be commenced within one hour of removing the formwork and be actively and rapidly pursued until completed, the object being to complete the finish as soon as possible after the removal of the shuttering. On no account may such work be postponed to a later stage in the Contract. Fair face surfaces shall be clean, smooth, even true to form and free from all board marks, joint marks, honeycombing, pitting etc. The Contractor is permitted at his own expense to provide smooth lining to the forms which will achieve the required finish without rubbing down. All rubbed down work must be

lightly washed with plain cold water at the completion of the Contract, and not before the cement grout used in the finish is at least four weeks old after initial mixing.

Wrought Lined Formwork

The shuttering shall be constructed of wrought tongued and grooved boarding, plywood or blockboard lined with approved laminated plastic sheeting to produce a concrete surface with truly flat surface completely free from all air bubbles, joint marks, honeycomb and other pittances and blemishes to the approval of the Engineer. Should the Contractor desire to use alternative materials he should submit his proposals to the Engineer for approval. Should the Contractor fail to obtain approval and the Engineer subsequently rejects the work, the Contractor will at his own expense carry out all work necessary to attain the approval of the same.

4.53 SURFACE FINISHES

Tamped Finish

Areas so specified shall be finished at the time of casting with a tamped finish to the Engineer's approval produced by an edge board. Board marks are to be made to a true pattern and will generally be at right angles to the traffic flow. Haphazard or diagonal tamping will not be accepted.

Board Marked Finish

Where so directed or measured the finish shall be that of a board marked pattern panels, the boards shall be arranged vertically and of widths and sizes all as detailed on the drawings. All exposed concrete will be left unpainted and therefore every care and attention shall be paid to obtain a satisfactory visual appearance and that maintenance of the same throughout the building operation. The finished surfaces shall be free from blow holes, hungry patches and other blemishes, and a sample panel is to be provided and approved by the Engineer before work commences. Unless otherwise specified, the formwork shall be rip sawn softwood to the Engineer's approval and shall have a sufficiently strong grain to impart a corresponding pattern on the concrete surface. Unless otherwise approved it shall have four uses only and shall be carefully cleaned from adhering grout after each use. It shall be lightly oiled with an approved non-staining mould oil.

Vertical Ribbed Finish

Unless otherwise specified, vertical ribbed finish to walls shall comprise 50 x 50 mm concrete projections at 450 mm centres cast vertically on the face of wall. All surfaces are to be as described under "Wrought Formwork".

Diagonal Ribbed Finish

Unless otherwise specified, diagonal ribbed finish to walls shall comprise 50 x 25 mm deep concrete projections at 100 mm centres cast at 45 degree angle to the vertical on face of wall. All surfaces are to be as described under "Wrought Formwork".

Chisel Dressed Finish

Where specified a chisel dressed finish is to be carried out on any grade of concrete but not until it is at least 30 days old. The surfaces are to be fully chisel dressed to remove a maximum of 12 mm (average 9 mm) of the surface to expose the aggregate without excessive cracking or breaking thereof.

Where the drawings show details of arises of columns, beams etc., these are to be preformed with timber fillets set in the formwork, and care must be taken in working up to those to preserve a clean line. For vertical surfaces of walls and columns, particular care must be taken to remove all sharp projections. For beam soffits this requirement is not necessary.

SPECIFICATIONS: CONCRETE

4.53 SURFACE FINISHES

All chisel dressed surfaces are to have the margins chisel dressed by hand for a minimum width of 75 mm commencing from the fillet edge. Thereafter mechanical chisel dressing may be used but the Contractor must ensure that a uniform texture and even plain surface is achieved. The use of pointed steel tools for both hand and mechanical chisel dressing is essential. Upon completion the surfaces are to be thoroughly wire brushed and washed down and protected during the course of construction from damage, dirt, cement grout etc.

4.54 PRECAST CONCRETE

General

Unless otherwise approved by the Engineer, all precast concrete construction shall be carried out on the Site and shall conform to requirements given elsewhere in these preambles.

The maximum size of coarse aggregate in precast concrete shall not exceed 20 mm except for thickness less than 75 mm where it shall not exceed 10 mm.

The compacting of precast concrete shall conform with requirements given elsewhere in these preambles except for thin slabs where use of immersion type vibrators is not practicable. The concrete in these slabs may be consolidated on a vibrating table or by any other methods approved by the Engineer. Steam curing of precast concrete will be permitted. The procedure for steam curing shall be subject to the approval of the Engineer.

The precast work shall be made under cover and shall remain under the same for seven days. During this period and for a further seven days the concrete shall be shielded by sacking or other approved materials kept constantly wet. It shall then be stacked in the open for at least a further seven days to season before being set in position. Where steam curing is used these times may be reduced subject to the approval of the Engineer.

Precast concrete units shall be constructed in individual forms. The method of handling the precast concrete units after casting, during curing and during transport and erection shall be subject to the approval of the Engineer, providing that such approval shall not relieve the Contractor of responsibility for damage to precast concrete units resulting from careless handling.

Repair of damage to the precast concrete units, except for minor abrasions of the edges which will not impair the installation and/or appearance of the units will not be permitted and the damaged units shall be replaced by the Contractor at his own expense.

Except where precast work is described as "fair face" or as having "exposed aggregate" or terrazzo finish the moulds shall be made of suitable strong sawn timber true in form to the

shapes required. Unless otherwise described faces are to be left rough from the sawn moulds.

Where precast work is described as "fair face" the moulds are to be made of metal or are to have metal or plywood linings or are to be other approved moulds which will produce…

SPECIFICATIONS: CONCRETE

4.54 PRECAST CONCRETE

General

…a smooth dense fair face to the finished concrete suitable to receive a painted finish direct and free from all shutter marks, holes, pittances, etc. In his prices for such precast work the Contractor shall include for all rubbing down to produce the finish required, to the satisfaction and approval of the Engineer. Where precast work is to have an "exposed aggregate" or terrazzo finish the moulds shall be constructed to the requirements given for moulds for "finished fair" work. The method of achieving the exposed aggregate finish shall be "aggregate transfer" or other approved method.

4.55 PRECAST CONCRETE CLADDING UNITS

These shall be cast to the general details shown on the drawings. The Contractor shall submit working/shop drawings for each type of the cladding panels to the Engineer for approval before he commences casting operations.

The panels shall be cast in special yards and shall be cured adequately before being hoisted into position in the structure, taking care that no parts are broken in the process. The units shall then be joined together with insitu concrete and flexibly connected to the top and bottom beams to allow for limited movement of the combined unit.

The precast units shall be installed to the lines, grades and dimensions shown on the drawings or as directed by the Engineer.

4.56 HOLLOW BLOCK SUSPENDED CONSTRUCTION (COMPOSITE FLOOR SLAB)

Concrete hollow blocks for use in the composite floor slabs shall be of the standard sizes required or as shown on the drawings and are to be of adequate strength to support the

concrete during placing and consolidation by vibration. Blocks are to be manufactured in accordance with the procedure specified in B.S. 6073 and to be of a mix not weaker that 1:4:8 cement: sand: stone using maximum 10 mm size aggregate.

Concrete blocks are to be cured for at least 28 days before use on the site. During the first seven days of curing, blocks are to be kept permanently damp and protected from exposure to sun and wind.

HOLLOW BLOCK SUSPENDED CONSTRUCTION (COMPOSITE FLOOR SLAB)

Concrete blocks are to be well wetted before the pouring of cement.

Hollow clay filler blocks for use in the composite floor slabs are to be of the sizes shown on the drawings and to be of adequate strength to support the concrete during placing and consolidation by vibration. They shall be obtained from an approved manufacturer. Before any orders are placed, at least 6 sample clay blocks shall be provided for the approval of the Engineer. Any clay blocks subsequently delivered to site which in the opinion of the Engineer are not of equal standard to the approved samples shall be rejected.

Rejected blocks shall immediately be removed from the site and shall not be used in the works. Clay blocks are to be fully cured before delivery or use on site.

Clay blocks are to be well wetted before pouring of concrete.

SPECIFICATIONS: CONCRETE

4.57 COMPOSITE FLOOR CONSTRUCTION

The hollow block floor construction is generally to be as shown on the Engineer's Drawings.

Care shall be taken in placing blocks to ensure that they are set out in accordance with the details shown on the Drawings and that they run truly in line without encroaching on the width of the insitu ribs.

The open ends of hollow blocks, if adjacent to concrete to be placed insitu are to be plugged or stopped to prevent the concrete from flowing into the void and the Contractor is to include for this in his prices.

The Contractor should note that slip tiles are not to be used to the Soffits of ribs and he is to take this into consideration in pricing the items of formwork to the soffit of hollow block floor construction. Before concreting is carried out the blocks are to be thoroughly wetted.

Care should be taken during concreting that the width of ribs between the rows of blocks and the solid insitu concrete shown on the Drawings adjacent to supporting beams is not encroached upon by the blocks.

It is essential that the concrete topping be poured at the same time as the ribs between hollow blocks.

Reinforcement shall be positioned accurately with required cover in accordance with the Drawings and using the particular spacing blocks with wire ties as previously described. Spacer blocks shall be provided in ribs at not more than 1.2 m Centres. Care must be taken during concreting that the reinforcement is not displaced.

Where holes or services occur, the necessary holes or pockets shall be accommodated by the replacing of a hollow block by insitu concrete or the widening of a rib all in accordance with the Engineer's instructions.

Prices for such holes through hollow block construction are to include the rearrangement or substitution of the hollow block with solid concrete in addition to the actual formation of the hole.

4.58 CONCRETE SURFACE BEDS

Before placing concrete and where specified or shown on the Drawings a layer of 1000 gauge polythene or diothene sheeting shall be laid on the blinding above the hard core filling. Minimum 300 mm laps shall be provided at all joints.

The concrete shall be placed as soon as possible after being mixed. In transporting the concrete, adequate precautions shall be taken to avoid damage to the prepared base. The concreting shall be spread to such a thickness that when compacted it shall have the finished thickness as specified or shown on the Drawings. A layer of concrete 25 mm less than the finished thickness shall first be spread and struck off at the correct level to receive the top fabric reinforcement.

4.58 CONCRETE SURFACE BEDS

The top layer shall then be added. Not more than 30 minutes shall elapse between spreading the bottom layer and the start of compaction of the top layer. The Contractor shall be responsible for maintaining the reinforcement in its correct position during the placing and compaction of the concrete. The compaction and finishing of the concrete shall be effected by immersion vibrators and a hand or mechanical tamper weighing not less than 10 kg per meter run and having a tamping edge shored with a steel strip 75 mm wide fixed to a tamper by countersunk screws. Immersion vibrator with "spade" attachments will be permitted. Compaction shall be continued until a dense, scaled surface finish is achieved. Over- compaction causing an excessive amount of fines to be brought to the surface shall be avoided.

The surface of the concrete shall be finished to the surface texture specified to the levels, falls and crossfalls, as directed or shown on the Drawings and shall be subject to the following tolerances:

- The level shall be within + or - 6 mm of the levels specified.
- The falls shall be within 10% of the falls specified.
- The smoothness shall be such that departures from a 3 m straight edge laid in any direction shall not exceed 3 mm.
- Minor irregularities shall be made good by the use of a steel float but in no circumstances shall mortar be used to make good the surface.

As soon as the surface has been finished, it shall be protected against too-rapid drying by means of damp Hessian, white polythene sheeting or other approved means placed carefully on the surface and kept damp and in position for 7 days and the concrete shall be kept wet for a further 21 days. The most critical period is the first 48 hours after placing and curing during that time shall be very thorough.

The Contractor is to obtain the Engineer's approval to the material and method he proposes to use for curing and no concreting will be permitted until sufficient such material is on site.

Forms shall not be removed from freshly placed concrete until it is at least 24 hours old. Care shall be taken that in their removal no damage is done to the concrete, but should any damage occur the Contractor shall be responsible for making it good.

4.59 EXPANSION JOINTS IN CONCRETE SURFACE BEDS

Expansion joints shall be positioned and constructed as shown on the drawings. The joints in the surface beds shall be absolutely square and true to line and position.

All joints in surface beds shall be formed to the patterns and shapes to coincide exactly with the joints in the surface finish or as otherwise indicated on the drawings. Formwork shall be manufactured from steel of heavy angle section and be to the Engineer's approval. The Contractor shall submit drawings of the forms he intends to use and obtain the…

SPECIFICATIONS: CONCRETE

4.59 EXPANSION JOINTS IN CONCRETE SURFACE BEDS

…Engineer's approval before fabrication. Panels shall be poured in alternate bays as agreed with the Engineer. No construction joints other than those indicated on the Drawings shall be submitted.

4.60 NOTES CONCERNING MEASUREMENT AND PRICING

The Contractor must allow for all costs incurred during the progress of the Contract for complying with the provisions concerning the preparation and use of "Designed mixes" and "weigh batchers" for all structural concrete work.

Absolutely no deviation from the use of Design mixes and weigh batching machines shall be entertained on the basis of site topography expanse or any other reason whatsoever as the Contractor will have been deemed to have allowed for these in his pricing.

Prices for concrete shall include for mixing and depositing as described or indicated and for hoisting and depositing at the various levels required throughout the building, and shall also include for forming or hacking a satisfactory key for all faces receiving asphalt and plaster work. Prices for slab shall also include for levelling off the surfaces as

described under "Compaction", and all temporary formwork to form construction joints at bay edges.

Prices for reinforced concrete shall, in addition, include for filling into between or on formwork and thoroughly compacting between and around rods or fabric reinforcement and for forming all additional construction joints between varying mixes. Where described as vibrated, prices must include for fully vibrating as described.

Prices for formwork shall include for extra materials at joints, extra labour and waste for narrow widths, small quantities, over laps, passing at angles, straight cutting and waste, splayed edges, notching, etc., and for fixing at the various levels including battens, struts, and supports and for bolting, wedging, easing, striking and removal. Prices for linear items such as boxing shall include for angles and ends.

Prices for steel rod reinforcement shall include for cutting to lengths and all labour in bending and cranking, forming hooked ends handling, hoisting and fixing in position and for providing all necessary tying wire and supports. Prices for fabric reinforcement shall include for all straight cutting and waste, handling, hoisting and fixing in position, providing all necessary tying wire and supports and all extra material in laps.

Prices for all precast concrete shall include for all moulds, finishing as described, handling reinforcement, hoisting and fixing at the required levels, bedding, jointing and pointing in cement and sand (1:5) mortar also for casting or cutting to the exact lengths required and any waste resulting from such cutting.

Prices for expansion joints shall include for cutting to size all temporary supports, and prices for expansion joint sealers shall include all temporary battens or fillets required to form the necessary grooves.

SPECIFICATIONS: CONCRETE

4.60 NOTES CONCERNING MEASUREMENT AND PRICING

Prices for suspended hollow tile composite floor and roof slabs must be "all inclusive" to include for concrete hollow tiles, insitu ribs, concrete topping, concrete filling to open ends of hollow concrete tiles.

Concrete in main beams shall be separately measured to the full width thereof and for full depth to top of slab level and composite slabs are measured the nett area between same. No adjustment will be made in reinforcement, etc., into main beams or flanges, etc., to obtain bearings which are deemed to be covered in the Contractor's rates.

4.61 SITE BOOKS AND STANDARDS

Instructions to be Recorded

The Contractor shall provide and keep permanently on the site a numbered triplicate book wherein the Contractor shall record all instructions relating to concrete work issued by the Engineer or the Engineer's representative. One copy of every entry therein shall be sent to the Engineer on the same day as the entry is made.

Site Diary

The Contractor shall provide and keep permanently on the site a continuous entry diary wherein the Contractor shall record details of shuttering, placing of reinforcement, concreting and curing operations, striking of shuttering, making good and daily temperature and weather conditions. This diary shall always be available for inspection by the Engineer's representative.

SPECIFICATIONS: CONCRETE
STRUCTURAL CONCRETE APPROVAL FORM
(to be filled in duplicate before any pour)

Section: ..... Level: ..... Member: .....
Date and time of Request: .....
Date and time of Proposed Pour: .....
Concrete Grade: .....Site*/Ready Mix*
*Delete one

DESCRIPTION	CHECKED	REMARKS
Formwork Soundness		
Shutters/stop ends		
Formwork/shutter props		
Tie bolts, Cover Blocks		
Dimensions		
Plumbness/slope/level		
Re-bar cleanliness Chair/links, etc.		
Re-bar fixing		
Preparation or Hacking of joints		
Water stops		
Moulds for cubes		
Materials for curing		
Any other checks (specify)		
1.		
2.		
3.		

APPROVED: ..... SIGNATURE: ..... DATE: .....
NOT APPROVED: ..... (RESIDENT ENGINEER)
***Note: Approval by the Engineer or his Representative does not relieve the Contractor from any of his contractual obligations.**

SPECIFICATIONS: CONCRETE
READY-MIX CONCRETE - DELIVERY FORM

Source: ..... Destination: ..... Distance: ..... (km)

Quantity Delivered: ..... m^3 Dispatched by: .....

Slump at source: ..... mm Slump on site: ..... mm

Mixer Reg. No. ..... Driver: .....

TIME DURATION DATE

Loading time: ..... Minutes

Time of Departure: .....

Time of Arrival on Site: .....

Off-loading time: ..... Minutes

Total time taken between loading at source
and off-loading on site: .....

Approved water added on site on request ..... Litres

Remarks: .....
.....
.....

Signed (R.E/C.O.W) ..... Date: .....

SPECIFICATIONS: WALLING

PART 5: WALLING

MATERIALS

5.1 **CEMENT**

Cement used for making mortar shall be as described in "Concrete work".

5.2 **LIME**

The lime for making mortar shall be obtained from an approved source and shall comply with B.S. 890 Class A for non-hydraulic lime. The lime to be run to putty in an approved lined pit or container. The water to be first run into the pit or container and the lime to be added until it is completely submerged, stirred vigorously until all lumps are disintegrated and shall be kept constantly covered with water and regularly stirred for at least four weeks. The resulting milk-lime then to be run through a fine sieve and run into a pit or other container and kept clean and moist for not less than two weeks before being used in the works.

5.3 **SAND**

Sand used for making mortar shall be clean, well graded siliceous sand of good sharp hard quality equal to samples which shall be deposited with and approved by the Architect. It shall be free from lumps of stone, earth, loam, dust, salt, organic matter and other deleterious substances, passed through a fine sieve and washed with clean water if so directed by the Architect.

5.4 **WATER**

Shall be as described in "Concrete Work".

5.5 **CONCRETE BLOCKS**

Concrete blocks shall comply with the requirements of B.S. 2028, 1384 except where amended or extended by the following clause. Blocks shall have square arrises and

corners. For fair-faced work damage to arrises and corners shall not exceed the removal of 6 mm of the blocks depth or thickness.
Concrete blocks shall have a minimum crushing strength of 3.5 N/mm² except when below the damp course level or in contact with soil when they shall have a minimum crushing strength of 7N/mm², unless noted otherwise on drawings. Hollow concrete blocks shall not be used below the damp course level or in contact with soil.

SPECIFICATIONS: WALLING

5.5 CONCRETE BLOCKS

Concrete blocks used for external walls shall be Class A and for internal load bearing walls they shall be at least Class B.

Class `C' blocks shall only be used for non-load bearing partitions.
No precast blocks shall be incorporated into the works unless approved by the Architect. The delivery of precast blocks from which samples tested do not comply with this specification shall be deemed defective. Any work constructed with blocks from which samples tested do no comply with this specification shall be deemed to be defective.
From every 1,000 precast concrete blocks delivered to site, ten block samples shall be provided for testing. The precast block samples shall be selected in accordance with B.S. 2028, 1364. Samples of precast concrete blocks for testing shall be tested for the following properties in accordance with the methods given in B.S. 2028, 1364 and the test results shall comply with the requirements of B.S. 2018, 1364 except where amended by this specification.

a) Drying shrinkage
b) Compressive strength or transverse breaking load (as applicable).
c) Wetting expansion*
d) Density
e) Dimensional Tolerance
f) Cavity size

*Test only applicable for concrete blocks made with clinker aggregate.

Blocks shall also be tested to determine the suction rate. The test shall consist of weighing the block, placing in a tray of water such that only 3 mm of the block side is immersed for a period of sixty seconds +/- 2 seconds; quickly wiping off excess water and reweighing. The suction rate is the increase in weight due to water absorbed and shall not exceed 2 kg/m²/minute. Blocks which have suction rate exceeding 2Kg/m²/minute may be used if
the Contractor uses an approved water reactive additive in the mortar or can show that the blocks are wetted such that the blocks will have a suction rate not exceeding 2Kg/m²/ minute for a period of 24 hours from being laid and provided the blocks comply with all other requirements.

SPECIFICATIONS: WALLING

5.5 CONCRETE BLOCKS

Concrete blocks shall be stacked on prepared dry areas free of clinker, ashes and sulphate bearing strata. Blocks of different strengths shall be stacked separately and clearly marked to differentiate the strengths.
Blocks shall not be used for a minimum of 7 days after manufacture and shall not be loaded for at least 14 days after laying. For the first 7 days after manufacture, blocks shall be cured by maintaining in a damp condition, e.g. covering with polythene sheeting after wetting blocks.

5.6 HOLLOW CLAY BLOCKS

Hollow clay partition blocks shall comply with the provisions of B.S. 1190 Section 1 and

are to be hard, well burnt true to size and shape and with sharp arises and keyed faces and joints and are to be obtained from an approved manufacturer and to be equal in every respect to a sample to be deposited with and approved by the Architect.
Blocks are to be 190 mm high (to give 200 mm course height including the joint) and of the thickness given herein. Cutting of blocks is to be avoided wherever possible and full use is to be made of quarter, half and three quarter blocks and blocks with conduit recesses.

5.7 LOUVRE BLOCK WALLING

i) To be precast concrete mix 1:1:5:3 or 25 N/mm² (12 mm aggregate) but with 10 mm finished fair on all exposed surfaces, built in cement and sand (1:5) mortar with straight horizontal and vertical joints to flush pointed both sides.

ii) Each block to be size 200 mm x 400 mm x 200 mm high and consisting of two ends each 200 mm x 200 mm x 50 mm thick joined with a 50 mm thick twice cranked louvre with top end of louvre projecting 40 mm above top of block.

5.8 STONE

All stone shall comply with the requirements of CP 121.202 for masonry and rubble walls respectively except where amended or extended by the following clauses.
Unless otherwise noted, all masonry walls shall be coursed squared rubble walling with mortar joints.
The size of stones for rubble walling shall be such that the length of stone does not exceed three times its height. For course squared rubble walls blocks shall not exceed 300 mm in height and shall be not less than 150 mm in height.
Where snecked rubble walls are specified, the snecks shall not be less than 100 mm square on the exposed face.
Stone for masonry shall have a minimum compressive strength of 10 N/mm². (Stone shall not be required to be tested to failure). The density of stone for masonry shall be not less than 230 kg/m³

SPECIFICATIONS: WALLING

5.8 STONE

The drying shrinkage of stone shall not exceed 0.05%.
Samples of stone provided for testing shall be tested for the following in accordance with the methods given in B.S. 2028, 1364 and the test results shall comply with the requirements of this specification.

a) Compressive strength
b) Density
c) Drying shrinkage

The colour and texture of stone shall be uniform and consistent. Prior to delivering any stone to site, the Contractor shall supply the Architect with a sample of stone in order that he may approve the colour and texture. The Contractor shall ensure that sufficient suitable stone is available for the whole of the project prior to ordering the stone.
Where cast stone including stone described as artificial stone, reconstructed stone, etc is specified the stone shall comply with the requirements of B.S. 1217.
Masonry shall be of stone, having no irregular faces and only the back face if not visible shall be left as from the saw.

Prior to ordering dry stone the Contractor shall demonstrate that the stone is durable. This may be done by supplying details of buildings constructed with stone from the same quarry and which has been exposed to the same environmental condition for at least ten years.
The maximum projection from the face of stone for rubble walls shall be 20 mm beyond the specified face of the wall.
The Contractor shall provide six samples of stone measuring 150 mm x 150 mm for testing prior to delivering any stone to site. As work proceeds the Contractor shall provide six samples 150 mm x 150 mm x 150 mm for testing from every 300 m² of work.
All stone shall be stacked on prepared dry area free of clinker, ashes and sulphate

bearing strata.

5.9 MULTI-COLOURING STONE WALLING

Stone for multi-coloured stone walling shall have at least three distinct colours but shall in any case be to the approval of the Architect. A sample panel of walling shall be built and on approval of the Architect will be the minimum standard for the works.

5.10 FIRE BRICKS

Clay fire bricks shall be obtained from an approved source and shall be hard, sound, square and clean, well burnt and in respect of size shall comply with B.S. 3921: 1974 Section 2.

SPECIFICATIONS: WALLING

5.11 WALL REINFORCEMENT

Where described walls and partitions shall be reinforced with a 25 mm wide strip of No. 20 S.W.G. hoop iron built into alternate horizontal joints in the wall centre. The reinforcement shall be lapped and hooked at running joints, angles and intersections and carried at least 115 mm into abutting walls at junctions.

5.12 WALL TIES

To be 3 mm diameter galvanized mild steel wire twisted butterfly wall ties.

5.13 DAMP-PROOF COURSES

The bituminous felt sheeting for damp-proof courses shall be hessian based bituminous felt complying with B.S. 743 type 4A weighing not less than 3.85 kgs per square metres. The sheeting is to be lapped 150 mm at running joints and the full width of walls at angles.

WORKMANSHIP

5.14 CEMENT MORTAR

Mortar described as cement mortar 1:4 shall be composed of 1 cubic metre (1498 kgs) of Portland Cement and 4 cubic metres of sand. Other mixes such as 1:3, 1:5 etc. shall be similarly construed.

5.15 MIXING OF MORTAR

The constituent materials shall be measured separately when dry in specially prepared gauge boxes of sizes to give the proportions specified without consolidation of the contents by ramming and shaking. The mortar shall be mixed in an approved power driven mixer for not less than two minutes per batch and using the minimum quantity of water necessary to obtain a working consistency. The mixer shall be used as close as practicable to the works and mortar and shall be used within 30 minutes of mixing. No partially or wholly set mortar will be allowed to be used or re-mixed.

5.16 GENERAL CONSTRUCTION

a) Setting out

The Contractor shall provide proper setting out rods and set out all work on some for course, openings, heights etc., and shall build the walls, piers etc., to the widths, depths and heights indicated on the Drawings and as directed by the Architect.

b) Building in Wood Frames

Openings for doors, ventilators etc., are to be set out and left unbuilt until the wooden frames have been fixed in position.

c) Building in Metal Windows and Doors

Openings for metal frames are to be wide enough for the frames to fit without being forced into position. Build the lugs into the joints of the walling and fill in the space between the walling and frame with cement mortar well tamped into the channel of the frames and point all round externally.

SPECIFICATIONS: WALLING

5.16 GENERAL CONSTRUCTION

c) Building in Metal Windows and Doors

All frames must be set plumb and level and free from twist.

d) Walls to Receive Plaster & Similar Finishes

All faces of walls to be plastered etc., to have all projections dressed off and joints raked out as key.

5.17 BUILDING WALLING

a) Laying and Jointing

All blocks shall be well wetted before being laid and the top of walling where left off shall be well wetted before commencing building. Walls to be kept wet three days after building. All walls throughout the works shall be carried up evenly in 200 mm courses except where courses of less depth are required to bring walling up to level of floors, windows and the like and where otherwise described, no part being allowed to be carried up more than one metre higher at one time than any other part and in such cases the joining shall be made in long steps so as to prevent cracks arising and all walls shall be levelled round at each stage. Not more than 3 metre height of wall shall be laid in any one day.

Blocks shall be bedded and jointed in cement mortar as described with beds and joints 10 mm thick, all flushed up and grouted solid as the work proceeds.

b) Bonding

The blocks shall be properly bonded together and in such manner that no vertical joint in any one course shall be within 115 mm of a similar joint in the courses immediately above and below. All walling of 300 mm thickness or less shall be built in single thickness of blocks. Walling exceeding 300 mm in thickness shall be built with through bonders not more than 1070 mm apart in each course as directed by the Architect. Alternate courses of walling at all angles and intersections shall be carried through the full thickness of the adjoining wall. All perpends, reveals and other angles of the walling shall be built strictly true and square.

c) Tolerance

All courses of walls shall be level with a maximum deviation of +/- 3 mm in any one metre length and a maximum overall deviation of 10 mm for length of wall exceeding 3 metres. Walls shall be plumb with a maximum deviation of +/- 3 mm in any metre height of wall with a maximum deviation of +/- 10 mm in the total height of the wall of any storey.

All corners of walls which are shown as being at right angles shall be square with a maximum deviation of 3 in 1000. All walls shall be straight with a maximum deviation of +/- 3 mm in any one metre length and a maximum overall deviation of 10 mm in any length exceeding 3 metres.

SPECIFICATIONS: WALLING

5.17 BUILDING WALLING

c) Tolerance

All bed and vertical joints shall be an average of 10 mm thick with a maximum deviation of +/- 3 mm of blockwork, and stone rubble walls, joints for stone masonry walls shall be 6 mm +/- 1 mm thick.

d) Curing

All walls shall be maintained in a damp condition for at least 24 hours after laying. Walls under construction shall be dampened by applying water with a brush and no hosing directly on to the wall shall be permitted. When work ceases on any section of wall polythene or hessian shall be draped over the wall for at least 24 hours. If hessian is used, it shall be maintained continuously wet.

e) Cavities

Cavity walls shall be of the overall thickness shown on the drawings.

Cavities above ground level between leaves of block or masonry shall be free of mortar droppings or other debris. The Contractor shall take proper precautions to prevent mortar or debris entering the cavity.

Cavities below ground level shall be filled with mortar for cavities up to 75 mm wide and for cavities over 75 mm wide filling shall be concrete mix 1:3:6. Cavities shall be filled such that there is maximum of three times the thickness of

the thinner leaf of the wall filled with wet mortar or concrete unless the wall is continuously supported for the depth.

f) Backfilling

Earth backfilling against walls shall be carried out such that the level of the backfill is always equal on each side of the wall.

When a wall has filling material on one side only to a fill width of more than three times the wall thickness, the wall shall be continuously supported during backfilling.

Backfilling shall not be carried out until at least seven days have elapsed since the laying of the blocks or stone.

5.18 REINFORCED WALLS

Steel reinforcing bars in walls shall be carefully placed and spacers used to ensure that a minimum of 20 mm cover is given to the reinforcement unless otherwise specified.

Horizontal reinforcement in mortar joints shall be laid such that the reinforcement is not in contact with the blocks or stone.

SPECIFICATIONS: WALLING

5.19 WALL TIES

Wall ties shall be provided to connect walls to steel or Concrete columns and beams to connect two unbonded leaves of wall.

Wall ties shall be provided at 450 mm centres both vertically and 900 mm centres horizontally and shall be staggered when used to connect two leaves of unbonded wall.

Wall ties shall be embedded into each material by a minimum of 50 mm.

5.20 FAIR FACE

All concrete and hollow blockwork described as finished with a fair face is to be built to a true and even face with the joints finished as specified hereinafter.

5.21 POINTING

Pointing of walls shall be prepared for painting by raking out all loose or friable material to a minimum depth of 15 mm to form a square recess. The joints shall then be wetted and new mortar shall be forced into the joints and finished as directed.

5.22 HOLES, CUTTING AND CHASING

a) All putlog holes shall be not less than one course deep and carefully filled with a block cut to fit size of opening with beds and joints filled with mortar well tamped in after scaffolding is removed and if in faced walls to match facing.

b) Where walling is cut, holed or chased for conduits, pipes and the like all such cuttings etc., shall be filled in with cement mortar (1:4) prior to the application of finishes.

SPECIFICATIONS: ROOFING

6.1 ASBESTOS CEMENT ROOF SHEETING

Galvanized mild steel corrugated sheeting (GCI) shall be in accordance with B.S 3083, not less than 0.56 mm (24swg) with sheets free from twist or buckle. Galvanizing must be clean, free from surface defects, and firmly bonded to the steel. Ridges, valleys, flushings and the like, of the same profile and quality with the roofing sheets shall be provided.

Galvanized mild steel ridges and valleys shall be not less than 0.56 mm (24swg) thick, of a profile to suit the specified construction, and not less than 300 mm wide.

Fixings must be of a size and pattern to suit the roof and the sheets being fixed and must be approved by the sheet manufacturer. Bolts, screws and nails must be supplied complete with plastic washers. All fixing bolts and screws must be fitted with approved plastic washers for the profile of the sheeting in use. Steel hook bolts and nuts shall comply with B.S 1494. Cadmium or zinc plated steel roofing screws shall comply with B.S 1494, galvanized and gimlet pointed.

Roofing sheets and accessories shall be fixed in accordance with the manufacturer's

recommendations to make the whole system sound and watertight.
Sheeting shall be laid with end laps of not less than 150 mm and one and a half corrugation side laps. Sheets shall be laid with open joint side laps to face away from the prevailing wind.
Eaves and end laps shall be fixed with two fixings per sheet width. Fixing at intermediate supports, where no lap occurs, shall be with one fixing per sheet width.

6.2 SLATES

Slates shall be "Thrutone Duracem" cement tiles to B.S 5534: Part 1 1978 by TAC Construction Materials (Turner and Newell PLC), or by other equal and approved. The slates shall be fixed with galvanized steel hooks to the manufacturer's specifications.

6.3 SHINGLES

Shingles shall be 400 mm long nominally and red Canadian cedar fixed with copper nails to timber battens with 125 mm laps.

6.4 PROMENADE TILES

Promenade tiling will be executed by an approve specialist sub-contractor. The tiles shall be manufactured by TAC Construction Materials (Turner and Newell PLC) or by other equal and approved. The tiles shall be fixed by galvanized steel hooks to the manufacturer's specifications.

6.5 ASPHALT ROOFING

Asphalt roofing will be executed by an approved specialist roofing sub-contractor. Before any application of roofing, the Contractor is to ensure all roof surfaces are thoroughly cleaned by sweeping.

SPECIFICATIONS: ROOFING

6.5 ASPHALT ROOFING

Roofing asphalt shall be to B.S 988/1966 Table 3 Column 111 Tropical Mastic asphalt laid in two coats to a total thickness of 20 mm on and including black sheathing felt and vertical surfaces local grey stone chippings or pre-cast concrete paving slabs as necessary.
The first layer of asphalt to be fully bonded to the Sheathing felt and the second layer to be laid with a 75 mm joint to the first layer.
At all junctions of covering with parapet walls, kerbs, eaves, gutters etc., the asphalt is to be turned up a minimum of 150 mm with an angle fillet at the junction with the roof and splayed at the top and tucked 25 mm into groove and pointed in cement and sand mortar.
Precast concrete tiles are to be 300 mm x 300 mm x 25 mm thick, interlocking, finished fair on exposed face and bedded in bitumen and pointed in cement mortar.

6.6 ALUMINIUM FLUSHING

Aluminium flushings shall be formed out of 22 gauge super purity aluminium with natural mill finish to B.S 1470. Where flushings are built into joints or rucked into grooves, the minimum depth is to be 25 mm and they are to be secured by folded aluminium wedges at 450 mm centres and pointed in cement mortar (1:3).

6.7 ROOF SCREEDS GENERALLY

Roof screeds are to be laid to a minimum fall and cross fall of 27 mm in 3.0 metres with a minimum thickness of 19 mm at rainwater outlets and are to be finished to the entire satisfaction of the sub-contractor executing the roofing.

6.8 CEMENT AND SAND ROOF SCREEDS

The roof screeds shall be formed of cement and sand (1:3). The screeds shall be laid in bays, square where possible, of maximum 10 square metres. Each bay shall be formed between stop boards of the correct height and cut on each side to indicate the slope required in the roofing. The screed shall be trowelled with a wood float to true and accurate falls or cross falls up to the stop boards. A 10 mm wide gap shall be left between each screed bay for the full depth of the screed.
The screeds shall be allowed to cure thoroughly to attain maximum shrinkage. Any cracks which will appear due to shrinkage shall be made good.
The gaps between the screed bays shall be filled as follows:

1. Brush or blow up joints to remove dirt, dust, etc. and prime the sides of the joints using a piece of sponge or similar dipped in a mixture of equal volumes of

"Flinktone" Type 1 or Type 3 emulsion and water. Allow to dry.

2. Fill up joints slightly around the surface using a 1:2:3 mastic. This mastic shall be prepared by mixing one volume of cement with three volume of sand, adding a little water to dampen the mix, then adding two volume of "Flinktone" Type 1 or…

6.8 CEMENT AND SAND ROOF SCREEDS

…Type 3 emulsion. The mastic is thoroughly mixed together adding further water as necessary until it is a uniform brown color, without being too sloppy. Allow to set and dry.

The screed joints shall then be covered with a 200 mm wide strip of building paper **not** bonded to the screed joint and well lapped at angles and junctions before the application of the roof covering.

6.9 LIGHTWEIGHT ROOF SCREEDS

Lightweight roof screeds shall be composed of bases of cement, sand and pumice (1:4:8) finished with a 12 mm cement and sand (1:5) topping laid whilst the base is still green and trowelled smooth to the satisfaction of the Architect.

The screeds are to be laid as described in cement and sand roof screeds.

6.10 P.V.C RAINWATER PIPES

P.V.C rainwater pipes and fittings are to comply with B.S 4576 with rubber ring seal joints.

Pipes are to be fixed to the structure with P.V.C holderbats or brackets built-in or plugged and screwed at maximum 2 metre centres.

Bends, swan necks, discharge chutes and fittings generally are to be fixed where necessary to facilitate the flow of water.

Rainwater outlets shall be PVC suitable for the roof finish in which they occur with domical PVC grating.

6.11 COMPLETION OF THE WORKS

On completion of the works, the Contractor shall clear away, ensure that rainwater outlets are clear and generally leave the roof area in a clean and watertight condition to the satisfaction of the Architect.

6.12 PROTECTION

The Contractor is to take all necessary precaution to protect the finished works and must ensure that no damage occurs to the footing until completion of the works.

6.13 PRECAST CONCRETE INTERLOCKING TILES

Precast concrete tiles shall conform to the general standards of precast concrete units as before described in the specifications for concrete. The tiles shall be fixed in accordance with the manufacturer's specifications with a 90 mm end lap and 50 mm

side lap. Ridge cappings and hip cappings shall be bedded and jointed in colored cement and sand (1:3) mortar to match the color of the tiles.

SPECIFICATIONS: CARPENTRY & JOINERY

PART 6: CARPENTRY AND JOINERY

6.1 GENERAL

All woodwork shall be carried out in accordance with the drawings and the principles of first class joinery construction. Unless specifically stated otherwise, sizes shown on drawings are finished sizes and the Contractor must allow for wrot faces.

MATERIALS

6.2 QUALITIES OF TIMBER

a) The qualities of timber stated hereinafter are in accordance with the latest KENYA Government Grading Rules.
b) All timber described as Prime Grade is to be First Grade (Grade II).
c) All timber described as Selected Grade is to be Second Grade (Grade II).
d) All hardwood is to be Prime Grade (Grade I).
e) All timber for permanent work in the building shall before use be approved by the Architect for quality in accordance with the foregoing specification for its respective grade. Any timber not so approved by the Architect shall be removed from the site forthwith.

6.3 INSECT DAMAGE

All timber, whether graded or ungraded and including shuttering, scaffolding and the like shall be free of 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 timbers attacked, or suspected of being attacked, notwithstanding that the timber concerned may have been inspected and passed as fit for use.

6.4 SEASONING OF TIMBER

All carpentry timbers are to be seasoned to an average moisture content of not more than 20%. All joinery timbers are to be seasoned to an average moisture content of not more than 15%. The Contractor is to make available on site a meter for testing moisture content of all timber delivered.

SPECIFICATIONS: CARPENTRY & JOINERY

6.5 PREPARATION AND PROTECTION OF TIMBER

i) All timber necessary for the works is to be purchased immediately the contract is signed and when delivered is
to be open-stacked for such further seasoning as may be necessary. Preparation of the timber is to be commenced simultaneously with the commencement of the works generally.
ii) All timber and assembled woodwork is to be protected from the weather and stored in such a way as to prevent attack by decay, fungi, termites or other insects.

6.6 SPECIES OF TIMBER

Only those timbers specified are to be used for the works, unless alternatives are authorized by the Architect in writing.

6.7 PRESSURE IMPREGNATED TIMBER

i) All timber described as "pressure impregnated" shall be impregnated under vacuum and pressure with "Celcure" or "Tanalith" wood preservative with an average absorption of not less than 6.7 kgs of dry salt per cubic metre. In case of resistant species where this retention cannot be obtained the timber shall be treated to refusal point. All treated timber shall not be exposed to wet conditions for at least 14 days after treatment has been carried out. All cut ends, drilling or fabrications on the site producing new surfaces shall be thoroughly brushed or soaked with "Celcure B" salts applied in accordance with the manufacturer's instructions.

ii) Any other method of timber impregnation will only be allowed at the Architect's approval.

6.8 HARDWOOD

All hardwood will comply with the requirements of B.S. 1186 Part 1 and B.S. 4047. It shall show a straight and regular grain throughout.

Hardwood shall be free from woolly texture, soft heart, sap wood, splits, shakes, all evidence of insect or fungi attack and rot and all faults caused by compression failure. There shall be no waney edges. Hardwood shall be free from knots on exposed faces. Any hardwood showing visible imperfections will be rejected.

Preservatives shall not be used without the Architect's permission. Where indicated on the drawings, internal hardwoods will be treated with clear sealants as specified elsewhere.

6.9 SOFTWOOD

Softwood timber for carcassing work shall be either podocarpus or Cypress to the approval of the Architect and shall be to the dimensions specified on the drawings.

Timber shall be classified in accordance with the Groups listed in this Clause.

All softwood shall comply with the requirements of B.S. 1186 Part 1. Timber shall be free from woolly texture, soft heart, sap wood, splits, shakes pith showing on the surface, soping grain exceeding one in eight checks, knots exceeding 25 mm diameter, loose knot or knot holes and any evidence of insect or fungi attack. There shall be no waney edges. Where indicated on the drawings, the softwood will be treated with clear sealer or painted with gloss paint.

All softwood is to be pressure impregnated against insect attack before delivery to site. Any ends cut after treatment shall be given two liberal coats of preservative.

6.10 PLYWOOD

All plywood shall comply with the requirements of B.S. 1455, be obtained from a manufacturer to be approved by the Architect and be of the thicknesses shown on the drawings.

Plywood shall be Exterior Grade except where otherwise stated. Plies shall be bonded together with adhesives complying with the requirements of B.S. 1203 grade WBP.

Plywood shall be free from end joints (including joints in veneers) overlaps in core veneers, dead knots, patches and plugs, open defects, depressions due to defects in cure, insect attack (except isolated pinwork holes through face veneers only), fungal attack and from discolouration differing from that normally associated with species.

PLYWOOD

Face veneers shall be hard and durable and shall be capable of being finished to a smooth surface. Face veneers shall closely match the general joinery timber supplied.

6.11 CHIPBOARD

Chipboard shall be medium density wood particle board complying with B.S. 2604 Part 2, produced in factories by an approved process.

6.12 BLOCKBOARD

Blockboard shall be of approved local or imported manufacture to B.S. 3444 glued throughout and softwood or hardwood faced as hereinafter specified and equal to a sample to be deposited with the Architect for approval and which when so approved shall form the standard for the works.

SPECIFICATIONS: CARPENTRY & JOINERY

6.13 FIBREBOARD

Shall be insulating board to comply with B.S. 1142 of the types specified and of approved manufacture.

6.16 TIMBER DOORS

Doors are to be designed, manufactured and fixed in accordance with the relevant British Standards summarized below:

B.S. 476 Part 8 1972 Fire tests etc
B.S. 4787 Part 1 1972 Door dimensions etc.
B.S. 1186 Part 1 1971 Quality of timber and workmanship
B.S. 1227 Part 1 A Hinges
B.S. 3827 Builder's hardware – glossary

6.17 FLUSH DOORS

Generally, the requirement for flush doors is that they have a minimum thickness of 40 mm. They shall be faced both sides and there will be hardwood lippings to all edges. Hollow core and semi-solid types shall contain adequate provision within the core for ironmongery (e.g. lock blocks etc).

All hollow and semi-solid door shall be faced with WEP bonded Exterior grade plywood. Except where indicated, doors shall have hardwood veneered faces.

Vision panels where required shall be 150 mm wide x 900 mm deep.

Flush doors shall be obtained from a supplier to be approved by the Architect. Flush doors shall comply with the requirements of B.S. 459 Part 1, 2 and 3. All edges shall be lipped with hardwood tongued into the edge of the door.

The core of solid core flush doors shall be constructed of longitudinal laminations of precision planed timber, butt jointed and glued with resin based adhesive under hydraulic pressure, the whole forming a rigid fire-resistant raft.

Where doors are indicated as fire resistant they shall be constructed so as to exceed the requirements stated when tested in accordance with B.S. 476 Part 8 (1972) Section 7.

SPECIFICATIONS; CARPENTRY & JOINERY

6.18 HARDWOOD VENEERS

a) Veneer facings shall be selected to the approval of the Architect.
b) No glass or synthetic fibre stitching will be permitted for jointing veneer leaves together.
c) Veneers shall be free from splits, dote, glue, stains, insect or fungi attack and rot.
d) Filling or inlaying of any kind will not be accepted.
e) All wood veneers shall be bonded to the core material in such a way that no lifting and blistering shall occur.

6.19 LAMINATED PLASTIC VENEERS

Laminated plastic veneers shall be a decorative sheet 1.6 mm thick complying with B.S. 3794 Class 1. The pattern will be selected by the Architect. The laminate shall have decorative (pattern) finish on one face only. Patterns will be selected from the manufacturer's standard range.

6.20 MISCELLANEOUS MATERIALS

a) Tapered timber pellets for filling screw holes must be cut across the grain and shall be of the colour and grain being plugged.
b) Metal fixing devices must be fully rust-proofed. Cramps, brackets, plugs, bolts etc. must be of a type, make and pattern approved by the Architect.
c) Adhesives must be suitable for use in the local conditions and be compatible with the materials with which they are in contact.

6.21 NAILS AND SCREWS

Nails shall comply with B.S. 1201, screws shall comply with B.S. 1494 and bolts shall comply with B.S 916.

WORKMANSHIP

6.22 TOLERANCES

The method of construction must accommodate tolerances as shown on the drawings and allow for ensuring that repetitive units can be accurately located in relation to grid lines and that tolerances do not accumulate.

Reasonable tolerance shall be provided at all junctions between joinery and the building carcass, whether of masonry or frame construction, so that any irregularities or movement may be adequately compensated.

6.23 JOINTING

d) Where the use of bolts and washers is specified the holes are to be bored from both sides of the timber and to be a diameter D + D/16 where D is the diameter of the bolt. Nuts must be brought up tight but care is to be taken to avoid crushing of the timber under the washers.

e) Joints in joinery must be as specified or detailed and so designed and secured as to resist or compensate for any stresses to which they may be subjected. All nails, sprigs etc. are to be punched and puttied.

f) Loose joints are to be made where provision must be made for shrinkage, glued joints where shrinkage need not be considered and where sealed joints are required. All glued joints shall be cross-tongued or otherwise reinforced.

g) Glues 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 can be guaranteed, resin or organic glues may be used.

6.24 FRAME WORK

The word "framed" shall mean and include all the best known methods of jointing woodwork together by mortice, tenon, dovetail or other methods and for forming all necessary stops, mitres or mason's mitres in members which are moulded, rebated etc.

6.25 PLUGGING

Plugging and fixing to walls in all trades shall be executed by "Rawl plugging" or similar approved proprietary methods all in accordance with the manufacturer's printed instructions. Hacking of holes and filling with timber plugs will not be permitted under any circumstances.

6.26 CARPENTRY WORK

a) All carpentry shall be executed with workmanship of the best quality. Scantlings and boards shall be accurately sawn and shall be uniform in width and thickness throughout and shall be as long as possible and practicable in order to eliminate joints.

b) All work shall be left with a sawn surface except where specified to be wrot.

c) All work shall be accurately set out and in strict accordance with the drawings and shall be framed together and securely fixed in the best possible manner with properly made joints. Provide all braids, nails, screws etc. as necessary and as directed and approved.

(d) Actual dimensions of scantlings for carpentry shall not vary from the specified dimensions by more than +3 mm or -1 mm. Sizes and thicknesses of wrot carpentry timbers are nominal, that is to say a variation of 3 mm from the specified sizes will be allowed from each wrot surface unless the thickness or size is described as "finished" in which case no variation from the stated thickness or size will be permitted.

6.27 JOINERY WORK

All joinery work shall be wrot unless otherwise described.

a) Sizes and thicknesses of joinery are nominal that is to say a variation of 3 mm from the specified sizes will be allowed from each wrot surface unless the thickness or size is described as "finished" in which case no variation from the stated thickness or size will be permitted.

b) No joinery to be put in hand until the details have been supplied or approved by the Architect and in all cases the details are to be worked to.

c) All joinery shall be executed with workmanship of the best quality in strict accordance with the detailed drawings, mouldings shall be accurately and truly run on the solid and all work planed, sand-papered and finished to the approval of the Architect. All arises to be slightly rounded. All framed work shall be cut out and framed together as soon after the commencement of the building as is practicable but should not be wedged up until the building is ready for fixing the same and any portions that warp, get in winding, develop shakes or other defects shall be replaced with new. In door frames etc. the heart face of the

timber shall be fixed away from the wall. As soon as required for fixing in the building the framing shall be glued together with glue as described and properly wedged or pinned etc. as directed.

d) All beads, fillets and small members shall be fixed with round or oval braids or nails well punched in and stopped. All larger members shall be fixed with screws, the screws let in and pelleted over with wood pellets to match the grain.

e) Cups and screws for fixing beads and fillets shall be spaced 150 mm and 25 mm iron angles.

f) All joinery immediately upon delivery to the site is to be stored and protected from the weather.

g) All joinery is to be primed before fixing but no work is to be primed until it has been approved by the Architect.

h) All fixed joinery which is liable to become bruised or damaged in any way, shall be properly cased and protected by the Contractor until completion of the works.

i) When natural finish is specified, the timber in adjacent pieces shall be matched and uniform or symmetrical in colour and grain.

6.28 SOFTWOOD

Fixing shall be by means of non-rusting screws with counter sunk heads to proprietary plugs or grounds. Nailing will not be permitted.
Sections shall be neatly and accurately cut so as to avoid splitting of the wood.

SPECIFICATIONS: CARPENTRY & JOINERY

6.29 HARDWOODS

Hardwoods are as described.
In jointed panels each piece shall be of the same species. Joinery for oiling shall have all surfaces of the same species and same character or grain.
Fixing shall be by means of brass screws with countersunk heads to proprietary plugs or grounds. Where work is face screwed, heads of screws shall finish not less than 6 mm below the surface and be covered with round teak pellets of appropriate thickness. Pellets shall be chosen and fixed so as to match colour and pattern of grain so far as is practical. Nailing will not be permitted. Sections shall be neatly and accurately cut with fine toothed saws.

6.30 PLYWOOD

Plywood of the required thicknesses shall be used. The Contractor will not be allowed to make up thicknesses by gluing together sheets of thinner plywood.
Where cutting is required it shall be neatly and accurately performed with fine toothed saws so as to avoid splitting the face veneers and intermediate plies.

6.31 CHIPBOARD

Where cutting is necessary it shall be neatly and accurately performed with fine toothed saws so as to avoid splitting the face veneers. Where raw edges arise from cutting these shall be faced with a matching hardwood fillet cut pinned and glued to match factory produced edges.

7.32 BLOCKBOARD

Where cutting is necessary it shall be neatly and accurately performed with fine toothed saws so as to avoid splitting the face veneers. Where raw edges arise from cutting these shall be faced with a matching hardwood cut pinned and glued to match factory produced edges.

7.33 LAMINATED PLASTIC VENEER

Laminated plastic veneers are to be fixed with an approved adhesive, care being taken to eliminate all air from beneath the laminate on fixing. The laminate is to be free from chipped or cracked portions and work so disfigured is to be removed and replaced. When the adhesive is set, the laminate is to be neatly levelled off along all arises with a plane.
Where plastic laminate is fixed to doors or shelves etc. without a laminate to the outer edge, a raised lipping is to be provided and the laminate finished flush against the lipping.

SPECIFICATIONS: STRUCTURAL STEEL-WORK

PART 8: STRUCTURAL STEEL – WORK

8.1 APPROVED SUB-CONTRACTOR

The whole of the structural steelwork is to be executed by a specialist sub-contractor who is to specifically be approved by the Engineer and the Contractor and will be required to make arrangements for the execution of this work and bear all expenses incurred. No change in the rates inserted by the Contractor in these Bills of Quantities will be allowed.

8.2 ARCHITECT/ENGINEER

For the purpose of the steel structure, the Structural Engineer shall be deemed vested with the duties of and be the representative of the Architect.

8.3 QUALITY OF MATERIAL AND WORKMANSHIP

The quality of all materials and workmanship used in the execution of the works shall comply with the requirements of current relevant British Standards and Codes of Practice, including all the amendments

8.4 BRITISH STANDARDS AND CODES OF PRACTICE

B.S 4360	Weld able Structural Steels
B.S 449	The use of Structural Steel in Building, (incorporating B.S Code of Practice C.P 113 including Addendum No. 1)
B.S 4 (Part 1)	Hot rolled sections
B.S 4 (Part 2)	Hot rolled hollow sections
B.S 938	General requirements for the metal arc welding of Structural Steel Tubes to B.S 1717, (B.S 938 will be considered to apply to the requirements for welding of hot rolled hollow sections to B.S 4 Part 2).
B.S 1775	Steel tubes for Mechanical, Structural and General Engineering Purposes.
B.S 1856	General requirements for the metal arc welding of Mild Steel.
B.S 639	Covered Electrodes for the metal arc welding of Mild Steel.
B.S 2008	Protection of Iron and Steel Structured from Corrosion.

SPECIFICATIONS: STRUCTURAL STEEL-WORK

8.5 TESTS

The Engineer may at any time require any materials to be tested in accordance with the requirements listed above. The cost of all successful tests shall be borne by the Employer. The Contractor shall, if required by the Engineer, promptly supply at his own expense test pieces. The costs of tests of materials failing to comply with these standards shall be borne by the Contractor. If in the opinion of the Engineer, faulty material and/or workmanship has been used in the works, the Contractor may be directed to dismantle and cut out the parts concerned and remove them for examination and testing. The cost of dismantling, cutting out and making good to the approval of the Engineer shall be borne by the Contractor.

8.6 FABRICATION

The standard of work and the general procedure to be followed during fabrication shall be in accordance with B.S 449. The Contractor must ascertain all dimensions on site prior to commencement of fabrication.

a) Cutting & Bending: All members, plates, brackets etc. shall be neatly and accurately sheared, sawn or profiled to the required shape as shown on the drawings. Where steel is oxy-cut to shape, care shall be taken to preserve the full finished sizes required.

If members or plates are bent or set, the bends or sets shall be correctly made to the radii or angles specified without leaving hammer marks. The materials may be heated to permit this. Material that has been heated should be annealed to

approval.

b) **Punching & Drilling:** Holes for black bolts shall be drilled or punched 2 mm larger in diameter than the bolt size. Holes for high tensile friction grip bolts shall be drilled or sub punched and reamed to 2 mm larger in diameter than the specified bolt size. All drilled holes shall be parallel sides and shall be drilled by axle of holes perpendicular to the surfaces. Badly drilled holes shall either be reamed out to approval and larger bolts fitted or otherwise as directed. All rough arises shall be ground off. Holes for bolts in material thicker than 15 mm must be drilled. When holes are drilled in one operation through two or more thickness of material, the parts shall be separated after drilling and all burrs (rough edges) removed before assembly. Holes for bolts shall not be formed by a gas cutting process. Holes formed or enlarged by oxy-cutting will not be accepted and must be filled to approval by electric welding and re-filling.

c) **Bolting:** All bolts used shall be of such length that at least one thread is exposed beyond the nut after the nut has been tightened. Where a nut or bolt head would bear on an inclined surface, a beveled washer of the correct shape shall be interposed between the two surfaces. Beveled washers shall not be allowed to get out of position during fabrication and erection and for this purpose may be spot welded to the steel surface.

SPECIFICATIONS: STRUCTURAL STEEL-WORK

8.6 FABRICATION

Bolting:

Beveled washers for use with high tensile bolts shall not be welded.

i. **Black Bolts, Nuts and Washers**

Black bolts shall comply with the requirements of B.S 916. (B.S.W Threads) or B.S 2708 (U.N.C. Threads) as appropriate.

ii. **Close Tolerance Bolts**

Close tolerance bolts shall conform to B.S 916 or B.S 2708

iii. **High Tensile Bolts**

High tensile bolts shall conform to B.S 1768.

iv. **High Strength Friction Grip Bolts**

a) General grade bolts to B.S 3139 Part 1

b) Load indicating bolts manufactured by G.K.N Ltd. or any other approved manufacturer.

c) High tensile bolts to B.S 1768.

v. **Rawl Bolts**

Rawl bolts shall be those manufactured by Rawlplug Company Ltd. or any other approved manufacturer.

vi. **Washers**

Plain and tapered washers to B.S 3410.

Spring washers to B.S 1802.

Washers for high strength friction grip bolts shall be appropriate to the type and quality

of bolt specified.

vii. Rivets

The steel used for rivets shall be in accordance with B.S 4360 and in the case of high tensile steel rivets shall be so manufactured so that they can be driven and the heads formed and the physical properties not impaired.

viii. Pressed Steel Sections

Pressed or cold rolled steel purlins and girders shall be to the sizes indicated on the drawings and shall be formed from approved steel strip with a minimum yield strength of 175 N/mm².

SPECIFICATIONS: STRUCTURAL STEEL-WORK

8.6 FABRICATION

viii. Pressed Steel Sections

The sections shall be manufactured straight and free from twist. The tolerance away from straightness shall not be greater than 2 mm for every 2000 mm in length along any folded edge.

ix. Electric Welding

All welding shall be carried out in strict accordance with the requirements of B.S 1856 and B.S 2624 as appropriate and electrodes shall comply with B.S 639.

Fusion faces shall be free from irregularities such as tears, fins, etc. which would interfere with the deposition of weld metal.

Fusion faces shall be smooth and uniform and shall be free from loose scale, slag, rust, grease, paint and other deleterious material.

All welds shall be of approved type and finished size as specified. Welding shall be carried out in such sequence that results in minimum distortion of the welded parts.

Preparation of edges for welding shall be carried out by planing or machine flame cutting. Manual flame cutting will not be permitted.

Parts to be welded shall be maintained in their correct relative positions during welding, preferably by jigs.

Multi- run welds shall be carried out with each run closely following the previous run but allowing sufficient time for the proper removal of slag.

The Contractor shall ensure that each run is inspected and any unsatisfactory weld cut and remade to approval.

Welds in material 25 mm or greater in thickness shall be made by the Argon arc or similar approved process and special precautions shall be taken to prevent weld

cracking.

Unless otherwise stated, the minimum size of fillet shall be 6 mm.

On completion, welds shall present a smooth and regular finish. Weld metal shall be solid throughout with complete fusion between weld metal and parent metal and between successful runs throughout the joint.

Defects shall be cut out and made good to approval in sound weld metal.

ix. Electric Welding

The external faces of butt welds are to be ground smooth on completion to the approval of the Engineer.

8.7 SHOP AND FIELD CONNECTIONS

a) Rolled Sections

All shop connections shall be electric welded or bolted with high tensile bolts.

No bolts used shall be less than 12 mm diameter and no weld less than 40 mm in length. At least two bolts shall be used in connections transmitting loads unless otherwise indicated by the Engineer.

No weld of length less than four times the nominal fillet size shall be deemed capable of carrying load.

Beam to column connections not detailed shall be on 'Standard' top and bottom cleat connections with the load carried on the bottom cleat. Standard web connections shall be used for connecting beams to beams.

Field connections shall be as detailed, i.e. bolted with high tensile or black bolts in drilled holes. Black bolts in punched holes will only be permitted for connections carrying a designed load or for connections to timber members.

b) Structural Hollow Sections

Hollow sections shall be connected by electric welding unless specified otherwise.

The designs of welds shall be in accordance with Clauses 53 and 54 and Appendix of B.S 449.

Butt welds in tension members shall not be permitted unless the prior approval of the Engineer in writing has first been obtained.

Butt welds where permitted shall be made with the fusion surfaces of the ends of each member

properly prepared and the member properly aligned.

8.8 ASSEMBLY

a) Trusses and Portal Frames

Trusses and portal frames shall be carefully set out to the dimensions shown in the drawings.

Where it is required that trusses be cambered, such camber shall be provided by bending the bottom chord to an arc of a circle.

SPECIFICATIONS: STRUCTURAL STEEL-WORK

8.8 ASSEMBLY

a) Trusses and Portal Frames

Notwithstanding any dimensioned spacing of purlin cleats, the Contractor shall ensure that purlin cleat spacing is satisfactory for the available stock lengths of roof sheeting. However, the Engineer's approval must first be obtained before any alteration is made in purlin spacing or sheeting sizes.

Splices in portal and other frames shall be made where shown on the details or where directed by the Engineer.

b) Boxed Members

Abutting edges of boxed members shall be connected and sealed with a continuous weld to exclude the entrance of moisture. Where specified, such welds shall be ground flush, to approval.

c) Shop Assembly

Assembly of the units in the shop prior to transporting to the Site must be inspected by the Engineer prior to painting. The assembled work shall be laid out in the shop or yard such that all parts are accessible for inspection or testing.

The Contractor shall furnish all facilities for inspection and testing of the works and must notify the Engineer on every occasion materials are ready for inspection.

d) Marking

All members of the structures to be site assembled shall be marked in accordance with the site details and marking plans submitted to the Engineer for approval.

8.9 ERECTION

a) Site Dimensions

Erection shall not commence unless and until accurate site dimensions have been taken by the Contractor. No claims will be considered should site dimensions differ from those on the drawings. Any modifications in the structural steel required in order to comply with site dimensions shall be made on the ground to the Engineer's approval before erection is commenced.

b) Safety

All erection shall be carried out by competent and experienced personnel and the Contractor shall take every care to safeguard members of the public, workmen and adjoining property against injury and/or damage. The Contractor shall be held responsible for all damage caused to the structure, workmen or other property during erection.

All gear used shall be adequate strength and shall comply with all current regulations.

During erection, the work shall at all times be adequately bolted, guyed and/or braced to make the structure secure.

SPECIFICATIONS: STRUCTURAL STEEL-WORK

c) Storage and Handling

Steel members shall be stored, handled and erected in such a manner that no member shall be subjected to excessive stresses which could have adverse effects on the properties of the steel. If, in the opinion of the Engineer, the steelwork has been subjected to such treatment, the Contractor shall remove the member from site and replace it at his own expense.

d) Erection Notes

No member or part of a member which has been bent or distorted shall be erected in that condition. All straightening shall be done on the ground.

Stanchions shall be wedged to line and level on steel or cast iron wedges and checked by the Engineer. After acceptance, stanchion bases shall be grouted to approval before wedges are removed. Unless otherwise shown on the drawing, all stanchions shall be left truly vertical and correct to line and level. Beams, girders, etc. shall be erected level, unless otherwise shown, and correctly positioned.

Trusses and open web joists shall be carefully handled at all times and during erection shall be lifted at such points and in such a manner that will preclude any possibility of damage from excessive stresses.

Packing plates, shims, washers or similar adjusting pieces found necessary to accommodate tolerance in structural site dimensions shall be provided and fixed to the approval of the Engineer.

Immediately after erection, each truss shall be made secure by purlins, bracing or guys to the approval of the Engineer. Bracing shall be fixed in position as soon as dependent portion of the work is completed.

e) Tightening and Testing High Tensile Friction Grip Bolt

Before assembly, the contact surfaces, including those adjacent to the washers, shall be descaled and be free from dirt, oil, loose scale, burrs, paint (except priming paint), pits and other defects that would prevent proper seating of the parts.

Bolts shall be fixed with approved hardened flat or tapered washers as required between the bolt and nut and the softer mild steel.

When bearing faces of the bolted part have a slope of more than 1 in 20 with respect to a plane normal to the bolt axis, square smooth beveled washers shall be used to compensate for the lack of parallelism.

e) Tightening and Testing High Tensile Friction Grip Bolt

All bolts shall be tightened by the 'Turn of Nut' method. This method shall generally be specified in B.S 3259 and as approved by the Engineer to achieve a minimum tension equal to the roof load.

f) Grouting

Unless otherwise detailed on the drawing, a space of not less than 40 mm shall be provided between undersides of column base plates and footings and between beams and roof truss bearings and concrete pads.

After each column, beam or roof truss has been wedged up to a line and level and fixed in position to approval, the space between footing and pad and underside of column base plate or steel member shall be grouted with a mixture of one part of Portland cement and one part of approved washed sand (1:1)

The Portland Cement and sand shall be thoroughly mixed together with sufficient water to produce a mixture of damp earth consistency and shall be used within 20 minutes of mixing. The caulking mixture shall be packed tightly into the space between base plate and foundation and protected from damage until it sets.

8.10 PAINTING

a) Paints

All paints are to be obtained from suppliers approved in writing by the Engineer.

Paints are to be delivered to the site or to the Contractor's fabrication site in the original containers as supplied by the manufacturer with seals unbroken and are to be used in strict accordance with the manufacturer's specifications.

Manufacturer's representatives are to be free to visit the site and inspect the materials for laboratory analysis.

Paints are not be thinned unless instructed by the Engineer. No external painting is to be

carried out during rain or when rain is likely to occur before the paint has had time to dry. All surfaces are to be dry and free from moisture during painting.

b) Preparation for Painting

All structural steel shall be thoroughly scraped and wire brushed to remove mill scale and rust. Dirt, grease and oil shall be washed off with white spirit and the steel allowed to dry.

8.10 PAINTING

c) Application

A first coat of Red Lead Graphite Primer or other approved primer shall be applied after fabrication of the works has been completed. A minimum of 24 hours shall elapse before the steel is moved from its position before the painting has been completed.

After delivery to site the steel shall be carefully examined and all areas where the priming coat has been damaged and/or where rust has developed shall be washed with white spirit and wire brushed as necessary and a further priming coat as for the first coat applied to completely cover the damaged areas.

During erection, surfaces of steel which are to be in contact shall be painted with one further coat of primer as previously described and the surfaces brought together whilst the paint is wet.

After erection, paint a second and finishing coat of 'Oil Company Aluminium Paint 360/36' or other finishing paint of standard as for steelwork. Welds shall not be painted over until they have been deslagged, inspected and approved.

Steel purlins and side rails shall generally be painted as for steelwork when the following specification shall be used.

1st Coat – Red Oxide Zinc Chromate Primer other approved primer.

2nd Coat – Robbialac 'Oil Company Aluminium Paint 360/36' or other equal and approved aluminium paint.

The interior of mild steel gutters shall be prepared as previously described and painted with two coats of Robbialac Epilac Coal Tar Epoxy Paint or other approved paint.

8.11 PRICES, MEASUREMENTS AND PAYMENTS

Prices quoted by the Contractor shall be based on the calculated weights of steel and shall include for manufacture, painting and supply, all as described in the Bills of Quantities, specified and shown on the drawings, including the cost of delivery to the site or other agreed place or places and the supply of all bolts, rivets plugs, gussets, cleats, to complete the erection of the works.

Prices shall include for erection, (all labour, scaffolding and other erection equipment necessary) and cover the cost of additional prime coat painting as previously specified.

The prices shall also include for lining up, levelling and plumbing but not for grouting up of the bases.

SPECIFICATIONS: STRUCTURAL STEEL-WORK

8.11 PRICES, MEASUREMENTS AND PAYMENTS

The basis for payment for steelwork shall be the calculated steel weights of the structure. Any variation from the original design on which the tender was based, which results in either an increase or decrease in weight of the structure as completed, shall result in appropriate additions to or deductions from the submitted tender totals.

Any written instruction from the Engineer which may result in additional work over and above that for which the Contractor quoted will be considered as extras and shall be paid for on the basis of additional steel weights.

SPECIFICATIONS: METALWORK
PART 9: METALWORK
MATERIALS

9.1 GENERALLY
All materials shall be the best of their respective kinds free from defects and all work is to be carried out in the most workmanlike manner and strictly as directed by the Architect. The materials in all stages of transportation, handling and stacking shall be kept clean and prevented from injury by breaking, bending or distortion and weather action.

9.2 MILD STEEL
Mild steel shall comply with B.S 15

9.3 HOLLOW SECTION TUBING
Square and rectangular hollow section tubing shall be hot rolled mild steel in accordance with Grade 43 C of B.S 4360.

9.4 BOLTS, NUTS AND WASHERS
These shall be fabricated from materials which comply with B.S 15 and each manufactured item shall comply with the appropriate B.S.

9.5 GALVANIZED SHEET METAL
To be No. 24 SWG of approved manufacture to B.S 2989 of best quality mild steel sheets cold rolled close annealed patent, flattened and hot dipped galvanized.

9.6 ALUMINIUM
Aluminium shall be extruded sections with an anodized finish, either natural or coloured, to give a 25 micron minimum depth to European norm EWAA.
The Contractor shall submit with each item or batch of items delivered, test certificates or such other documentary evidence as the Architect shall require that the anodizing depth specified has been achieved.

9.7 STAINLESS STEEL
Stainless steel tube shall be Austenic steel to B.S 3014 comparable to B.S 1449 type 316 S16.

9.8 METAL DOOR FRAMES
Metal door frames are to be in steel to comply with B.S 1245 of profile to suit the wall thickness.

SPECIFICATIONS: METALWORK
PART 9: METALWORK

9.8 METAL DOOR FRAMES
Door frames are to be provided with the following:

a) Two priming coats of paint.
b) Fixing lugs for building into walls.
c) Three galvanized steel hinges per door.
d) Adjustable lock strike plate.
e) Two shock absorber buffers.

9.9 STEEL WINDOWS

Steel windows shall be manufactured from section conforming with B.S 990 of heavy duty sections of the metric W20 range of approved manufacture and design approved by the Architect.
After manufacture and before delivery to site, steel windows are to be hot galvanized by dipping in a bath of molten zinc or painted with one coat primer.

9.10 ALUMINIUM WINDOWS

Aluminium windows are to be designed, manufactured and fixed in accordance with the relevant British Standards summarised below:

B.S DD4	-	Grading of windows
B.S 1470	-	Wrought aluminium and aluminium alloys
B.S 1474	-	Wrought aluminium and aluminium alloys
B.S 4315	-	(Part I) window and structural gasket glazing systems
B.S 4842	-	Finishes to aluminium
B.S 4873	-	Aluminium alloy to windows
CP 3CH V	-	Loading
CP 153	-	Code for windows

Alternative standards may be adhered to but the Contractor must demonstrate that they are of an equal or better standard than the standards referred to in this specification.

9.10 ALUMINIUM WINDOWS

Members for aluminium windows shall be extruded aluminium and shall be fabricated from designated treated alloy HE9 TF, HE9 TE or HE9 TB to B.S 1474. Ancillary members such as sills and coupling mullions formed from sheet materials shall be fabricated from designated alloys SIC NS3 or NS4 in an appropriate temper.
Alternative alloys meeting the required physical properties of this specification shall be acceptable.
The main wet of aluminium solid section outer frame shall be not less than 1.2 mm thick at minimum tolerance.
For information on bi-metallic contacts see CP 153 appendix A.
The overall sizes of an assembled window frame shall be maintained with a permissible deviation of 1.5 mm. Maximum difference in length of frame diagonals shall be 4mm.
Horizontally, the 1800 mm grid shall be used to centre the mullions and vertically allowance must be set for a large window tolerance at the window head.
Fasteners to be designed so that they cannot be released from the outside by the insertion of a thin blade or similar tools.
No opening light shall be openable or removable from the outside when it is fastened in the closed position except by use of special tools or breaking of part of the window.
The exposure factor shall be considered as moderate. Consideration should be given to both the height of the building and locations where exposure to solar radiations may result in high thermal stress.
Prevention of penetration of fine air borne dust is essential and of the utmost importance.
Finish to surface of aluminium alloy prior to anodising shall be 'Mechanical Satin' finish.
Where windows are described as "Black Anodised" then the final finish shall be black anodic oxidation coating to grade AA25 (or above) or B.S 1615.
Weather stripping and joint sealing materials shall be compatible with their adjacent materials and shall remain stable and not adversely affect the proper functioning of the

window.
Replacement of weather stripping shall be possible from within the building and without requiring removal of the main frame.

SPECIFICATIONS: METALWORK
PART 9: METALWORK
WORKMANSHIP

9.11 WELDING

All welding is to be in accordance with the requirements of B.S 1856 and 938 and the electrodes shall comply with B.S 639.
Fusion faces shall be free from irregularities which could interfere with the welding material. These faces shall also be free from any deleterious material such as rust, grease and paint.
All welds shall be of the specified finish sizes and the sequence of the welding shall be carried out in a manner that will give minimum distortion to the welded parts.
Edges of all welding parts will be maintained in their correct position.
Welds shall be carried out with each run closely following the one prior with sufficient time between to allow for removal of slag.
Each run of weld is to be inspected and the sub-contractor shall ensure that unsatisfactory welds are cut out or remade to the required standard.
The minimum size of filled weld shall be 6 mm.
All completed welds shall have a regular and smooth surface. The weld material shall be solid with complete fusion throughout the weld and to the faircut metals.
Any defects shall be cut out or made good to approval.
External faces of butt welds to be ground smooth.

9.12 PAINTING

All steel is to be wire brushed and any loose scale, dirt or grease shall be removed before any painting is commenced. One coat of red oxide primer type A to B.S 2523 shall be applied at the shop.
Any damage to the priming paint shall be made good to the Architect's satisfaction.

9.13 FIXING OF STEEL WINDOWS

Fixing of metal windows shall include for assembling and fixing, including screwing to sub-frames or cutting mortices for lugs in concrete or walling and running with cement mortar (1:4), bedding frames in similar mortar, pointing in mastic, bedding sills, transoms and mullions in mastic, making good finishes around both sides and fixing, oiling and adjusting all fittings and frames.

9.14 ALUMINIUM WINDOWS

Adjacent sashes in horizontal sliding windows shall be separated by a compatible spacer and the sashes shall be supported on bearing devices that facilitate movement. Joints in…

SPECIFICATIONS: METALWORK
PART 9: METALWORK

9.14 ALUMINIUM WINDOWS

…frames shall be made either by welding or by mechanical means. Where necessary joints shall be sealed with flexible material. Joints to be flush joints within one of the tolerances given in B.S 1474.
Hardware including its fixings shall be compatible with aluminium and shall be replaceable without removing the outer frame from its surround.
All screws, nuts, bolts, rivets, washers and other fastenings shall be of stainless steel or aluminium with the exception of those which are protected when the window is closed. Alternatively these may be made of steel which has been finished by one of the following methods:
a) Zinc plated and passivated according to B.S 1706 Classification Nr. Zn3
b) Hot – dip galvanized according to the requirements of B.S 729.
c) Sherardized according to the requirements of B.S 729 Part 2 or,
d) Sprayed with metal coating according to B.S 2569 Part 1.

Fixing devices not of aluminium may be made of steel finished by either method (a), (b) or (d) above.
The fixings shall be capable of withstanding the design wind load and any operating forces on the window.
Windows manufactured to standards set out in this specification shall each bear the name or trademark of the manufacturer and the number of the appropriate standard.
Fixing, assembling, bedding frames and painting shall be executed as described for 'Fixing of Steel Windows'.

SPECIFICATIONS: FINISHES
PART 7: FINISHES
GENERAL

10.1 OTHER SPECIFICATIONS
All other specifications of this contract where applicable are deemed to apply equally to the finishings specifications.

10.2 SAMPLES
The Contractor shall prepare at his own cost sample areas of the paving, plastering and rendering as directed until the quality, texture and finish required is obtained and approved by the Architect after which all work executed shall conform with the respective approved samples.

10.3 FINISHED THICKNESSES
The thicknesses of the floor finishes quoted in this section of the specification shall be the minimum requirements.
Suspended floors shall have a constant structural thickness and have level top surfaces. The finished floor surface will equally have a constant level and any adjustment needed to achieve this effect with the varying floor finish materials is to be made in the screeds beneath the same.
Slabs bearing on the ground may be cast to varying levels and be of constant thickness with varying formation levels, or have varying thicknesses at the option of the Contractor. This stipulation in no way relieves the Contractor of the requirements of the specification for structural works.

10.4 MATERIALS GENERALLY
All materials shall be of high quality, obtained from manufacturer's to be approved by the Architect.
Cement, sand and water shall be as described under Concrete Work and Blockwork.#

10.5 BONDING
Bonding compounds, etc. for use in applying plaster and similar finishes direct to surface without the use of backings or screeds are only to be used if approved by the Architect and are to be used strictly in accordance with the manufacturer's printed instructions.

10.7 CHASES, OPENINGS AND HOLES
All chases, holes and the like which were not formed in the concrete or walling shall be cut and all service pipes shall be and plaster work is commenced. In no circumstances will the fixed and all holes and chases filled with mortar before paving Contractor be permitted to cut chases, holes and the like in Finished paving or plasterwork.

SPECIFICATIONS: FINISHES

10.7 GENERALLY
The term plastering refers to the operation internally and rendering to the same operation externally but for ease of reference the term plastering has generally been used in this specification to describe both operations.

10.8 MIXES
The method of measuring and mixing plaster shall be as laid down under Concrete work and the proportions and minimum thickness of finished plaster shall be in accordance with the following:

Item of Work	Mix	Minimum Thickness and Finish
Internal Plaster	1 part cement ¼ part lime 4 parts sand	17 mm finish to walls ceilings. Wood float finish unless otherwise specified.
External Render	1 part cement 4 parts sand	12 mm finish in two coats
Tyrolean finish	Ditto	7 mm finished thickness in two coats on 10 mm Plastered backing

To obtain greater plasticity a small quantity of lime may be added to the mixes for external plastering at the Architect's discretion but in any case this is not to exceed ¼ part lime to 1 part cement.

With regard to the lime mortars gauged with cement, the addition just before use, of the cement to small quantities of the lime/sand mix shall preferably take place in a mechanical mixer and mixing shall continue for such time as will ensure uniform distribution of materials and uniform colour and consistency.

It is important to note that the quantity of water used shall be carefully controlled. Plaster may be mixed either in a mechanical mixing machine or by hand.

Hand mixed plaster shall first be mixed in the dry state being turned over at least three times. The required amount of water should then be added and the mix again turned over three times or until such time as the mass is uniform in colour and homogeneous.

The plaster shall be completely used within thirty minutes of mixing and hardened plaster shall not be remixed but removed from the site.

SPECIFICATIONS: FINISHES

10.9 PREPARATION OF SURFACES FOR PLASTER ETC.

Irregularities in the surfaces to be plastered or rendered shall be filled with mortar, without lime, twenty four hours before plastering is commenced. Joints in blockwork, etc. are to be well raked out before plastering to form a good key. Smooth concrete surfaces to be plastered shall be treated with an approved proprietary bonding agent or hacked to provide an adequate key for the plaster.

All surfaces to be plastered or rendered shall be clean and free from dust, loose mortar and all traces of salts.

All surfaces shall be thoroughly sprayed with water and all free water allowed to disappear before plaster is applied.

As far as practical, plastering shall not be commenced until all mechanical and electrical services, conduits, pipes and fixtures have been installed.

Before plastering is commenced all junctions between differing materials shall be reinforced. This shall apply where walls join columns and beams, particularly where flush and similar situations where cracks are likely to develop and as directed by the Architect. The reinforcement shall consist of a strip of galvanized wire mesh `Expamet' or equal approved 15 cm wide which shall be plugged, nailed or stapled as required at intervals not exceeding 45 mm at both edges. The surfaces to which such mesh shall be applied shall be painted with one coat bituminous paint prior to fixing the mesh.

10.10 APPLICATION OF PLASTER AND RENDER

After preparation of the surfaces a key coat of cement slurry shall be applied to the wetted surface to be plastered. When this coat is dry the plaster coat shall be applied, by means of a trowel, between screeds laid, ruled and plumbed as necessary. This coat which shall be to the required thickness shall be allowed to set hard and then cured as described.

Surfaces are to be finished with a wood or steel float to a smooth flat surface free from all marks.

Tyrolean finish shall be applied with an approved machine to give a finish of even texture

and thickness. The sprayed finish shall be applied in two separate coats allowing time for drying between coats.

Application in one continuous operation to build up a thick layer will not be permitted. The total finished thickness of the two sprayed coats shall be not less than 7 mm. The sprayed finish shall not be applied until all repairs and making good to the undercoat are completed. Any plaster which adheres to pipes, doors, windows and the like shall be carefully removed before it has set. Curing shall take place after the application of the second coat. The finished surface shall be wither `rough textured' or `Pressed' finish as directed by the Architect. Where coloured tyrolean is required this shall be obtained by the addition to the mix of an approved colour pigment.

SPECIFICATIONS: FINISHES

10.10 APPLICATION OF PLASTER AND RENDER

All plastering and rendering shall be executed in a neat workmanlike manner. All faces except circular work shall be true and flat and angles shall be straight and level or plumb. Plastering shall be neatly made good around pipes or fittings. Angles shall be rounded to 7 mm radius.

All tools, implements, vessels and surfaces shall be at all times kept scrupulously clean and strict precautions shall be taken to prevent the plaster or other materials from being contaminated by pieces of partially set material which would tend to retard or accelerate the setting time.

10.11 CURING OF PLASTER

Each coat of plaster is to be maintained in a moist condition for at least three days after it has developed enough strength not to be damaged by water.

10.12 ANGLE BEADS

Where required by the Architect, salient external angles of plastered walls shall be protected with galvanized mild steel angle beads complying with B.S. 1247 profile C3. They shall be securely plugged, nailed or stapled as required at intervals not exceeding 450 mm at both edges.

10.13 PLASTER STOPS

Where shown on details, plasterwork shall be stopped against "Expamet" galvanized steel plaster stop, reference 575 which shall be securely nailed to walls in the positions indicated on the drawings.

Stops shall be neatly and closely fitted together at corners and it is important that they are secured to walls through all holes provided.

10.14 CEMENT AND SAND SCREEDS

Screeds shall be mixed and formed as described.

10.15 SURFACE HARDENERS

Floor hardeners shall comprise an approved type guaranteed by the makers to produce a hard dense concrete with high abrasive resistance, impervious to the penetration of heavy oils, acid or alkali solutions and to be used strictly in accordance with the maker's instructions.

The first dressing of sodium silicate for granolithic flooring shall be one part of sodium silicate to six parts of water by volume.

Subsequent dressings shall be composed of one part of sodium silicate to four parts of water by volume, for all surface. The two liquids shall be well mixed together, sprayed over the flooring and spread evenly with a mop or soft brush, any excess being wiped off and the flooring allowed to dry for at least 24 hours after each dressing. After final drying floors shall be washed with clean water.

SPECIFICATIONS: FINISHES

10.17 RATES OF IN-SITU WORK

The rates for in-situ work shall include for raking out joints of blockwork or bonding coat or spraying cement slurry on new concrete surfaces to form key, for work in narrow widths, small and isolated areas , rounded arises, fair and chamfered edges, for making good and working around pipes, brackets etc. and for all other incidental labours.

Rates shall also include for masking before the application of spray finishes work

executed overhead, temporary rules, supports, screeds and templates.

10.17 TILE, SLAB AND BLOCK FINISHING

Vinyl asbestos floor tiles shall comply with B.S. 3270 of an approved manufacturer to patterns as directed by the Architect. Adhesives are to be as recommended by the manufacturer in writing and approved by the Architect.
The tiles are to be laid and bedded direct in adhesive on to a cement and sand bed to make up the total paving thickness.
The cement and sand screed is to be finished with a steel trowel to a perfectly smooth surface before the application of the mastic and tiling.
On completion the vinyl asbestos tiles are to be sealed and polished with wax all in accordance with the manufacturer's printed instructions.

10.18 RUBBER STUDDED FLOOR TILES

Rubber studded floor tiles are to be of approved manufacture and shall have the following specifications:

a) Tile size 500 x 500 mm
b) Thickness 4 mm
c) Weight 5.84 kg. per M3
d) Hardness IRHD80 + or - 5
e) Breaking load 70 kg. Per mm^3
f) Extension of break 200 g
g) Effect of burning to be slight localised change of colour only.
h) Brasion under load of 0.5 kg. 300 mm^3
i) Colour black or brown

Adhesives are to be polychloroprene as approved by the manufacturer and the Architect.

SPECIFICATIONS: FINISHES

10.19 LINOLEUM

Linoleum sheets shall be:

a) Manufactured by Krommenie Linoleum, N.V. Nederlandsche Linoleum Fabriek, krommenie, Holland or equal and approved.

b) 3.2 mm thick

c) In accordance with B.S. 810

d) Smooth, uniform and free from indentations or protrusions.

10.20 CLAY TILE PAVING

Clay tile pavings are to be in 150 mm x 150 mm tiles obtained from an approved manufacturer and are to be laid on prepared screeds. The tiles are to be bedded in cement and sand (1:4) with straight joints in each direction. Upon completion grout in cement and wash and clean down. Tiles are to be cut with an electric tile cutting saw.

10.21 GLAZED WALL TILES

Glazed wall tiles shall be in accordance with B.S. 1281 and shall be 150 x 150 x 7 mm tiles from the standard colour range with cushion edges. Wall tiling shall be carried out in accordance with C.P. 212.

10.22 THERMOPLASTIC TILES

Thermoplastic tiles shall be:

a) In conformity to B.S. 2592

b) Size 300 x 300 x 3 mm thick

10.23 CERAMIC TILES

Ceramic tiles shall be:

a) Manufactured by Daniel Platt & Sons Limited, Brownhills Tileries, Tunstall, Stroke-on-Trent, ST7 4NY, England or equal approved.
b) Weigh 1000 kgs. per 29 square metres
c) 10 mm Thick
d) Fixed in accordance with Code of Practice CP 202: 1972 and AMD 3271 June 1980.

10.24 PRECAST TERRAZZO TILE PAVING.

Terrazzo tile pavings are to be in sizes as specified x 25 mm thick bedded on cement mortar screeds and jointed and pointed in white cement. The tiles are to be laid with straight joints in both directions and cleaned down on completion. Tiles are to be cut with an electric cutting saw.

The mix of the terrazzo for tiles is to be as described under "Insitu Terrazzo Pavings".

10.25 PRECAST CONCRETE PAVING SLABS

To be all in accordance with B.S. 378. The slabs are to be of the sizes given herein and bedded, jointed and pointed in cement lime mortar (1:2:9).

10.27 RATES

The rates for tile, slab and block finishings shall include for rounded edge tiles and angles, cutting and fitting up to boundaries and around pipes, brackets, etc. and waste for work in narrow widths, small and isolated areas and for all other incidental labours.

SUSPENDED CEILINGS

10.28 GENERALLY

The Contractor shall provide shop drawings to show the final layout and sizes of members of all suspended ceilings with other trades to provide for the reception and installation of outlets, fixtures etc. pertaining to mechanical or electrical work, all for the Architect's approval before any work is commenced.

Ceilings shall be erected by workmen skilled in this work in a rigid and secure manner so that the final surface is free from any waves, buckles or sags.

SPECIFICATIONS: FINISHES

10.29 EXPENDED METAL LATHING CEILINGS

Framework for expanded metal lath ceilings shall be as specified. Straps shall be bolted either to steelwork or to steel angle cleats rawl bolted to concrete.

Covering shall be galvanized expanded metal lathing Ref>264 fixed to underside of suspension grid with 16 gauge soft galvanized tying wire or to underside of timber framing at maximum 356 mm centres.

The whole to form a suspension grid ready and of adequate strength to receive plaster or other applied finish and with supports for lighting fittings where required.

The Contractor shall submit to the Architect for approval prior to erection, shop drawings showing the precise layout of suspended ceiling systems.

10.30 ACOUSTIC CEILINGS

Acoustic tile ceilings shall be of approved manufacture. The ceilings shall include a proprietary suspension system as recommended by the manufacturer. The suspension system shall be suspended from wire hangers fixed to the concrete soffit by an approved method. All to be fixed strictly in accordance with the manufacturer's instructions.

10.31 RATES FOR SUSPENDED CEILINGS

Rates shall include for shop drawings as specified, all hangers and supports as required including fixing same to concrete or ductwork, for angles at edges, for corner angles at upstands, for cutting and fixing around grilles and registers and light fixtures and for leaving in a perfect condition to the entire satisfaction of the Architect.

Rates shall also be deemed to include the use of plaster stops and angle beads around the edges and at all corners.
Rates shall include for all edge details, angle runners and light fittings frames as required.

SPECIFICATIONS: GLAZING
PART 11: GLAZING
MATERIALS

11.1 GENERAL
Glass used for glazing and for mirrors shall be best quality clear glass free from visible defects so as to afford uninterrupted vision and deflection as appropriate and without obvious distortion.

11.2 STANDARDS
Glass for glazing and mirrors shall be of approved manufacture and is to comply with B.S 952 in all respects free from flaws, bubbles, specks and other imperfections.

11.3 CLEAR SHEET GLASS ETC.
The clear sheet glass shall be ordinary glazing (OG) quality.

11.4 PLATE GLASS
Polished plate and Georgian wired polished plate glass to be selected glazing (SG) quality.

11.5 OBSCURED GLASS
To be of type described and approved by the Architect.

11.6 SOLAR GLASS
Solar control glass is to be obtained from a manufacturer approved by the Architect. Details of the characteristic and properties of the glass are to be provided to the Architect before ordering.
Solar glass is to be of the spectrafloat type incorporating metallic irons in the glass with a bronze tinted colour. Unless otherwise specified, thickness of the glass is to be 6mm.

11.7 SAFETY GLASS
Where safety glass is required, this shall be triplex.

11.8 GLAZING GASKETS
Glazing to metal frames shall be secured with clip in gaskets of butyl rubber. The gaskets shall be of size and section to suit the frame and glazing so as to provide a weather and airtight seal. The mechanical properties of the gasket shall be such as to resist the climatic conditions experienced in Kenya.

11.9 WASH LEATHER
Wash leather shall be best quality chamois oil curved natural colour. Where wash leather is called for, an approved substitute may be employed.

SPECIFICATIONS: GLAZING
PART 11: GLAZING
MATERIALS

11.10 PUTTY
a) The putty for glazing to wood sashes is to be linseed oil putty all as B.S 544.
b) The putty for glazing to metal windows is to be gold size metal window putty specially designed for tropical use, or patent mastic putty if approved by the Architect.
c) All putty shall be delivered on site in the original manufacturer's sealed cans or drums and used direct therefrom with the addition only of pure linseed oil necessary. No mineral or other oils may be used in the putty except genuine linseed oil.

11.11 MIRRORS
Mirrors shall be polished float glass silvering quality protected at back with electro – copper backing coated with Shellac varnish and paint. The mirrors are to be fixed with chromium plated dome headed mirror screws with plastic or rubber distance pieces and washers unless otherwise stated and rates shall include for this.

WORKMANSHIP

11.12 GENERAL

Glazing of all types and in all locations shall be carefully executed by artisans skilled in this type of work and in conformance with the recommendations of CP 152. Glazing shall be carefully fitted so that it is not subject pressure and stresses imposed by being an oversized fit within the framing.

11.13 MEASUREMENTS

Each element (door, window, etc.) to receive glass shall be accurately measured to ensure a perfect fit subsequently.

11.14 SINGLE GLAZING

Single glazing shall be executed with glass of the various types described herein. Ordinary (non-safety) glass may be pre-cut or cut on site.

11.15 WIRED GLASS

Wired glass shall be cut so that the wires embedded are truly vertical and horizontal (i.e. at right angles to the cut edges).

11.16 SAFETY GLASS

Safety glass shall be factory cut before delivery to site. Site cutting will not be permitted.

SPECIFICATIONS: GLAZING

PART 11: GLAZING

MATERIALS

11.17 STORAGE AND HANDLING

Glass shall be delivered to site in stout containers and clearly marked. The containers shall incorporate sling attachment points for lifting bridles. Glass shall be stored under cover so that the panes are truly vertical.

11.18 PROTECTION

After fixing, glass shall be boldly marked with paper or whitewash so that it is clearly visible. In positions where damage sue to construction traffic or activity is likely to occur, stout screens composed of hardboard or fibreboard on battens shall be arranged to protect the glass.

11.19 DAMAGE

Should any glass delivered to site be found to be damaged, it shall not be incorporated into the works without the express permission of the Architect. Should glazing installed be damaged for any reason, it shall be removed and replaced free of charge to the satisfaction of the Architect. Should any adjacent works be damaged, this shall equally be reinstated free of charge to the satisfaction of the Architect.

11.20 DEFECTIVE WORK

All glass shall be checked before installation to ensure that defective glass is not installed. Notwithstanding that, if in the opinion of the Architect any installed glazing is defective, it shall be removed and replaced free of charge to the satisfaction of the Architect.

11.21 GLAZING TO WOOD

Glazing shall be secured to wood framing with hardwood beads. Edges shall be wrapped in wash leather so that the wash leather finishes just below the surface of the bead. No adhesives shall be used.

11.22 GLAZING TO METAL

Glazing shall be secured to metal framing with clip-in butyl rubber gaskets.

11.23 GLASS THICKNESS

Glass thickness shall conform to the recommendations of CP 152 and the manufacturer's recommendations for sizes of panes relative to the position in the building and the effects of wind pressure (both positive and negative)

11.24 CLEANING

All window glazed panels and mirrors shall be cleaned both inside and outside immediately prior to handing over of the building to the satisfaction of the Architect.

SPECIFICATIONS: PAINTING AND DECORATING
PART 12: PAINTING AND DECORATING
MATERIALS

12.1 MANUFACTURERS

Except where stated all materials shall be obtained from approved manufacturers. The Contractor shall state the name and address of the manufacturer whose materials he proposes to use. Once approval has been given the Contractor shall not obtain materials from other sources without the prior written agreement of the Architect.

12.2 GENERAL

Each succeeding coat of priming, undercoating and finishing (pigment) or clear coating shall be sufficiently different in colour as to be ready distinguishable.

All primers and paint in one system upon a particular surface shall be obtained from the same manufacturer.

The mixing of paints, etc. of different brands before or during application will not be permitted.

12.3 EMULSION PAINTS

Emulsion paints shall be matt or satin finish vinyl emulsion paint.

The first (mist) coat shall be thinned in accordance with the manufacturer's instructions.

12.4 GLOSS PAINT

Gloss paints shall be hard gloss finish oil paint.

12.5 LEAD BASED PAINTS

The use of lead based paints will not be permitted.

12.6 CLEAR FINISHES

Clear finishes internally shall be clear polyurethane varnish (one pack)

12.7 PRIMERS AND UNDERCOATS

Unless otherwise specified, primers and undercoats shall be of the type recommended by the manufacturer of the finishing coats specified for a particular surface. Primer for external bare metalwork surfaces shall comply with B.S 2523.

12.8 KNOTTING

Shellac knotting shall comply with B.S 1336

12.9 WHITE SPIRIT

The white spirit shall comply with B.S 245.

SPECIFICATIONS: PAINTING AND DECORATING
PART 12: PAINTING AND DECORATING

12.10 TIMBER STAIN

Timber stain shall be oil based pigmented stain. The application of this material shall be strictly in accordance with the manufacturers written instructions. Tint and degree of application shall be to the approval of the Architect.

12.11 STOPPING

The stopping shall be as follows:

a) Plaster work shall be plaster based filler.
b) Concrete and brickwork shall be similar material to the background and finished in a similar texture.
c) Internal woodwork, plywood and blockboard shall be putty complying with B.S 544.
d) External woodwork shall be white lead paste complying with B.S 2029.
e) Internal clear wood finishes: the stopping shall be that recommended by the lacquer manufacturer.

12.12 FILLERS

The fillers for internal joinery shall be the type recommended by the paint manufacturer for use with this type of paint or lacquer.

Stoppers and fillers shall be tinted to match the undercoat, and shall be compatible with both undercoats and primers.

All materials shall be used strictly in accordance with the manufacturer's instructions.

12.13 TEXTURED COATING

Textured coating is to be of proprietary manufacture approved by the Architect, of an approved colour.

Technical information concerning the coating is to be submitted to the Architect before ordering but the minimum qualities of the coating are to be as follows:

a) Suitable for application internally and externally to plastered, rendered, concrete, block, stone, brick, asbestos and timber surfaces.

b) Minimum durability of 10 years even in exposed surfaces.

c) Maintenance fee.

d) Built-in mould resistant fungicide.

SPECIFICATIONS: PAINTING AND DECORATING

PART I2: PAINTING AND DECORATING

WORKMANSHIP

12.14 GENERAL

Workmanship generally shall be carried out in accordance with CP 231, unless otherwise specified.

Before painting is commenced, floors shall be swept and washed over, surfaces to be painted shall be cleaned before applying paint as specified and all precautions taken to keep down dust whilst work is in progress.

No paint shall be applied to surfaces structurally or superficially damp, and all surfaces must be ascertained to be free from condensation, efflorescence, etc. before the application of each coat.

No painting shall be carried out externally during humid, rainy, damp, foggy or freezing conditions where surfaces have attained excessively high temperatures or during dust storms.

No new, primed or undercoated woodwork and metalwork shall be left in an exposed or unsuitable situation for an undue period before completing the process.

No dilution of paint materials shall be allowed except strictly as detailed by the manufacturer's own direction, either on the containers or their literature, with the special permission of the Architect. For external work, dilution of paints will not be allowed whatsoever. For internal work, where permitted by the Architect, undercoats may be thinned by the addition of not more than 5% thinners. Gloss finish shall not be thinned at all.

Metal fittings such as ironmongery etc. not required to be painted shall first be fitted and then removed before the preparatory processes are commenced. When all painting is completed, the fittings shall be cleaned as necessary and re-fixed in position.

12.15 BRUSHWORK

Unless otherwise specified, all primers and paints shall be brush applied. Written permission must be obtained from the Architect if an alternative method of application is to be used.

12.16 STOPPING AND FILLING

Unless otherwise specified by the manufacturer, all primers and undercoats shall be stopped flush and rubbed down to a smooth surface with an abrasive paper and all dust removed before each succeeding coat is applied. Care shall be taken to avoid burnishing (make shine) of the surface.

SPECIFICATIONS: PAINTING AND DECORATING

PART I2: PAINTING AND DECORATING

12.17 STIRRING

Unless otherwise stated by the paint manufacturer, all paint materials shall be thoroughly mixed and/or stirred before and during use and suitably strained as and when necessary.

12.18 INSPECTION

No priming coats shall be applied until the surfaces have been inspected and the preparatory work has been approved by the Architect. No undercoats or finishing coats shall be applied until the previous coat has been similarly inspected and

approved.

12.19 PAINT APPLICATION

Each coat of paint shall be so applied as to produce a film of uniform thickness. All paint shall be applied in accordance with the manufacturer's instructions. Special attention shall be given to ensure that all surfaces including edges, corners, crevices, welds and rivets receive a film thickness equivalent to that of adjacent painted surfaces.

12.20 DRYING

All coats shall be thoroughly dried before succeeding coats are applied. Allow a minimum of 24 hours between applications on any one surface, unless otherwise stated by the manufacturer.

12.21 UNPRIMED WOODWORK

Unprimed woodwork scheduled to be painted shall be rubbed down with abrasive paper and dusted off. Care shall be taken to prevent burnishing of the surface. All knots and resinous areas shall be coated with two coats of knotting. Pitch on large, open unseasoned knots and all other beads or steaks of pitch shall be scraped off, or if still soft, shall be removed with white spirit before applying the knotting. Apply one coat of priming to all surface, two coats to all end grain, to be subsequently painted. Backs of all wood frames in contact with concrete, brickwork, blockwork and metalwork or similar material shall be primed before fixing. After priming all joints, holes, cracks shall be stopped and filled, rubbed down and dusted off.

12.22 PRIMED WOODWORK

Woodwork delivered primed shall be lightly rubbed down with abrasive paper and dusted off. Touch up bare areas with a similar priming including open grained ends. After touch priming all joints, holes, cracks and open grained ends shall be stopped and filled, rubbed and dusted off.

12.23 PLYWOOD AND BLOCKBOARD

Edges of exterior plywood and blockboard shall be sealed with two coats of aluminium primer and the backs treated with a lead primer.

SPECIFICATIONS: PAINTING AND DECORATING

PART I2: PAINTING AND DECORATING

12.24 CLEAR FINISHED WOODWORK

All woodwork scheduled to receive a clear finish shall be well sanded with the grain removing all dirt etc. to give as smooth a surface as possible. Resinous timber shall be swabbed (mopped) down with white spirit and dried thoroughly. Split or end grain shall be filled with suitable filler recommended by the lacquer manufacturer, in accordance with their instructions and of the appropriate shade.

12.25 BARE METALWORK

Bare metalwork shall be thoroughly cleaned of all dirt, grease, rust and scale by means of chipping, scraping and wire brushing, particular attention should be given to the cleaning of welded, brazed and soldered joints. Wash down with white spirit and dry with clean rags. Apply a coat of metal primer immediately the cleaned surfaces have been approved by the Architect.

12.26 GALVANIZED METALWORK

Galvanized metalwork scheduled for painting shall be thoroughly cleaned of dirt, grease dusted and washed down with white spirit and wiped dry with clean rags. Any minor areas of rust shall be removed by wire brushing and spot primed with a zinc rich primer. Apply at least one coat of calcium plumbate primer to all surfaces subsequently to be painted.

12.27 PRIMED METALWORK

If the priming coat of pre-primed metalwork has suffered damage in transit, or during erection on site, the affected areas shall be cleaned off by wire brushing, abrading and dusting off, the bared patches touched up with a primer of a similar type to that already applied.

12.28 COPPER

Copper scheduled for painting shall be lightly abraded with emery cloth, washed with white spirit and wiped dry with clean rags. Apply a coat of the primer

immediately the cleaned surfaces have been approved.

12.29 BRICKWORK, CONCRETE ETC.

All brickwork, blockwork, concrete, rendered and plaster surfaces scheduled to be painted shall be brushed down, all holes and cracks filled, all projections such as plaster or mortar splashes etc. removed to leave a suitable dust free surface. All traces of mould oil shall be removed from concrete surfaces by scrubbing with water, detergent and rinsing with clean water. All these surfaces shall be thoroughly dry before any primer and paints are applied. Apply a coat of alkali resisting primer where surfaces are to be finished with oil paints or alkalyd resin type emulsion.

Asbestos cement surfaces scheduled for painting shall be brushed down to remove powdery deposits and a coat of alkali resisting primer applied where such surfaces are to be finished with oil paints or alkalyd resin type emulsion.

12.30 COLOURS

The colours will be selected by the Architect from the paint manufacturer's standard colour range.

12.31 TOXIC WASH

Concrete, blockwork, plaster and timber surfaces which are to be painted shall be washed down prior to painting with a toxic wash applied by brush or spray. A second wash shall be applied two days after the first wash. The surfaces shall be allowed to dry out completely before application of paint.

12.32 PROTECTION

Proper care must be taken to protect surfaces while still wet by use of screens and wet paint signs where necessary.

12.33 DAMAGE

Care must be taken when preparing surfaces, or painting etc. not to stain or damage other work. Dust sheets and covers to the satisfaction of the Architect shall be used to protect adjacent work. Any such stains or damage shall be removed and made good at the Contractor's expense.

12.34 CLEANLINESS

All brushes, tools, pails, kettles and equipment shall be clean and free from foreign matter. They shall be thoroughly cleaned after use and before being used for different colours, types or classes of material. Painting shall not be carried out in the vicinity of other operations that may cause dust. Waste liquids, oil soaked rags etc. shall be removed from the building each day. Waste liquids shall not be thrown down in any sanitary fittings or drains.

12.35 PERFORMANCE

If, while the work is in progress, the paint appears to be faulty, such as consistency of colour, drying time, or quality of finish, the work shall be stopped at once and the manufacturer consulted.

The manufacturers of the materials shall be given every facility for inspecting the work during progress in order to ascertain that the materials are being used in accordance with their directions, and to take samples of their products from the site if they so desire for tests.

The finishing coats of the various paints or surface finishings shall be free from sags, brush marks, runs, wrinkling, dust, bare or starved patches, variations in colour and texture, and other blemishes.

When the work has been completed, the finished surfaces shall not be inferior in quality. Colour and finish to the samples approved by the Architect and imperfections in manufacture shall not be apparent through these finished surfaces.

12.35 PERFORMANCE

In the event that the Architect is not satisfied that the quality of finish does not

comply with the required standards and/or the sample panel, the Contractor will be required to repaint at his own expense, such work to the satisfaction of the Architect. If in the opinion of the Architect it is necessary to remove completely the unsatisfactory paintwork, this shall also be done under the direction of the Architect and at the expense of the Contractor.

12.36 PACKAGING, DELIVERY AND STORAGE

All paints and surface coatings shall be delivered in sound, sealed containers, labelled clearly by the manufacturers, the label or decorated container must state the following:

a) The type of product.
b) The brand name and colour
c) The use for which it is intended
d) The manufacturer's batch number
e) The B.S number if applicable
f) All labels shall be printed - containers bearing type written labels will not be acceptable.

Materials shall be stored under cover in accordance with the manufacturer's instructions and with local fire and safety regulations. The store itself must be maintained at a temperature of not less than 50 degrees F (10degrees C) and must not be subjected to extreme changes of temperature.

The batch deliveries are to be dated and used strictly in order of delivery.

12.37 VINYL EMULSION PAINT

Surfaces to be painted shall receive one mist coat followed by two final coats of vinyl emulsion paint.

12.38 GLOSS FINISH PAINT

Surfaces to be painted shall be primed then painted with two undercoats followed by one coat gloss finish paint.

12.39 CLEAR POLYURETHANE VARNISH

Surfaces to be clear varnished shall be treated with two coats polyurethane varnish.

12.40 TEXTURED COATING

The manufacturer's instructions concerning application of the coating are to be strictly followed under the direction of the Architect.

All surfaces to receive textured coatings are to be clean and dry with surfaces scraped and brushed before application of the coating. Application of the coating is to be with textured roller fibre brush as directed by the Architect with a minimum spreading capacity of 1 kilogramme per square metre. Under no circumstances is the coating to be thinned.

SPECIFICATIONS: SITE CLEARANCE

PART 35: SITE CLEARANCE

35.1 CLEARING SITE

The Contractor shall remove buildings, walls, gates, fences, advertisement and other structures and obstructions, grub up and remove trees, hedges bushes and shrubs and clear the site of the works at such time and to the extent required by the Engineer, but not otherwise, the materials so obtained shall so far as suitable be reserved and stacked for further use; all rubbish and material unsuitable for use shall be destroyed or removed from the site.

Where top soil has to be excavated, this shall be removed and stacked on site. After completion of construction, it shall be spread over the disturbed ground, any surplus being disposed of as directed by the Engineer.

35.2 VEGETATION

No allowance will be made for the cutting and removal of crops, grass weeds and similar vegetation. The cost of all such work will be held to be included in the rates

entered in the Bills of Quantities for excavation.

35.3 BUSHES AND SMALL TREES

All bushes and small trees, the main stem of which is less than 300 mm girth at 1 metre above ground level shall be uprooted (unless otherwise directed by the Engineer) and burnt or otherwise disposed of as directed by the Engineer.

35.4 HEDGES

Where directed by the Engineer, hedges shall be uprooted and disposed of by burning.

35.5 FELLING TREES

Where shown on the drawings or directed by the Engineer, trees shall be uprooted or cut down as near to ground level as is possible. No trees shall be cut down without the express permission of the Engineer.

SPECIFICATIONS: SITE CLEARANCE

35.6 GRUBBING UP ROOTS

Stumps and tree roots shall, unless otherwise directed, be grubbed up, blasted, burnt or removed and disposed of in approved dumps to be provided by the Contractor. Where directed by the Engineer, the holes resulting from grubbing up shall be filled with approved materials, which shall be deposited and compacted in layers not exceeding 225 mm loose depth, to the same dry density as that of the adjoining soil.

35.7 UNDERGROUND CHAMBERS, ETC. TO BE CLEANED

Demolition of pits, septic tanks, walls and cesspools shall be to a depth of 1 metre below formation level and the remainder shall be properly cleaned out and filled with approved materials, which shall be deposited and compacted in layers not exceeding 225 mm loose depth to the same dry density as that of the adjoining soil. Soil and surface water drains, lying within the site of the works, shall, where directed by the Engineer, be sealed off and all other services satisfactorily severed and sealed to the satisfaction of the appropriate authorities and/or owners. Disused soil and surface water drains within 1 metre of formation level shall be required by the Engineer to be removed and trenches shall be backfilled.

35.8 WEED CONTROL

The Contractor shall take all necessary precautions against the growth on the site of weeds and remove them as necessary throughout the period of works and maintenance.

The formation level and finished surface of base of all footways and elsewhere as directed shall be sprayed with an approved persistent total herbicide at the rate recommended by the manufacturer. The application shall be by an even spray in a high volume of water at about 0.07 to 0.11 litres per sq.m. After this application the footways shall receive at least two further waterings before the surface is sealed.

SPECIFICATIONS: SITE CLEARANCE

35.9 REMOVING EXISTING FENCING AND GATES

Where instructed by the Engineer, the Contractor shall carefully remove existing fences and gates, dismantle the components and stack them in separate heaps where directed. All wires shall be neatly coiled and tied. Materials which in the opinion of the Engineer, are not suitable for re-use shall be destroyed or removed to a tip to be provided by the Contractor.

35.10 STOCKPROOF FENCING

Where stockproof fencing is called for in the Bills of Quantities or ordered by the Engineer it shall comprise 150 mm sawn Cedar posts painted with two coats of cresote, firmly fixed into the ground and placed at 2 m centres together with 200 mm diameter posts suitably strutted at all changes of direction and having four six-gauge wires equally spaced throughout its height of 1.5 m. The Contractor's rate for stockproof fencing shall include for its provision, erection, maintenance during the period of the Contract. The fence shall remain the property of the Employer.

35.11 TEMPORARY FENCING

Where temporary fencing is called for in the Bills of Quantities or ordered by the Engineer, it shall comprise 100 mm diameter sawn Cedar posts firmly fixed into the ground and placed at 2 m centres together with 150 mm diameter posts suitably strutted at all changes of direction and having four wires equally spaced throughout its height. The Contractor's rate for temporary fencing shall include for its provision, erection, maintenance during the period of the works and removal on completion of the Contract. The fence shall remain the property of the Contractor.

35.12 PROTECTIVE FENCING OF TREES

Where ordered the Contractor shall supply and erect around specified single trees or groups of trees to protect them from damage, split bamboo fencing of approved construction, 1.2 m high above ground rough posts, firmly fixed in the ground. The posts shall be at 2 m centres or where required for change of direction. The Contractor shall include in his rate for the satisfactory maintenance of this fencing for the period of the Contract.

SPECIFICATIONS: EARTHWORK

PART 36: EARTHWORKS
ROADWORKS

36.1 FORMATION LEVEL

Formation level on embankments and in cuttings shall be the surface of the ground obtained after completion of the earthworks, i.e. the underside of the sub-base, or where no sub-base is specified, the underside of the base. Any excess depth unnecessarily excavated below formation level shall be backfilled with material acceptable for construction and compacted as directed by the Engineer and no payment shall be made for the excess excavation or for the filling and compacting.

36.2 SURFACE SOIL

Unless otherwise directed by the Engineer, all surface soil shall be removed from the area to be used for cuttings and embankments and stockpiled for re-use for any purpose such as the soiling of slopes of cuttings and embankments, berms, verges, open spaces, central reserve and the preparation of beds for the cultivation of trees and shrubs.

Surface soil shall be regarded as soil which on visual examination can be seen to have been broken down by agricultural cultivation and/or is seen to be capable of supporting vegetable growth.

Surface soil shall be regarded as soil which on visual examination can be seen to have been broken down by agricultural cultivation and/or is seen to be capable of supporting vegetable growth.
Surface soil shall be removed to an average depth as shown on the drawings or specified in the Bills of Quantities.
The Contractor shall make his own arrangements for temporary storage sites for heaps of surface soil either inside or outside the site of the works to suit his

convenience. The cost of all operations needed in excavating, loading, carting, depositing and stacking, together with arranging for the storage sites, the hire or purchase of land therefor and all necessary access roads for this purpose is to be included in the item in the Bills of Quantities for stripping surface soil and is to be quoted whatever the nature of the underlying sub-soil.

All unsuitable soil comprising or underlying surface soils shall be excavated and run to spoil in accordance with this Specification.

SPECIFICATIONS: EARTHWORK
ROADWORKS

36.3 SOILING OF SIDE SLOPES AND VERGES

Soiling and compacting of the side slopes of cuttings and embankments shall be carried out to an even surface with a thickness within the range 100 mm - 200 mm or in the case of verges as stated in the Bills of Quantities with surface soil as previously set aside or from an approved source.
Grass planting shall be carried out as specified.

36.4 STORAGE AND HANDLING OF EXPLOSIVES AND BLASTING

The removal of hard materials by use of explosives will normally be permitted subject to compliance by the Contractor in all respects with the Explosive Laws of Kenya.

The Contractor shall provide proper buildings or magazines in suitable positions for the storage of explosives in a manner and quantities to be approved; he shall also be responsible for the prevention of any unauthorized issue or improper use of any explosive brought on to the works and shall employ only experienced and responsible men to handle explosives for the purpose of the works.

The shots shall be properly loaded and tamped and where necessary, the Contractor shall use heavy mesh blasting nets. Blasting shall be restricted to such periods and such parts of the works as the Engineer may prescribe. If, in the opinion of the Engineer, blasting would be dangerous to persons or property or to any finished work or is being carried on in a reckless manner, he may prohibit it and order the rock to be excavated by other means and payment will be made at the rate for rock excavation where blasting is permitted. The use of explosives by the Contractor in large blasts, as in seams, drifts, shafts, pits, or large holes is prohibited unless authorized in writing by the Engineer. In the event of wasting of rock through any such blasting, the Contractor shall if required by the Engineer, furnish an equivalent amount of approved materials for embankments 1 cu. m. rock in-situ being taken to equal 1.5 cu. m. of material in embankment.

SPECIFICATIONS: EARTHWORKS

36.5 EXCAVATION OF CUTTINGS

The Contractors shall carry out the excavation of cuttings in accordance with the drawings and shall adhere to the slopes, levels, depths and height shown thereon.
The sloping sides of all cuttings shall be cleared of all rock fragments which move when pressed with a crowbar and are therefore liable to cause injury or damage through falling.

Where excavation reveals a combination of suitable and unsuitable materials, the Contractor shall, wherever the Engineer considers is practicable, carry out the excavation in such a manner that the suitable materials are excavated separately for use in the works without contamination by the unsuitable materials.

If any suitable material excavated from within the site, is, with the agreement of the Engineer, taken by the Contractor for his use (i.e. as material for pavement courses) and not in consequence for the forming of embankments, or soiling of slopes of cuttings and embankments or verges, sufficient suitable filling material to occupy, after full compaction, a volume corresponding to that which the excavated material

occupied, shall unless otherwise directed by the Engineer, be provided by the Contractor from his own resources.

No excavated material shall be dumped or run to spoil except on the direction or with the permission of the Engineer, who may require material which is unsuitable to be retained on site. Material used for haul roads shall not be re-used in embankments, or elsewhere without the permission of the Engineer.

The completion of cuttings shall, unless otherwise permitted by the Engineer, be undertaken in two stages. First the area between the extremities of the carriageway(s), including verges shall be excavated to a level 300 mm above formation level whereupon constructional traffic may continue to be allowed to use the surface so formed.

Second, when it is necessary to complete to formation level, this excess of material shall be trimmed off as a single operation and disposed of either elsewhere in the works if regarded by the Engineer as suitable material or if not run to spoil. When the height above formation level has been reduced below 300 mm the movement and use of constructional plant other than that used to complete this operation shall be in accordance with the requirements as specified later in this Appendix. This trimming operation shall be regarded as the commencement of construction of the pavements.

SPECIFICATIONS: EARTHWORKS
ROADWORKS

36.6 FORMING OF EMBANKMENTS

The Contractor shall carry out the forming of embankments in accordance with the drawings and shall adhere to the slopes, levels, depths and heights shown thereon.

Unless otherwise directed or permitted by the Engineer, all suitable excavated materials shall be used to form embankments. Any such excavated material which is surplus to this requirement shall be disposed as described in the Bills of Quantities.

All filling material other than rock in embankments or below formation level in cuttings shall be deposited in layers not exceeding 225 mm loose depth unless as a result of compaction trials the Engineer approves spreading to a greater depth up to a maximum of 375 mm loose depth. Each layer shall extend over the full width of embankment and shall be compacted as specified.

Rock used in rock-filled embankments shall be of such size that it can be deposited in horizontal layers each not exceeding 450 mm loose depth and extending over full width of the embankment except for any specified external cover to slopes or new formation level. The materials shall be spread and levelled by a crawler tractor weighing not less than 15 tonnes. Each layer shall consist of reasonably well graded rock and all large voids shall be filled with broken fragments before the next layer is placed. The top surface with side slopes of embankments so formed shall be thoroughly blinded with approved fine graded material to seal the surface. Such material may be surface soil on side slopes.

Isolated boulders each within the range of 0.05 cu. m. in size may be incorporated more than 600 mm below formation level in embankments not of rock-fill at the discretion of the Engineer, provided that the specified compaction requirements are met. No stone exceeding 0.05 cu. m. should be placed less than 600 mm below formation level of carriageways and verges.

During construction of embankments, the Contractor shall control and direct constructional traffic uniformly over their full width.

Fill material shall not be stock-piled on embankments, unless this is permitted by the Engineer.

36.6 FORMING OF EMBANKMENTS

Should the quantity of excavation from the works, including that from any widened cuttings, be insufficient to make up the embankments, the deficiency shall be made good by approved imported suitable material and the Contractor shall be responsible for locating the obtaining such material.

Where materials of different characteristics are readily available, those of relatively high bearing capacity shall be placed in the topmost 600 mm below formation level. The completion of embankments shall unless otherwise permitted by the Engineer be undertaken in two stages. First the area between the extremities of the carriageway(s), including verges shall be brought up to a level 150 mm above formation level whereupon constructional traffic may continue to be allowed to use the surface so formed.

Second, when it is necessary to complete to formation level the excess of material shall be trimmed off as a single operation and disposed of either elsewhere in the works if regarded by the Engineer as suitable material or if not, run to spoil.

When the height above formation level has been reduced below 150 mm the movement and use of construction plant, other than that used to complete this operation, shall be in accordance with the requirements specified later in this Specification.

This trimming operation shall be regarded as the commencement of construction of the pavement.

36.7 SIDE SLOPES

Should the slopes of any cutting be excavated beyond the widths shown on the drawings or directed by the Engineer, the Contractor shall make good each affected area in a manner satisfactory to the Engineer.

36.8 SURFACE TREATMENT OF FORMATION

If required, after final preparation of the sub-grade, the surface of the formation, shall within 24 hours of such final preparation or as soon as practicable thereafter be surface dressed with bitumen, as stated in the Bills of Quantities. The surface dressing shall be carried out as specified in BENCHING and shall include blinding with 5 mm down crushed rock at the rate of 6 Kg. per sq.m. Where a particular area of formation is to be covered with a compacted and sealed sub-base within 24 hours of its preparation, the surface dressing of the formation may be omitted. If, in spite of such sealing membrane for the formation or the sub-base having been ordered promptly by the Engineer, the Contractor allows the moisture content of accepted compacted materials to increase to a value above that which would have been acceptable for compaction, the Contractor shall allow the material to revert to such an acceptable moisture content and if so directed by the Engineer re-compact the surface before sealing.

36.9 COMPACTION OF EARTHWORKS

All filling material used in earthworks shall be compacted to specification by plant approved by the Engineer for that purpose. The Contractor shall submit to the Engineer for approval his proposals for the compaction of each main type of material to be used in the embankments, including those in relation to the types of plant, the number of passes and the loose depth of layer. The Contractor shall carry out compaction trials supplemented by any necessary laboratory investigations, as required by the Engineer, using the procedure proposed by the Contractor for the

earthworks, and shall satisfy the Engineer that all the specified requirements regarding compaction can be achieved. Compaction trials with the main types of material likely to be encountered shall be completed before the works with the corresponding materials will be allowed to commence.
For the purpose of selection for use in earthworks all common excavation shall be classified as either plastic or non-plastic. Non-plastic materials shall be defined as those on which it is impossible to carry out a plasticity index test and shall include coarse grained, non-cohesive materials included in Table 1 of British Standard Code of Practice CP 2001: Site Investigations, and such shales, silts and other materials which in the opinion of the Engineer are readily self draining. Plastic materials shall be defined as all other materials included in the above mentioned Table as fine grained cohesive materials, as defined in CP 2001.

36.9 COMPACTION OF EARTHWORKS

Work on the compaction of plastic materials in embankments shall proceed as soon as practicable after excavation and shall be carried out only when the moisture content is not greater than 2 percent above the plastic limit for that material. Where the moisture content of plastic material as excavated is higher than this value the material shall, unless otherwise directed by the Engineer, be run to spoil. If the Contractor allows the moisture content of suitable plastic materials to increase to a value which is unacceptable for compaction he shall, unless he prefers at his own expense to wait until the material has dried sufficiently for acceptance again as suitable material, run such material to spoil and provide an equal volume of material suitable for filling, both without extra charge.

Work on the compaction of non-plastic materials in embankments shall be carried out only when the material has such a moisture content as is within the range from 1 per cent wetter to 2 percent drier than the moisture content of the material in cuttings or borrow pits when measured on samples obtained from at least 300 mm above the level of the water table as indicated by the presence of free water in the excavation. Nevertheless, should the Engineer doubt whether satisfactory compaction will be obtained within the above moisture limits, he may require compaction to proceed only when the limits of moisture content for the compaction of non-plastic materials are within the range of the optimum moisture content and 3 percent below the optimum moisture content as determined by the laboratory compaction test method described in British Standard 1377: Methods of Test for Soil Classification and Compaction.

If any such non-plastic material on excavation is too wet to satisfactory compaction and the Engineer orders the moisture content to be lowered or raised, such work shall be treated as included in the rates. All adjustment of moisture content shall be carried out in such a way that the specified moisture content remains uniform throughout compaction.

If the Contractor allows the moisture content of suitable non-plastic materials to change after excavation to a value unsuitable for compaction, he shall raise or lower the moisture content as required above, or the Contractor shall, if so directed by the Engineer, run the material to spoil and replace it with an equal quantity of material suitable for compaction.

36.9 COMPACTION OF EARTHWORKS

Work shall be continued until a state of compaction is reached throughout the embankments, including especially, the slopes of embankments and the immediate approaches to bridge abutments such that at least 9 out of every 10 consecutive samples taken of the compacted material have a relative compaction determined according to B.S. 1377 of at least the following percentage of the maximum density at optimum moisture content;

a) for the topmost 600 mm below formation level a maximum density of 100 percent, and
b) for the remainder below formation a maximum density of 95 percent.

If with non-plastic materials the compacted material has become drier in the interval between the completion of compaction and the measurement of the state of compaction, then the moisture content to be used for the calculation of the air content shall be the mean moisture content for the completion of such materials as specified above.

Each layer of rock used as rock-fill in embankments shall be systematically compacted by at least 8 passes of a towed vibrating roller weighing not less than 3 tonnes or a grid roller weighing not less than 13 tonnes dead weight or other approved plant. Where however, it is established that rock can be compacted to the requirements for common excavation, the rock shall be compacted to such latter requirements.

36.10 EXCAVATION BELOW EMBANKMENT IN MATERIALS UNSUITABLE

Before forming the embankment, any suitable material naturally occurring on the site shall be removed to such depths and over such area as may be directed by the Engineer and shall be run to spoil. The resultant excavation shall be backfilled with suitable material deposited and compacted as specified for the forming of embankments. Nevertheless, where in these circumstances such backfill has to be deposited below standing water, compaction may be omitted provided that the material used is completely free draining.

If ordered by the Engineer as an alternative method of construction, approved rock-fill material shall be placed directly on the naturally occurring unsuitable material to such total depth that on completion of compaction negligible deflection of the surface occurs due to the passage of vehicles hauling in the rock. The rock-fill material shall be deposited in accordance with the requirements previously specified and compacted so as to comply with the requirements as previously specified for the compaction of rock. Such work will be dealt with as a Variation of the works.

SPECIFICATIONS: EARTHWORKS

36.11 BENCHING

Where an embankment is to be placed on appreciably sloping ground, the surface of the ground shall be benched in steps or trenches, as shown on the drawings or directed by the Engineer including, if necessary, any under-draining of the site.

36.12 EXCAVATION BELOW FORMATION IN CUTTINGS IN MATERIALS UNSUITABLE FOR CONSTRUCTION

Where suitable material is encountered in the subgrade, it shall be excavated to such depth and over such area as the Engineer shall direct and be run to spoil. The resultant excavation shall be backfilled with suitable material deposited in layers each not exceeding 225 mm loose depth and compacted in the manner specified for the forming of embankments. Nevertheless, where in these circumstances such backfill has to be deposited below standing water, compaction may be omitted provided that the material used is completely free draining.

If ordered by the Engineer as an alternative method of construction, approved backfill

material shall be placed directly on the naturally occurring unsuitable material to such total depth that on completion of compaction negligible deflection of the surface occurs due to the passage of vehicles hauling in the rock. The rockfill material shall be deposited in accordance with the requirements as previously specified and compacted so as to comply with the requirements as previously specified for the compaction of rock. Such work will be dealt with as a variation of the works.

36.13 EMBANKMENTS AT APPROACHES TO BRIDGES

To avoid interference with the construction of bridge abutments and wing walls, the Contractor shall, at points to be determined by the Engineer, suspend work on embankments and/or cuttings forming the approaches to any such structures until such time as the construction of the latter is sufficiently advanced to permit the completion of the approaches without the risk of interference or damage to the bridge works. The cost of such suspension of work shall be included in the prices entered in the Bills of Quantities for excavation from which embankments are formed.

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36.14 EMBANKMENTS OVER BRIDGES, CULVERTS AND DRAINS

In carrying embankments up to or over bridges, culverts or pipe drains, care should be taken by the Contractors to have the embankment brought up equally on both sides and over the top of any such structures. Earth embankments shall be formed and compacted inlayers as previously specified and, in rock embankments, the rock filling shall be carefully packed for such distance back as the Engineer may direct. The fillings adjacent to structures shall be deposited and compacted in accordance with the requirements of clauses `DESCRIPTION' and `METHOD OF FILLING'. The cost of these works shall be included in the prices entered in the Bills of Quantities for the excavations from which embankments are formed.

36.15 SIDE GRIPS

Where directed by the Engineer side grips as shown on the drawings shall be formed through verges for surface water drainage and the excavated material disposed of as directed.

36.16 STONE REVETMENTS

Where shown on the drawings, the slopes of embankments, relivers, streams, watercourses and other surfaces shall be protected against water or other action by hand-set stone facing set on end. The stones - the largest of which shall be used in the bottom or where the current is greatest - shall be roughly dressed on the bed and face and roughly square to the full depth of the joints. No rounded boulder shall be used, or stones less than 225 mm in depth of 0.05 m^3 in volume. The stones shall be laid to break bond and shall be well bedded on to a 75 mm layer of gravel or fine rubble rammed to a uniform surface and the whole work finished to the satisfaction of the Engineer. Where required, a trench shall be excavated at the bottom of the slope, to such a depth as will ensure a safe foundation for the revetment.

36.17 COMPLETION OF EARTHWORK

The formation shall be properly shaped and regulated and compacted as previously specified. When completed, the formation shall be at the required level and generally

ROADWORKS

36.18 CURVES

Where the alignment of the carriageway is curved, the bottoms of cuttings and the tops of embankments shall be formed with the super-elevation and increased widths

shown on the drawings or as the Engineer shall direct, to suit the degree of curvature of the alignment.

36.19 TIPPED REFUSE ON SITE

Tipped refuse other than artificial deposits of industrial waste or shale found on the site shall be removed and disposed or in a spoil heap to be provided by the Contractor.

36.20 REMOVAL OF INDUSTRIAL WASTE, ETC.

Artificial deposits of industrial waste or shale found on the site shall be removed and disposed of as directed by the Engineer. Should any particular deposits consist of or contain

material which in the opinion of the Engineer is suitable for incorporation in embankments, all such material shall be used accordingly and deposited in layers and compacted as previously specified. The prices entered in the Bills of Quantities for the excavation of this material shall include for the excavation of the material and the loading, transportation, disposal and compaction of same as and where directed.

36.21 LAND SLIPS

Remedial works and/or the removal of materials in slips, slides or subsidences and overbreaks of rock extending beyond the lines and slopes, or below the levels shown on the drawings or required by the Engineer, will not be paid for unless such occurrences are shown to have been beyond the control of the Contractor and not preventable by the exercise of due care and diligence on his part.

36.22 CLASSIFICATION OF SLIPS

The classification of material from slips or slides will be in accordance with its condition at the time of removal, regardless of prior condition. Measurement of overbreak in rock excavation shall be that of the space originally occupied by the material before the slide occurred and regardless of its subsequent classification.

36.23 ROAD APPROACHES AND ACCESS ROADS

The excavations and embankments in road approaches, junctions, access roads and fringe lands shall be of such form and dimensions as the Engineer may direct, and in all respects finished as specified for those of the main carriageway. The materials arising from such excavations shall be disposed of as directed by the Engineer.

36.24 STREAMS, WATERCOURSES AND DITCHES

Excavations carried out in the diversion, enlargement, deepening, or straightening of streams, watercourses, or ditches shall be performed as directed the Engineer. The rates for such excavations shall include for the necessary trimming of slopes, grading of beds, disposal of excavated materials and all pumping, timbering, works and materials necessary for dealing with the flow of water.

36.25 FILLING OLD WATERCOURSES

Where watercourses have to be diverted from the sites of embankments or other works, the original channels shall be cleared of all vegetable growths and soft deposits and carefully filled in with approved materials deposited and compacted as previously specified.

36.26 OPEN DITCHES

Open ditches for drainage purposes shall be cut where and of such cross section as the Engineer shall direct and where so required by him they shall be constructed before the cuttings are opened or the embankments begun. The sides shall be dressed fair throughout and the bottoms accurately graded so as to carry off the water to the outlet to be provided. The material excavated from the ditches shall be disposed of as directed by the Engineer.

36.27 CLEARING EXISTING DITCHES

Where directed by the Engineer existing ditches shall be cleared by removing vegetable growths and deposits. The sides shall be shaped fair throughout and the bottoms properly graded. Material removed from existing ditches shall be disposed of in tips provided by the Contractor. The rates included in the Bills of Quantities for clearing ditches shall include for maintaining and keeping clean.

36.28 SIDE SLOPES IN ROCK CUTTINGS

Where rock is encountered in cuttings the side slopes shall be cut out at least to the lines, levels and slopes shown on the drawings or directed by the Engineer.

36.29 EXCAVATIONS FOR FOUNDATION PITS AND TRENCHES

Pits and trenches for foundations for bridges, culverts, walls and other structures, except those covered under clause `EXCAVATIONS FOR PIPELINES, SEWERS AND MANHOLES' shall be taken out to the levels and dimensions shown on the drawings or to such other levels and dimensions as the Engineer may direct. The bottoms of all excavations shall be carefully levelled and if necessary stepped or benched horizontally. Any pockets of soft material or loose rock and fissures in the bottoms of pits and trenches shall be removed and the cavities so formed filled with concrete of the appropriate class. When any excavation has been taken out and trimmed to the levels and dimensions shown on the drawings or directed by the Engineer, the Engineer shall be informed accordingly so that he may inspect the completed pit or trench and no excavation shall be filled in or covered with concrete until it has been so inspected and the Contractor has been authorized to proceed with the work. All surplus excavated materials form such excavations not required for refilling shall be deposited in embankments, or otherwise disposed of, as directed. All excavations shall be kept dry and all baling and pumping, timbering, shoring and supporting of sides that may be required, and any refilling, ramming and disposal of surplus materials necessary in carrying out the excavations for foundation pits and trenches shall be included in the prices for excavation.

36.30 EXCAVATION FOR CUT-OFF WALLS

The rate for excavation of trenches for cut-off walls shall include for cutting one face of the excavation true to receive concrete and for any extra concrete of the appropriate class specified for the cut-off walls which is required to fill up over-excavation on this face.

36.31 EXCAVATION FOR FOUNDATION BELOW OPEN WATER

The rates for excavation of foundations below the agreed water level shall include for the cost of all temporary close timbering and shoring, sheet piling, coffee dams, caissons, pumps and other special appliances required.

36.32 FOUNDATION PITS AND TRENCHES OF GREATER WIDTH AND DEPTH THAN NECESSARY

The Contractor shall not be entitled to payment in respect of excavation to any greater extent, whether horizontally or vertically, than is necessary to receive any structure for which the excavation is intended, except where a separate item is provided for additional excavation for working space, timbering, or other temporary work. Excavation to a greater depth or width than is directed shall be made good with concrete of the appropriate class as determined by the Engineer who may allow excavation to a greater width than is necessary to be filled and tightly packed with suitable material.

36.33 EARTHWORKS TO BE KEPT FREE OF WATER.

The Contractor shall arrange for the rapid dispersal of water shed on or entering the

earthworks from any source at any time during construction, or water which is shed on to the completed sub-grade. He shall provide within the site where necessary temporary water-courses, ditches, drains, pumping or other means of maintaining the earthworks free from standing water. Water discharged from the site shall not be run into a road but be carried direct to an approved sewer, ditch or river through troughs, shutes or pipes.
Such provision shall include carrying out the work of forming the cuttings and embankments in such a manner that their surfaces have at all times a sufficient minimum crossfall and where practicable, a sufficient longitudinal gradient to enable them to shed water and prevent ponding.
In pumping out excavations and in any lowering of the water tables, the Contractor shall pay due regard to the stability of all structures.

The cost of compliance with the requirements of the class shall be covered in the rates for earthworks.

36.34 SUPPORTS FOR FOUNDATION PITS AND TRENCHES

The sides of pits and trenches shall where necessary be adequately supported to the satisfaction of the Engineer by timber or other approved means.

36.35 REFILLING OF FOUNDATION PITS AND TRENCHES AND REMOVAL OF EXCAVATION SUPPORTS

Refilling of foundation pits and trenches shall be carried out only after the foundation and structural works within the excavations have been inspected and approved by the Engineer. Unless otherwise directed by the Engineer, all filling shall consist of approved excavated material which shall be deposited and compacted, using approved plant, in layers not exceeding 225 mm loose depth, to a dry density not less than that of the adjoining soil. Timber sheeting and other excavation supports shall be carefully removed as the filling proceeds except as otherwise specified, but the removal of such supports will not relieve the Contractor of his responsibility for the stability of the works.

Where directed by the Engineer timbering, sheeting or other excavation supports shall be left in foundation pits and trenches and any timber so left in will be measured and paid for at the prices entered in the Bills of Quantities except where in the opinion of the Engineer, the necessity for leaving the timber in has arisen from negligence on the part of the Contractor.

The number of separate layers deposited and compacted at any one time shall be subject to the approval of the Engineer.

36.36 USE OF VIBRATORY COMPACTION PLANT

Where vibratory rollers or other vibratory compaction plant are used, the mechanism for vibration shall be kept working continuously during compaction operations, except during periods when the Engineer permits or directs discontinuance of vibration.
Unless otherwise permitted by the Engineer, the frequency of vibration shall be maintained within the range of amplitude and frequency recommended by the manufacturers of the plant for the material to be compacted. The frequency shall be recorded by a tachometer indicating speed of rotation of any shaft producing vibration.

36.37 PROVISION OF SPOIL HEAPS

The Contractor shall provide spoil heaps at his own expense for the disposal of surplus materials and all rubbish collected when clearing the site and during the construction of the works. The sites for these shall be approved by the Engineer.

36.38 DRAINS TO BE COMPLETED

Before the construction of the carriageways, footways or verges is begun all drains, sewers, cable ducts or other special formation work shall be completed.

36.39 COMPACTION OF NON-PLASTIC SOIL IMMEDIATELY BELOW FORMATION LEVEL IN CUTTINGS

Where shown on the drawings or direct by the Engineer, non-plastic soils shall, for a depth of 150 mm be scarified, pulverized and recompacted in accordance with the requirements previously specified for non-plastic soils. Work shall be continued in such a manner as to produce a maximum density of 100 percent at the optimum moisture content, or such other percentage as may be approved by the Engineer as a result of compaction trials.

Soft areas which may develop during compaction shall be removed and replaced by approved material.

36.40 MURRAM TO CARRIAGEWAY ON ROCK

Where the formation is rock, after excavation has been completed and if directed by the Engineer, a murram cushion shall be laid to the proper cross-falls to receive the carriageway base. It is anticipated that the depth of such murram shall not exceed 50 mm and the cost of these works shall be included for in the rates for excavation in rock.

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37.1 MATERIALS AND TESTING OF MATERIALS

a) Acceptable Standards of Material

All materials used in or upon the works shall be to the satisfaction of the Engineer and where specified, shall comply with the appropriate Specification named, e.g. British Standards Institution (hereinafter referred to as the "B.S."); American Society for Testing and Materials (ASTM) or American Association of State Highway Officials (AASHO) including any subsequent revisions of such Specifications. Materials complying with Specifications other than those quoted will be accepted in lieu provided the quality is comparable with the Specification named but tenderers should, ascertain before tendering whether or not any such other Specification is acceptable.

Similarly, where a material has been specified by manufacturer's Trade Name, the product of another manufacturer will be accepted provided it is in all respects of equivalent or higher quality.

Samples of all materials proposed to be used shall be submitted to the Engineer, shall be tested where required and receive his approval prior to being delivered in bulk upon the Works. The Contractor shall provide all samples free of charge.

b) Range of Testing

As provided in Clause 36 of the Conditions of Contract and in accordance with the Specification quoted for any material used on the Works of this Contract, tests may be called for by the Engineer to be carried out at the place of manufacture or on the site. The Contractor may assume that tests will be

required on all materials including sand, stone, road stone, concrete pipes, proprietary concrete products, reinforcement, welding, bitumen and bitumen products.
Where a sample complies with the Specification, the cost of testing ordered by the Engineer will be borne by the Client, but where a sample fails to comply with the Specification, the cost of testing will be borne by the Contractor who shall make due allowance in his prices for this and rendering any assistance required in carrying out tests.

b) Range of Testing

Loading tests on structure will not generally be called for unless specifically mentioned elsewhere.

All samples shall be obtained and tests are to be carried out in accordance with Specifications quoted. Techniques or tests adopted within the Ministry of Transport and Communications, but which are not explicitly in these standards are as detailed in (c) below.

c) Sample preparation and test Procedures Peculiar to Ministry of Transport and Communications.

i) Preparation of Gravel Samples:

Materials such as murram or soft rock which are agglomerations of materials and not discrete particles (such as quartz gravel) are first broken (usually by hand hammers) to pass a 20 mm sieve. The material shall not be broken more than necessary to achieve this state.

In testing soils containing discrete hard particles not readily broken in this way, the proportion of size greater than 20 mm is recorded, but is not included in the material used for routine laboratory tests. The material so discarded is not replaced by any other sizes.

ii) Moisture Content:

Wherever possible, moisture contents determined by the oven method shall be used. Where for field control purposes, it is necessary to use other methods, the various methods shall not be mixed.

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iii) Bitumen Affinity of Stone:

Stone between 20 mm and 13 mm in size and 3.5% bitumen at standard working temperatures are mixed, allowed to stand for 24 hours, then immersed in distilled water and inspected 24 hours later for signs of stripping.

iv) A L D (Average Least Dimensions) of Aggregate:

The average least dimension of a sample of aggregate shall be determined by obtaining and averaging the thickness (least

dimension between two parallel planes) of all the pieces in the sample. The sample shall contain at least 100 pieces.

d) Abbreviations:
The following abbreviations are used in this Specification:

Aggregate Crushing Value	A C V
Los Angeles Abrasion	L A A
British Standard Compaction Test 5.5 ib. Rammer Method	B S Compaction Test
California Bearing Ration	C B R
Maximum Dry Density	M D D
Optimum Moisture Content	O M C
Plasticity Index	P I
Liquid Limit	L L
Sodium Sulphate Soundness	S S S
Unconfined Compressive Strength	U C S
Linear Shrinkage	L S

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37.2 PORTLAND CEMENT

ORDINARY

All cement used upon the works shall be Ordinary Portland cement, unless otherwise specified or permitted by the Engineer, complying with B.S. 12 in all respects.

The Contractor shall supply with each consignment of cement a copy of the Invoice stating the quantity delivered, the maker's name and also the maker's certificate showing that each consignment has been tested and analyzed and conforms with the B.S. 12. The cement will be subject to such test, in accordance with B.S. 12, as the Engineer may deem necessary and he may reject any cement which proves unsatisfactory notwithstanding the maker's certificate.

All cement shall be stored in a waterproof shed on a wooden floor raised at least 0.15 m above the surrounding ground and any cement injuriously affected by damp or other cause shall be open to inspection by the Engineer at all reasonable times. Each consignment shall be stored separately and used in order of delivery.

RAPID HARDENING

Where the Engineer orders or permits rapid hardening cement to be used in lieu of ordinary Portland cement, it shall comply in all respects with B.S. 12 and all special conditions applicable to its use stipulated by the manufacturers shall be observed.

The conditions specified in Clause 202 for ordinary Portland cement shall apply.

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37.3 HYDRATED LIME

Lime for stabilization shall be Hydrated Calcium Lime (not magnesium) and shall generally comply with B.S. 890, Class B and with a free lime content of 50%.

Locally manufactured limes may be accepted by the Engineer in lieu of Lime to B.S. 890 and Contractors are advised, prior to tendering to ascertain from the Chief

Materials Engineer, Ministry of Transport and Communications, what local limes may be suitable. All percentages of lime specified are based upon Hydrated Calcium. Limes complying with B.S. 890 and an adjustment of these percentages may be required for some locally made limes.

The Contractor shall submit with all consignments the manufacturer's certificate that it complies with B.S. 890, or his chemical analysis.

37.4 CONCRETE AGGREGATE

Aggregate shall consist of sharp sand or crusher dust, or a mixture of these and hard durable crushed or knapped locally occurring stone to the approval of the Engineer. All aggregate shall be free from clay, shale, pryrites and all other impurities. The coarse part of the aggregate shall be roughly cubicle in shape and free from excess of flat and/or elongated particles. The grading of the aggregate shall be according to Table 1 Section 17, concrete Works (Excluding Pre-stressed).

In respect of purity and soundness, the aggregate shall, in all respects, comply with B.S. 882.

37.5 CRUSHER RUN MATERIAL

The aggregate shall consist of crushed stone which is tough and durable, roughly cubicle in shape and free from excess of flat, and/or elongated particles, clay, top soil or other deleterious matter and shall be to the approval of the Engineer.

37.5 CRUSHER RUN MATERIAL

The rock from which the stone is to be produced shall comply with the following:

Aggregate Crushing Value : Not greater than 35%

Los Angeles Abrasion Value : Not greater than 50%

Sodium Sulphate Soundness Test: Loss on 5 cycles to be not less than 12%

The grading shall conform to the grading requirements given in the table:

B S SIEVE SIZE	PERCENTAGE PASSING BY WEIGHT
50 mm	100
25 mm	75 - 95
10 mm	40 - 70
5 mm	30 - 60
No. 7	20 - 45
No. 36	15 - 30
No. 200	5 - 15*

* The percentage passing No. 200 sieve shall not be more than one-half of that passing No. 36 sieve.

Added fines: a) Up to 15% may be added

b) P I of Fines shall not be greater than 6, and LL not

greater than 20

Sampling of rock and crusher run material shall be in accordance with B.S. 812.

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37.6 HAND PACKED STONE BASE COURSE AND SUB-BASE MATERIAL

a) General Requirements:

The rock from which the stones and screenings are to be produced shall comply with the following:

A C V: Not greater than 40%

L A A: Not greater than 60%

S S S: Loss on 5 cycles to be not more than 12%

b) Stones:

The stones shall be free from an excess of flat or elongated particles soft and less durable rock, clay, loam, top soil and other deleterious matter and shall be to the approval of the Engineer.

The grading for coarse aggregate shall be as follows:

B S SIEVE SIZE	PERCENTAGE PASSING BY WEIGHT
75 mm (3")	100
63 mm (2.5")	90 - 100
50 mm (2")	35 - 70
25 mm (1")	0 - 15
20 mm (3/4")	0 - 5

37.29 MURRAM

Murram shall be from an approved source quarried so as to exclude vegetable matter, loam, top soil or clay. The California Bearing Ratio of the murram, as determined for a sample compacted to maximum density (as defined under B.S. 1377) and allowed to soak in water for four days, shall not be less than 30. This C.B.R. is a guide to quality only and the compaction in the work will be judged by density.

In the event that murram is not readily available in the immediate vicinity of the works, the Contractor will be required to provide it and to pay for all haulage. The source of supply shall be approved by the Engineer before any material is brought to site.

37.30 WATER FOR CEMENT TREATED MATERIALS

If water for the works is not available from the Public Mains, the Engineer's approval must be obtained regarding the source of supply and manner of its use. Water to be used with cement or lime shall be free from salt, oil, alkali, organic matter and other deleterious substance. If the water is required to be tested, this shall be done in accordance with the requirements of British Standard 3148: Tests for Water for Making Concrete.

37.31 SALT-GLAZED WARE SPIGOT AND SOCKET PIPES AND SPECIALS

Salt-glazed ware spigot and socket pipes and specials, shall comply with the requirements of British Standard 65: Salt-glazed Ware Pipes. Unless otherwise stated in the Bills of Quantities, they shall be of British Standard quality as defined therein.

37.32 CONCRETE PIPES AND SPECIALS

Concrete pipes and specials shall comply with the requirements of British Standards 556 or 4101 as appropriate. They shall carry the British Standard Institution Registration Certification trade mark, or test certificates shall be furnished by the manufacturers.

37.33 CONCRETE POROUS PIPES

Concrete porous pipes shall comply with the requirements of British Standard 1194: Concrete Porous Pipes for Under-drainage.

37.34 CONCRETE DRAIN INVERT BLOCKS

Precast concrete invert blocks shall be manufactured to the detailed drawings supplied from concrete class specified using maximum 12 mm size aggregate. If required, cube test certificates shall be supplied by the manufacturer.

37.35 CONCRETE SLABS FOR OPEN DRAINS

Precast concrete slabs for lining open drains shall be manufactured to the detailed drawings supplied from concrete as specified using maximum 12 mm aggregate. If required, cube test certificates shall be supplied by the manufacturers.

37.36 AGRICULTURAL TILES AND PIPES

Agricultural tiles and pipes shall be best well burnt earthware true and circular in bore and with an extremely flat bottom and plain ends suitable for laying with open or butt joints.

37.37 CAST IRON PIPES AND SPECIALS

Cast iron pipes, bends, junctions and fittings shall be provided with spigot and socket joints and shall comply with the requirements of British Standard 78: Cast Iron Pipes (vertically cast) for water, Gas and Sewage. Class B pipes shall be used, and they shall carry the British Standard Institution registered certification trade mark, or test certificates shall be furnished by the manufacturers.

37.38 MANHOLES COVERS AND FRAMES

Manhole covers and frames shall be basically in accordance with the requirements of B.S. 497: Cast Manhole Covers, Road Gulley Gratings and Frames for drainage Purposes except that the manhole covers shall be constructed of mild steel, concrete filled, in accordance with the Council's standard detailed drawings.

Foul water sewer manholes shall have triangular Grade `A' heavy duty covers and frames. Circular manhole covers and frames shall be used on surface water sewer manholes.

37.39 GULLEY GRATINGS AND FRAMES

Gulley gratings and frames shall be basically in accordance with the requirements of B.S. 497, nominal size 500 mm x 350 mm except that the gulley gratings shall be constructed of mild steel, concrete of mild steel, concrete filled in accordance with

the councils's standard detailed drawings.

Where indicated as being kerb inlet type, the gullies shall conform to the shape and dimensions given on the detail drawings supplied, but in respect of materials and workmanship conform to B.S. 497.

37.40 PRECAST CONCRETE MANHOLES AND INSPECTION CHAMBERS

Precast concrete manholes and inspection chambers shall comply with the requirements of British Standard 556: Concrete Cylindrical Pipes and Fittings including Manholes Inspection Chambers and Street Gullies and they shall carry the British Standard Institution registered certification trade mark, or test certificates shall be furnished by the manufacturers.

37.41 PRECAST CONCRETE GULLIES

Precast concrete gullies shall be unreinforced and shall comply with the requirements of British Standard 556: Concrete Cylindrical Pipes and Fittings including Manholes, Inspection Chambers and Street Gullies.

37.42 MANHOLE STEP IRONS

Step irons of general purpose type shall comply in all respects with B.S. 1247: Malleable Step Irons.

37.43 TIMBER

Timber shall be sound, well-seasoned and entirely free from worm, beetle, warps, shakes, splits and all forms of rot and deadwood. Where required, all timber shall be treated with creosote, as specified in British Standard 144: Coal Tar Creosote for the Preservation of Timber, or an alternative approved timber preservative.

37.44 PVC PIPES

PVC pipes shall comply with B.S 3505 and shall be of the type and class as specified in the drawings or the Bills of Quantities. The joint shall employ a flexible rubber ring which shall meet the requirements of B.S. 2494. Laying, jointing and testing shall generally be carried out according to the relevant clauses of this Specification and all as per the manufacturer's institutions.

37.45 PITCH FIBRE PIPES

Pitch fibre pipes, bends, junctions and taper joints shall comply with the requirements of British Standard 2760: Pitch-Impregnated Fibre Drain and Sewer Pipes, except that they shall be perforated if so shown on the drawings or required by the

Bills of Quantities. They shall carry the British Standards Institution registered certification trade mark, or test certificates shall be furnished by the manufacturers.

SPECIFICATIONS: LANDSCAPING

PART 38: LANDSCAPING

38.1 SOIL PREPARATION

a) Generally

This section includes the removal of weeds, rocks and debris from the soil surface, cultivation of the soil and addition of manure and fertilizers to the soil in preparation for planting.

b) Job Conditions

Soil preparation is to be carried out after completion of building works in that area. The work is to be co-ordinated by the Contractor with other

traders to ensure there will be no subsequent contamination of the prepared soil by building and other debris.

c) Manure

All manure is to be dry, well-rotted and a minimum of 12 months of age. It must be either horse, cow or chicken manure. Compound fertilizers are to be 20-20-20 or equally approved and are to be of dry, granular consistency. Top soil obtained locally must be neutral, free of excess salt, and must be approved by the Architect. Tests may be required by the Architect, at the expense of the Contractor.

d) Installation

Remove all large rocks (over 75 mm diameter), roots and debris from the excavated soil and then prepare soil planting mixture as follows: Mix together 4 parts excavated soil, 2 parts manure, 1 part imported top soil, 1/4 part ammonium sulphate and 1/8 part compound fertilizer. Mix all components of the planting mixture together and place into the planting hole. Fill the hole with the soil mixture to a level above the original to allow for soil settlement. Thoroughly water the planting area until well soaked. After 2 days install the plant materials.

e) Inspection

Areas of soil prepared for planting are to be inspected and approved by the Architect prior to planting.

38.2 LANDSCAPING

a) Generally

The term landscaping covers all soil preparation for planting work and all planting of trees, shrubs, grass and other plant materials.

b) Product Handling

All plant material is to be supplied to site by the Contractor and maintained on site by the Contractor until the expiry of the defects liability period. The Contractor is to be responsible for all ordering, inspections, importation, duties and handling procedures and expenses which may be incurred through supply of plant materials.

c) Job Conditions

Prior to plant material being delivered to the site, the Contractor must construct a shade house for storage of the plants until planting. The shade house is to be constructed with a flat roof covering of split bamboo poles (or equally approved) to allow filtered light through to the plant material to be stored below. the sides of the shade house are to be similarly constructed of split bamboo poles (or equally approved) to protect the plant material from intense solar radiation.

Plant material which is to be supplied to the site "bare-rooted" must be immediately planted into heavy-duty polythene plant bags in good quality top soil approved by the Architect. The plants are then to be stored in the shade house until they have fully recovered from transplantation and have leafed out prior to planting on site.

d) Acceptable Materials

All plant materials must be obtained from reputable suppliers. The Contractor must supply a list of his intended suppliers to the Architect for approval prior to ordering.

e) Materials

Plant materials may be obtained locally or imported "bare-rooted" or in soil. At the time of planting, each plant must be the following height in the ground:
Trees - 1.5 metres
Shrubs - 0.5 metres
Each plant must be individually tagged using the full Latin plant name written on to plastic tags in permanent, indelible ink, on immediate arrival on site.

f) Supervision

The contractor must employ to the satisfaction of the Architect a qualified landscape contracting expert to supervise all landscaping works. This person must be on site throughout the period of the landscape works from the time of arrival of the plant materials to completion of the maintenance period.

g) Installation

No planting of the plant material into the ground is to take place between the months May to October inclusive, unless approved in writing by the Architect. The recommended planting time is between November and March.

h) Maintenance

The Contractor is to be responsible for all landscape maintenance in areas of the site where construction work is to take place or is taking place. The Contractor is to submit his maintenance program to the Architect prior to commencement of the building contraction site.

i) Reinstatement

The Contractor is responsible for reinstatement of all landscaped areas which are not specifically designated for renovation, to their original condition where construction works take place and damage existing landscape areas.

38.3 LAWNS

a) Generally

This section includes the planting of grass plugs to create a lawn.

b) Job Conditions

Lawn areas are to be properly prepared prior to planting. Soil in this area is to be prepared in accordance with section 15.1 prior to the lawn installation. Planting must take place after 16:00 hours and before 08:00 hours to avoid damage to newly planted grass from daytime heat.

c) Materials

Grass "plugs" are to be of the same uniform species as is existing. "Plugs" are to be free of weeds and any other grass species. "Plugs" are to be freshly uprooted no longer than 12 hours prior to replanting in the lawn area. "Plugs" are to be no less than 100 mm in length with both leaves and roots visible.

d) Preparation

The Contractor shall clear the lawn of all debris, and excavate existing soil to a depth of 250 mm and prepare soil in accordance with section 15.1: Replace soil planting mixture and grade and level the soil surface. Fill in any holes and smooth cut any high points. Finally, level soil surface using a wooden plant, and roll lightly before planting.

e) Installation

Plant grass "plugs" at a depth of 50 mm, exposing only a small amount of leaf, 100 mm apart. After planting water the lawn area thoroughly using hosepipes with sprinklers connected.

38.4 TREES AND SHRUBS

a) Installation

The Contractor shall dig a round hole, 600 mm deep and 900 mm wide for each shrub and 1000 mm deep and 1500 mm wide for each tree. Remove soil and prepare soil planting mixture (see Section 15.1). When soil is prepared and the area has been inspected by the Architect, the trees and shrubs may be planted. The Contractor shall dig a hole large enough to accommodate the root ball of the plant, remove the polythene plant bag and place the plant in the hole ensuring that the level of the soil around the plant when in the bag is at the same level when planted in the ground. Replace the soil around the plant in the hole. Gently tamp down the soil. Water the plant thoroughly.

b) Plant Protection

All shrubs are to be protected from over exposure to the sun after planting in the ground, when planted during the months of November, March & April. The Contractor shall erect a sun shade over and around each shrub. This is to consist of a "roof" and sides of dried grass on a rigid frame (or equal approved).

The sun shade is to protect the plant after planting for a period of one month after which the grass may slowly be removed, a little each day, until the plant becomes acclimatized to direct sunlight.

38.5 TREE AND PLANT PROTECTION

a) Generally

This section includes all work involved in the protection of existing trees and shrubs on site from damage during the contract period and includes erection of specified barricades.

b) Job Conditions

Plants to be protected are to be identified and tagged on site by the Architect prior to installation of protective barricades.

c) Preparation

Remove all existing debris and weeds (if any exist) from around plants to be protected.

d) Installation

Erect barricades to the satisfaction of the Architect. Barricades are to coincide with the diameter of the crown of the tree or, in the case of a shrub or small plant, are to be installed at a 1.0 metre radius (minimum) from the edge of the plant.

38.6 GRASS

a) Generally

The grass should be mown regularly during the growing season. In the dry season mow to 50 mm in length and in the wet season mow to 25 mm in length. Weed the grass regularly to prevent it being choked with weeds. The edges of the lawn must be trimmed and kept tidy to prevent the grass creeping into shrub beds.

b) Fertilization

Grass must be fertilized regularly for a good lawn to be maintained.

c) Top Dressing

Apply in April after the first rains, apply a top dressing of 4 parts red top soil and 1 part dry, well-rotted manure (well mixed together) to the lawn to a depth of 13 mm. Rake top dressing over lawn and use it to fill in any uneven patches. If there is no rain, water heavily after application. Repeat top dressing application in October after the start of the rains.

d) Compound Fertilization

In June/July, apply a compound chemical fertilization (20-10-10). This can be done by hand at the rate of 30 grammes per square metre.

e) Ammonium Sulphate

Every 2-3 months (in between top dressings and compound fertilization apply Ammonium Sulphate at a rate of 15 grammes per square metre. Water thoroughly after application. Heavy watering after application of fertilizer is essential to prevent "burning".

f) Aeration

Apply a layer of course sand 6 mm deep in March to improve aeration. Spike the lawns with a garden fork or a spiked roller to aerate the lawn. Excavations should be spaced 100 mm apart throughout the lawn. Do not spike in very wet weather or in very dry weather.

g) Watering

Water very heavily once a week in dry weather.

38.7 SHRUBS

a) Generally

Weed all shrub beds regularly, every two weeks. Inspect all shrubs every two weeks for pests and diseases. Do not fertilize newly planted shrubs for three months. Remove ground cover plants from around the base of shrubs to avoid strangulation.

b) Fertilization

Fertilizer shrubs three times a year starting three months after planting. Alternate major fertilization with manure and compound fertilizer; manure fertilization. In April and in October, apply 6 mm of well rotted manure to all shrub beds. Water well after application.

c) Compound Fertilization

In July and January, apply 15 grammes of 2ON-1OP-10K compound chemical fertilizer to each shrub around the stem and 15 grammes of bone meal. Lightly fork the fertilizer into the soil without disturbing the roots. Water well after applications. Minor fertilisation: once a month apply BAYFOL and/or WUXAL forlio feed to all plants. This is applied as a spray and should be done before 9.00 a.m. and after 4.00 p.m. on dry days.

d) Watering

All shrubs should be watered very well (soaked) 1-2 times a week in the dry season. Use a sprinkler (not a hose as this can cause soil erosion).

e) **Pruning**

Prune only when necessary. Many shrubs need never be pruned (e.g. Gardenia), others become straggly and need annual pruning (e.g. Poinsettia, Buddleia, Steptoselen, Hydrangea). Some shrubs require light pruning throughout the year to maintain a good shape (e.g. Abulition). Some shrubs can tolerate drastic pruning (e.g. Pride of India, Fibouchina Bougainvillaea).

Lightly prune shrubs to encourage growth and improve shape. Shrubs should never be repeatedly and drastically pruned to "stunted balls" as this not only destroys the natural form of the plant but also discourages flowering.

Arbrex, a pruning compound, must be applied to all cut stems after pruning. This also should be applied to roses, trees and any shrubs which have been pruned.

f) **Mulching**

Rake up leaves which fall on the lawns and use these as a mulch on all the shrub beds. Make sure that only the leaves are placed in the shrub beds and no branches as this will attract white ants. Apply the dead leaves to the shrub beds to a depth of 100 mm. The leaves will act as a mulch; it will provide humus to the soil, prevent weed and help retain moisture in the soil.

SECTION V (B): KEY PERSONNEL REQUIREMENTS.

Bidders shall submit the following documents which shall be certified by the employer as true copies of the original to be used for evaluation.

- Summary list of Key Staff (FORM PER-1)
- Resume and Declaration of Contractor's Key Personnel, duly signed (FORM PER-2) *(Do not attach alternative Resumes / Curriculum Vitae other than what been provided herein)*
- Copies of academic certificates
- Copies of valid professional certificates / license
- A written undertaking signed by the nominee confirming his/her availability to carry out the assignment upon winning the bid

i. **Civil Engineer:** - Degree in Civil Engineering with 5 years minimum experience in civil engineering works registered with respective Professional bodies.

ii. **Site Agent:** - Diploma in Civil Engineering or Construction Management with 5 years minimum experience in road construction works.

iii. **Electrical Technician :** - Minimum Diploma in Electrical Engineering, with 5 years minimum experience; Attach copy of EPRA certificate

iv. **Environment, Health & Safety Officer:** - Diploma in Environmental Science with a 3 years minimum experience in dealing with environmental

v. **Concrete Foreman**- Diploma in Civil Engineering, Building and construction with at 3Years experience in concrete works.

vi. **Earthworks Foreman:** - Diploma in Civil Engineering, Building and construction with at 3Years experience in earth works

Requirement: - Duly filled & Singed FORM PER-1 and FORM PER-2 for each key personnel. Attach applicable evidence attachments

SECTION V (C): KEY EQUIPMENT REQUIREMENTS.

Must demonstrate access to the following key minimum equipment (log books for all motorized registered equipment, invoices, receipts, leased or hire agreement) necessary to undertake the work; *If equipment is hired or leased Provide a commitment letter from the lessor of the equipment addressed to the Managing Director/CEO KenGen indicating that the lessor shall avail the equipment upon award of the tender and submit a copy of a written agreement to lease between lessee and lessor indicating list of equipment and their corresponding copies of log books or proof of ownership by lessor. The equipment listed shall be available on site when required;*

i. Tipper Trucks -1No
ii. Plate Compactor – 1Set
iii. Water bowsers – 1No
iv. Transportation Lorries – 1Nos
v. Transportation Vans – 1 Nos.
vi. Pickups – 1No
vii. Concrete Mixers and Poker Vibrator-1 Set
viii. Dumpy Level & Staff – 1 Set
ix. Other Construction tools

Requirement: - Duly filled and Singed FORM EQ-1 for each equipment

1	**Instructions and Undertaking Works**	The contractor and or his representative should not execute any work until and unless it is authorized by the Employer's representative. Care should be taken not to damage any property/equipment by improper handling etc. the contractor shall be responsible for any damage or theft and shall have to make good to its original shape and description as and when damage/theft etc. takes place / is noticed. Care should be taken not to damage any property/equipment by improper handling etc. the contractor shall be responsible for any damage or theft and shall have to make good to its original shape and description as and when damage/theft etc. takes place / is noticed.
2	**Working Hours**	Working hours shall be 8:00am to 5:00pm from Monday to Friday. KenGen may normally require works to be execute on Saturdays, Sundays, public holidays and extra hours during the weekdays in case of circumstances requiring such instructions. Works shall not be carried out in following public holidays except where expressly advised by KenGen Engineers. a. New Year's Day (1st January) b. Good Friday c. Easter Monday d. International Labour day (1st May) e. Madaraka day (1st June) f. Idd-Ul-Fitr g. Idd Ul Adha h. Moi Dai (10th October) i. Mashujaa day (20th October) j. Jamhuri day (12th December) k. Christmas day (25th December) l. Boxing Day (26th December) Any other gazetted Public holidays (Assume 2 per year) None of the permanent work shall be carried out between 5:00 PM and 8:00 AM or on Sundays or on Public Holidays without the express authority of the Employer's appointed Engineer; In the event of the Client Representative consenting to work being carried out outside normal working hours, the contractor shall be responsible for payment of any additional costs for his staff. Working hours are 8:00am to 5:00pm from Monday to Friday
3	**Administrative facilities for the Contractor**	The Contractor shall establish a site office. KenGen shall provide a location where the Contractor will construct, at his own cost (or as may be provided within the BOQ), a temporary operation site office in order to provide

		effective services. He will also meet all costs for connecting electricity, telephone, or any other mode of communication. However, the water to the office will be available to the Contractor free of charge provided the Contractor will meet the cost of connection from the nearest available point. KenGen will not guarantee the quality or be responsible for any consequences arising from the use of the water. The Contractor must provide the necessary toilet facilities to the requirement and satisfaction of the Health Authorities and maintain the same in a thoroughly clean and sanitary condition and pay all conservancy fees during the period of the Works and remove when no longer required.
4	**Publicity Sign Board**	Where so required and as provided for in the BOQ, the Contractor shall provide a Sign Board as specified on the Drawing. The Sign Board shall be placed at the beginning section covered by this Contract. The Sign Board shall be maintained for the duration of the Works and removed on completion
5	**Concept Design Drawings:**	The Client shall issue concept drawing that is representative of the works to be executed.
6	**Designs and Drawings:**	Where so provided in the BOQ, the contractor shall undertake assorted Engineering Services including re-design of the concept drawings, production of construction drawings, production of approval drawings, having the drawings approved by registered engineers in their respective fields, and who are in good standing, having the drawings approved by the respective County Government (s), and avail approved drawings to the client in print form and in the applicable size. The contractor shall also be required to provide shop drawings during implementation of the project. Shop drawings to be provided for approval for all construction elements. The Contractor shall also provide As-built drawings, to be provided upon completion of the project and not later than expiry of DLP. At all times, 5 copies of requested drawings shall be submitted to the Employers' Representative in the paper size agreed upon.
7	**Commencement of Works**	The Contractor shall commence works as soon as and within 14 calendar day, upon receipt of order to commence from the Client.
8	**Instructions**	The Client shall work in accordance to instructions issued at all time. The Contractor is required to seek for Instructions if non is issued by the clients. The client is obligatred to issue such instructions within 3 working day of receipt of Request for Instructions from the

		contractor.
9	Notices from the Contractor	The Contractor shall give the Client 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 Client shall not relieve the Contractor of his duties or responsibilities under the Contract.
1	Site and Progress Meetings	After signing the contract by both parties, KenGen's representative shall call a Project Kick-Off Meeting to initiate commencement of the works where the contractor shall provide a detailed work program. It is a condition of this contract that site meetings shall be held regularly in the contract period on a date as agreed on. The Contractor and KenGen must be represented in those meetings. Other people may be co-opted to attend the meeting depending on the agenda. At the end of the project, there shall be a Project Hand over meeting
1	Contract Administration	The Contractor shall always endeavour to carry out the contract as detailed in this tender document. In order to minimize disputes especially those that emanate from failure to follow the specifications, both the Contractor's and KenGen's representative must visit daily all the areas under this contract and sign in a log book that everything is in order. Any adverse comments must be put in the log for future reference and both supervisors shall sign the log to signify that they are party to the comments inserted therein. In case any party does not agree with the comments put in the log by the other party, then he is at liberty to write his opinion and sign it.
1	Progress Reports	The Contractor shall submit to the Client on the first day of each week or such longer period as the Cient from time to time direct, a Progress Report and any information for the proceeding period, showing the progress during the period and the up-to-date cumulative progresson all important items of each section or portion of the Works.
1	Management of the construction site	The Contractor shall not use the Site for any purpose other than that of carrying out the Works. Where the Contractor is advised of limits of land available around the area of the main construction site, the Contractor shall have no rights to use areas outside these limits except for short periods and/or by such arrangements with the owners as he shall elect to make.
1	Blasting and Explosives	Blasting will only be allowed with the express permission of the Client 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 Client governing the use and storage of explosives.
1	**Security, Watching and Lighting**	The Contractor shall take all necessary precautions such as temporary fencing, screens, etc., for the safe custody of the Works, materials and public and employer's property on the site. The Contractor shall employ competent watchmen and guard the works both by day and night. Uncovered areas and materials dump or other obstructions likely to cause injury to any person or animals shall be suitably fenced off or guarded to ensure that such incidences do not occur. The Contractor shall be responsible for any injury or loss to the Contractor, the Employer and any third parties or anyone else resulting from the contractor's actions or omissions in respect to safety and security. The Contractor shall provide at his own risk and cost all watching and lighting as necessary to safeguard the works, plant and materials against damage and theft. The Contractor shall provide all artificial lighting and power for his own use on the Works, (including Sub – Contractor's) including all temporary connections, wiring, fittings, etc., and clearing away on completion. Where applicable, the Contractor shall pay all fees and obtain all permits in connection there with.
1	**Protection of Works from Rain**	The works shall be so executed that should it be necessary to suspend work due to rain, no part thereof is left in such a state as to be liable to damage thereby. No claim by the Contractor arising out of the reinstatement of any damage caused by or incidental to rain shall be accepted.
1	**Protection of Existing Services**	a) There are overhead, surface and underground services at the site including roads, water pipelines, sewage lines, electricity cable, telephone cables and fences. The contractor is advised to take due care while carrying out the work. The contractor shall also be responsible for identifying these services from the surface providers b) The Contractor shall acquaint himself with the position of all existing services on or adjacent to the site before commencing the works. c) Various above ground and underground services such as pipelines, cables and power lines may exist within the confines of the various areas of the Site. Whenever the Contractor has been advised of the approximate positions of such services and has to execute work adjacent to or concerning them, he shall be entirely

		responsible for locating the exact position of the services, either diverting or temporarily supporting them as agreed with the Client Representative, protecting them during the work and making good afterwards. d) He shall at his own expense ascertain in writing from the Statutory undertakers and other public bodies, companies and other persons who may be affected, the positions and depth of their respective ducts, cables, mains, pipes or other services. He shall thereupon search for and locate such service. e) If the works will interrupt any service passing through the Site, the Contractor shall provide a satisfactory alternative service in full working order to the satisfaction of the owner of the service and the Client Representative before cutting off the existing service. f) Except that such services are required to be removed or altered by virtue of the layout of the permanent work and not the manner in which the work is carried out shall be so removed or altered at the direction and at the expenses of the Employer. g) Client Representative must be informed in writing of any services exposed during repairs and the Contractor will be required to adequately support, restore and make good any services disturbed in the course of the works and shall be further liable for any damage which may be shown during the period of maintenance, to have arisen through the execution of these works. h) The Contractor will be required to make good, at his own expense and damage he may cause to the present road surface and pavements within or beyond the boundary of the Site, during the period of the works. All existing paths, storm water channels, etc., that may be destroyed or damaged during the progress of the Works shall be reinstated by the Contractor to the satisfaction of the Engineer. i) The Contractor must take steps necessary to safe guard and shall beheld fully responsible for any damage caused to existingand adjacent property, including buildings that are not a subject of demolition. He shall make good at his own cost damage to persons and property caused there on, and he shall indemnify the Procuring Entity against any loss or claim that may arise.
1	**Surface to be inspected**	During the construction of any works and from the time of completion of the works, the contractor shall inspect the surfaces and if from whatever cause the surface is found to, have subsided the contractor shall make good

		the same at his own expense to Client Representative 's instructions. The Contractor shall at his own expense take every precaution to prevent slips and falls of materials or equipment in the works. In the event of any slips or falls occurring, the contractor shall restore the works and reinstate any parts of the works affected at his own expense.
1	**Material suitability**	Materials shall strictly comply with the Employer's Design unless the use of an alternative material has been explicitly requested by the Contractor and approved by the Engineer. All materials and equipment furnished shall: be new, unused, and undamaged when installed or otherwise incorporated in the Works and properly identified by appropriate stampings and markings and shall be accompanied with original manufacturer's documentation where appropriate, All material shall be new unless otherwise directed or permitted by the Engineer and, in all cases where the quality of goods or materials is not described or otherwise specified, is to be the best quality obtained in the ordinary meaning of the word 'best' and not merely a trade signification of the word. All materials and workmanship shall, unless otherwise specified or described, conform to the appropriate British Standard Institution Specification or other authoritative standard ensuring equal or higher quality current at the time of tender and in accordance with the requirements of local statutory authorities. The Works throughout shall be executed by skilled workmen well versed in their respective trades. The Contractor is responsible for the location, provision and supply of all materials for the work, which shall comply with Appropriate Clauses in the specification. All materials shall be of approved manufacture and origin and the best quality of their respective kind The Contractor is at liberty to propose to the Engineer the use of material other than those specified but may use such materials subject to Engineer's written Approval. A sample of each type of material shall be delivered to site for approval by the Engineer. Where a sample may be difficult to deliver to site due to its nature, the Contractor may request the Engineer to inspect the materials at the Contractor's warehouse or factory. The Engineer may take such samples as he may wish for testing and approval and the Contractor shall furnish any information required by the Engineer as to the origin, quality, weight, strength, and description etc. of materials

		The contractor shall use no materials of any description without prior sanction and any condemned as unfit for use in the works shall be removed immediately from the site at contractor's cost.
2	**Packaging and shipment**	Where so applicable, the Contractor shall order materials to be obtained from overseas immediately after the contract is signed and shall also order materials to be obtained from local sources as early as necessary to ensure that such materials are on Site when required for use in the Works. The Contractor shall ensure that all Materials shall be adequately packaged and/or preserved so that they can be safely shipped to the Site and stored there for the duration as the construction programme requires without risking corrosion damage or other deterioration. The Contractor shall be responsible for and shall replace or make good at his own expense any materials lost or damaged.
2	**Material Storage**	Unless specified otherwise, the contractor shall be responsible for constructing their own storage facilities and shall meet the cost of construction of such storage facility and upon completion of the project, decommission the storage facility.
2	**Samples and testing**	Concrete test cubes shall be prepared in a set of three, as described including testing fees, labor and materials, making molds, transport, handling, etc. Allow in your rates for making at least four cubes on each occasion, from different batches; the concrete being taken from the point of deposit. Samples of materials shall be submitted as soon as possible after the contract is let. No deliveries in bulk shall be made until the samples are approved by the Engineer. All condemned materials shall be removed from the site within 72 hours. Every facility shall be provided to enable the Engineer to obtain samples and carry out tests on the materials for construction. If these tests show that any of the materials do not comply with the requirements of this specification, the Contractor will be responsible for the costs or construction of the tests and the replacement of defective materials and/or construction.
2	**Proprietary Materials**	Where proprietary materials are specified hereinafter the Contractor may propose the use of materials of other manufacture but of equal or higher quality for approval by the Engineer.

		All materials and goods, where specified to be obtained from a particular manufacturer or supplier are to be used and fixed strictly in accordance with their instruction.
2	**Rejected Workmanship and Materials**	Any workmanship or materials not complying with the specific requirements or approved samples or which have been damaged, contaminate or have deteriorated must immediately be removed from the Site and replaced at the Contractor's expense, as required.
2	**Provision of Samples**	The Contractors Shall furnish at the earliest possible opportunity before work commences, and at his own cost, any samples of materials and workmanship that may be called for by the Client for the approval or rejection, and any further samples in the case of rejection, until such samples are approved by the Engineer. Such samples, when approved, shall be the minimum standard for the work to which they apply. The proceduref or submitting samples of materials for testing or approval and the method of marking for identification shall be as laid down by the Engineer.The Contractor shall allow in his Tender for such samples and tests, including those in connection with his Sub-Contractors work.
2	**Contractor's Superintendence**	The Contractor shall constantly keep on the Works a literate English-speaking agent or representative, competent and experienced in the kind of work involved, who shall give his whole time to the superintendence of the Works. Such agent or representative shall receive on behalf of the Contractor directions and instructions from the Client Representative, and such directions and instructions shall be deemed to be given to the Contractor in accordance with the Conditions of Contract. The agent shall not be replaced without approval.
2	**Provision of Labour**	The Contractor shall provide casual labour services required for the execution of works described herein. The contractor shall note that works should be taken up in its true spirit, therein promptness, punctuality and professionalism are of utmost significance and which cannot be compromised upon. The workmen employed on the job shall be of polite nature and well-mannered. In case it is observed that one or more workmen are felt to impolite or badly behaved the Employer's representative is liable to issue notices to the contractor in writing directing immediate replacement such workmen.
2	**Labour Act and other governing laws of Kenya**	The contractor shall ensure full and total compliance with the Labour Act in the employment of his staff. Other governing laws of Kenya shall also apply to the letter.
2	**Gender Rule**	Subject to governing laws of Kenya, the contractor shall ensure compliance with the 1/3 rule regarding gender.

3	**Employment of Staff**	During the execution of this contract, the Contractor shall be mandated to offer employment opportunities to members of the local community upon advertisement at the KenGen's Liaison Office. Such persons may be skilled, semi-skilled or unskilled and shall be treated fairly and in the similar manner with regard to remuneration and work conditions as any other employee of the contractor. The Contractor is at his discretion to employ the **best** talent from the local community.
3	**Payment of Wages, Salary and other benefits**	The Contractor shall make prompt payment of wages, salary or other benefit to his employees every on a predetermined date of every month without delay The contractor shall keep updated register of salaries, wages or any benefit as paid out to their employees. The payroll records shall be available at all times for inspection by the Client Representative and authorized Government officers at all times
3	**Minimum Wage**	Subject to governing laws of Kenya, the contractor shall make payment to his staff ensuring that the Minimum Wage is adhered to.
3	**Delayed or Non-payment of wages, salaries and other benefits**	Where the contractor fails to make timely payment of wages, salary or other benefits as has been determined, and an employee (ies) makes such complaint (s) known to KenGen through writing, the Contractor shall be instructed to write a written explanation as to why this arise. Where the Contractor severely delays or does not pay his employees, KenGen shall have the right to withhold their payments until all dues payments are made in full.
3	**Documentations of employees and their payments**	A. Register of Employees The Contractor shall keep and maintain an updated register of all its employees, including name, ID number, address, designation, and days worked at all times. Shall register MUST be available for inspection and scrutiny by KenGen and Government Officers as may be required by them. B. Register of Employees' Payments The Contractor shall keep and maintain an updated register of all its employees, payments of wages, salary and/or any other benefit at all times. These must be signed by the employees noting acceptance of such payments.
3	**Contractor's accommodation and transport**	a) The Contractor shall be responsible for all accommodation and transport needs of the

		Contractor's Personnel, taking note of any restrictions imposed by the Contract. b) The Contractor MUST provide adequate arrangements and provisions for the feeding and housing of the Contractor's personnel. c) The Contractor shall be responsible for the provision of housing for his own labour, including the land on which such housing is located. The Employer will not make available any land for the construction of a labour camp. d) The Contractor shall also be responsible for provision of all services including, but not limited to, the staff facilities. e) The Contractor shall not be permitted to construct any camp providing sleeping accommodation within site area f) The Contractor is responsible for staff entry and exit from the Olkaria and MUST provide a means of transport to the staff. g) The use of open Lorries or pickup trucks for the transport of Contractor's labour SHALL NOT be allowed under this Contract. h) The Contractor's attention is drawn to the requirements that they shall use buses/vans etc. fitted with safety belts (for all occupants) and speed limiting devices to 80km/hr. and that all persons travelling in vehicles must be seated. i) The Contractor shall comply with the Kenyan traffic laws and regulations and shall obtain the approval of the Transport Licensing Board in respect of the transportation of labour for the Contract.
3	**Drinking Water for Staff**	The Contractor shall be required to provide safe, portable drinking water to staff at all times when they are in the field.
3	**Construction Equipment**	The Contractor shall provide all necessary hoists, tackle, plant, equipment, vehicles, tools and appliances of every description for the due and satisfactory completion of the Works and shall remove the same on completion. All such plant, tools and equipment shall comply with all regulations in force throughout the period of the Contract and shall be altered or adopted during the Contract period as may be necessary to comply with any amendments in or additions to such regulations. Provide, erect and maintain all necessary scaffolding, sufficiently strong and efficient for the due performance of the works, including Sub-Contract Works, provide special scaffolding as required by Sub-Contractors, alter

		and adopt all scaffolding as and when required during the Works, and remove on completion. No scaffolding is measured here in after and the Contractor must allow in his rates for this. The Contractor shall take all necessary precautions such as temporaryf encing, hoarding fans, planked footways, guard–rails gantries screen, etc., for the safe custody of the Works, materials and public protection and adjacent properties.
3	**Safety at Site**	The Contractor shall ensure that the safety of his work people and all authorized visitors to the site are protected at all times. In particular, there shall be the proper provision of guard–rails to scaffolding, protection against falling materials, tools on site, dust, nail and other sharp objects. The site shall be kept tidy and clear of dangerous rubbish. The Client shall be empowered to suspend work on site should it be considered this condition is not being observed and no claim arising from such suspension will be allowed.
3	**Safety and Environment Requirements**	The Contractor shall at all times execute the works in a safe and secure manner and actively practice safety through the term of the Contract and shall comply with the applicable legal and other requirements including the KenGen-KWS Memorandum of Understanding. This will include having a standby vehicle at the site to serve in case of an emergency. The contactor will report all the accidents/incidents and near misses to safety offices for necessary actions. The formulation and enforcement of an adequate safety and environmental management program shall be the obligation of the Contractor with respect to all the Works under this Contract, regardless of whether performance by the Contractor or his subcontractors. The Contractor shall, within 14 days after commencement of the works, meet the Client Representative to present and discuss his plan for the establishment of such safety and environmental protection measures as may be necessary to provide against accidents, unsafe acts and so forth. Within 28 days after commencement of the works, the Contractor shall submit a written safety and environmental management program to the KenGen covering the overall Works and based on the laws and regulations of Kenya. In addition, he shall prepare special safety programs for working within electricity generating and geothermal exploration facilities. The Contractor shall dispose waste in compliance with the Environmental Management and Coordination (Waste Management) Regulations, 2006. The Contractor shall take such steps and exercise such care and diligence as to minimize nuisance arising from

		dust, noise or any other cause to the occupiers of the existing and adjacent property. He must provide such temporary and special screens and tarpaulins or gummy bags, hoarding, barriers, warning signs etc. as he considers necessary and sufficient for the protection of the existing and adjacent property and or prevention of nuisance etc. as directed by Engineer. The Contractors attention is drawn to the standards levy order which was amended on 15thOctober 1998.Legal notice No.154 of 1998. The Contractor is required to pay a monthly level of 0.2% of his factory price of construction works with effect from January 1999. Tenderer shall allow for this in the build-upo f his rates.
4	**Safety at site**	The Contractor shall be responsible for the safety of all activities and his employees on the Site. Work is to be executed in a safe and responsible manner and the construction is to proceed in accordance with the provision of the appropriate legislation.
4	**Occupational, Health and safety requirements; Safety Precautions and First Aid**	The Contractor shall provide adequate and easily accessible Fist Aid Equipment on site. The Contractor shall be responsible for the management of health and safety of his employees on the construction site.
4	**Personal Protective Equipment**	The Contractor shall be required to comply with all safety regulations and provide his staff with adequate and required **PPE's** which he shall ensure that are worn at all times his staff are working in the field. KenGen shall continuously monitor to ensure that all safety regulations are adhered to and deviations from these safety regulations shall prompt KenGen to take action accordingly.
4	**Environmental Protection**	The Contractor shall ensure so far as is reasonably practicable and to the satisfaction of the Client Representative; that the impact of the construction on the environment shall be kept to a minimum and that appropriate measures are taken to mitigate any adverse effects during the construction. a) After extraction of materials, all borrows pits shall be backfilled to the satisfaction of the Client Representative. In particular, borrow pits near the project road shall be backfilled in such a way that no water collects in them. b) Spilling of bitumen fuels Oils and other pollutants shall be cleared up. c) Including removal of excavated material from the pavement to spoil.

4	**Materials & Waste Disposal; Disposal of construction wastes**	a) The contractor shall sort out and dispose construction and domestic wastes in accordance to the employer's guidelines. The contractor shall consult the employer project Client Representative for guidelines b) Existing equipment, fittings and materials such as electrical fittings, pipes etc. to be removed for replacement or relocation belong to the Employer. The contractor shall remove them carefully and hand them over to the Employer. c) Very little waste is expected during performance of this contract. The Contractor shall dispose waste according to the laws of Kenya. The contractor may request the Employer to provide a disposal yard for rubbish collected when clearing the site and during construction of work and also for any surplus material not required on site.
4	**Protection of Completed Work and Clearing upon Completion**	The Contractor shall allow in his rates for protecting completed work from subsequent operations, making good of all damage to completed work, clearing away all rubbish as it accumulates and leaving the site in a tidy condition to the satisfaction of the Engineer.
4	**Leave Works Clean**	On completion of the Works, the Contractor shall carefully restore to the original condition of the ground, and other structures that may have been interfered with in any way by him or his employees and shall remove all rubbish, tools and materials which are not required, so as to leave the works and site in clean and orderly condition, such work being carried out by the Contractor without extra charge over and above his scheduled rates for the execution of the works.
4	**Items to Be Supplied by the Employer**	**Water** KenGen shall provide non-portable water suitable for use in construction works at no cost to the Contractor. The water will be used strictly for works within KenGen premises but not outside. Contractors' staff living outside KenGen premises should provide their own domestic water. Water shall be available at designate water points along water supply pipeline. It shall be the contractor's responsibility to ensure such water is available at his area of need through piping or by water bowser(s) and KenGen takes no responsibility to provide the water to the contractor on site. Measurement: Daily Monitoring and Control The contractor shall document all volumes of KenGen

		water used in the project In case the contractor pipes the water to site, the contractor shall provide for a flow meter to measure volumes of water used. Daily use shall be recorded and submitted to KenGen In case the contractor uses a water bowser to deliver the water to site, the contractor shall provide for documentation detailing the volume of water used daily by the water bowser on the site. All original documentations for water use shall be submitted to KenGen on a daily basis. The contractor shall keep copies of the same. The water shall be used strictly for KenGen works and particularly for this project unless instructed otherwise by the Engineer in Charge. **Non-Availability of KenGen Water** In the event that KenGen water is not available through the designated watering points, it shall be the contractor's responsibility to source for such water elsewhere, thus, ensuring steady continuance of works. Water sourced elsewhere shall not be subjected to daily volume recording. **Electricity** KenGen shall not provide electricity to the Contractor. Contractor shall be required to make his own arrangements for electricity provision, including use of portable generators where applicable.
4	**Insurance**	The Contractor shall be responsible for and shall take out appropriate cover against, among other risks, personal injury; loss of or damage to the Works, materials and plant; and loss of or damage to property. All the workmen engaged for the work shall be group insured during the period of contract. In case, the contract is extended beyond the period stipulated in the agreement, the contractor shall extend the group insurance to the extended period of contract. The contractor shall be fully responsible for settling all claims and indemnify the Employer against any claims arising out of any accidents to the hired staff/labours.
4	**Indemnity**	The Contractor shall indemnify and keep indemnified KenGen, its servants or agents against loss of or damage to property or bodily injury sustained by it or them by reason of any act, omission or neglect of the Contractor its servants or agents whilst performing their duties within the scope of their employment with the Contractor

		and against the dishonesty of such security officers or personnel whilst performing their duties within the scope of their employment, which shall include any loss, damage, injury or any consequential or indirect loss sustained by KenGen its servants or agents or third parties lawfully on the premises by reason of any act or omission or neglect of the Contractor its servants or agents.

SECTION V (E): PREAMBLE BILLS OF QUANTITIES

1.	Detail	Description
2.	**Local Legislation**	The Bidder's attention is drawn to the requirement of **THE FACTORIES (BUILDING OPERATIONS AND WORKS OF ENGINEERING CONSTRUCTION) RULES, 1978, CAP 514, of the Laws of Kenya** (and as amended from time to time), which are to be strictly complied with at all times.
3.	**Complementary Documents**	The attention of the Contractor is explicitly directed to the **Conditions of Contract, Technical Specifications, Scope and Description of Works and Tender Drawings** that are to be read in conjunction with the Bills of Quantities and its Preamble.
4.		The quantities given in the Bills of Quantities are estimated and partly provisional and are given to provide a common basis for tendering. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Contractor and verified by the Client and valued at the rates and prices tender in the priced Bills of Quantities, where applicable, and otherwise at such rates and prices as the Client may fix within the terms of the Contract.
5.		The whole cost of complying with the provisions of the Contract shall be included in the Items provided in the priced Bills of Quantities, and where no Items are provided, the cost shall be deemed to be distributed among the ratesand prices entered for the related Items of Work.
6.		The National Construction Authority is a state corporation established under the national construction authority Act No.14 of 2011. The broad Mandate of the Authority is to over see the construction industry and coordinate its development. The National Construction Authority Regulations 2014 with an effective date of 6thJune 2014, regulation 25, - Allow 0.5% of the tender sum/contract sum for construction levy.
7.	**Bidder's Obligations**	**a)** The Bidder shall treat the contents of these documents as private and confidential. **The Bidder shall acknowledge receipt of the Tender Documents.** **b)** The copyright of these Bills of Quantities is vested in the Engineer and no part thereof may be reproduced without their express written permission. **c)** The Bidder shall neither insert additional items in to the Bill of Quantities nor make any alterations to the item descriptions and quantities, unless where expressly authorized. **d)** The Bidder shall not alter or otherwise qualify the text of this Tender Document / BOQ. Any unauthorized alternations or qualifications shall be ignored and the text of the documents as printed will be adhered to. Any comments which the Bidder desires to make shall not be placed in the annexed documents, but shall take the form

1.	Detail	Description
		of a separate statement in English language as briefly as possible and giving reference to page, clause or item number of the tender documents **e)** The Bidder shall be presumed to have made allowance in his prices generally to cover items of preliminaries or additions to prime cost sums or other items if these have not been priced against the respective items. **f)** All items of measured work shall be priced in detail and tenders containing lump sums to cover trades or groups of work shall be broken down during execution to show prices of each item before they will be accepted. Lump sums to cover items of preliminaries shall likewise be broken down if so required.
8.	**RATES AND PRICES**	
9.	**Rates and Sums**	The rates and sums entered by the contractor against all items in the Bill of Quantities shall bear a proper relationship to the cost of carrying out the work described in the Contract. All costs and similar charges that are applicable to the Contract as a whole shall be spread over all items in the Bill of Quantities whilst those that are applicable only to particular sections of the Contract shall only to be spread over the relevant items in particular sections.
10		The rates and prices tender in the priced Bills of Quantities shall, except in so far as it is otherwise provided under the Contract, include all Constructional Plant, labour, supervision, materials, erection, maintenance, insurance, profit, taxes, and duties, together with all general risks, liabilities, and obligations set out or implied in the Contract.
11		General directions and descriptions of work and materials are not necessarily repeated nor summarized in the Bills of Quantities. References to the relevant sections of the Contract documents shall be made before entering prices agains teach item in the priced Bills of Quantities.
12	**Taxes and Duties**	The contractor shall include all local taxes except VAT for the materials and services to be procured locally in his unit rate for various item of works included in the Bill of Quantities. The unit rate for materials, goods and equipment to be imported from overseas shall INCLUDE VAT and other import duties such as custom duties, cess, excise duty, etc. The Employer is not responsible to pay any VAT or custom duty for any imported items to be incorporated in the permanent works.
13	**Value Added Tax**	As set out in the "Instruction to Bidders", VAT payable to the Government of Kenya shall be calculated separately and the total VAT amount shall be inserted in the space provided in the Summary Page of the Bills of Quantities. VAT shall not be included in the unit rate for various items of work. However, the total VAT component be carried over to the **Form of Tender.**

1.	Detail	Description
		The applicable rate for VAT in the BOQ items for civil engineering works set by Government Kenya and the contractor shall authenticate this rate and include in the Summary Bill of Quantities.
14	**Withholding Tax**	The Contractors attention is drawn to the Finance Bill of the year 2000/2001 on withholding tax on contractual payment section 35(7)(i)(ii) which became effective on 1st July 2000. A 3% withholding tax will be applicable to all in terim payments for work done in respect of building or civil works. The contractor shall allow for any costs arising resulting there from in the build-up of rates.
15	**Provisional Sum and Contingency**	Provisional Sums and contingency sums included and so designated in the Bills of Quantities shall be expended in whole or in part at the direction and discretion of the Client in accordance with Sub-Clause13.5 and Clause 13.6 of the General Conditions of contract.
16	**Provisional Quantity**	Certain items in the Bill of Quantities are designated as "Provisional Quantity" in the description column to indicate that the quantities for the work covered by such items are the best possible estimates that can be made in advance of the execution of the work or that the provision of such facilities as are described in the items may not in the event be required under the contract. All items so designated shall be used only at the direction and discretion of the Engineer and if not used either wholly or in part shall, as to the amount not used, be deducted from the Contract Price.
17	**Provisional Item**	Any item that is designated as "Provisional Item" in the description column of the Bill of Quantity is to indicate that the provision of such facilities of work is uncertain at the time of document preparation. The unit rate if any quoted by the contractor shall be applicable for the amount of work executed under such items. All items so designated shall be used only at the direction and discretion of the Engineer and if not used either wholly or in part shall, as to the amount not used, be deducted from the Contract Price.
18	**Lump Sum**	Certain items in the Bill of Quantities are designated as "Lump Sum (LS)" in the unit column to indicate that the payment will be effected as a sum on satisfactory completion of that particular work. Lump sum items stipulated in Bill of Quantities that are related to a specific work shall be paid on the basis of the proportion of actual work done to the total work of that specific item as assessed by the Engineer. Items with quantities and units shall be paid against number of units used and/or incorporated in the works.

1.	Detail	Description
19	**Additional Work**	The relevant Clauses of this Preamble shall be deemed to apply equally to any work subsequently ordered for execution by the Contractor either under Provisional Sum or Variation Orders, except where specifically varied therein.
20	**Works Requirements**	
21	**Site Conditions and Visit**	Notwithstanding the fact that surveys have been made, each Bidder must make local and independent examination and inquiries as to the physical conditions prevailing at the Site and each Bidder shall obtain his own information regarding all matters and things that may in any way influence him in making a tender and fixing the prices to be inserted in these documents. Each Bidder shall satisfy himself as to the risks, obligations and responsibilities to be undertaken in the Contract to be entered into by him should his tender be accepted. The costs and charges incurred by the Bidder in connection with the above-mentioned visit to the Site shall be borne by the Bidder.
22	**Method of Measurement**	The Bills of Quantities have been prepared in accordance with the general principles of the 2nd Ed. Method of Measurement of Building Works for East Africa, Chapter of Quantity Surveyors, and applies equally to the Measurement of proposed works and of variations. The Works as executed shall be measured for payment in accordance with the method adopted in the Bills of Quantities and under the item as therein set forth. **The Contractor shall be responsible for furnishing the Employer's Engineer with exact quantities of Works and/or materials he has executed per day or per specific work. The employer's Engineer shall verify these works and approve.** The contractor's rate shall include for the complete execution of the works as depicted on drawings and as specified in Technical Specifications. The net measurement or weight of the finished work in place shall always be taken and except where otherwise stated or where separate items are provided, no allowance shall be made for cutting, waste, laps, circular work, etc. and no deductions shall be made for grout nicks, joggle holes, rounded arises or for linkages for fitting ironwork and the like. Payment shall be effected only for those materials that are incorporated in the permanent works and taken over the stocks as stipulated in the specifications to the approval of the Engineer. Any surplus materials delivered to the site shall become the property of the Contractor unless otherwise directed by the Engineer and the Contractor shall reimburse any money that was paid by the Employer on account of these materials. Unless specific items have been provided for in the Bill of

1.	Detail	Description
		Quantities, no separate measurement shall be made in respect of items whether specified or not requiring mortar/sealant, assembling, building in or fixing to concrete, block-works, metal work or timber, painting and protective treatment, welding, drilling, bolting inclusive of bolts, nuts and washers, screws, nails and plugs, jointing and joint materials, box out and filling thereof, grouting, packing, bedding, insulation between different metals, making good, conduits and fittings, cutting, waste, labour materials and all incidental work to the items concerned and their surroundings.
23	**Protection of Completed Work and Clearing upon Completion**	The Contractor shall allow in his rates for protecting completed work from subsequent operations, making good of all damage to completed work, clearing away all rubbish as it accumulates and leaving the site in a tidy condition to the satisfaction of the Engineer.
24	**Extent of Works**	Notwithstanding any limits that may be implied by the wording of the individual items and /or explanation provided in this preamble, it is to be clearly understood by the contractor that the rates and sums that are entered in the Bills of Quantities shall be for the work **FINISHED WORKS COMPLETE** in every respect, without compromise or otherwise. The bidder shall be deemed to have taken full account of all requirements and obligations whether expressed or implied, covered by all parts of this Tender and to have priced the items herein accordingly. The **rates and sum shall therefore be included for all incidental and contingent expenses and risks** of every kind necessary to construct, protect the works (including curing of all concrete works etc. and protection from accidental damage) complete works and maintain the whole of works in accordance with the Contract. Full allowance shall be made in the rates and/or sums inter-alias that are referred to and/or specified herein. • Compliance with all Local Authority / County / Country regulations • Paying fees and giving notice to authorities, public etc. • Payment of all patent rights and royalties • Safety precautions and all measures to prevent and suppress fire and other hazards during implementation • Reinstatement of the site on completion of works to the satisfaction of the Engineer • Maintenance of access to the existing roads in a motor-able status and waterways during the period of construction • Cost of design based on tender drawings, preparation

1.	Detail	Description
		of working drawings and related data for materials, steel works, electrical works, mechanical works, pipe works and equipment all ancillary parts, minor fittings, bolts, nuts, gaskets, washers, fixing, etc., joining materials, protective coatings and sleeving's and other relevant items not specifically listed but necessary for proper installation of the materials, pipe works and equipment (applicable to materials supplied by the contractor) • site investigations that may be necessary for proper and complete execution • all setting out and survey works • Provision of temporary services such as water supply, electricity, fencing, watching, lighting; etc. • Interference to the works by persons, vehicles, vessels and the like using the existing land and water facilities • works in connection with the protection and safety of adjacent structures • supplying, maintaining and removing on completion contractor's own accommodation, offices, stores, workshops, transport, welfare services and all charge in connection therewith unless otherwise directed by the Engineer • working in dry conditions including dewatering if required except where otherwise permitted by the specification maintaining public roads and footpaths, and maintaining access upon existing roads or recognized routes • Supply, inspection, sampling and testing of materials and of the Works under construction including the provision and use of equipment. • except where separate items are provided for bringing plant to the site and removing on completion, for providing transporting to site, setting to work operating (including all fuel and consumable stores), maintaining and removing from the site upon completion all construction plant and equipment necessary for the execution of the work including the cost of all tests and other requirements in respect to such plant and equipment • recruitment, bringing to and repatriate from the site, accommodating and feeding and all other incidental costs and expenses involved in the provision of all necessary skilled and unskilled labour and supervision • Supporting faces of excavation temporary or permanent shoring, shuttering and scaffolding etc.

1.	Detail	Description
		• costs of packing, protection, storage, insurance and related documentation for shipment to Kenya for materials, pipes, fittings, equipment, etc. cost of unloading at port, road transport to site, offloading, stacking and storage in suitable sheds, double handling as needed at site for materials, pipes, fittings, equipment, etc. No claim shall be considered for further payment in respect of any work or method of execution, which may be described in the Contract or is inherent in the construction of the work and detailed on the drawings on account of; ✓ items that have been omitted from the Bill of Quantities, but depicted on the drawings ✓ any omission from the wording of the items or from a clause in the Preamble or ✓ no mention of such work or method of execution having been in the Preamble Items against which no rates or sum is entered by the contractor whether quantities are stated or not shall not be paid for when executed, but will be regarded as covered by other rates in the Bill of Quantities. The contractor shall be deemed to have taken into account all of the following in his tender prices and his construction programmes. • all recognized holidays, festivals, religious and other local customs • any stoppage of work or delays due to adverse weather conditions
25	**MISCELLANEOUS WORKS**	
26	**Access Facilities**	The Main Contractor shall provide adequate access facilities to various sites within the project area to facilitate construction activities at no extra cost to the Employer. These new facilities provided by the Contractor shall be extended to other contractors/sub-contractors executing works for the project or other agencies.
27	**Existing Services and Structures**	The Contractor's attention is specifically drawn to connections to and protecting of existing services and installations. The Contractor shall be deemed to have included in his tender rates and prices adequate provision to comply with all such requirements where applicable.
28	**Painting & Protective Coatings**	The rate for painting and protective coatings whether measured separately or included in other items are to include for all temporary staging ladders and the like, covering the adjacent works to prevent splashing providing adequate protection to the work being painted or coated against dust,

1.	Detail	Description
		spray and other foreign matter, for all preparation and priming, carrying out the work in materials and colours to the requirements of the Engineer, curling in edges, washing off stains, and leaving the whole of the work perfect on completion. The rates for painting are to allow the applying of the final coat of paint immediately prior to handing over any section of the work.
29	**Amendments to Designs**	Where amendments are required to the civil designs due to prevailing ground conditions, the amended designs shall be produced by the Contractor and approved by the Employers' Engineer. No extra payment shall be made for this work to the Contractor.
30	**Units of Bill of Quantities**	All sizes and quantities provided in the Bill of Quantities are in metric units,
31	**Abbreviations:**	The units of measurement described in the Bill of Quantities are metric units. Abbreviations used in the Bill of Quantities are as follows: - • km — Kilometre • lm / m / LM — Linear metre • mm — Millimetre • sm / SM — Square metre • cm / CM — Cubic metre • No. — Number • kg — Kilogram • tonne (t) — Tonne (1000 Kilograms) • litre — Litre • Hrs. — Hours • L.S. / SUM — Lump Sum / Sum • P.S. — Provisional Sum
32	**Provision of facilities:**	Separate items are not provided for the following which are deemed to be included in the Contract Price: - a) Construction and maintenance of any deviation or access roads and all expenses incurred due to passing of the traffic through or around the Site: b) Cost of negotiations for any land required by the Contractor in addition to that made available to him free of charge; c) The subsequent removal of the Contractor's site accommodation as required and quarrying facilities and the reinstatement of the area on completion of the Contract; d) Protection of the Site and Works from water, rain, theft & from any other source; e) Setting out and verification of all survey details and

1.	Detail	Description
		dimensions; f) Provision and preservation of survey control points; g) Provision of all samples and test certificates: and h) Water supply and services. i) Measures to reduce emissions and temporary protection of the environment. j) Provision of Protection Equipment to Staff k) Staff wages and salaries l) Fees for approvals and Licences from local authorities and the government to carry out the works m) Any other costs implied for the successful completion of these works
33	**SCHEDULES**	a) All relevant items in the Bills of Quantities must be priced in indelible Ink. No alterations of the Quantities or descriptions made by the Bidder will be allowed. b) The Bidder shall complete all the schedules entirely. The schedules shall be read in conjunction with the specifications and the drawings. c) The total prices in the main summary of price schedules shall be deemed to include all obligations under the Contract including and not limited to labour, supply of materials, equipment, apparatus, fittings, spares, tools, all construction works, wastages insurance, delivery to site, storage, installation, testing, V.A.T, commissioning etc. etc. in accordance with specification d) Any prices omitted from any section or part of price schedule shall be deemed to have been included in another item, section or part and no clarification shall be sort from the Bidder with regard to the noted omission during evaluation stage and the Bidder **cannot** and **shall not** make claim against such omission in case he is the successful bidder. e) All prices shall be in local Kenya currency, shall be duty paid and shall also be inclusive of all taxes current at the time of tendering f) The quantities set out in the Bill of Quantities are the estimated quantities of the works and they **shall not** be taken as the actual and correct magnitude of the works to be executed by the contractor in fulfilment of his obligation under the Contract. g) 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, which rates and prices shall cover all his obligations

1.	Detail	Description
		under the Contract and all matters and things necessary for the proper completion and maintenance of the Works. h) The Contractor shall allow for the payment of all bank charges in connection with the procurement of Bank Guarantees and stamp charges in connection with this contract Agreement.

SCHEDULE 1 – PRELIMINARIES

ITEM	DESCRIPTION	UNIT	QTY.	RATE	AMOUNT
BILL No.1	**PRELIMINARIES**				
1.02	**Assorted Engineering & Design Services, production of construction and approval drawings and processing of applicable approvals.** The Contractor shall allow a sum to undertake all Engineering and Design Services and Production of final Design Drawings, Construction Drawings & Shop Drawings. The Contractor shall process the drawings for approval by relevant Registered *Professionals (Engineers / Architects / Quantity Surveyor)* and by the County Government. The Client shall provide preliminary concept drawings for use and other relevant information to aid in approval process. *Copies of payments for approval to be submitted to the Client*	Item	1		
1.03	**NCA & NEMA Project Registration & Approval** Allow SUM for NCA & NEMA project registration and approvals and inspection during project execution period. *Copies of payments for approval to be submitted to the Client*	Item	1		
1.04	**Material Testing** Allow for a provisional sum material testing and inspection during project execution period .*Copies of payments for approval to be submitted to the Client*	Item	1	50,000	
1.05	Extra over Item 1.04 for labor, transportation, and other overheads	%	50,000		
1.06	Allow for a lump sum amount to cater for the contractor's preliminary costs including but not limited to mobilization, demobilization, project health and safety provisions, Insurance, power, Security of works, Sscaffolding, safety nets, plant, tools and vehicles, Performance bond etc	Item	1		
	Sub-Total 1				

SCHEDULE 2 ~ SPA REHABILITATION WORKS

ITEM	DESCRIPTION	UNIT	QTY.	RATE	AMOUNT
BILL NO.1	CONFERENCE ROOM				
1.01	<u>DEMOLITIONS</u>				
1.02	***Materials arising from demolitions will not be used in permanent works without express written permission from the project manager: All salvaged materials shall become the property of the employer and the tenderer shall allow in his rates the cost of transporting such materials as directed . All debris arising from the demolition works shall be cart away from site and all existing works disturbed made good to match existing. All demolitions are to be carried out carefully to ensure protection and integrity of structures and associated installation are to be retained in place. Allow for protection, removal and/or re-location of existing services.***				
1.03	Carefully remove existing PVC Ceiling and store all the overhead services including but not limited to electrical services, air conditioning, structured cabling etc. Rate to include for creating necessary supports, re-installation of services, replacement of damaged items, testing and commissioning of all services after installation of the ceiling.	SM	150		
1.04	Carefully remove existing double doors (*timber and aluminium*) including all frames and ironmongery. Rate to allow for making good, damaged tilework, walling and all other fittings/services	No	3		
1.05	Carefully remove existing main windows including frames, panes, railings, hangers and accessories	No	6		
1.06	Carefully remove existing washroom windows including frames, panes, railings, hangers and accessories.	Item	1		
1.07	Carefully remove curtains, sheers, hookes,rods etc. Rate to include provision for reinstallation of curtains after completion of builders works	Item	1		
1.08	Carefully demolish existing external sink and cart away from site	Item	1		
1.09	Carefully demolish all skirting in the conference room, reception cafeteria and corridor	Item	1		
BILL NO.2	<u>DOORS AND WINDOWS</u>				
2.01	<u>Aluminium Doors</u> Supply and install 1600 X 2100mm double ~ leaf doors in 75mm X 50mm X 4mm thick natural aluminium profiles complete with matching 200X 50mm wide door frames in;	No.	3		

ITEM	DESCRIPTION	UNIT	QTY.	RATE	AMOUNT
	10mm thick laminated (d*ouble glazed)*one way shatter proof glass as supplied by ' Hebatulla Brothers or Impala Glass, Sandblast film as Oracle 8500 in approved patterns, all round gaskets for sound reduction, slimline defender hinges, aluminium screws, plugging to concrete, sealing with mastic, oiling and adjusting on completion.				
2.02	Euro 6-pin cylinder lock with thumb turn 72mm DORMA 072 SS	No.	4		
2.03	Half moon floor mounted SS Door Stop Dorma DDS-NP-018.	No.	8		
2.04	Overhead CISA door closer 16045003097 or equivalent	No.	4		
2.05	32 mm Diameter 600mm long brushed stainless steel pull handles as Dorma or equal and approved	Prs	8		
2.06	Aluminium Windows 2000mm wide x 1600mm high windows with aluminium profiles to B.S. 3987, 1984 as approved: comprising 75 x 50mm frame all round: including one way **8.38 mm Thick laminated solar glass with 33% Solar radiation transmission factor, solar factor 0.47, solar shading coefficient 0.54**; as supplied by ' Hebatulla Brothers or Impala Glass': opening/fixed sections as per the window schedule complete with glazing beads, neoprene gasket, iron mongery;12" **Top Hung Window Hinges,** Slimline Defender, Handles, aluminium screws, plugging to concrete, sealing with mastic, oiling and adjusting on completion: all as per drawing.	No	5		
2.07	Ditto but in 3600mm X 1600mm High	No	1		
2.08	Ditto but in 1000mm X 600mm High	No	16		
2.09	INTERNAL FINISHES				
2.10	Ceiling Finishes Suspended ceiling comprising 12.5 mm thick gypsum or equal approved drywall lining; on and including Donn steel framework to detail and approved heights; ;including rounded edges; edge trims; fascia's; cornices, skimmed as per **patterns and recess** to be approved on site	M²	150		
2.11	Prepare and apply two coats roller applied pure satin emulsion paint as Crown Solo or equal and approved to Gypsum ceiling	M²	150		
2.12	Wall finishes Skim existing walls and apply texturized paints to internal walls to match existing as per classic moulding schedules i.e., Ruston Fondo 30B and Terra Sponged A18 or equivalent; works to be done by certified artisans	M²	100		

ITEM	DESCRIPTION	UNIT	QTY.	RATE	AMOUNT
2.13	Prepare, skim and apply one undercoat and two coats First grade approved silk vinyl emulsion paint on walls	M²	300		
2.14	Supply and install 200mm x 25mm thick solid hardwood skirting with automative sprayvarnish to wall skirting	LM	200		
2.15	Ditto but in 50mm wide X 25mm wide architrave	LM	50		
2.16	<u>Cafeteria Walling</u> Supply material and construct 12.5 mm thick gypsum or equal approved drywall lining; on and including Donn steel framework to detail and approved heights; including rounded edges; edge trims; fascias; cornices, skimmed as per patterns and recess to be approved on site. Rate to include for painting works for the entire wall	SM	20		
2.17	Undertake roof repairs and replace damaged parts including boards, water-proof membrane, and shingles all to match existing	SM	30		
BILL NO.3	KITCHEN				
3.01	<u>DEMOLITIONS</u>				
3.02	***Materials arising from demolitions will not be used in permanent works without express written permission from the project manager: All salvaged materials shall become the property of the employer and the tenderer shall allow in his rates the cost of transporting such materials as directed. All debris arising from the demolition works shall be cart away from site and all existing works disturbed made good. All demolitions are to be carried out carefully to ensure protection and integrity of structures to be retained in place. Allow for protection, removal and/or re-location of existing services.***				
3.03	Carefully remove existing PVC Ceiling and store all the overhead services including but not limited to electrical services, air conditioning, structured cabling etc. Rate to include for creating necessary supports, re-installation, replacement of damaged items, testing and commissioning of all services after installation of the ceiling.	M²	35		
3.04	Carefully remove existing sanitary fittings, plumbing, worktops, tiling and associated accessories. Allow for making good any damaged walling/tiling	Item	1		
3.05	Carefully remove existing doors including all frames and ironmongery complete with replacement of any damaged tilework, masonry, fittings etc	No	1		
3.06	<u>Ceiling Finishes</u>				
3.07	Suspended ceiling comprising 12.5 mm thick gypsum or equal approved drywall lining; on	M²	35		

ITEM	DESCRIPTION	UNIT	QTY.	RATE	AMOUNT
	and including Donn steel framework to detail and approved heights;including rounded edges; edge trims; fascias; cornices, skimmed as per **patterns and recess** to be approved on site				
3.08	Prepare and apply three coats roller applied pure satin emulsion paint as Crown Solo or equal and approved to Gypsum ceiling	M²	35		
3.09	Low-Level Cabinets and Work Tops Supply and fix 650mm Deep and 750mm High with three shelves and 450mm wide double door partitions in; 18mm granite countertops and vanity cabinets plugged into the wall in 6mm thick **alucoboard**, 25mm thick treated timber framing & dividers ; rate including all the ironmongery and fixing accessories including specified stainless steel hinges and full extension slides and runners all with soft close mechanism as supplied by Kinetic Accessories	LM	12		
3.10	High-Level Cabinets Supply and fix 650mm Deep and 650mm High with three shelves and 450mm wide double door partitions in; 18mm granite countertops and vanity cabinets plugged into the wall in 6mm thick **alucoboard**, 25 X 50mm thick treated timber framing, supports & dividers ; rate including all the ironmongery, fixing accessories including specified stainless steel hinges and full extension slides and runners all with soft close mechanism as supplied by Kinetic Accessories	LM	12		
3.11	Store Shelving Supply materials and construct 600mm wide timber shelving in kitchen in 6ply timber reinforced with 50 X 50mm thick treated timber **profiles and brackets** painted to client's approval.	LM	100		
3.12	Kitchen Plumbing Allow for cleaning and repair of all plumbing systems including supply and installation of PPR inlet pipes, outlet pipes, bottle traps etc	Item	1		
3.13	Internal Kitchen Sink Supply and place of class 20/20 concrete reinforced in A142BRC moulded to construct a rectangular 1000mm long X 450mm wide x 450mm deep double sink. Concrete works finished watertight in18mm Thick black granite with smooth edges to create an industrial double sink. Rate to include for formwork , curing, supply and installation of all associated industrial plumbing fittings and connections	No	1		
3.14	External Kitchen Sink Supply and place of class 20/20 A142BRC reinforced concrete moulded to construct a rectangular 1400mm long X 750mm wide X 500mmdeep industrial sink on 4No150mm D10 reinforced concrete stands and one partition in between. The sink to be finished	No	1		

ITEM	DESCRIPTION	UNIT	QTY.	RATE	AMOUNT
	in 30mm thick polished terrazo. Rate to include for formwork , curing, supply and installation of all associated industrial plumbing fittings and connections				
3.15	Supply and Install industrial use Brass Lever Bib Tap or equivalent complete with associated fittings	No	3		
3.16	Supply and install Bals IP44 Blue Wall Mount 2P+E Industrial Power Socket, Rated At 16A, 230 V or equivalent including power supply & connection from the kitchen.	No	2		
3.17	Supply & Place Class 20/20 A142 BRC reinforced concrete to create a 1000mm long X 600mm wide X 150mm high Gas Cylinder Platform	CM	0.20		
3.18	Supply materials and construct a clear roof cover in; 30G translucent *mabati* and 3 X 2 treated timber framing. Roof to slope towards the entrance for drainage	SM	14		
BILL No.4	**EXTERNAL CEILING REPAIRS**				
4.01	Carefully remove existing PVC Ceiling and store all the overhead services including but not limited to electrical services, air conditioning, structured cabling etc. Rate to include for creating necessary supports, re-installation of services, replacement of damaged items, testing and commissioning of all services after installation of the ceiling.	Item	1		
4.02	<u>Ceiling Finishes</u> Suspended ceiling comprising 12.5 mm thick gypsum or equal approved drywall lining;on and including Donn steel framework to detail and approved heights; ;including rounded edges; edge trims; fascias; cornices,skimmed as per **patterns and recess** to be approved on site	M²	100		
4.03	Prepare,skim and apply two coats roller applied pure satin emulsion paint as Crown Solo or equal and approved to Gypsum ceiling	M²	120		
4.04	Removal and replacement of damaged Mazeras tiles at the entrance of the restaurant from the pool side area to match existing. Rate to include for installation of new tile edges	SM	5		
BILL NO.5	**WASHROOMS**				
5.01	<u>Doors</u>				
5.02	Carefully remove existing doors including all frames and ironmongery complete with replacement of any damaged tilework, masonry,fittings etc	No	2		
5.03	Supply and Install 45mm thick 1200mm wide X 2100mm high double-leaf, double-swing solid hardwood mvule door including 50 x 200mm grooved frames and architraves all finished in automative sprayvarnish. Rate to include for each leaf ; 3 pairs of double	No	2		

ITEM	DESCRIPTION	UNIT	QTY.	RATE	AMOUNT
	swing hinges,32 mm Diameter 600mm long brushed stainless steel pull handles, double door locking mechanism for washrooms. etc				
5.04	Undertake repairs on all existing washroom doors	No	18		
5.05	Supply and Install 3mm thick water proof laminates to all washroom doors.	No	18		
5.06	Supply and Install 50mm X 75mm varnished architraves around existing door frames. Rate to include removal of damaged parts, bidding and reinforcement as necessary	Lm	100		
5.07	Supply and Install Bathroom Lock Vacant/Engaged; genuine union ib-8094-snp indicator bolt satin steel or equivalent	No	18		
5.08	Robe / Coat Hook- Chrome finish triple Coat Hook	No	18		
5.09	Supply and install Gina Chrome Single Towel Rail in the bathrooms	No	10		
5.10	Supply and install ceramic toilet seat covers	No	5		
5.11	<u>Plumbing Repairs</u> Undertake repair of all existing plumbing fittings in the washrooms, external showers, sinks including but not limited to repairand replacement of damaged piping, toilet and urinal flush valves, outlet pipes, gate valves, taps amongst other fittings.	Item	1		
5.12	Supply and Install industrial use PVC Shower heads	No	10		
5.13	<u>Lockers</u>				
5.14	Carefully remove existing existing lockers	Item	1		
5.15	<u>120No Locker Capacity</u> Supply and Place; Steel lockers 405 mm depth by 1500mm width by 1880mm heigh with 72" body 6" legs. '~ **Body:** ~ 24 gauge or higher sheets; flanged on sides as appropriate; flanged to give double thickness of metal at back vertical corners, etc. '~ **Shelved:** 5 X 4 Nos Internal Shelves complete with lockable doors. '~**Door Hinges**: ~ Minimum 2" high, 5-knuckle, full loop, tight pin style, securely welded to frame and double riveted to the inside of the door flange; 2 Nos per door '~ **Lockable;** Padlock type attachment to doors per door; high grade and strength; made of steel, zinc-plated and attached with at least three bolts or rivets to body of locker; Provide padlocks to suit the size with 3 keys each on clearly labelled key holders. '~ **Ventilation;** ~ Pattern of 3-6 horizontal slots in upper and / or of door '~ **Handle;** Suitable Door Handle, Recessed; Non-protruding	No	6		

ITEM	DESCRIPTION	UNIT	QTY.	RATE	AMOUNT
	'~ **Fastening;** All bolts and nuts shall be zinc plated; Welded areas to be smoothed out. '~ **Number Plating:** ~ Each locker shall have a polished aluminium number plate with black numerals not less than 1/2" high. Plates shall be attached with aluminium rivets to the upper surface of the door '~ **Assembly:** Assembly of all locker components shall be accomplished by the use of zinc plated machine screws with hex nuts; or by Keps nuts; or bolts or rivets; or smooth welding to produce a strong mechanical connection; '~ **Color grey;** powder coat finish or high grade enamel finish				
5.16	Supply and Install 1200 X 600mm wide bevelled **backlit** mirrors	No	6		
5.17	Wall finishes Skim existing walls sections prone to moisture and undertake repairs to mitigate re-currencies of moisture effects. Allow for painting work to match existing.	M^2	20		
5.18	Carefully remove damaged tiles, supply, and install new tiles to match existing	SM	20		
5.19	Clean paints existing wall finishes (*tiles and paintwork*).	Item	1		
5.20	Prepare, skim and apply two coats of exterior rough and tough paint to match existing	SM	100		
5.21	GAZEBOS				
5.22	Masonry Walling Well dressed Quarry stone or other equal and approved natural stone walling bedded and jointed; 150 mm thick by 750mm high stone walling with every alternate course reinforced with 25 mm wide x 20 gauge hoop iron. The rate to include for Horizontal Hessian based one layer of bituminous damp proof course and 25mm thick plastering on both sides of the wall.	SM	100		
5.23	Supply and Install Mazeras wall cladding to item 6.01 above	SM	100		
	Sub-Total 2				

BILL NO.6	ELECTROMECHANICAL WORKS				
6.01	*Electrical works to be executed by an EPRA (Energy and Petroleum Regulatory Authority) Licenced Electrician*				
6.02	Supply, install, test, and commission the following electrical items				
6.03	Lighting Fittings and Accessories				

ITEM	DESCRIPTION	UNIT	QTY.	RATE	AMOUNT
6.04	Supply, install, test, and commission 600x600 Backlit LED Panel lights, 6000K, >4000 lumens, IP40, Ceiling mounted, CRI>80, Mean rated service life L80(tq 25 °C) = 100,000 h, The light source replaceable according to the ecodesign requirements (VO (EU) 2019/2020), Dimmable complete with the wall mounted dimmer switch. (Attach relevant datasheets)	NO	14		
6.05	Supply, install, test, and commission, LED Downlighters 4000K, 6W	NO	14		
6.06	Supply, install, test, and commission LED Strip Lights, 3000K, complete with the drivers	LM	24		
6.07	Electrical Repairs				
6.08	Allow for repair and or replacement of all damaged lighting fixtures, sockets, switches, wiring etc in the entire building. Rate to include rewiring, labeling and testing of the facility distribution boards / Consumer units, load balancing, supply and installation of new items as applicable including testing and reinstallation of lighting arrestor and earthing system (replace the conductor with a tinned copper conductor)	Item	1		
6.09	Air Conditioning System				
6.1	Supply, and deliver 240 v 50hz, 6No. 6000BTU 16 SEER, ceiling-cassettes indoor multi-split Air conditioning systems Sound Level ≤37 dBA and associated outdoor units. Refrigerant shall be R32, and the condensing coil shall be appropriately coated to prevent corrosion from hydrogen sulphide, complete with wired, wall-mounted control system for each unit and remote control pieces, outdoor unit Cooling capacity 14KW, and all other necessary accessories for operation including two sets of English language detailed operation and maintenance manuals for the new unit (*Attach relevant datasheet*)	NO	1		
6.11	Install, test, and commission supplied Air Conditioning system complete with overcurrent protection system including 3-phase consumer unit, AVS, relay contactors, rated as per the manufacturer's recommendation, Condensing unit to be installed on a raised concrete slab. Copper tubing for connecting the indoor and outdoor unit to be of type K and shall be coated with aluminum paint, Indoor units shall have wired remote control with a spare wireless one, at least one year warranty for the equipment	Item	1		
6.12	Service, and or repair existing multi-split air conditioner units to operating condition and decommission including air extraction systems at the conference room. Rate to	Item	1		

ITEM	DESCRIPTION	UNIT	QTY.	RATE	AMOUNT
	include for re-installation of AC system at a location as directed by the Engineer				
6.13	<u>Building Air Extraction Sytem</u> Repair the existing kitchen air extraction system, including servicing and or repair of the electrical power supply panel, cleaning and weld repair of the steel kitchen hood structure, and servicing and or replacement of the system's wiring, motors and or fans.	Item	1		
6.14	Servicing and or repair of existing air extraction system including rewiring of the existing electrical power supply system	Item	1		
6.15	<u>Audio Visual System (Wireless Conference System)</u> Supply, install, test, and commission rack-mounted audio (public address) system as the Shure Microflex Wireless System or approved equivalent at the conference room complete with an amplifier, mixer, and microphones immune from induced RF noise from nearby cellphones, laptops, or PDAs (1No wired, 2No. handheld rechargeable wireless microphones with smart charging battery capable of 15 hours of runtime, 4No. rechargeable wireless gooseneck with smart charging battery capable of 9 hours of runtime (Black)), rack-mounted microphone charging station, and integrated with existing ceiling speakers and smart TV, interconnected using Bosch, Shure, Beyerdynamic interconnecting cables or approved equivalent. ***(Attach relevant product datasheets)***	Item	1		
6.16	Supply, install, test, and commission 4No. wall mounted speakers with Built-in 100v/70v transformer, Indoor column type loudspeaker, minimum power output 25W @100V, color Black, Wall Mounting as Yamaha VS6 or approved equivalent (Attach relevant product datasheets)	NO	4		
6.17	Supply, install, test, and commission 3.5 KVA Online UPS Capable of running up to a minimum of four (4) hours, Nominal Output Voltage of 230V, Make Vertiv (Emerson), APC or approved equivalent (Attach relevant product datasheets)	Item	1		
6.18	Repair, testing, and commissioning air conditioning and audio system for the other facility rooms	Item	1		
6.19	Accessories; including but not limited to power extension cables, installation cables, rack-mounting brackets, cable clamps, cable locks.	Item	1		
6.2	2 year comprehensive warranty on the complete conference PA system	Item	1		
6.21	Training to support 5No. staff complete with customized operation manual for the two systems.	Item	1		

ITEM	DESCRIPTION	UNIT	QTY.	RATE	AMOUNT
6.22	Allow a provisional sum of Three Hundred Thousand shillings (300,000) only for the Electrical Works	SUM	1	300,000	
6.23	Extra over Item 6.17 for labor, transportation and other overheads	%	300,000		
6.24	NOTE: i. All wire connections are to be done using recommended strip connectors ii. All cable terminals are to be neatly marked/labeled at both terminal ends iii. All wiring must be concealed in conduits neatly arranged and secured above the ceiling. iv. Accessories here mentioned include but are not limited to junction boxes, cable lugs, requisite fastening screws, conduit elbows, unions, v. Test results must be presented in a test reportvi. Items with SUM units must be itemized for approval before installation				
	Sub-Total 3				

SCHEDULE 3 – ABLUTION BLOCK

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
BILL No.1	SUBSTRUCTURES				
1.01	ALL PROVISIONAL				
1.02	*Note: The work in this element includes all works up to and including the Ground floor slab*				
1.03	Excavation & Earthworks				
1.04	Allow for setting out the Works in accordance with the dimension and levels shown on architectural and structural drawings	ITEM	1		
1.05	Clear the site of all bushes, shrubs, undergrowth, small trees and the like, grub up their roots and burn the arising on site	SM	120		
1.06	Excavate oversite to reduced levels not exeeding 300mm deep	CM	40		
1.07	Excavate foundation trenches commencing from ground level but not exeeding 1.5metres deep and cart away to spoil heaps.	CM	80		
1.08	Excavate pits for column bases commencing from stripped level but not exeeding 1.5metres deep and cart away to spoil heaps.	CM	10		
1.09	Extra over all excavation for excavating in rock at any depth.	CM	10		
1.10	Allow for keeping excavations free from general water and planking, strutting and shoring to sides of all excavations keep excavations free from all fallen materials.	ITEM	1		
1.11	PLAIN CONCRETE CLASS 15 mix (1:3:6) / 20mm Aggregate, including formwork:				
1.12	50mm thick blinding under column bases.	SM	18		
1.13	Ditto under foundation wall footing	SM	40		
1.14	REINFORCEMENT				
1.15	*High yield steel reinforcement bars to B.S. 4466 : including cutting to length, bending, hoisting, fixing and spacing blocks*				
1.16	Assorted sizes in bases	KG	350		
1.17	Assorted sizes in columns base	KG	210		
1.18	Assorted sizes in columns	KG	230		
1.19	VIBRATED REINFORCED CONCRETE CLASS 20 mix (1:2:4)/20mmAggregate, including formwork:				
1.20	Column bases	CM	3		

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1.21	Strip foundation	CM	7		
1.22	Columns	CM	4		
1.23	150mm thick ground floor Slab	SM	110		
1.24	**Fill**				
1.25	Imported Murram fill around foundations	CM	60		
1.26	300mm thick handpacked stone well compacted and top levelled.	CM	35		
1.27	50mm thick approved quarry dust blinding on surfaces of hardcore	SM	110		
1.28	**Anti-termite Treatment** Gladiator T.C.; 1.0% solution: at the rate of 7 litres per square metre to blinded surfaces of hardcore, bottoms of excavations and top of foundation walls.	SM	110		
1.29	**Damp proofing** 1000 gauge damp proof polythene sheeting, laid on blinded hardcore bed, with 150mm side and end laps.	SM	110		
1.30	**Fabric mesh reinforcement : to BS 4483 as described** Single layer of mesh reinforcement : Reference No. A142; weighing 2.22kg/m² and including 150mm end and side laps, tying wires and spacers	SM	110		
1.31	**FOUNDATION WALLING**				
1.32	200mm thick in Quarry stone bedded and jointed in cement and sand (1:4) mortar, reinforced with and including 25mm x 3mm hoop iron wall ties in every alternate course and damp proof course	SM	65		
BILL No.2	**SUPERSTRUCTURE**				
2.01	***Note: The work in this element includes all works up to and including the roof slab***				
2.02	**VIBRATED REINFORCED CONCRETE CLASS 20/ 20mmAggregate, including formwork:**				
2.03	Slab beams	CM	7		
2.04	150mm thick suspended roof slabs	SM	110		
2.05	**REINFORCEMENT**				
2.06	***High tensile steel reinforcement bars to B.S. 4466 : including cutting to length, bending, hoisting, fixing and including all necessary tying wires and spacing blocks***				
2.07	Assorted sizes in:Beams	KG	500		

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
2.08	Assorted sizes in: Roof slab	KG	1,800		
2.09	**LOAD BEARING WALLING**				
2.10	200mm thick Machine dressed walling, reinforced with hoop iron in alternate courses, bedded and jointed in cement sand (1:4) mortar hessian based damp proof course bedded in 12mm thick mortar bed including 100mm end laps under masonry walls	SM	150		
2.11	ditto but parapet walling	SM	40		
2.12	**2.1m high Partitions** 100mm thick Machine dressed walling, reinforced with hoop iron in alternate courses, bedded and jointed in cement sand (1:4) mortar hessian-based damp proof course bedded in 12mm thick mortar bed including 100mm end laps under masonry walls	SM	70		
BILL No.3	DOORS & WINDOWS				
3.01	**WINDOWS**				
3.02	***Supply and fix the following standard section aluminium casement windows with aluminium profiles to B.S. 3987, 1984 as approved: comprising 75 x 50mm frame all round: including one way 6mm Thick laminated glass as supplied by 'Hebatulla Brothers or Impala Glass': opening/fixed sections as per the window schedule complete with glazing beads, neoprene gasket,iron mongery;12" Top Hung Window Hinges, Slimline Defender, Handles,aluminium screws, plugging to concrete, sealing with mastic, oiling and adjusting on completion:***				
3.03	Window type W1 overall size 600 x 600mm high	No.	14		
3.04	Window type W2 overall size 1200 x 600mm high	No.	2		
3.05	Ditto but Window type W3 overall size 1500 x 2000mm high with translucent glass	No.	2		
3.06	**DOORS**				
3.07	**Main Doors** 50 mm Thick solid timber mvule hardwood double door size 1500 x 2100 mm high complete with 200 x 50 mm Solid mvule frames. Automative sprayvarnish to General surface of timber doors	NO	2		
3.08	**PWD Washrooms** Ditto but single leaf 1200 X 2100mm	No	2		

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
3.09	Washrooms 45mm Thick semi-solid timber door with waterproof laminates; door size 1500 x 1800mm high complete with 150 x 50 mm Solid mvule frames.Automative sprayvarnish to General surface of timber doors	No	20		
3.10	Ironmongery				
3.11	Euro 6-pin cylinder lock with thumb turn 72mm DORMA 072 SS	No.	2		
3.12	Bathroom Lock Vacant/Engaged; genuine union ib-8094-snp indicator bolt satin steel or equivalent	No	18		
3.13	3-Lever union lock satin steel or equivalent	No	2		
3.14	150 mm Heavy duty stainless steel butt hinges SSS BB Class 13	Prs	49		
3.15	Half moon floor mounted SS Door Stop Dorma DDS-NP-018.	No.	6		
3.16	32 mm Diameter 150mm long brushed stainless steel pull handles as Dorma or equal and approved	Prs	22		
3.17	50 x 25mm Architrave : moulded	LM	200		
3.18	20mm Quadrant moulding	LM	200		
BILL No.4	FINISHES:				
4.01	FLOOR FINISHES Supply and Install Porcelain non-slip floor tiles (m.s.) on CEMENT AND SAND (1:3) SCREED wood float finish on concrete to; 30mm thick screed: finished to receive	SM	102		
4.02	WALL FINISHES				
4.03	12mm Cement lime and sand (1:1:6) plaster trowelled finish to; General wall and Concrete surfaces	SM	340		
4.04	Supply and fix 200 x 300 x 6mm thick glazed ceramic wall tiles on plastered walls	SM	270		
4.05	CEILING				
4.06	12mm Cement lime and sand (1:1:6) render steel trowelled finish to Horizontal soffits of suspended slabs and vertical surfaces of beams	SM	102		
4.07	Prepare, skim and apply one undercoat and two coats First grade approved plastic emulsion paint on plastered ceiling surfaces	SM	102		
4.08	WASH HAND BASIN CONCRETE COUNTERTOP WITH MARBLE FINISH				
4.09	*Concrete Countertop finished complete with 30mm thick marble. Allow for under sink cabinetry and drawers constructed with 18mm MDF panels to approval.*				

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
4.1	1500mm x 500mm	NO	2		
4.11	**EXTERNAL FINISHES:**				
4.12	**WALL FINISHES**				
4.13	12mm thick CEMENT AND WASHED SAND (1:4) RENDER, wood float finish to; Concrete, Vertical Walls, surfaces Mouldings to jambs and heads of doors and windows surfaces	SM	61		
4.14	Prepare and apply one undercoat and two finishing coats 1st quality approved weather guard emulsion paint on General rendered and pointed surfaces		61		
4.15	Keying and pointing in 10mm thick rod in cement and sand (1:3) mortar to external wall	SM	101		
4.16	Extra Over on painting and varnishing of keys	SM	101		
4.17	Supply and install 25mm thick mazeras cladding to external walls	SM	20		
4.18	600 x 600 x 50mm thick precast concrete paving slabs bedded and jointed in cement and sand (1:4) mortar laid on and including 50mm thick sand bed	SM	50		
4.19	**FLAT ROOF WATERPROOFING** EPDM Rubber for flat roofs	SM	110		
BILL No.5	**PLUMBING AND SANITARY FITTINGS**				
5.01	**Fresh Water Supply** - *From nearest water points to kitchen and washrooms* Supply, deliver, install test and commission fresh water supply system from existing waterline to overhead tanks distributed to all facilities in the washrooms using DN 20 PP-R pipes and fittings to DIN 8077-78 Standards and relevant local standards. Tenderers must allow in their pipework prices for all the couplings, control valves, connectors, joints, bypass bends, caps and pipe clips in running lengths of pipes. Jointing & installation methods shall be as per manufacturers' recommendations only.	Item	1		
5.02	***Supply, deliver, install, test and commission the following sanitary appliances complete with all the accessories including all connections to the services, waste, jointing to water supply overflows, supports, bottle traps ,connector, valves, meters and all plugging and screwing to walls and floors.*** ***Note:*** ***(i) All sanitary fittings shall be in approved colour.*** ***(ii) The Model and Ref No. indicated is only a guide to the type and quality of fittings.*** ***(iii) Equivalent and Approved models may be acceptable.***				

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
5.03	**WC** Back to wall water closet suite in complete with horizontal outlet to BS 3402 with 7.5 litre **concealed cistern** and fittings chrome finished **double button actuator**, inlet connection, Chrome plated lever, ceramic seat and cover with chrome plated hinges all connected to fresh water supply and wastewater points.	NO	10		
5.04	Ditto but small size for children	NO	2		
5.05	**Urinals** Urinal in approved colour comprising bowls c/w bowl support, 7.5 litres **concealed cistern and chrome plated actuator,** CP bottle trap, flush pipe,3No dividers and spreader all connected to fresh water supply and wastewater points.	NO	3		
5.06	Ditto but small size for children	NO	1		
5.07	**Wash hand basins** Wash hand basin size 500 x 450 mm and chain stay hole, comprising one number delayed action tap, plastic bottle trap, flex tube and all necessary accessories all connected to fresh water supply and wastewater points.	NO	8		
5.08	**Basin Tap** Standard Chrome Push tap delay action	NO	8		
5.09	**Showers** Instant electric shower head heater with embedded rod type sheathed element. Electrically insulated with electronic temperature control complete with wide rose and overflow to withstand a working pressure of upto 400kpa. It shall have a heating capacity of about 5.5kw and complete with extension shower arm and 4mm2 electric supply cable to neon lit DP switch, all to be as "Lorenzetti" or equal and approved. Rate inclusive of installation of chrome plated valves	No.	10		
5.1	**Mirrors** 6mm thick polished plate glass silver backed **backlit** mirror with bevelled edges, size 1200 x 600mm, plugged and screwed to wall with 4No. chrome plated dome capped screws. The mirror shall rest against a layer of 5mm thick foam.	No.	4		
5.11	Chrome plated 20mm diameter x 600mm long towel rail and brackets as one piece, plugged and screwed into the wall. The fitting shall be as Ideal Standard or equal and approved.	NO	10		
5.12	Soap tray in Vitreous China of size:165 x 150mm in approved colour as ideal standard or equal and approved.	NO	10		
5.13	Automatic Hand Drier in white colour, operating on an infra-red automatic sensing system with safety cut-out complete with	NO	2		

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
	plastic rawl plugs and fixing screws. The hand drier to have a heating capacity of 1.8 kw and to be of size 270 x 64 x 143mm deep				
5.14	Robe / Coat Hook- Chrome finish triple Coat Hook	NO.	10		
5.15	Supply an fix 5000L plastic water storage tanks on suspended roof slab complete with cover and having screwed connections for inlet, outlet, overflow, 25mm medium pressure ball valve, drain pipes and allow for connection of water from overhead tanks to W.C, Showers and WHB including testing the whole system.	NO	1		
5.16	**Drainage Installations** Supply, deliver and install the following UPVC, MUPVC, soil and waste systems respectively to B.S 5255 with fittings fixed to Manufactures Printed instructions and manufactured by reputable manufacturers. Tenderers must allow in their pipework prices for all Excavation & Backfilling,piping, couplings, clippings, connectors, joints etc. as required in the running lengths of pipework and also where necessary, for pipe fixing clips, holder bats plugged and screwed for the proper and satisfactory functioning of the system.	Item	1		
5.17	Design, Construct, and Commission a 20 CUBIC METERS Reinforced Concrete Bio-Digester waste Treatment System, connected to wastewater effluent piping system (measured separately); The cost to include excavation works (in both soft soil and hard rock), carting away excess material and backfilling as appropriate; The tenderer to submit technical specifications and design drawings of the bio-digester waste treatment system they propose to install.	ITEM	1		
5.18	Construct masonry walled manholes of internal size 700 x 700 x 1000mm av. depth on 100mm thick BRC reinforced concrete (1:2:4) bed and cover including 15mm thick waterproof plaster internally. Rate to include for supply & installation of medium density cast iron covers and frames	NO.	6		
BILL NO.6	**RAINWATER DISPOSAL**				
6.01	**Rainwater Disposal**				
6.02	110mm diameter uPVC down pipes fixed to walls with and including approved brackets at 900mm centres	LM	10		
6.03	Extra over ditto for shoe	NO.	4		
6.04	Extra over ditto for swan neck offset 600mm long	NO.	4		

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
6.05	100mm diameter outlet including connection to uPVC down pipe (m.s)	NO.	4		
7.00	**ELECTROMECHANICAL WORKS**				
	Electrical works to be executed by an EPRA (Energy and Petroleum Regulatory Authority) CI Licensed Electrician				
	Supply, install, test, and commission the following electrical items				
7.01	**Sub-Mains cable**				
7.02	Supply deliver, install 4x6mm2 SWA XLPE Cu stranded armoured cable, Standard: BS5467	LM	350		
7.03	4x6 mm2 SC PVC CU cable drawn in concealed 32 diameter rigid HG PVC conduit	ITEM	1		
7.04	Standard cable looping box complete with 100A single cut-out fuse neutral link and 2No. 32Amp 3phase industrial sockets.	ITEM	1		
7.05	Electrical earthing comprising of 4mm2 SC PVC CU cable drawn in rigid HG PVC conduits, 1500mm X 15mm2 pure copper electrode complete with clamps and pre-cast concrete inspection pit with cover	ITEM	1		
7.06	Roof-mounted Copper lightning arrester complete with 2x70mm2 copper down conductor, ground rod, and ground enhancement material.	NO	1		
7.07	**Consumer Units and Distribution Boards**				
7.08	Metallic non-combustible 6-Way Dual RCD consumer units flush mounted on the wall complete with 100 Amp SP/N integral isolator (MCB), 2No 63A 30mA Type A RCD, 3No 6A Single pole Type B MCB (Lighting), 3No 32A Single pole Type B MCB (Sockets) and 2No 16A Single pole Type B MCB, Blanks as Crabtree or approved equivalent	NO	1		
7.09	**Socket Power Outlets**				
7.1	Wiring socket outlets in 3x2.5mm2 SC PVC CU in concealed 25mm diameter rigid HG PVC conduits	ITEM	1		
7.11	Twin 13A switched moulded socket outlets complete with deep pattresses as Crabtree or approved equivalent	NO	4		
7.12	**Lighting Fittings and Accessories**				
7.13	55 Lighting points wired in 3x1.5mm2 SC PVC CU drawn in concealed 20mm diameter rigid HG PVC conduits with all necessary accessories excluding switches and fittings for one-way switching	ITEM	1		
7.14	10A Four-gang, One-way moulded case switch plates of ivory white complete with deep pattresses as Crabtree of approved equivalent for classrooms	NO	3		

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
7.15	10A Three-gang, One-way moulded case switch plates of ivory white complete with deep pattresses as Crabtree of approved equivalent for security lights	NO	1		
7.16	Ceiling-mounted, recessed, Back-lit 600x600 driverless LED Panel Lights, 1800 lumens lighting tubes (4000 Kelvin - daylight) DLC 5.1 Certified, 110-250V, 50 Hz, LED bulb life = 50,000 hours, IP code: IP54 complete with accessories, suitable for swimming pool changing rooms	NO	46		
7.17	Wall-mounted, Double-ended 600mm. T8 LED (Type B), 1800 lumens lighting tubes (6000 Kelvin) DLC 5.1 Certified, LED bulb life = 50,000 hours, IP code: IP66, dust-tight, vandal-proof with a precision extruded clear prismatic polycarbonate diffuser as Thorn Aquaforce PRO LED IP66 or approved equivalent complete with holder and other accessories for security	NO	6		
7.18	Roof-mounted LED floodlights, 110-277V input voltage, 13000 Lumens, 4000K, LED bulb life = 50,000 hours, IP code: IP66, CRI>80, with photocell	NO	3		
7.19	Hand dryer				
7.20	Automatic, wall mounted, touchless, double-sided high-speed hand dryer with maintenance-free brushless motor, water collection area with no-splash design with HEPA filter media, 220-240 V, Motor power 900W, Air velocity 234 – 410Km/h, Sound pressure (at 2m) 62 – 72dBA, Protection rating IPX4 as Mediclinics Dualflow Plus Eco Hand Dryer or approved equivalent. Warranty 5 years. (Attach relevant datasheets)	NO	2		
7.21	Allow a provisional sum of Two Hundred Thousand shillings (200,000) only for the Electrical Works	SUM	1	200,000	
7.22	Extra over Item 6.17 for labor, transportation and other overheads	%	200,000		
	NOTE: i. All wire connections are to be done using recommended strip connectors ii. All cable terminals are to be neatly marked/labeled at both terminal ends iii. All wiring must be concealed in conduits neatly arranged and secured above the ceiling. iv. Accessories here mentioned include but are not limited to junction boxes, cable lugs, requisite fastening screws, conduit elbows, unions, v. Test results must be presented in a test reportvi. Items with SUM units must be itemized for approval before installation				
	Sub-Total 4				

SUMMARY OF PRICE SCHEDULE

Item	Description	Amount -KShs
1	Preliminaries	
2	Spa Rehabilitation works	
3	Electromechanical Works	
4	Ablution Block	
	Sub Total 1	
	Add 10% Contingency (on Subtotal 1)	
	Subtotal 2 (Sub Total 1 + Contingency)	
	Add 16% VAT (On subtotal 2)	
	Grand Total (Subtotal 2 + 16% VAT) (Carried to Form of Tender)	

SIGNED: BILL OF QUANTITIES
To be filled in block letters

Total Tender Price in Figures:) **KES**.....
Total Tender Price in Words:
(Carried to Form of Tender))....

)....

)....

)....

Company Name)....

)....

COMPANY ADDRESS:
Physical)....

)....

)....

Email)....

Phone)....

NAME OF REPRESENTATIVE
)....

Sign)....

Email)

Phone)

Date (DD-MM-YYYY))

Company/Firm Stamp)

PART III ~ CONDITIONS OF CONTRACT AND CONTRACT FORMS

SECTION VIII - GENERAL CONDITIONS OF CONTRACT

These General Conditions of Contract (GCC), read in conjunction with the Special Conditions of Contract (SCC) and other documents listed therein, should be a complete document expressing fairly the rights and obligations of both parties.

These General Conditions of Contract have been developed on the basis of considerable international experience in the drafting and management of contracts, bearing in mind a trend in the construction industry towards simpler, more straightforward language.

The GCC can be used for both smaller admeasurement contracts and lump sum contracts.

General Conditions of Contract

A. General

1. Definitions

1.1 Bold face type is used to identify defined terms.

a) **The 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.

b) **The Activity Schedule** is a schedule of the activities comprising the construction, installation, testing, and commissioning of the Works in a lump sum contract. It includes a lump sum price for each activity, which is used for valuations and for assessing the effects of Variations and Compensation Events.

c) **The Adjudicator** is the person appointed jointly by the Procuring Entity and the Contractor to resolve disputes in the first instance, as provided for in GCC 23.

d) **Bill of Quantities** means the priced and completed Bill of Quantities forming part of the Bid.

e) **Compensation Events** are those defined in GCC Clause 42 hereunder.

f) **The Completion Date** is the date of completion of the Works as certified by the Project Manager, in accordance with GCC Sub-Clause 53.1.

g) **The Contract** is the Contract between the Procuring Entity and the Contractor to execute, complete, and maintain the Works. It consists of the documents listed in GCC Sub-Clause 2.3 below.

h) **The Contractor** is the party whose Bid to carry out the Works has been accepted by the Procuring Entity.

i) **The Contractor's Bid** is the completed bidding document submitted by the Contractor to the Procuring Entity.

j) **The Contract Price** is the Accepted Contract Amount stated in the Letter of Acceptance and thereafter as adjusted in accordance with the Contract.

k) **Days** are calendar days; months are calendar months.

l) **Day work**s are varied work inputs subject to payment on a time basis for the Contractor's employees and Equipment, in addition to payments for associated Materials and Plant.

m) **A Defect** is any part of the Works not completed in accordance with the Contract.

n) **The Defects** Liability Certificate is the certificate issued by Project Manager upon correction of defects by the Contractor.

o) **The Defects Liability Period** is the period **named in the SCC** pursuant to Sub-Clause 34.1 and calculated from the Completion Date.

p) **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, include calculations and other information provided or approved by the Project Manager for the execution of the Contract.

q) **The Procuring Entity** is the party who employs the Contractor to carry out the Works, **as specified in the SCC,** who is also the Procuring Entity.

r) **Equipment** is the Contractor's machinery and vehicles brought temporarily to the Site to construct the Works.

s) **"In writing" or "written"** means hand-written, type-written, printed or electronically made, and resulting in a permanent record;

t) The Initial Contract Price is the Contract Price listed in the Procuring Entity's Letter of Acceptance.

u) **The Intended Completion Date** is the date on which it is intended that the Contractor shall complete the Works. The Intended Completion Date is **specified in the SCC**. The Intended Completion Date may be revised only by the Project Manager by issuing an extension of time or an acceleration order.

v) **Materials** are all supplies, including consumables, used by the Contractor for incorporation in the Works.

w) **Plant i**s any integral part of the Works that shall have a mechanical, electrical, chemical, or biological function.

x) **The Project Manager** is the person **named in the SCC** (or any other competent person appointed by the Procuring Entity and notified to the Contractor, to act in replacement of the Project Manager) who is responsible for supervising the execution of the Works and administering the Contract.

y) **SCC** means Special Conditions of Contract.

z) **The Site** is the area of the works as **defined as such in the SCC**.

aa) **Site Investigation Reports** are those that were included in the bidding document and are factual and interpretative reports about the surface and subsurface conditions at the Site.

bb) **Specification** means the Specification of the Works included in the Contract and any modification or addition made or approved by the Project Manager.

cc) **The Start Date** is **given in the SCC**. It is the latest date when the Contractor shall commence execution of the Works. It does not necessarily coincide with any of the Site Possession Dates.

dd) **A Subcontractor** is a person or corporate body who has a Contract with the Contractor to carry out a part of the work in the Contract, which includes work on the Site.

ee) **Temporary Works** are works designed, constructed, installed, and removed by the Contractor that are needed for construction or installation of the Works.

ff) **A Variation** is an instruction given by the Project Manager which varies the Works.

gg) **The Works** are what the Contract requires the Contractor to construct, install, and turn over to the Procuring Entity, **as defined in the SCC**.

2. Interpretation

21 In interpreting these GCC, words indicating one gender include all genders. Words indicating the singular also include the plural and words indicating the plural also include the singular. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Project Manager shall provide instructions clarifying queries about these GCC.

22 If sectional completion is specified in the SCC, references in the GCC to the Works, the Completion Date, and the Intended Completion Date apply to any Section of the Works (other than references to the Completion Date and Intended Completion Date for the whole of the Works).

23 The documents forming the Contract shall be interpreted in the following order of priority:

a) Agreement,
b) Letter of Acceptance,
c) Contractor's Bid,
d) Special Conditions of Contract,
e) General Conditions of Contract, including Appendices,
f) Specifications,
g) Drawings,

h) Bill of Quantities[6], and

i) any other document **listed in the SCC** as forming part of the Contract.

[6] *In lump sum contracts, delete "Bill of Quantities" and replace with "Activity Schedule."*

3. Language and Law

3.1 The language of the Contract is English Language and the law governing the Contract are the Laws of Kenya.

3.2 Throughout the execution of the Contract, the Contractor shall comply with the import of goods and services prohibitions in the Procuring Entity's Country when

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

b) by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, Kenya prohibits any import of goods from that country or any payments to any country, person, or entity in that country.

4. Project Manager's Decisions

4.1 Except where otherwise specifically stated, the Project Manager shall decide contractual matters between the Procuring Entity and the Contractor in the role representing the Procuring Entity.

5. Delegation

5.1 Otherwise **specified in the SCC,** the Project Manager may delegate any of his duties and responsibilities to other people, except to the Adjudicator, after notifying the Contractor, and may revoke any delegation after notifying the Contractor.

6. Communications

6.1 Communications between parties that are referred to in the Conditions shall be effective only when in writing. A notice shall be effective only when it is delivered.

7. Subcontracting

7.1 The Contractor may subcontract with the approval of the Project Manager, but may not assign the Contract without the approval of the Procuring Entity in writing. Subcontracting shall not alter the Contractor's obligations.

8. Other Contractors

8.1 The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities, and the Procuring Entity between the dates given in the Schedule of Other Contractors, as **referred to in the SCC.** The Contractor shall also provide facilities and services for them as described in the Schedule. The Procuring Entity may modify the Schedule of Other Contractors, and shall notify the Contractor of any such modification.

9. Personnel and Equipment

9.1 The Contractor shall employ the key personnel and use the equipment identified in its Bid, to carry out the Works or other personnel and equipment approved by the Project Manager. The Project Manager shall approve any proposed replacement of key personnel and equipment only if their relevant qualifications or characteristics are substantially equal to or better than those proposed in the Bid.

9.2 If the Project Manager asks the Contractor to remove a person who is a member of the Contractor's

staff or work force, stating the reasons, the Contractor shall ensure that the person leaves the Site within seven days and has no further connection with the work in the Contract.

9.3 If the Procuring Entity, Project Manager or Contractor determines, that any employee of the Contractor be determined to have engaged in Fraud and Corruption during the execution of the Works, then that employee shall be removed in accordance with Clause 9.2 above.

10. Procuring Entity's and Contractor's Risks

10.1 The Procuring Entity carries the risks which this Contract states are Procuring Entity's risks, and the Contractor carries the risks which this Contract states are Contractor's risks.

11. Procuring Entity's Risks

11.1 From the Start Date until the Defects Liability Certificate has been issued, the following are Procuring Entity's risks:

a) The risk of personal injury, death, or loss of or damage to property (excluding the Works, Plant, Materials, and Equipment), which are due to
   i) use or occupation of the Site by the Works or for the purpose of the Works, which is the unavoidable result of the Works or
   ii) negligence, breach of statutory duty, or interference with any legal right by the Procuring Entity or by any person employed by or contracted to him except the Contractor.

b) The risk of damage to the Works, Plant, Materials, and Equipment to the extent that it is due to a fault of the Procuring Entity or in the Procuring Entity's design, or due to war or radioactive contamination directly affecting the country where the Works are to be executed.

11.2 From the Completion Date until the Defects Liability Certificate has been issued, the risk of loss of or damage to the Works, Plant, and Materials is a Procuring Entity's risk except loss or damage due to

aa) a Defect which existed on the Completion Date,
bb) an event occurring before the Completion Date, which was not itself a Procuring Entity's risk, or
cc) the activities of the Contractor on the Site after the Completion Date.

12. Contractor's Risks

12.1 From the Starting Date until the Defects Liability Certificate has been issued, the risks of personal injury, death, and loss of or damage to property (including, without limitation, the Works, Plant, Materials, and Equipment) which are not Procuring Entity's risks are Contractor's risks.

13. Insurance

13.1 The Contractor shall provide, in the joint names of the Procuring Entity and the Contractor, insurance cover from the Start Date to the end of the Defects Liability Period, in the amounts and deductibles **stated in the SCC** for the following events which are due to the Contractor's risks:

a) loss of or damage to the Works, Plant, and Materials;
b) loss of or damage to Equipment;
c) loss of or damage to property (except the Works, Plant, Materials, and Equipment) in connection with the Contract; and
d) personal injury or death.

13.2 Policies and certificates for insurance shall be delivered by the Contractor to the Project Manager for the Project Manager's approval before the Start Date. All such insurance shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.

13.3 If the Contractor does not provide any of the policies and certificates required, the Procuring Entity may effect the insurance which the Contractor should have provided and recover the premiums the Procuring Entity has paid from payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be a debt due.

13.4 Alterations to the terms of an insurance shall not be made without the approval of the Project

Manager.

13.5 Both parties shall comply with any conditions of the insurance policies.

14. Site Data

14.1 The Contractor shall be deemed to have examined any Site Data **referred to in the SCC**, supplemented by any information available to the Contractor.

15. Contractor to Construct the Works

15.1 The Contractor shall construct and install the Works in accordance with the Specifications and Drawings.

16. The Works to Be Completed by the Intended Completion Date

16.1 The Contractor may commence execution of the Works on the Start Date and shall carry out the Works in accordance with the Program submitted by the Contractor, as updated with the approval of the Project Manager, and complete them by the Intended Completion Date.

17. Approval by the Project Manager

17.1 The Contractor shall submit Specifications and Drawings showing the proposed Temporary Works to the Project Manager, for his approval.

17.2 The Contractor shall be responsible for design of Temporary Works.

17.3 The Project Manager's approval shall not alter the Contractor's responsibility for design of the Temporary Works.

17.4 The Contractor shall obtain approval of third parties to the design of the Temporary Works, where required.

17.5 All Drawings prepared by the Contractor for the execution of the temporary or permanent Works, are subject to prior approval by the Project Manager before this use.

18. Safety

18.1 The Contractor shall be responsible for the safety of all activities on the Site.

19. Discoveries

19.1 Anything of historical or other interest or of significant value unexpectedly discovered on the Site shall be the property of the Procuring Entity. The Contractor shall notify the Project Manager of such discoveries and carry out the Project Manager's instructions for dealing with them.

20. Possession of the Site

20.1 The Procuring Entity shall give possession of all parts of the Site to the Contractor. If possession of a part is not given by the date **stated in the SCC,** the Procuring Entity shall be deemed to have delayed the start of the relevant activities, and this shall be a Compensation Event.

21. Access to the Site

21.1 The Contractor shall allow the Project Manager and any person authorized by the Project Manager access to the Site and to any place where work in connection with the Contract is being carried out or is intended to be carried out.

22. Instructions, Inspections and Audits

22.1 The Contractor shall carry out all instructions of the Project Manager which comply with the applicable laws where the Site is located.

22.2 The Contractor shall keep, and shall make all reasonable efforts to cause its Subcontractors and sub-consultants to keep, accurate and systematic accounts and records in respect of the Works in

such form and details as will clearly identify relevant time changes and costs.

22.3 The Contractor shall permit and shall cause its subcontractors and sub-consultants to permit, the Procuring Entity and/or persons appointed by the Public Procurement Regulatory Authority 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 Public Procurement Regulatory Authority. The Contractor's and its Subcontractors' and sub-consultants' attention is drawn to Sub-Clause 25.1 (Fraud and Corruption) which provides, inter alia, that acts intended to materially impede the exercise of the Public Procurement Regulatory Authority's inspection and audit rights constitute a prohibited practice subject to contract termination (as well as to a determination of ineligibility pursuant to the Public Procurement Regulatory Authority's prevailing sanctions procedures).

23. Appointment of the Adjudicator

23.1 The Adjudicator shall be appointed jointly by the Procuring Entity and the Contractor, at the time of the Procuring Entity's issuance of the Letter of Acceptance. If, in the Letter of Acceptance, the Procuring Entity does not agree on the appointment of the Adjudicator, the Procuring Entity will request the Appointing Authority designated in the SCC, to appoint the Adjudicator within 14 days of receipt of such request.

23.2 Should the Adjudicator resign or die, or should the Procuring Entity and the Contractor agree that the Adjudicator is not functioning in accordance with the provisions of the Contract, a new Adjudicator shall be jointly appointed by the Procuring Entity and the Contractor. In case of disagreement between the Procuring Entity and the Contractor, within 30 days, the Adjudicator shall be designated by the Appointing Authority designated in the SCC at the request of either party, within 14 days of receipt of such request.

24. Settlement of Claims and Disputes

24.1 Contractor's Claims

24.1.1 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 Project Manager, 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.

24.1.2 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.

24.1.3 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.

24.1.4 The Contractor shall keep such contemporary records as may be necessary to substantiate any claim, either on the Site or at another location acceptable to the Project Manager. Without admitting the Procuring Entity's liability, the Project Manager 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 Project Manager to inspect all these records, and shall (if instructed) submit copies to the Project Manager.

24.1.5 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 Project Manager, the Contractor shall send to the Project Manager a 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 Project

Manager 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 Project Manager.

24.1.6 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 Project Manager and approved by the Contractor, the Project Manager 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.

24.1.7 Within the above defined period of 42 days, the Project Manager shall proceed in accordance with Sub-Clause

24.1.8 [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.

24.1.9 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.

24.1.10 If the Project Manager does not respond within the timeframe defined in this Clause, either Party may consider that the claim is rejected by the Project Manager and any of the Parties may refer to Arbitration in accordance with Sub-Clause 24.4 [Arbitration].

24.1.11 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 24.3.

242 Amicable Settlement

24.2.1 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 24.1 above should move to commence arbitration after the fifty-sixth day from the day on which a notice of a claim was given, even if no attempt at an amicable settlement has been made.

243 Matters that may be referred to arbitration

24.3.1 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) The appointment of a replacement Project Manager upon the said person ceasing to act.
b) Whether or not the issue of an instruction by the Project Manager is empowered by these Conditions.
c) Whether or not a certificate has been improperly withheld or is not in accordance with these Conditions.
e) Any dispute arising in respect of war risks or war damage.
f) 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.

244 Arbitration

24.4.1 Any claim or dispute between the Parties arising out of or in connection with the Contract not settled amicably in accordance with Sub-Clause 24.3 shall be finally settled by arbitration.

24.4.2 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.

24.4.3 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.

24.4.4 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.

24.4.5 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 requirement or notice had been given.

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

24.4.7 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.

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

24.4.9 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.

245 Arbitration with National Contractors

24.5.1 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

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

246 Alternative Arbitration Proceedings

24.6.1 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.

247 Failure to Comply with Arbitrator's Decision

24.7.1 The award of such Arbitrator shall be final and binding upon the parties.

24.7.2 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.

248 Contract operations to continue

24.8.1 Notwithstanding any reference to arbitration herein,

a) the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and
b) the Procuring Entity shall pay the Contractor any monies due the Contractor.

25. Fraud and Corruption

25.1 The Government requires compliance with the country's Anti-Corruption laws and its prevailing sanctions policies and procedures as set forth in the Constitution of Kenya and its Statutes.

25.2 The Procuring Entity requires the Contractor to disclose any commissions or fees that may have been paid or are to be paid to agents or any other party with respect to the bidding process or execution of the Contract. The information disclosed must include at least the name and address of the agent or other party, the amount and currency, and the purpose of the commission, gratuity or fee.

B. Time Control

26. Program

26.1 Within the time stated in the SCC, after the date of the Letter of Acceptance, the Contractor shall submit to the Project Manager for approval a Program showing the general methods, arrangements, order, and timing for all the activities in the Works. In the case of a lump sum contract, the activities in the Program shall be consistent with those in the Activity Schedule.

26.2 An update of the Program shall be a program showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work, including any changes to the sequence of the activities.

26.3 The Contractor shall submit to the Project Manager for approval an updated Program at intervals no longer than the period stated in the SCC. If the Contractor does not submit an updated Program within this period, the Project Manager may withhold the amount stated in the SCC from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Program has been submitted. In the case of a lump sum contract, the Contractor shall provide an updated Activity Schedule within 14 days of being instructed to by the Project Manager.

26.4 The Project Manager's approval of the Program shall not alter the Contractor's obligations. The Contractor may revise the Program and submit it to the Project Manager again at any time. A revised Program shall show the effect of Variations and Compensation Events.

27. Extension of the Intended Completion Date

27.1 The Project Manager shall extend the Intended Completion Date if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining work, which would cause the Contractor to incur additional cost.

27.2 The Project Manager shall decide whether and by how much to extend the Intended Completion Date within 21 days of the Contractor asking the Project Manager for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information. If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended Completion Date.

28. Acceleration

28.1 When the Procuring Entity wants the Contractor to finish before the Intended Completion Date, the Project Manager shall obtain priced proposals for achieving the necessary acceleration from the Contractor. If the Procuring Entity accepts these proposals, the Intended Completion Date shall be adjusted accordingly and confirmed by both the Procuring Entity and the Contractor.

28.2 If the Contractor's priced proposals for an acceleration are accepted by the Procuring Entity, they are incorporated in the Contract Price and treated as a Variation.

29. Delays Ordered by the Project Manager

29.1 The Project Manager may instruct the Contractor to delay the start or progress of any activity within the Works.

30. Management Meetings

30.1 Either the Project Manager or the Contractor may require the other to attend a management meeting. The business of a management meeting shall be to review the plans for remaining work and to deal with matters raised in accordance with the early warning procedure.

30.2 The Project Manager shall record the business of management meetings and provide copies of the record to those attending the meeting and to the Procuring Entity. The responsibility of the parties for actions to be taken shall be decided by the Project Manager either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.

31. Early Warning

31.1 The Contractor shall warn the Project Manager at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work, increase the Contract Price, or delay the execution of the Works. The Project Manager may require the Contractor to provide an estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date. The estimate shall be provided by the Contractor as soon as reasonably possible.

31.2 The Contractor shall cooperate with the Project Manager in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the work and in carrying out any resulting instruction of the Project Manager.

C. Quality Control

32. Identifying Defects

32.1 The Project Manager shall check the Contractor's work and notify the Contractor of any Defects that are found. Such checking shall not affect the Contractor's responsibilities. The Project Manager may instruct the Contractor to search for a Defect and to uncover and test any work that the Project Manager considers may have a Defect.

33. Tests

33.1 If the Project Manager instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a Defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no Defect, the test shall be a Compensation Event.

34. Correction of Defects

34.1 The Project Manager shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at Completion, and is defined in the SCC. The Defects Liability Period shall be extended for as long as Defects remain to be corrected.

34.2 Every time notice of a Defect is given, the Contractor shall correct the notified Defect within the length of time specified by the Project Manager's notice.

35. Uncorrected Defects

35.1 If the Contractor has not corrected a Defect within the time specified in the Project Manager's notice, the Project Manager shall assess the cost of having the Defect corrected, and the Contractor shall pay this amount.

D. Cost Control

36. Contract Price[7]

36.1 The Bill of Quantities shall contain priced items for the Works to be performed by the Contractor.

The Bill of Quantities is used to calculate the Contract Price. The Contractor will be paid for the quantity of the work accomplished at the rate in the Bill of Quantities for each item.

37. Changes in the Contract Price[8]

37.1 If the final quantity of the work done differs from the quantity in the Bill of Quantities for the particular item by more than 25 percent, provided the change exceeds 1 percent of the Initial Contract Price, the Project Manager shall adjust the rate to allow for the change. The Project Manager shall not adjust rates from changes in quantities if thereby the Initial Contract Price is exceeded by more than 15 percent, except with the prior approval of the Procuring Entity.

37.2 If requested by the Project Manager, the Contractor shall provide the Project Manager with a detailed cost breakdown of any rate in the Bill of Quantities.

38. Variations

38.1 All Variations shall be included in updated Programs9 produced by the Contractor.

38.2 The Contractor shall provide the Project Manager with a quotation for carrying out the Variation when requested to do so by the Project Manager. The Project Manager shall assess the quotation, which shall be given within seven (7) days of the request or within any longer period stated by the Project Manager and before the Variation is ordered.

38.3 If the Contractor's quotation is unreasonable, the Project Manager may order the Variation and make a change to the Contract Price, which shall be based on the Project Manager's own forecast of the effects of the Variation on the Contractor's costs.

38.4 If the Project Manager decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and the Variation shall be treated as a Compensation Event.

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[7] *In lump sum contracts, replace GCC Sub-Clauses 36.1 as follows:*

36.1 The Contractor shall provide updated Activity Schedules within 14 days of being instructed to by the Project Manager. The Activity Schedule shall contain the priced activities for the Works to be performed by the Contractor. The Activity Schedule is used to monitor and control the performance of activities on which basis the Contractor will be paid. If payment for materials on site shall be made separately, the Contractor shall show delivery of Materials to the Site separately on the Activity Schedule.

[8] *In lump sum contracts, replace entire GCC Clause 37 with new GCC Sub-Clause 37.1, as follows:*
The Activity Schedule shall be amended by the Contractor to accommodate changes of Program or method of working made at the Contractor's own discretion. Prices in the Activity Schedule shall not be altered when the Contractor makes such changes to the Activity Schedule.

[9] *In lump sum contracts, add "and Activity Schedules" after "Programs."* [10] *In lump sum contracts, delete this paragraph.*

38.5 The Contractor shall not be entitled to additional payment for costs that could have been avoided by giving early warning

38.6 If the work in the Variation corresponds to an item description in the Bill of Quantities and if, in the opinion of the Project Manager, the quantity of work above the limit stated in Sub-Clause 39.1 or the timing of its execution do not cause the cost per unit of quantity to change, the rate in the Bill of Quantities shall be used to calculate the value of the Variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the Variation does not correspond with items in the Bill of Quantities, the quotation by the Contractor shall be in the form of new rates for the relevant items of work

38.7 Value Engineering: The Contractor may prepare, at its own cost, a value engineering proposal at any time during the performance of the contract. The value engineering proposal shall, at a minimum, include the following;

a) the proposed change(s), and a description of the difference to the existing contract requirements;
b) a full cost/benefit analysis of the proposed change(s) including a description and estimate of costs (including life cycle costs) the Procuring Entity may incur in implementing the value engineering proposal; and

c) a description of any effect(s) of the change on performance/functionality.

38.8 The Procuring Entity may accept the value engineering proposal if the proposal demonstrates benefits that:

a) accelerate the contract completion period; or
b) reduce the Contract Price or the life cycle costs to the Procuring Entity; or
c) improve the quality, efficiency, safety or sustainability of the Facilities; or
d) yield any other benefits to the Procuring Entity, without compromising the functionality of the Works.

38.9 If the value engineering proposal is approved by the Procuring Entity and results in:

a) a reduction of the Contract Price; the amount to be paid to the Contractor shall be the **percentage specified in the SCC** of the reduction in the Contract Price; or
b) an increase in the Contract Price; but results in a reduction in life cycle costs due to any benefit described in (a) to (d) above, the amount to be paid to the Contractor shall be the full increase in the Contract Price.

39. Cash Flow Forecasts

39.1 When the Program[11], is updated, the Contractor shall provide the Project Manager with an updated cash flow forecast. The cash flow forecast shall include different currencies, as defined in the Contract, converted as necessary using the Contract exchange rates.

40. Payment Certificates

40.1 The Contractor shall submit to the Project Manager monthly statements of the estimated value of the work executed less the cumulative amount certified previously.

40.2 The Project Manager shall check the Contractor's monthly statement and certify the amount to be paid to the Contractor.

40.3 The value of work executed shall be determined by the Project Manager.

40.4 The value of work executed shall comprise the value of the quantities of work in the Bill of Quantities that have been completed12.

40.5 The value of work executed shall include the valuation of Variations and Compensation Events.

40.6 The Project Manager may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.

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

41. Payments

41.1 Payments shall be adjusted for deductions for advance payments and retention. The Procuring Entity shall pay the Contractor the amounts certified by the Project Manager within 30 days of the date of each certificate. If the Procuring Entity makes a late payment, the Contractor shall be paid interest on the late payment in the next payment. Interest shall be calculated from the date by which the payment should have been made up to the date when the late payment is made at the prevailing rate of interest for commercial borrowing for each of the currencies in which payments are made.

41.2 If an amount certified is increased in a later certificate or as a result of an award by the Adjudicator or an Arbitrator, the Contractor shall be paid interest upon the delayed payment as set out in this

clause. Interest shall be calculated from the date upon which the increased amount would have been certified in the absence of dispute.

41.3 Unless otherwise stated, all payments and deductions shall be paid or charged in the proportions of currencies comprising the Contract Price.

41.4 Items of the Works for which no rate or price has been entered in shall not be paid for by the Procuring Entity and shall be deemed covered by other rates and prices in the Contract.

42. Compensation Events

42.1 The following shall be Compensation Events:

d) The Procuring Entity does not give access to a part of the Site by the Site Possession Date pursuant to GCC Sub-Clause 20.1.

e) The Procuring Entity modifies the Schedule of Other Contractors in a way that affects the work of the Contractor under the Contract.

f) The Project Manager orders a delay or does not issue Drawings, Specifications, or instructions required for execution of the Works on time.

g) The Project Manager instructs the Contractor to uncover or to carry out additional tests upon work, which is then found to have no Defects.

h) The Project Manager unreasonably does not approve a subcontract to be let.

i) Ground conditions are substantially more adverse than could reasonably have been assumed before issuance of the Letter of Acceptance from the information issued to bidders (including the Site Investigation Reports), from information available publicly and from a visual inspection of the Site.

j) The Project Manager gives an instruction for dealing with an unforeseen condition, caused by the Procuring Entity, or additional work required for safety or other reasons.

k) Other contractors, public authorities, utilities, or the Procuring Entity does not work within the dates and other constraints stated in the Contract, and they cause delay or extra cost to the Contractor.

l) The advance payment is delayed.

m) The effects on the Contractor of any of the Procuring Entity's Risks.

n) The Project Manager unreasonably delays issuing a Certificate of Completion.

42.2 If a Compensation Event would cause additional cost or would prevent the work being completed before the Intended Completion Date, the Contract Price shall be increased and/or the Intended Completion Date shall be extended. The Project Manager shall decide whether and by how much the Contract Price shall be increased and whether and by how much the Intended Completion Date shall be extended.

42.3 As soon as information demonstrating the effect of each Compensation Event upon the Contractor's forecast cost has been provided by the Contractor, it shall be assessed by the Project Manager, and the Contract Price shall be adjusted accordingly. If the Contractor's forecast is deemed unreasonable, the Project Manager shall adjust the Contract Price based on the Project Manager's own forecast. The Project Manager shall assume that the Contractor shall react competently and promptly to the event.

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[11] *In lump sum contracts, add "or Activity Schedule" after "Program."*

[12] *In lump sum contracts, replace this paragraph with the following: "The value of work executed shall comprise the value of completed activities in the Activity Schedule."*

42.4 The Contractor shall not be entitled to compensation to the extent that the Procuring Entity's interests are adversely affected by the Contractor's not having given early warning or not having cooperated with the Project Manager.

43. Tax

43.1 The Project Manager shall adjust the Contract Price if taxes, duties, and other levies are changed between the date 30 days before the submission of bids for the Contract and the date of the last Completion certificate. The adjustment shall be the change in the amount of tax payable by the Contractor, provided such changes are not already reflected in the Contract Price or are a result of GCC Clause 44.

44. Currency y of Payment

44.1 All payments under the contract shall be made in Kenya Shillings

45. Price Adjustment

45.1 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:

$P = A + B\ Im/Io$

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

A and B are coefficients[13] **specified in the SCC,** representing the non-adjustable and adjustable portions, respectively, of the Contract Price payable and Im is the index prevailing at the end of the month being invoiced and IOC is the index prevailing 30 days before Bid opening for inputs payable.

45.2 If the value of the index is changed after it has been used in a calculation, the calculation shall be corrected and an adjustment made in the next payment certificate. The index value shall be deemed to take account of all changes in cost due to fluctuations in costs.

46. Retention

46.1 The Procuring Entity shall retain from each payment due to the Contractor the proportion stated in the **SCC** until Completion of the whole of the Works.

46.2 Upon the issue of a Certificate of Completion of the Works by the Project Manager, in accordance with GCC 53.1, half the total amount retained shall be repaid to the Contractor and half when the Defects Liability Period has passed and the Project Manager has certified that all Defects notified by the Project Manager to the Contractor before the end of this period have been corrected. The Contractor may substitute retention money with an "on demand" Bank guarantee.

47. Liquidated Damages

47.1 The Contractor shall pay liquidated damages to the Procuring Entity at the rate per day stated in the **SCC** for each day that the Completion Date is later than the Intended Completion Date. The total amount of liquidated damages shall not exceed the amount defined in the SCC. The Procuring Entity may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not affect the Contractor's liabilities.

47.2 If the Intended Completion Date is extended after liquidated damages have been paid, the Project Manager shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate. The Contractor shall be paid interest on the overpayment, calculated from the date of payment to the date of repayment, at the rates specified in GCC Sub-Clause 41.1.

48. Bonus

48.1 The Contractor shall be paid a Bonus calculated at the rate per calendar day **stated in the SCC** for each day (less any days for which the Contractor is paid for acceleration) that the Completion is earlier than the Intended Completion Date. The Project Manager shall certify that the Works are complete, although they may not be due to be complete.

49. Advance Payment

49.1 The Procuring Entity shall make advance payment to the Contractor of the amounts stated in the

SCC by the date stated in the SCC, against provision by the Contractor of an Unconditional Bank Guarantee in a form and by a bank acceptable to the Procuring Entity in amounts and currencies equal to the advance payment. The Guarantee shall remain effective until the advance payment has been repaid, but the amount of the Guarantee shall be progressively reduced by the amounts repaid by the Contractor. Interest shall not be charged on the advance payment.

49.2 The Contractor is to use the advance payment only to pay for Equipment, Plant, Materials, and mobilization expenses required specifically for execution of the Contract. The Contractor shall demonstrate that advance payment has been used in this way by supplying copies of invoices or other documents to the Project Manager.

49.3 The advance payment shall be repaid by deducting proportionate amounts from payments otherwise due to the Contractor, following the schedule of completed percentages of the Works on a payment basis. No account shall be taken of the advance payment or its repayment in assessing valuations of work done, Variations, price adjustments, Compensation Events, Bonuses, or Liquidated Damages.

50. Securities

50.1 The Performance Security shall be provided to the Procuring Entity no later than the date specified in the Letter of Acceptance and shall be issued in an amount **specified in the SCC,** by a bank or surety acceptable to the Procuring Entity, and denominated in the types and proportions of the currencies in which the Contract Price is payable. The Performance Security shall be valid until a date 28 day from the date of issue of the Certificate of Completion in the case of a Bank Guarantee, and until one year from the date of issue of the Completion Certificate in the case of a Performance Bond.

51. Dayworks

51.1 If applicable, the Dayworks rates in the Contractor's Bid shall be used only when the Project Manager has given written instructions in advance for additional work to be paid for in that way.

51.2 All work to be paid for as Dayworks shall be recorded by the Contractor on forms approved by the Project Manager. Each completed form shall be verified and signed by the Project Manager within two days of the work being done.

51.3 The Contractor shall be paid for Dayworks subject to obtaining signed Dayworks forms.

52. Cost of Repairs

52.1 Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Correction periods shall be remedied by the Contractor at the Contractor's cost if the loss or damage arises from the Contractor's acts or omissions.

E. Finishing the Contract

53. Completion

53.1 The Contractor shall request the Project Manager to issue a Certificate of Completion of the Works, and the Project Manager shall do so upon deciding that the whole of the Works is completed.

54. Taking Over

54.1 The Procuring Entity shall take over the Site and the Works within seven days of the Project Manager's issuing a certificate of Completion.

55. Final Account

55.1 The Contractor shall supply the Project Manager with a detailed account of the total amount that the Contractor considers payable under the Contract before the end of the Defects Liability Period. The Project Manager shall issue a Defects Liability Certificate and certify any final payment that is due to the Contractor within 56 days of receiving the Contractor's account if it is correct and complete. If it is not, the Project Manager shall issue within 56 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the Project Manager shall decide on the amount payable to the Contractor and issue a payment certificate.

[13] *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 non-adjustable components. The sum of the adjustments for each currency are added to the Contract Price.*

56. Operating and Maintenance Manuals

56.1 If "as built" Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the SCC.

56.2 If the Contractor does not supply the Drawings and/or manuals by the dates stated in the SCC pursuant to GCC Sub-Clause 56.1, or they do not receive the Project Manager's approval, the Project Manager shall withhold the amount **stated in the SCC** from payments due to the Contractor.

57. Termination

57.1 The Procuring Entity or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.

57.2 Fundamental breaches of Contract shall include, but shall not be limited to, the following:

a) the Contractor stops work for 30 days when no stoppage of work is shown on the current Program and the stoppage has not been authorized by the Project Manager;
b) the Project Manager instructs the Contractor to delay the progress of the Works, and the instruction is not withdrawn within 30 days;
c) the Procuring Entity or the Contractor is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation;
d) a payment certified by the Project Manager is not paid by the Procuring Entity to the Contractor within 84 days of the date of the Project Manager's certificate;
e) the Project Manager gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Project Manager;
f) the Contractor does not maintain a Security, which is required;
g) the Contractor has delayed the completion of the Works by the number of days for which the maximum amount of liquidated damages can be paid, as **defined in the SCC**; or
h) if the Contractor, in the judgment of the Procuring Entity has engaged in Fraud and Corruption, as defined in paragraph 2.2 a of the Appendix A to the GCC, in competing for or in executing the Contract, then the Procuring Entity may, after giving fourteen (14) days written notice to the Contractor, terminate the Contract and expel him from the Site.

57.3 Notwithstanding the above, the Procuring Entity may terminate the Contract for convenience.

57.4 If the Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site as soon as reasonably possible.

57.5 When either party to the Contract gives notice of a breach of Contract to the Project Manager for a cause other than those listed under GCC Sub-Clause 56.2 above, the Project Manager shall decide whether the breach is fundamental or not.

58. Payment upon Termination

58.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Project Manager shall issue a certificate for the value of the work done and Materials ordered less advance payments received up to the date of the issue of the certificate and less the percentage to apply to the value of the work not completed, as specified in the SCC. Additional Liquidated Damages shall not apply. If the total amount due to the Procuring Entity exceeds any payment due to the Contractor, the difference shall be a debt payable to the Procuring Entity.

58.2 If the Contract is terminated for the Procuring Entity's convenience or because of a fundamental breach of Contract by the Procuring Entity, the Project Manager shall issue a certificate for the value of the work done, Materials ordered, the reasonable cost of removal of Equipment,

repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works, and less advance payments received up to the date of the certificate.

59. Property

59.1 All Materials on the Site, Plant, Equipment, Temporary Works, and Works shall be deemed to be the property of the Procuring Entity if the Contract is terminated because of the Contractor's default.

60. Release from Performance

60.1 If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Procuring Entity or the Contractor, the Project Manager shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which a commitment wasmade.

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	**KENYA ELECTRICITY GENERATING COMPANY PLC**
Name and Reference No. of the Contract	Heading and 1.1	**KENYA ELECTRICITY GENERATING COMPANY PLC** **Stima Plaza Phase III, Kolobot Road,** **P.O. Box 47936, 00100** **NAIROBI, KENYA.** **Tel: +254 2 3202000.** **Fax: +254 2 248848**
Engineers Name and address	Heading and 3.1.1	**GENERAL MANAGER, GEOTHERMAL DEVELOPMENT** **KENYA ELECTRICITY GENERATING COMPANY PLC** **Stima Plaza Phase III, Kolobot Road,** **P.O. Box 47936, 00100** **NAIROBI, KENYA.** **Tel: +254 2 3202000.** **Fax: +254 2 248848**
Contractor's Representative's name	4.3.1	*[insert the name of the Contractor's Representative agreed by the Procuring Entity prior to Contract signature]* _____ _____ _____ _____ _____ _____ _____
Time for Completion	1.1.	Duration for implementation from commencement date as shall be **12 CONSECUTIVE CALENDAR MONTHS UPON ISSUANCE OF ENGINEERS ORDER TO COMMENCE.**
Defects Notification Period	1.1	6 Consecutive Calendar Months upon completion of works
Electronic transmission systems	1.3	Email; E-Signing allowable
Commencement Date	8.1.1	Commencement date shall be Engineers Order to Commence after contract signing and as shall be decided during kick off meeting.
Time for access to the Site	2.1.1	No later than the Commencement Date, and not later than 14 days after Commencement Date
Performance Security	4.2.1	The performance security will be in the form of a *performance bond* in the amount(s) of 1% percent of the Accepted Contract Amount and in the same currency(ies) of the Accepted Contract

Conditions	Sub-Clause	Data
		Amount.
Normal working hours	6.5	0800 to 1700hrs, except Public Holidays and Weekends; 217ncles where otherwise instructed by the Client.
Delay damages for the Works (LIQUIDATED DAMAGES)	8.7 & 14.15(b)	The damages for the whole of the Works are *[0.1%]* per day that the actual Completion Date is later than the Intended Completion Date. The Employer may deduct liquidated damages from payments due to the Contractor. Deductions of liquidated damages shall not affect the Contractor's liabilities.
Maximum amount of delay damages	8.7.1	The maximum amount of liquidated damages for the whole of the Works is *[10%]* of the final Contract Price.
Total advance payment	14.2.1	Advance payment shall not be applicables
Percentage of Retention	14.3.2 (c)	10%, deducted from every interim payment certificate
Limit of Retention Money	14.3.2 (c)	10% of the Accepted Contract Amount
Minimum Amount of Interim Payment Certificates	14.6.2	Minimum Amount of Interim Payment Certificates is 15 % of the Accepted Contract Amount. The following documents shall form part of Application for interim payment certificates: - 1. Detailed valuation to date 2. Valuation estimates due for the focus period for only completed works 3. Detailed Progress Report 4. Updated program of works
Periods for submission of insurance:	18.1.6	*14 DAYS;*
a. evidence of insurance.		*14 DAYS;*
b. relevant policies		*14 DAYS;*
Minimum amount of third-party insurance	18.3.2	**MINIMUM AMOUNT OF THIRD-PARTY INSURANCE** A. Evidence of Insurance Contractor's All Risks. B. Relevant policies Contractor's All Risks
The place of arbitration	20.7.2	To be Determined during Contract Execution

Conditions	Sub-Clause	Data
Taxes		a) "Taxes" means all present and future taxes, levies, duties, charges, assessments, deductions or withholdings whatsoever, including any interest thereon, and any penalties and fines with respect thereto, wherever imposed, levied, collected, or withheld pursuant to any regulation having the force of law and "Taxation" shall be construed accordingly. b) Local Taxation i. Nothing in the Contract shall relieve the Contractor and/or his Sub-Contractors from their responsibility to pay any taxes, statutory contributions and levies that may be levied on them in Kenya in respect of the Contract. ii. The Contract Price shall include all applicable taxes and shall not be adjusted for any of these taxes. iii. Tax exemption granted under this Contract shall be for an official aid funded project and shall be as provided under the applicable tax laws in Kenya. iv. The Contractor shall be deemed to be familiar with the tax laws in the Employer's Country and satisfied themselves with the requirements for all taxes, statutory contributions and duties to which they may be subjected during the term of the Contract. This shall include applicable local or foreign withholding tax, excise duty, Value Added Tax (VAT), importation duties, Local government taxes, and any other taxes not mentioned herein. v. In instances where discussions are held between the Employer and the Contractor regarding tax matters, this shall not be deemed to constitute competent advice and hence does not absolve the Contractor of their responsibility in relation to due diligence on the tax issue as per (i). c) Tax Deduction i. If the Employer is required to make a tax deduction by Law, then the deduction shall be made from payments due to the Contractor and paid directly to the Kenya Revenue Authority. The Employer shall upon remitting the tax to Kenya Revenue Authority furnish the Contractor with the relevant tax deduction certificates. ii. Where payments for the Contract Price are made directly by the financiers to the Contractor, the Contractor and the financiers shall make the necessary arrangements with Employer to ensure that withholding income tax is remitted to the Kenya Revenue Authority. d) Tax Indemnity i. The Contractor shall indemnify and hold the Employer harmless from and against any and all tax liabilities, which the Employer may incur for any reason of failure by the Contractor to comply with any tax laws arising from the execution of the Contract whether during the term of the Contract or after its expiry. ii. The Contractor warrants to pay the Employer (within fourteen (14) days of demand by the Employer), an amount equal to the loss, liability or cost which the Employer determines has been (directly or indirectly) suffered by the Employer for or on account of the Contractor's Tax liability arising from the Contract. Where the amount in (ii) above remains unpaid after the end of the fourteen (14) days moratorium, the Employer shall be entitled to compensation for financing charges.

FORM No 1: NOTIFICATION OF INTENTION TO AWARD

This Notification of Intention to Award shall be sent to each Tenderer that submitted a Tender. Send this Notification to the Tenderer's Authorized Representative named in the Tender Information Form on the format below.

~~~~~~

FORMAT

1. For the attention of Tenderer's Authorized Representative
   i) Name: *[insert Authorized Representative's name]*
   ii) Address: *[insert Authorized Representative's Address]*
   iii) Telephone: *[insert Authorized Representative's telephone/fax numbers]*
   iv) Email Address: *[insert Authorized Representative's email address]*

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

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

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

3. Notification of Intention to Award

   i) Procuring Entity: *[insert the name of the Procuring Entity]*
   ii) Project: *[insert name of project]*
   iii) Contract title: *[insert the name of the contract]*
   iv) Country: *[insert country where ITT is issued]*
   v) ITT No: *[insert ITT reference number from Procurement Plan]*

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

4. Request a debriefing in relation to the evaluation of your tender

   Submit a Procurement-related Complaint in relation to the decision to award the contract.

   a) The successful tenderer
      i) Name of successful Tender____

      ii) Address of the successful Tender ____

      iii) Contract price of the successful Tender Kenya Shillings _____________________________ (in words____)

   b) Other Tenderers

   Names of all Tenderers that submitted a Tender. If the Tender's price was evaluated include the evaluated price as well as the Tender price as read out. For Tenders not evaluated, give one main reason the Tender was unsuccessful.

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 deadline to request a debriefing expires at midnight on [*insert date*] (*local time*).

b) You may request a debriefing in relation to the results of the evaluation of your Tender. If you decide to request a debriefing your written request must be made within three (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*]

ii) Agency: [*insert name of Procuring Entity*]

iii) Email address: [*insert email address*]

d) If your request for a debriefing is received within the 3 Days deadline, we will provide the debriefing within five (3) Business Days of receipt of your request. If we are unable to provide the debriefing within this period, the Standstill Period shall be extended by five (3) Days after the date that the debriefing is provided. If this happens, we will notify you and confirm the date that the extended Standstill Period will end.

e) The debriefing may be in writing, by phone, video conference call or in person. We shall promptly advise you in writing how the debriefing will take place and confirm the date and time.

f) If the deadline to request a debriefing has expired, you may still request a debriefing. In this case, we will provide the debriefing as soon as practicable, and normally no later than fifteen (15) Days from the date of publication of the Contract Award Notice.

6. How to make a complaint

a) Period: Procurement-related Complaint challenging the decision to award shall be submitted by midnight, [*insert date*] (local time).

b) Provide the contract name, reference number, name of the Tenderer, contact details; and address the Procurement-related Complaint as follows:

i) Attention: [*insert full name of person, if applicable*]

ii) Title/position: [*insert title/position*]

iii) Agency: [*insert name of Procuring Entity*]

iv) Email address: [*insert email address*]

c) At this point in the procurement process, you may submit a Procurement-related Complaint challenging the decision to award the contract. You do not need to have requested, or received, a debriefing before making this complaint. Your complaint must be submitted within the Standstill Period and received by us before the Standstill Period ends.

d) Further information: For more information refer to the Public Procurement and Disposals Act 2015 and its Regulations available from the Website info@ppra.go.ke or complaints@ppra.go.ke.

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

e) There are four essential requirements:

i) You must be an 'interested party'. In this case, that means a Tenderer who submitted a Tender in this tendering process, and is the recipient of a Notification of Intention to Award.

ii) The complaint can only challenge the decision to award the contract.

iii) You must submit the complaint within the period stated above.

iv) You must include, in your complaint, all of the information required to support your complaint.

7. Standstill Period

i) DEADLINE: The Standstill Period is due to end at midnight on [*insert date*] (local time).

ii) The Standstill Period lasts ten (14) Days after the date of transmission of this Notification of Intention to Award.

iii) The Standstill Period may be extended as stated in paragraph Section 5 (d) above.

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

Signature:_____

Name:_____

Title/position:_____

Telephone:_____

Email: _____

FORM NO. 2 ~ 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 of ……dated the…day of ……20…….in the matter of Tender No……..…of ……..20….. 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 of ……....20…..……

SIGNED

Board Secretary

FORM NO 3: LETTER OF AWARD

[letterhead paper of the Procuring Entity] [date]

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

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

You are requested to furnish the Performance Security within 30 days in accordance with the Conditions of Contract, using, for that purpose, one of the Performance Security Forms included in Section VIII, Contract Forms, of the Tender Document.

Authorized Signature:.....

Name and Title of Signatory:.....

Name of Procuring Entity.....

Attachment: *Contract Agreement*.....

FORM NO 4: CONTRACT AGREEMENT

THIS AGREEMENT made the_____day of_____, 20___, between _____of _____ (hereinafter "the Procuring Entity"), of the one part, and_____of _____(hereinafter "the Contractor"), of the other part:

WHEREAS the Procuring Entity desires that the Works known as_____should be executed by the Contractor, and has accepted a Tender by the Contractor for the execution and completion of these Works and the remedying of any defects therein,

The Procuring Entity and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract documents referred to.

2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents.
   a) the Letter of Acceptance
   b) the Letter of Tender
   c) the addenda Nos_____(if any)
   d) the 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 hereby covenants with the Procuring Entity to execute the Works and to remedy defects therein in conformity in all respects with the provisions of the Contract.

4. The Procuring Entity hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

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

Signed and sealed by_____(for the Procuring Entity)

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, hereby 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 of ……, 2.....[2], and any demand for payment under it must be received by us at the office indicated above on or before that date.

5. The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed *[six months] [one year],* in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee."

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

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

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

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

FORM No. 6 ~ PERFORMANCE SECURITY

[Option 2– Performance Bond]

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

[Guarantor letterhead or SWIFT identifier code]

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

_____*[Insert date of issue].*

PERFORMANCE BOND No.:_____

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

1. By this Bond_____as Principal (hereinafter called "the Contractor") and_____] as Surety (hereinafter called "the Surety"), are held and firmly bound unto_____] as Obligee (hereinafter called "the Procuring Entity") in the amount of_____for the payment of which sum well and truly to be made in the types and proportions of currencies in which the Contract Price is payable, the Contractor and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

2. WHEREAS the Contractor has entered into a written Agreement with the Procuring Entity dated the _____day of_____, 20 , for_____in accordance with the documents, plans, specifications, and amendments thereto, which to the extent herein provided for, are by reference made part hereof and are hereinafter referred to as the Contract.

3. NOW, THEREFORE, the Condition of this Obligation is such that, if the Contractor shall promptly and faithfully perform the said Contract (including any amendments thereto), then this obligation shall be null and void; otherwise, it shall remain in full force and effect. Whenever the Contractor shall be, and declared by the Procuring Entity to be, in default under the Contract, the Procuring Entity having performed the Procuring Entity's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:
   1) complete the Contract in accordance with its terms and conditions; or
   2) obtain a tender or tenders from qualified tenderers for submission to the Procuring Entity for completing the Contract in accordance with its terms and conditions, and upon determination by the Procuring Entity and the Surety of the lowest responsive Tenderers, arrange for a Contract between such Tenderer, and Procuring Entity and make available as work progresses (even though there should be a default or a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the Balance of the Contract Price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "Balance of the Contract Price," as used in this paragraph, shall mean the total amount payable by Procuring Entity to Contractor under the Contract, less the amount properly paid by Procuring Entity to Contractor; or
   3) pay the Procuring Entity the amount required by Procuring Entity to complete the Contract in accordance with its terms and conditions up to a total not exceeding the amount of this Bond.

4. The Surety shall not be liable for a greater sum than the specified penalty of this Bond.

5. Any suit under this Bond must be instituted before the expiration of one year from the date of the issuing of the Taking-Over Certificate. No right of action shall accrue on this Bond to or for the use of any person or corporation other than the Procuring Entity named herein or the heirs, executors, administrators, successors, and assigns of the Procuring Entity.

6. In testimony whereof, the Contractor has hereunto set his hand and affixed his seal, and the Surety has caused these presents to be sealed with his corporate seal duly attested by the signature of his legal representative, this day of_____20_____.

SIGNED ON_____on behalfof 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, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of _____ (*in words* _____) [1] upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating either that the Applicant:
   a) has used the advance payment for purposes other than the costs of mobilization in respect of the Works; or
   b) has failed to repay the advance payment in accordance with the Contract conditions, specifying the amount which the Applicant has failed to repay.

4. A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the advance payment referred to above has been credited to the Contractor on its account number ____ at ____.

5. The maximum amount of this guarantee shall be progressively reduced by the amount of the advance payment repaid by the Contractor as specified in copies of interim statements or payment certificates which shall be presented to us. This guarantee shall expire, at the latest, upon our receipt of a copy of the interim payment certificate indicating that ninety (90) percent of the Accepted Contract Amount, less provisional sums, has been certified for payment, or on the _____ day of ___, 2 ,[2] whichever is earlier. Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

6. The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed *[six months][one year],* in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee.

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

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

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

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

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 up to the limit set forth in the Contract ("the Retention Money"), and that when the Taking-Over Certificate has been issued under the Contract and the first half of the Retention Money has been certified for payment, and payment of /insert the second half of the Retention Money] is to be made against a Retention Money guarantee.

3. At the request of the Contractor, we, as Guarantor, hereby irrevocably undertake to pay the Beneficiary any sum or sums not exceeding in total an amount of *[insert amount in figures]*____(*[insert amount in words*_____*])*[1] upon receipt by us of the Beneficiary's complying demand supported by the Beneficiary's statement, whether in the demand itself or in a separate signed document accompanying or identifying the demand, stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or show grounds for your demand or the sum specified therein.

4. A demand under this guarantee may be presented as from the presentation to the Guarantor of a certificate from the Beneficiary's bank stating that the second half of the Retention Money as referred to above has been credited to the Contractor on its account number___at_____*[insert name and address of Applicant's bank].*

5. This guarantee shall expire no later than the …..... Day of ….....……, 2.....…[2], and any demand for payment under it must be received by us at the office indicated above on or before that date.

6. The Guarantor agrees to a one-time extension of this guarantee for a period not to exceed *[six months] [one year],* in response to the Beneficiary's written request for such extension, such request to be presented to the Guarantor before the expiry of the guarantee

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

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

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

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

FORM NO. 9 BENEFICIAL OWNERSHIP DISCLOSURE FORM

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

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

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

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

Tender Reference No.:_____[*insert identification no*]

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

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

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

Details of beneficial ownership

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

	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)
	address				Indirect…… ……...	Direct…… .. Indirect…… …
	Telephone number					
	Email address					
	Occupation or profession					
2.	Full Name		Directly-- ~~~~~~~~ % of shares Indirectly- ~~~~~~~~ % of shares	Directly…… ……% of voting rights Indirectly---- ~~~~~~% of voting rights	1. Having the right to appoint a majority of the board of the directors or an equivalent governing body of the Tenderer: Yes ~~~~~No~~~~ 2. Is this right held directly or indirectly?: Direct…… …… Indirect…… ……...	1. Exercise s 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